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# UNIVERSITY OF MONTANA BULLETIN

State University Series

April, 1945

Number 401

## Montana State University

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COLLEGE OF ARTS AND SCIENCES  
SCHOOLS OF BUSINESS ADMINISTRATION,  
EDUCATION, FORESTRY, JOURNALISM,  
LAW, MUSIC, PHARMACY, AND  
THE GRADUATE SCHOOL

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### CATALOG NUMBER

For 1944-45

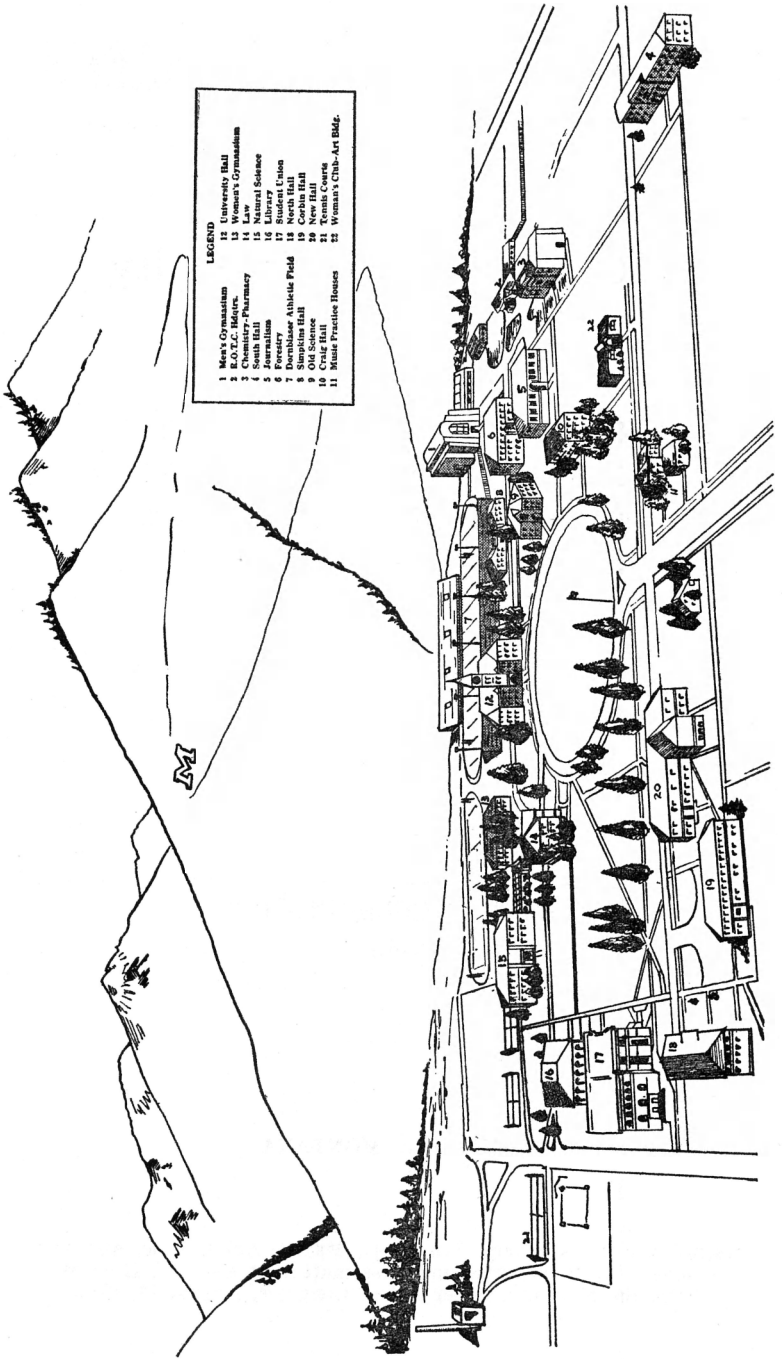
INCLUDING  
ANNOUNCEMENTS FOR  
1945-46

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MISSOULA, MONTANA

Issued six times yearly, Jan., Feb., March, April, June, and December. Entered as second-class matter at the postoffice at Missoula, Montana, under Act of Congress, August 24, 1912.





LEGEND

- 1 Men's Gymnasium
- 2 C.C.C. Bldg.
- 3 Chapel
- 4 South Hall
- 5 Journalism
- 6 Dormitories
- 7 Dormitories Athletic Field
- 8 Simpson Hall
- 9 Student Center
- 10 Craig Hall
- 11 Music Practice Houses
- 12 University Hall
- 13 Women's Gymnasium
- 14 C.C.C. Pharmacy
- 15 Natural Science
- 16 Library
- 17 Education
- 18 North Hall
- 19 Corbin Hall
- 20 Administration
- 21 Tennis Courts
- 22 Woman's Club-Art Bldg.

# Table of Contents

	Page
Organization .....	Inside Cover
Montana State University Calendar .....	4
Official Directory .....	5
University of Montana .....	16
Montana State University .....	16
Admission Requirements .....	19
Graduation Requirements .....	23
Registration .....	28
Scholarship and Conduct .....	29
Student Fees .....	32
Expenses and Living Accommodations .....	34
Scholarships and Prizes .....	39
Activities .....	42
Organization of Instruction .....	45
College of Arts and Sciences .....	46
Divisional Requirements for Graduation .....	46
One-Year Pre-Induction Course .....	48
Division of Biological Sciences .....	48
Biological Station .....	49
Division of the Humanities .....	49
Division of Physical Sciences .....	50
Division of Social Sciences .....	50
Bacteriology and Hygiene .....	50
Botany .....	51
School of Business Administration .....	53
Chemistry .....	58
Classical Languages .....	60
Economics and Sociology .....	61
School of Education .....	64
English and Dramatics and Speech .....	70
Division of Extension and Public Service .....	75
Fine Arts .....	79
School of Forestry .....	79
Geology .....	87
Graduate School .....	88
History and Political Science .....	90
Home Economics .....	93
School of Journalism .....	95
School of Law .....	98
Mathematics .....	102
Medical Technology .....	104
Military Science and Tactics .....	104
Modern Languages .....	106
School of Music .....	110
Nursing Education .....	117
School of Pharmacy .....	117
Physical Education .....	121
Physics .....	123
Pre-Business Administration .....	124
Pre-Education .....	124
Pre-Legal .....	124
Pre-Medical Course .....	125
Psychology and Philosophy .....	126
Affiliated Montana School of Religion .....	127
Wild Life Technology .....	127
Zoology .....	128
Summer Session .....	129
Summary of Registration .....	131
Summary of Degrees and Certificates Granted .....	133
Index .....	134
Condensed Calendar of the Six Units of the University of Montana.....	Inside Back Cover

# MONTANA STATE UNIVERSITY CALENDAR

## 1945-46

1945

### Spring Quarter

March 26, Monday.....Registration of New Students, Instruction Begins  
 May 30, Wednesday.....Memorial Day, a Holiday  
 June 4, Monday.....Commencement  
 June 5-8, Tuesday through Friday.....Examinations  
 June 8, Friday, 5:20 p.m.....Spring Quarter Ends

### Summer Session

June 11, Monday.....Registration  
 June 12, Tuesday.....Instruction Begins  
 July 4, Wednesday.....Independence Day, a Holiday  
 August 17, Friday.....Session Ends

### Autumn Quarter

September 26-29, Wednesday through Saturday.....Freshman Week and  
 Registration  
 September 28-29, Friday and Saturday.....Registration of Former Students  
 October 1, Monday.....Instruction Begins  
 November 22, Thursday.....Thanksgiving Day, a Holiday  
 December 17-20, Monday through Thursday.....Examinations  
 December 20, Thursday, 5:20 p.m.....Quarter Ends; Christmas Recess Begins

1946

### Winter Quarter

January 7, Monday.....Registration of New Students  
 January 8, Tuesday.....Instruction Begins  
 February 17, Sunday.....Charter Day  
 March 18-21, Monday through Thursday.....Examinations  
 March 21, Thursday, 5:20 p.m.....Winter Quarter Ends

### Spring Quarter

March 25, Monday.....Registration of New Students  
 March 26, Tuesday.....Instruction Begins  
 May 15-17, Thursday through Saturday.....Interscholastic Track Meet  
 May 30, Thursday.....Memorial Day, a Holiday  
 June 10, Monday.....Commencement  
 June 11-14, Tuesday through Friday.....Examinations  
 June 14, Friday, 5:20 p.m.....Spring Quarter Ends

### Summer Session

June 17, Monday.....Registration  
 June 18, Tuesday.....Instruction Begins  
 July 4, Thursday.....Independence Day, a Holiday  
 August 23, Friday.....Session Ends

### Autumn Quarter

September 25-28, Wednesday through Saturday.....Freshman Week and  
 Registration  
 September 27-28, Friday and Saturday.....Registration of Former Students  
 September 30, Monday.....Instruction Begins  
 November 21, Thursday.....Thanksgiving Day, a Holiday  
 December 16-19, Monday through Thursday.....Examinations  
 December 19, Thursday, 5:20 p.m.....Autumn Quarter Ends; Christmas  
 Recess Begins

An act of the Seventeenth Legislative Assembly provides that schools shall not be dismissed on the following days: February 12 (Lincoln's Birthday), February 22 (Washington's Birthday), second Tuesday of May (Arbor Day), June 14 (Flag Day), October 12 (Columbus Day), November 1 (Pioneer Day), November 11 (Armistice Day).

## Official Directory, 1944-45

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### Executive Board

ERNEST O. MELBY, (ex-officio Chairman).....	Missoula
THEODORE JACOBS .....	Missoula
ALEX M. STEPANZOFF.....	Missoula
J. B. SPEER, Secretary.....	Missoula

### Administrative Officers

ERNEST O. MELBY, Ph.D.....	President
WALTER A. ANDERSON, Ed.D.....	Director of Summer Session
RICHARD H. JESSE, Ph.D.....	Dean of the Faculty and Dean of College of Arts and Sciences
J. EARL MILLER, Ph.D.....	Dean of Men
MARY ELROD FERGUSON (Mrs.), M.A.....	Assistant Dean for Women
JAMES B. SPEER, B.A., LL.B.....	Registrar and Business Manager
E. A. ATKINSON, M.A.....	Director, Division of Extension & Public Service
GARVIN D. SHALLEMBERGER, Ph.D.....	Director of Placement Bureau
KATHLEEN CAMPBELL, M.S.....	Librarian

### The Faculty

<sup>1</sup> ADAMS, HARRY F.....	Associate Professor of Physical Education; Track Coach; Assistant Football Coach B.A., Montana State University, 1921.
AMES, WALTER R.....	Professor of Education Ph.B., University of Wisconsin, 1917; Ph.M., 1918; Ph.D., 1926.
ANDERSON, WALTER A.....	Professor of Education; Dean of the School of Education; Director of Teacher Education; Director of Summer Session; B.S., University of Minnesota, 1929; M.A., 1931; Ed.D., Columbia University, 1937.
ARMSBY, LUCILLE JAMESON (Mrs.).....	Secretary to the President B.A., Montana State University, 1922.
ARNOLD, ADEN F.....	Assistant Professor of Fine Arts B.A., State University of Iowa, 1925; M.A., 1928.
ARNOLDSON, LOUISE G. (Mrs.).....	Professor of French Diplôme d'Études Françaises de Touraine (Alliance Française— Université de Poitiers), 1914; B.A., University of Utah, 1919; Docteur de l'Université de Paris (Lettres), 1934.
ATKINSON, E. A.....	Professor of Psychology; Director, Division of Extension and Public Service B.A., University of Denver, 1920; M.A., Montana State University, 1922.

<sup>1</sup>On Leave of Absence.

- BADGLEY, E. KIRK.....University Auditor;  
Graduate Manager Intercollegiate Athletics; Assistant Business  
Manager  
B.A., Montana State University, 1924.
- <sup>1</sup>BARKLEY, FRED A.....Instructor in Botany  
B.A., University of Oklahoma, 1930; M.S., 1932; Ph.D., Washing-  
ton University, 1937.
- BATEMAN, WILLIAM G.....Professor of Chemistry  
B.A., Stanford University, 1907; M.A., 1909; Ph.D., Yale University,  
1916.
- BATY, HARVEY F.....Assistant Professor of Religion;  
Director of the Affiliated School of Religion  
B.A., Montana State University, 1931; B.D., Colgate-Rochester  
Divinity School, 1934.
- BEAVER, HELEN I. (Mrs.).....Instructor in Home Economics  
B.S., University of Tennessee, 1930; M.S., 1937.
- <sup>1</sup>BELL, CLARENCE W.....Assistant Professor of Music;  
Band Director  
B.S. Ed., University of Illinois, 1936.
- BENNETT, EDWARD E.....Professor of History and Political Science  
B.A., University of Kansas, 1916; M.A., University of Wisconsin,  
1923; Ph.D., 1925.
- BISCHOFF, PAUL A.....Associate Professor of Spanish  
B.S., Montana State University, 1927; B.A., 1928; M.A., Oberlin  
College, 1932.
- BLOOM, CHARLES W.....Assistant Professor of Forest  
Engineering  
B.S., Montana State University, 1927; M.F., Syracuse University,  
1934.
- BRADEN, GERALDINE R. (Mrs.).....Kindergarten Teacher, Nursery School  
B.M., Northwestern University, 1943.
- <sup>2</sup>BRADLEY, HELEN DRATZ (Mrs.).....Instructor in Home Economics  
B.A., Montana State University, 1940.
- BRADY, AGNES M.....Assistant Professor of Home Economics  
B.S., Ohio State University, 1914; M.A., Columbia University, 1926.
- <sup>4</sup>BRENNAN, RICHARD S.....Instructor in Military Science and Tactics  
1st Lieut., U. S. Army  
B.A., Loyola University (Chicago), 1937.
- BRIGGS, EDWIN W.....Associate Professor of Law  
B.S., Oklahoma A. & M. College, 1927; LL.B., University of Okla-  
homa, 1932; LL.M., Harvard University Law School, 1935.
- BROWMAN, LUDVIG G.....Associate Professor of Zoology  
and Physiology  
B.S., University of Chicago, 1928; Ph.D., 1935.
- BUE, OLAF J.....Associate Professor of Journalism  
B.A., Montana State University 1923; M.S.J., Northwestern Uni-  
versity, 1941.
- CAMPBELL, KATHLEEN.....Librarian; Associate  
Professor of Library Economy  
B.S., University of Denver, 1934; M.S., 1939.

<sup>1</sup>On Leave of Absence.<sup>2</sup>Effective February 1, 1945.<sup>3</sup>Transferred February 15, 1945.

- CAREY, EUGENE F. A.....Associate Professor Emeritus of Mathematics  
B.S., University of California, 1905; M.S., 1914.
- CASTLE, GORDON B.....Professor of Zoology; Director, Biological Station  
B.A., Wabash College, 1928; M.A., University of California, 1930; Ph.D., 1934.
- CHATLAND, HAROLD.....Assistant Professor of Mathematics  
B.A., McMaster University, 1934; M.S., University of Chicago, 1935; Ph.D., 1937.
- <sup>1</sup>CLAGUE, BETTY.....Assistant Professor of Physical Education  
B.S., Columbia University, 1930; M.S., 1931.
- CLAPP, MARY B. (Mrs.).....Instructor in English  
B.A., University of North Dakota, 1903; M.A., 1906.
- CLARK, FAY G.....Professor of Forest Management  
B.A., University of Michigan, 1912; M.S.F., 1914.
- CLARK, WESLEY P.....Professor of Classical Languages  
B.A., University of Richmond, 1903; M.A., 1904; Diplôme d'Études Françaises (Université de Grenoble et de Montpellier), 1921; Ph.D., University of Chicago, 1928.
- <sup>1</sup>COAD, FRANCIS E.....Assistant Professor of Law  
B.A., University of Oregon, 1929; J.D., 1931; LL.M., Columbia University, 1932.
- <sup>2</sup>COGSWELL, ANDREW C.....Associate 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.
- CROWDER, JOHN B.....Professor of Music; Dean of the School of Music  
B.A., University of Richmond, 1925; studied in Vienna, 1925-28; M.A., Eastman School of Music, 1938.
- DAHLBERG, GEORGE P.....Associate Professor of Physical Education; Basketball Coach; Assistant Football Coach; Assistant Athletic Manager  
B.A., Montana State University, 1925.
- DAUGHTERS, FREEMAN.....Professor Emeritus of Education; Dean Emeritus of the School of Education  
B.A., Kansas Normal College, 1896; S.T.B., Philadelphia Divinity School, 1903; M.A., Columbia University, 1915; Ed.D. (Honorary), Intermountain Union College, 1933.
- <sup>1</sup>DEISS, CHARLES.....Professor of Geology  
B.A., Miami University, 1925; Ph.D., University of Michigan, 1928.
- DIETERT, REUBEN A.....Associate Professor of Botany  
B.A., DePauw University, 1925; M.S., Michigan State College, 1927; Ph.D., State University of Iowa, 1937.
- DUBISCH, ROY.....Instructor in Mathematics  
B.S., University of Chicago, 1938; M.S., 1940; Ph.D., 1943.
- <sup>1</sup>DUFFALO, JOHN A., JR.....Assistant University Physician  
B.S., University of Minnesota, 1937; M.B., 1939; M.D., 1940.

<sup>1</sup>On Leave of Absence.<sup>2</sup>Acting Dean of School of Journalism, Winter & Spring Quarters, 1944-45.

- <sup>1</sup>DUGAN, EDWARD B.....Assistant Professor of Journalism  
B.J., University of Missouri, 1932; M.A., 1940.
- <sup>2</sup>EGBERT, RUBY E.....Library Cataloger  
B.S., University of Washington, 1931; B.A., 1933.
- ELROD, MORTON J.....Professor Emeritus of Biology  
B.A., Simpson College, 1887; M.A., 1890; M.S., 1902; Ph.D., Illinois  
Wesleyan University, 1905.
- ELY, ROY J. W.....Associate Professor of Economics  
B.Sc. in B.A., University of Nebraska, 1924; M.A., 1925; Ph.D.,  
1937.
- <sup>1</sup>EPHRON, MARGUERITE HEINSCH (Mrs.).....Instructor in Latin  
and Humanities  
B.A., Montana State University, 1931; M.A., 1932.
- EUBANKS, BURNIE L.....Assistant in Military Science and Tactics  
Staff Sergeant, U. S. Army.
- <sup>3</sup>FENNESSY, DOROTHY MARKUS (Mrs.).....Residence Hall Director  
B.A., Montana State University, 1938.
- FERGUSON, MARY ELROD (Mrs.).....Assistant Dean for Women  
B.S., Montana State University, 1911; M.A., Columbia University,  
1934.
- FERRO, MARY.....Instructor in Business Administration  
B.Ed., Illinois State Normal, 1934; M.A., State University of Iowa,  
1938.
- <sup>1</sup>FESSENDEN, DOUGLAS A.....Head Football Coach; Professor  
of Physical Education; Director of Intercollegiate Athletics  
B.S., University of Illinois, 1927.
- <sup>1</sup>FIEDLER, LESLIE M.....Instructor in English  
B.A., New York University, 1938; M.A., University of Wisconsin,  
1939; Ph.D., 1941.
- FLINT, ELAINE N. (Mrs.).....Library Assistant  
B.A., College of St. Scholastica (Minnesota) 1939; A.B.L.S., Uni-  
versity of Michigan, 1940.
- <sup>4</sup>FORD, JAMES L. C.....Professor of Journalism;  
Dean of the School of Journalism  
B.A., Lawrence College, 1928; M.A., University of Wisconsin, 1939.
- <sup>1</sup>FOX, GUY.....Instructor in Political Science  
B.A., Texas Christian University, 1929; M.A., Southern Methodist  
University, 1930.
- FREEMAN, EDMUND L.....Professor of English  
B.A., Missouri Wesleyan College, 1915; M.A., Northwestern Univer-  
sity, 1924.
- FRITZ, EDMUND T.....Instructor in Law  
B.A., LL.B., Montana State University, 1930.
- <sup>5</sup>GATES, HELEN STEWART (Mrs.).....Residence Hall Director  
B.A., Montana State University, 1937.
- GLEASON, HELEN.....Professor of Home Economics  
B.S., Columbia University, 1922; M.A., 1927.
- GORDON, INA C. (Mrs.).....Social Director of New Hall

<sup>1</sup>On Leave of Absence.<sup>2</sup>Resigned Effective November 25, 1944.<sup>3</sup>Resigned, Effective February 8, 1945.<sup>4</sup>On Leave of Absence, Winter and Spring Quarters, 1944-45.<sup>5</sup>On duty Autumn and Winter Quarters, 1944-45.

- GREENFIELD, RUTH N. MILKWICK (Mrs.).....Assistant in Physical Education  
B.A., Montana State University, 1944.
- <sup>1</sup>HARDY, CHARLES W.....Supt. of Press; Assistant Professor of Journalism.
- <sup>1</sup>HATHAWAY, BAXTER L.....Assistant Professor of English  
B.A., Kalamazoo College, 1935; M.A., University of Michigan, 1936;  
Ph.D., 1940.
- <sup>2</sup>HAZELBAKER, HOWARD K.....Instructor in Journalism  
B.A., Montana State University, 1936.
- HEARN, G. EDWARD.....Instructor in English; Director of Dramatics  
B.S., University of Oregon, 1939; M.A., University of Iowa, 1940.
- HERTLER, CHARLES F.....Assistant Professor of Physical Education  
B.P.E., Normal College of American Gymnastic Union, 1932; M.A.,  
Columbia University, 1936.
- <sup>1</sup>HESDORFFER, MEREDITH B.....Director of Health Service; Associate  
Professor of Public Health  
B.S., University of Minnesota, 1926; M.B., M.D., 1928.
- HETLER, DONALD M.....Professor of Bacteriology and Hygiene  
B.A., Kansas University, 1918; M.A., 1923; Ph.D., Yale University,  
1926.
- HOFFMAN, RUDOLPH O.....Professor of French  
Ph.C., State University, Ghent, Belgium, 1910; M.A., University of  
Wisconsin, 1921; Diplôme Supérieur d'études de Civilisation  
Française (Université de Paris), 1929.
- <sup>1</sup>HOUSMAN, ROBERT L.....Professor of Journalism  
B.J., University of Missouri, 1922; M.A., 1925; Ph.D., 1934.
- HOVEE, AGNES.....Residence Hall Director  
B.A., Montana State University, 1935.
- HOWARD, JOSEPH W.....Professor of Chemistry  
B.A., Shurtleff College, 1912; M.A., University of Illinois, 1913;  
Ph.D., 1915.
- <sup>3</sup>ISAAC, ROBERT.....Assistant Professor of Military Science and Tactics  
Captain, U. S. Infantry; B.S., University of Wyoming, 1932.
- JACOBS, MARJORIE.....Residence Hall Director  
B.A., Montana State University, 1941.
- JEPPESEN, C. RULON.....Associate Professor of Physics  
B.A., Brigham Young University, 1928; M.A., University of Cali-  
fornia, 1930; Ph.D., 1932.
- JESSE, RICHARD H.....Professor of Chemistry; Dean of the Faculty;  
Dean of the College of Arts and Sciences  
B.A., University of Missouri, 1902; M.A., Harvard University,  
1907; Ph.D., 1909.
- <sup>4</sup>JOHNSON, JUNE WILLES (Mrs.).....Assistant in Physical Education  
B.A., Montana State University, 1941.
- KRAMER, JOSEPH.....Assistant Professor of Botany  
B.S., University of Nebraska, 1921; M.A., 1923; Ph.D., 1936.
- KRUG, EDWARD A.....Assistant Professor of Education  
B.S., Northwestern University, 1933; M.S., 1934; Ed.D., Stanford  
University, 1941.

<sup>1</sup>On Leave of Absence.<sup>2</sup>Deceased January 4, 1945.<sup>3</sup>Transferred January 16, 1945.<sup>4</sup>Resigned, Effective February 26, 1945.



- LEAPHART, CHARLES W.**.....Professor of Law ;  
Dean of the School of Law  
B.A., University of Missouri, 1905 ; M.A., 1906 ; LL.B., Harvard  
University, 1913 ; S.J.D., 1929.
- LENNES, N. J.**.....Professor Emeritus of Mathematics  
B.S., University of Chicago, 1898 ; M.S., 1903 ; Ph.D., 1907.
- LESTER, JOHN**.....Associate Professor of Music  
B.A., B.M., Southwestern University (Texas), 1922 ; studied in  
Nice, France, 1923-26 ; Milan, Italy, 1927-30.
- <sup>1</sup>LINE, ROBERT C.**.....Professor of Business Administration ;  
Dean of the School of Business Administration  
B.A., Montana State University, 1910 ; M.A., Harvard University,  
1912.
- LOWELL, WAYNE R.**.....Assistant Professor of Geology  
B.S., Washington State College, 1936 ; M.S., University of Chicago,  
1939 ; Ph.D., 1942.
- <sup>2</sup>MCGINNIS, RALPH Y.**.....Assistant Professor of Speech ;  
Debate Coach  
B.A., Kent State University (Ohio), 1932 ; M.A., Northwestern  
University, 1938.
- MACARTHUR, ELEANOR**.....Assistant Director and Acting Director  
of Residence Halls ; Assistant Professor of Home Economics  
B.A., Montana State University, 1930.
- MADDOCK, WILLIAM E.**.....Professor Emeritus of Education  
B.L., Earlham College, 1894 ; B.A., Harvard University, 1904 ; M.A.,  
Stanford University, 1922.
- <sup>2</sup>MANSFIELD, MICHAEL J.**.....Assistant Professor of History and  
Political Science  
B.A., Montana State University, 1933 ; M.A., 1934.
- MARBLE, EVERETT G.**.....Instructor in Business Administration and  
Research Associate, Business Office  
B.A., Montana State University, 1926.
- MARVIN, EDWIN L.**.....Associate Professor of Philosophy and  
Psychology  
B.A., Central College (Missouri), 1921 ; M.A., Harvard University,  
1923.
- <sup>2</sup>MASON, DAVID R.**.....Professor of Law  
LL.B., University of South Dakota, 1924 ; B.A., 1926 ; S.J.D., Har-  
vard University, 1927.
- MEADOWS, PAUL**.....Assistant Professor of Sociology and  
Research Associate, Study Montana Life and Traditions  
B.A., McKendree College (Illinois) 1935 ; M.A., Washington Uni-  
versity, 1936 ; Ph.D., Northwestern University, 1940.
- MELBY, ERNEST O.**.....President  
B.A., St. Olaf College, 1913 ; M.A., University of Minnesota 1926 ;  
Ph.D., 1928.
- MERRIAM, HAROLD G.**.....Professor of English ; Chairman of  
the Division of the Humanities  
B.A., University of Wyoming, 1905 ; B.A., Oxford University, Eng-  
land, 1907 ; M.A., 1912 ; Ph.D., Columbia University, 1939.

<sup>1</sup>On Leave of Absence, Autumn Quarter, 1944-45.<sup>2</sup>On Leave of Absence.

- MERRILL, A. S.**.....Professor of Mathematics;  
Chairman of the Division of Physical Sciences; Director of Institutional Research; Director, Veterans Education  
B.A., Colgate University, 1911; M.A., 1914; Ph.D., University of Chicago, 1916.
- MILLER, J. EARL**.....Professor of History and Political Science;  
Chairman of the Division of Social Sciences; Dean of Men  
B.A., University of Kansas, 1910; LL.B., 1912; M.A., University of Illinois, 1914; Ph.D., 1917.
- MIRRIELES, LUCIA B.**.....Professor of English  
B.A., Stanford University, 1909; Ph.D., 1924.
- MISEVIC, GEORGE W.**.....Professor of Military Science and Tactics  
Major, Infantry, U. S. Army; B.S. (E.E.), Montana State College, 1933; B.S. (P.E.), 1935.
- MOLLETT, CHARLES E. F.**.....Professor of Pharmacy; Dean of the School of Pharmacy  
Ph.C., University of Kansas, 1904; B.A., Montana State University, 1920; M.S., University of Kansas, 1927.
- MOORE, JOHN E.**.....Instructor in English  
B.A., University of Michigan, 1936; M.A., 1937.
- MORRIS, MELVIN S.**.....Associate Professor of Forestry  
B.S., Colorado State College, 1930; M.S., 1932.
- <sup>1</sup>**NAGOVSKY, MARIE**.....Instructor in Home Economics;  
Supervisor, Student Teachers  
B.S., University of Minnesota, 1936.
- NELSON, RITA M. (Mrs.)**.....Circulation Librarian  
B.A., Montana State University, 1934.
- NUTTERVILLE, CATHERINE**.....Lecturer in Sociology and Counselor  
B.A., Montana State University, 1930; M.A., 1934; Ed.D., Columbia University, 1942.
- <sup>1</sup>**O'NEIL, DOROTHY PETERSON (Mrs.)**.....Acquisitions Librarian  
B.A., Montana State University, 1941.
- <sup>1</sup>**PATON, BERNICE H.**.....Cataloger and Assistant Professor of Library Economy  
B.A., University of Oklahoma, 1925; B.S.L.S., Columbia University, 1932; M.A.L.S., University of Michigan, 1944.
- PATTEN, O. M.**.....Instructor in Forestry and Extension Forester  
B.S., Colorado State Agricultural College, 1935.
- PERKINS, JESSIE (Mrs.)**.....Head Teacher, Nursery School  
B.A., Montana State University, 1943.
- <sup>4</sup>**PHILLIPS, PAUL C.**.....Professor of History and Political Science  
B.A., Indiana University, 1906; M.A., 1909; Ph.D., University of Illinois, 1911.
- PLATT, ANNE C.**.....Professor of Home Economics  
B.S., University of Washington, 1917; M.S., 1928.
- <sup>2</sup>**POPE, WALTER L.**.....Professor of Law  
B.A., University of Nebraska, 1909; J.D., University of Chicago, 1912.

<sup>1</sup>Resigned, Effective January 19, 1945.<sup>2</sup>On Leave of Absence.<sup>3</sup>Effective March 19, 1945.<sup>4</sup>On Leave of Absence, Effective December 1, 1944.

- RAMSKILL, BERNICE BERRY (Mrs.).....Associate Professor of Music
- REDFORD, GRANT H.....Assistant Professor of English  
B.S., Utah State Agricultural College, 1937; M.A., State University  
of Iowa, 1941.
- RIMEL, VERA S. (Mrs.).....Social Director of Corbin Hall
- <sup>1</sup>RONHOVDE, ANDREAS G.....Associate Professor of History  
and Political Science  
B.A., St. Olaf College, 1927; M.A., University of North Dakota,  
1929.
- ROWE, JESSE P.....Professor Emeritus of Geology  
B.S., University of Nebraska, 1897; M.A., 1903; Ph.D., 1906; D.Sc.  
(Honorary), 1935.
- RUSSEL, CHARLOTTE.....Librarian, Law Library
- SANFORD, EMMETT R.....Professor Emeritus of Business Administration  
B.A., Montana State University, 1918; M.A., University of California;  
C.P.A. (California), 1925.
- <sup>1</sup>SAPPENFIELD, BERT R.....Instructor in Psychology  
B.A., DePauw University 1935; M.A., New York University, 1938;  
Ph.D., 1941.
- SCHEUCH, FREDERICK C.....President Emeritus; Professor  
Emeritus of Modern Languages  
M.E., Purdue University, 1893; A.C., 1894.
- <sup>1</sup>SCHLUETER, RUDOLPH J.....Assistant Professor of German  
B.A., Northwestern College (Wisconsin), 1921; M.A., University of  
Wisconsin, 1926; Ph.D., 1934.
- <sup>2</sup>SCHRIEBER, WILLIAM E.....Professor of Physical Education  
B.A., University of Wisconsin, 1904.
- SEVERY, J. W.....Professor of Botany; Chairman  
of the Division of Biological Sciences  
B.A., Oberlin College, 1915; M.S., Washington University, 1926;  
Ph.D., University of Wisconsin, 1931.
- SHALLENBERGER, GARVIN D.....Professor of Physics;  
Director of the Placement Bureau  
B.S., Oklahoma A. & M. College, 1912; B.S., Tulane University,  
1917; M.S., 1919; Ph.D., University of Chicago, 1923.
- SHOUP, MITTIE L.....Social Director of North Hall  
Grad., Sioux City (Iowa) Normal Training School, 1894.
- <sup>3</sup>SMITH, CHARLES A.....Assistant in Military Science and Tactics  
Staff Sergeant, U. S. Army.
- SMITH, FLORENCE R. (Mrs.).....Professor of Organ and Accompanist
- SORENSEN, THORA.....Instructor in Spanish  
B.A., Montana State University, 1927.
- SPAULDING, THOMAS C.....Professor of Forestry; Dean of the  
School of Forestry; Director of Forest and Conservation Experiment  
Station  
B.S., Montana State University, 1906; M.S.F., University of Michigan,  
1909.
- SPEER, JAMES B.....Registrar; Business Manager;  
Professor of Business Administration  
B.A., Montana State University, 1908; LL.B., University of Michigan,  
1916.

<sup>1</sup>On Leave of Absence.<sup>2</sup>On Leave of Absence, Autumn Quarter, 1944-45.<sup>3</sup>Transferred January 21, 1945.

- SPEER, LUCILE**.....Documents and Serials Librarian;  
Assistant Professor of Library Economy  
B.A., Montana State University, 1924; M.A., University of Chicago,  
1925.
- STANEK, FRANK J.**.....Assistant in Military Science and Tactics  
Technical Sergeant, U. S. Army.
- <sup>1</sup>**STONE, ARTHUR L.**.....Professor Emeritus of Journalism; Dean  
Emeritus of the School of Journalism  
B.S., Worcester Polytechnic, 1884.
- SUCHY, JOHN F.**.....Professor of Pharmacy  
Ph.C., B.S., Montana State University, 1917; M.S., University of  
Colorado, 1927; Ph.D., 1934.
- <sup>2</sup>**SWEARINGEN, MONICA BURKE (Mrs.)**.....Director of Residence  
Halls; Professor of Home Economics  
B.A., Montana State University, 1918; M.A., Columbia University,  
1924.
- SWEARINGEN, THOMAS G.**.....Maintenance Engineer; Assistant  
Professor of Forest Engineering  
B.A., Montana State University, 1920.
- <sup>2</sup>**TASCHER, HAROLD**.....Assistant Professor of Sociology  
B.A., University of Illinois, 1925; M.A., 1926; Ph.D., 1932.
- TEEL, STANLEY M.**.....Associate Professor of Music  
B.Mus., DePauw University, 1925; M.Ed., Montana State Univer-  
sity, 1943.
- THOMAS, BART E.**.....Professor of Spanish  
B.S., Wisconsin State Teachers' College, 1901; B.A., Montana State  
University, 1924; Ph.D., University of Wisconsin, 1937.
- TOELLE, HOWARD**.....Dixon Professor of Law  
B.A., Indiana University, 1913; LL.B., Columbia University, 1914;  
M.A., 1916; LL.M., Harvard University, 1925.
- <sup>2</sup>**TURNER, A. P. L.**.....Associate Professor of Economics  
B.A., Harvard University, 1930; M.A., 1933; Ph.D., 1935.
- TURNER, ROBERT T.**.....Instructor in History and Political Science  
B.A., University of California at Los Angeles, 1939; M.A., 1940;  
Ph.D., 1945.
- <sup>2</sup>**TURNER-HIGH, HARRY**.....Professor of Anthropology and Sociology  
B.A., St. Stephen's College (New York), 1922; M.A., University of  
Wisconsin, 1924; Ph.D., 1928.
- VAN DUSER, CYRILE C.**.....Manager, Montana Student Union  
B.A., Montana State University, 1927.
- VAN WINKLE, JAMES W.**.....Instructor in Business Administration  
B.Ed., Illinois State Normal, 1935; M.S., University of Colorado,  
1941.
- WALDON, CURTIS H.**.....Professor of Pharmacy  
B.S., University of Minnesota, 1935; M.S., 1937; Ph.D., 1941.
- WATERS, CHARLES W.**.....Professor of Forestry and Botany;  
B.S., B.L., Berea College (Kentucky), 1919; M.A., Ohio State Uni-  
versity, 1921; Ph.D., University of Michigan, 1927.
- WEISBERG, A. HERMAN**.....Professor of Violin; Orchestra Director  
Studied Leipzig Royal Conservatory, Germany, 1901-1903; Paris,  
France, 1903-1904.

<sup>1</sup>Deceased March 19, 1945.<sup>2</sup>On Leave of Absence.

- WEISBERG, FLORA B. (Mrs.).....Assistant Professor Emeritus of German  
B.A., Montana State University, 1928.
- <sup>1</sup>WENDT, RUDOLPH.....Instructor in Music  
B.M. (Piano Pedagogy), Eastman School of Music, 1936; B.M.  
(Piano Performer), 1937.
- WHITE, M. CATHERINE.....Assistant Librarian; Assistant  
Professor of Library Economy  
B.A., Montana State University, 1927; M.A., 1940.
- WILHELM, HENRIETTA L.....Assistant Registrar;  
Acting Secretary, Committee on Admission and Graduation  
B.A., Montana State University, 1925.
- <sup>2</sup>WILSON, BRENDA FARRELL (Mrs.).....Assistant Professor of Business  
Administration  
B.A., Montana State University, 1932; M.A., University of South-  
ern California, 1939.
- WILSON, VINCENT.....Instructor in Physical Education  
B.A., Montana State University, 1943.
- WREN, MELVIN C.....Assistant Professor of History  
B.A., University of Iowa, 1936; M.A., 1938; Ph.D., 1939.
- WRIGHT, PHILIP L.....Assistant Professor of Zoology  
B.S., University of New Hampshire, 1935; M.S., 1937; Ph.D., Uni-  
versity of Wisconsin, 1940.
- YOUEL, DONALD B..... Instructor in English  
B.A., Wheaton College (Illinois), 1929; M.A., Northwestern Univer-  
sity, 1933; Ph.D., University of Iowa, 1944.
- <sup>1</sup>YPHANTIS, GEORGE.....Associate Professor of Fine Arts  
B.A., University of Toronto, 1926; B.F.A., Yale University, 1930.
- <sup>3</sup>ZUR MUEHLEN, CARL.....Assistant in Military Science and Tactics  
Corporal, U. S. Army.

<sup>1</sup>On Leave of Absence.

<sup>2</sup>Acting Dean of School of Business Administration, Autumn Quarter, 1944-45.

<sup>3</sup>Transferred January 15, 1945.

## Montana State Board of Examiners in Accountancy

ROWLAND, ALFRED J.—C.P.A., Chairman.....	Miles City
BJORNLIE, CONRAD T.—C.P.A., Secretary.....	Great Falls
FINLAY, WILLIAM B.—C.P.A.....	Great Falls

### Special Appointments for Army Specialized Training Reserve Program

BENNETT, MRS. T. W.—B.L., M.A.....	Special Instructor in Mathematics
CHINSKE, EDWARD—B.A.....	Special Instructor in Physical Education
CONNELL, MRS. G. D.—B.A.....	Special Instructor in English
DAHLBERG, HARRY, B.A.....	Special Instructor in Physical Education
GILLESPIE, MRS. PAUL S.—B.A.....	Special Instructor in Mathematics
LOMMASSON, MRS. T.—B.A., M.A.....	Special Instructor in Mathematics
MILLER, C. E.—B.A.....	Special Instructor in Physics
WOLBRECHT, W. F.—B.A.....	Special Instructor in History

### Special Appointments for Summer Session, 1944

ATWATER, MARY M. (Mrs.).....	Visiting Lecturer in Education
ARCINIEGAS, GERMAN.....	Visiting Professor of Education
CLINTON, EVELYN.....	Visiting Instructor in English
CURTIS, HAZEL V.....	Visiting Instructor in Business Administration
EAKER, SUSAN B.....	Visiting Instructor in English
FARNSWORTH, BURTON K.....	Visiting Professor of Education
FOX, GUY.....	Visiting Professor of Education
FORSTER, THELMA (Mrs.).....	Visiting Professor of Music and Education
HOWARD, JOSEPH K.....	Visiting Lecturer in English and Education
McLAUGHLIN, SAMUEL J.....	Visiting Professor of Education
MANNING, C. G.....	Visiting Professor of Education
PETERSON, LILLIAN (Mrs.).....	Visiting Lecturer in Education
SCHEMM, MILDRED WALKER (Mrs.).....	Visiting Writer
SMITH, JULIA.....	Head Nursery School Teacher
SMITH, LEO.....	Visiting Professor of Education
VESETH, PEARL M. (Mrs.).....	Visiting Instructor in Education and Secretary
WOODARD, J. A.....	Visiting Professor of Education

# THE UNIVERSITY OF MONTANA

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A congressional grant was made in 1881 of seventy-two sections of the public domain for University purposes in Montana, and an additional congressional grant was made in 1889 of 100,000 acres for a school of mines, 100,000 acres for normal schools, and 140,000 acres for an agricultural college. The third Legislative Assembly of the state of Montana enacted laws in 1893 to establish the State University at Missoula, the State College at Bozeman, the State Normal College at Dillon, and the Montana School of Mines at Butte.

As the lands, or the timber and stone thereon, have been sold, the proceeds have gone into permanent funds, the interest on which, together with rentals of unsold lands, has been used for the support of the respective institutions. Each subsequent Legislative Assembly has voted appropriations to supplement those maintenance resources, and several assemblies have provided for the erection of new buildings.

In 1913 the four institutions were combined into the University of Montana under the executive control of an officer whose title is Chancellor. Edward C. Elliott of the University of Wisconsin, first Chancellor of the University of Montana, was appointed by the State Board of Education in 1915. He held the office until 1923, when he was succeeded by Melvin A. Brannon, former president of Beloit (Wisconsin) College. Dr. Brannon resigned July 1, 1933. Miss Dorothy Green was appointed acting executive secretary of the State Board of Education on April 15, 1941, to fill the vacancy caused by the death of Dr. H. H. Swain, and was appointed executive secretary July 24, 1944. Miss Green's office is in the State Capitol, Helena.

The Legislative Assembly of 1925 provided for the organization of the Eastern Montana State Normal School at Billings as the fifth unit of the University of Montana. A sixth unit, the Northern Montana College at Havre, was opened September 24, 1929.

In November, 1940, the voters approved a measure adopted by the twenty-first Legislative Assembly which permits, during the succeeding ten years, an annual levy of a tax not exceeding three and one-half mills for maintenance of the University of Montana.

## Montana State University

Montana State University, located in Missoula, was formally opened in 1895. The local board was made up of J. H. T. Ryman, Hiram Knowles, and Thomas C. Marshall.

The campus site was donated to the state by Edward L. Bonner and Frances G. Higgins of Missoula. In 1897 the Legislature authorized the issuance of bonds, in the amount of \$100,000, for construction purposes. With these funds University Hall and Science Hall were constructed. They were completed in 1899, at which time the State University occupied its permanent quarters. In 1901 an additional bond issue was authorized to construct Craig Hall and the Women's Gymnasium. In 1907 a library building, now occupied by the Law School, was completed.

Oscar J. Craig of Purdue University was the first president. During his administration, from 1895 to 1908, Montana State University made remarkable progress. The faculty increased from five to thirty, and the proportional increase in the number of students was even greater.

In 1908 Clyde A. Duniway of Stanford University became president, and carried on a policy of vigorous development. The School of Law was established and the Summer Session was made a part of the State University.

Edwin B. Craighead, for eight years president of Tulane University, succeeded to the presidency in 1912. During the next few years Business Administration, Journalism, Pharmacy, Home Economics, and Forestry were added to the schools and departments of the State University.

From 1915 until the summer of 1917, Professor Frederick C. Scheuch, now president emeritus and professor emeritus of modern languages, was acting president. Edward O. Sisson, who had been State Commissioner of Education in Idaho, was appointed president in 1917, and served until 1921. Upon Dr. Sisson's resignation, Charles H. Clapp was appointed. He served until his death on May 9, 1935.

Professor Scheuch again served as acting president until January 1, 1936, when the presidency was assumed by Geo. Finlay Simmons, a zoologist and explorer, formerly with the University of Texas and the Cleveland Museum of Natural History, who was engaged in experimental research at the University of Chicago when called to Montana State University in the autumn of 1934. Dr. Simmons resigned the presidency, effective April 15, 1941, with leave of absence until September 1, 1941. Charles W. Leaphart, Dean of the Law School, was appointed to serve as acting president. The State Board of Education, at its meeting in September, 1941, appointed Dr. Ernest O. Melby as next president. Dr. Melby, formerly Dean of the School of Education at Northwestern University, assumed the presidency on October 21. On July 1, 1943, he was appointed Chancellor of the University of Montana. Charles W. Leaphart, vice president, was appointed acting president, effective July 1, 1943. Dr. Melby resigned the chancellorship and was reappointed to the presidency on July 1, 1944.

From 1934 to the present time six new buildings have been erected on the campus, new equipment has been added and old equipment improved. Courses of instruction have been expanded and strengthened, and scholarship standards have been raised. The faculty numbers one hundred seven, eighty-five on the teaching staff and twenty-two on administration and service; twenty-nine members are on leave of absence for service in the United States armed forces or in war work.

**Accreditation.** Montana State University is on the accredited list of the Association of American Universities and the Northwest Association of Secondary and Higher Schools.

**Surroundings and Campus.** Montana State University is situated at Missoula, county seat of Missoula county, and principal city in western Montana. The city is easily reached by the main lines of the Northern Pacific and the Chicago, Milwaukee, St. Paul & Pacific railroads. In addition, there are branch lines from the Coeur d'Alenes, and the Bitterroot and Flathead valleys. Missoula is on the Yellowstone Trail (U. S. Highway No. 10), the International Parks Highway, and the main line of the Northwest Airlines.

Missoula is a pleasant residence city with a population of twenty-three thousand. It has an excellent climate and unsurpassed health conditions. Many miles of paved streets and bus lines make the campus of the University accessible from any part of the city. The surrounding country is a beautiful region of mountain ranges, easily reached by rail or auto, and furnishing excellent opportunity for recreation.

The campus, which has an area of approximately 100 acres, lies southeast of the business district and at the foot of Mount Sentinel. In



addition, the University owns 520 acres extending from the campus to the summit of the mountain, an elevation of 2,000 feet above the campus.

The value of buildings, equipment, and ground is approximately three and a quarter million dollars.

**The Library and Museums.** The library, which contains about 255,382 volumes and government documents, is housed in the library building and in the departmental libraries. The faculty and library staff of the University have free access to the stacks. Any undergraduate or graduate student may obtain "stack permission" for one year by securing the signature of a faculty member and the approval of the librarian on a pass card to the stacks. Any reputable person not connected with the University may obtain admittance to the stacks by receiving the signature of the librarian on a pass card.

The Library receives over 600 periodicals, the current numbers of which are available in the reading room, as are newspapers and college exchanges.

The biological collections of Montana State University, established in 1898, are on the second floor of the Natural Science building. Special attention has been given to local fauna and flora of the state.

The rocks, fossils, coals, minerals, and ores are housed in the Department of Geology in University Hall.

The herbarium is in the Department of Botany, adjoining the museum in the Natural Science building.

The Treasure Room, for valuable historical and archaeological materials, is on the third floor of the Journalism building.

The people of the state are invited to inquire about the loan facilities of the library, to visit the museums, and to make contributions to the Library and museums. All donations will be acknowledged and recorded under the donor's name. The articles will be properly labeled and preserved.

## The Functions of the University in War Time

The facilities of the University have been used to further war training under six essentially different categories.

1. From July 1942, until March, 1943, the University participated in a Civil Aeronautics War Training Program. The trainees were men enlisted in the reserve of the army and navy aviation corps. Their training consisted of flight instruction by the Johnson Flying Service and instruction in technical ground school subjects at the University. This program succeeded the Civilian Pilot Training Program in which the University participated from 1939 to 1942.

2. From March, 1943, to June, 1944, the 317th College Training Detachment of the Army Air Forces trained on the campus. Members of this detachment were men in uniform in active service under resident army officers. In general, the training consisted of four months of instruction in physical education and in academic and military work, followed by one month of flight instruction. The classes in physical education and in academic work were carried on by members of the regular University staff and special instructors. Flight instruction was given by the Johnson Flying Service.

3. Participating in the Engineering Science Management War Training program, the University has conducted a series of extension courses throughout the war period. In 1941-42 and again in 1942-43, the course in radio technology was given under the supervision of the

Department of Physics. In 1943-44 a series of four courses, two in basic mechanical drafting, two in advanced work of a similar nature, were given under the supervision of the School of Forestry. During 1944-45 this work has been expanded to become a course covering engineering fundamentals as well as mechanical drafting and machine design and has been given to three classes.

4. With an enlarged quota in advanced classes, the department of Military Science carried on a program of training in the Reserve Officers' Training Corps during 1942-43.

5. In September, 1943, the War Department established on the campus a unit of the Army Specialized Training Program. The trainees of this unit were men who were in the first year of Advanced R. O. T. C. in the spring of 1943 when they were called to active service. These men were again called away from the campus in January, 1944.

6. In addition to the contract schools mentioned above, the University carried on during 1942-43, academic training of regular students enlisted in the various reserves, part under special curricula and part as a continuation of regular work for degrees; to a lesser extent this service has continued to the present time for students deferred for special training and for students under 18 years of age.

7. From July 5, 1944, to January 7, 1945, the University conducted a course of training under the Army Specialized Training Reserve Program.

The University has also acted as a center of war information for the State of Montana and as such receives and makes available for use important materials relating to the war effort from the various departments and bureaus of the United States government and from foreign countries.

## Requirements for Admission

*Students applying for admission should send in the following credentials:*

(a) *An original transcript of high school credits, signed by the principal.*

(b) *Official transcript from each college attended.*

(c) *Statement of honorable dismissal from the last college regularly attended.*

(d) *An application for admission filled out on a form provided by Montana State University.*

Veterans of any branch of the United States Armed Forces must present a discharge marked "other than dishonorable" and should have their service records checked through the USAFI, Madison, Wisconsin.

*Certificates and transcripts of records relating to admission should be sent to the Registrar a month in advance of registration so that there will be ample time for notice of acceptance for admission to the University. Prompt attendance to these details will avoid delay and the additional expense of telegraphing. Delay in sending certificates is likely to cause difficulty in registration, and frequently makes it impossible for the student to enroll in classes to which he might otherwise be admitted.*

Applicants for admission who fail to present proper certificates **will not be admitted to registration.** Forms for applying for admission may be obtained on application to the Registrar.

### General Admission

Applicants for admission must be at least sixteen years of age, and must present evidence of good moral character.

The completion of a high school or preparatory course of four years, including at least fifteen units of work, is the standard for regular admission. A unit is the amount of work represented by the successful completion of one subject pursued for a school year of not less than thirty-six weeks, with five recitations per week, each recitation period being not less than forty-two minutes net. Two periods of laboratory, shop, or drawing work count as one recitation.

Students must offer three units of English, one of American history and government, and at least two other units from each of three of the following groups: (a) mathematics: algebra, plane and solid geometry, trigonometry, general mathematics; (b) history and social science: Greek, Roman, medieval, modern or English history, civics, community civics, economics, sociology, citizenship, economic or industrial history, geography, government, psychology, vocations; (c) laboratory science: physics, chemistry, biology, botany, zoology, physiology, agriculture, astronomy, geology, physiography, general science, home economics; (d) foreign languages.

Note: If the civics is included in the one unit of American history and government, it may not be used to satisfy requirement (b). The two units offered in satisfaction of requirement (d) must be in one language.

Students who have not completed these required courses must: (1) pass an entrance examination in the subject in which they are deficient; or (2) earn eight college credits in the subject in which they are deficient in addition to any college work in that subject required for a degree. Such credits may be counted toward the degree. Students must remove all entrance deficiencies during their first year of attendance.

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

### Admission on Certificate

Graduates of any Montana high school or academy fully accredited by the State Board of Education, or of any high school or academy in another state accredited by the North Central Association or the Northwest Association, are admitted to regular standing by the presentation of an official certificate of graduation.

Graduates of any other secondary schools outside of Montana are admitted under similar conditions, if the school maintains, on the basis of regular inspection, accredited relationship with the state university or other university within the state included in the membership of the Association of American Universities.

### Admission by Examination

Any person not a graduate of an accredited high school must, in order to be admitted to regular standing, pass satisfactory examinations on not less than fifteen units\* of secondary school work; provided that any graduate of a Montana high school accredited by the State Board of Education for the work of only one, two, or three years, may receive entrance credit without examinations upon such work as has been successfully completed in such accredited courses, as shown by official certificates.

\*These fifteen units must include the required subjects listed above. A student offering foreign languages as a part of his preparation must present at least two units in one language.

Those who expect to take entrance examinations must notify the Registrar in advance, stating what subjects they desire to offer by examination. For the academic year 1945-46 the examination days are September 13 and 14, and for the winter and spring quarters by special arrangement.

Veterans who wish to clear entrance requirements by use of the USAFI examinations should write or contact the Registrar or the Director of Veterans Education well in advance of the date at which they expect to present themselves for examination, since the tests must be obtained from the USAFI at Madison, Wisconsin.

### **Conditional Admission**

The entrance requirement of graduation from a four years' accredited high school course may be modified in individual cases by permitting the conditional admission of a student if he has at least fifteen entrance units and has been in regular attendance in a fully accredited high school for four years. To acquire regular standing such a student must present a total of sixteen entrance units. He must make up the number lacking in one year from the date of his first registration.

### **Admission by Transfer from Other Units of the University of Montana**

All credits earned in any unit of the University of Montana may be transferred to any other of the institutions and the full face value of such credits will be placed upon the records of the second institution. This does not, however, relieve the student from fulfilling the institutional requirements for graduation at the second institution. A number of highly specialized curricula are offered at the various 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.

Students transferring from one unit to another after the successful completion of a two years' course of junior college rank to the senior college of another institution may not use excess credits gained in the junior college to decrease the two years usually required to complete the senior college work.

A student suspended or dropped from one of the other institutions of the University of Montana will not be considered for admission without the approval of the president of the institution from which he was suspended or dropped.

### **Admission by Transfer from Other Colleges and Universities**

Students from other colleges and universities of recognized standing will be admitted on presentation of certificates from the registrar that they have completed the regular entrance requirements, and are eligible to return. Credit will be given for work of collegiate grade done in other institutions of approved standing. In addition to the transcript of college record, the student must also present a transcript of his secondary school work.

Graduates of an approved two-year normal course requiring fifteen units for entrance are admitted to junior standing. Students who complete only part of the two-year normal college course may receive credit in the University for such work as may be found to represent the equivalent of courses required or permitted as electives in the University.

When credits are accepted from another college, grade points are evaluated at the time of transfer (see pages 26 and 31). Students entering with fewer grade points than credits must earn enough additional grade points at Montana State University to satisfy the grade point

requirement for graduation. A transfer student must meet the grade point requirement on credits earned at Montana State University as well as on his entire record.

### Admission of Special Students

Persons 21 years of age\* or over (not graduates of high schools) who cannot offer all of the requirements for admission and who are not candidates for degrees may be admitted as special students without the usual entrance units upon passing general intelligence and English placement tests, and upon submitting satisfactory evidence that they are prepared to pursue successfully the courses open to them. Such students are required to select courses open only to freshmen and sophomores unless they show preparation and aptitude in particular fields.

Special students are permitted to continue in the University only in case they carry the work satisfactorily. If it becomes evident that they are unable to carry university work, their relations with the University may be severed at any time. In order to be able to register for a fourth or any succeeding quarter as a special student, the sum of the student's grade points (both positive and negative) must be at least equal to the total number of credits earned. See "Grade Points," page 31.

A special student may acquire status as a regular student and become a candidate for a degree either by taking entrance examinations, or by transferring to entrance credit sufficient credits earned in the University to make up all entrance units required for admission to regular standing, including the subjects listed on page 20. Before the student may register for his seventh quarter of residence, not including summer sessions, **he must make up all entrance units required for admission to regular standing.** The Registrar's office shall at that time transfer to entrance credit as many University credits as are necessary for such purpose at the rate of eight college credits for one entrance unit. In order to be eligible for a degree from Montana State University a special student must fulfill the same requirements for graduation as a regular student.

**War Service Specials** should also see section on "Credit for Military Service and Testing Programs" below.

*Special students must file application for admission on a form provided for this purpose, which may be obtained from the Registrar. This application must include certificates of such preparatory work as the applicant has done.*

### Credit for Military Service and Testing Programs

On the basis of certified papers cleared through the USAFI at Madison, Wisconsin, some credit will be given for military service and for specialized training courses completed in the armed forces whenever that training can be evaluated at the college level. The recommendations of the American Council on Education as shown in a "Guide to the Evaluation of Educational Experiences in the Armed Services" are followed in adjusting such credits, and all examinations must be planned for and taken under supervision of the University Testing Committee. Students who wish to clear high school deficiencies or to release college credit for courses of specialized nature should write to the Director of Veterans Education for information regarding the USAFI examinations in the desired fields, and for blanks requesting such examinations.

\*Men or women students honorably discharged from the Armed Forces who cannot offer all of the requirements for admission may be admitted as special students.

### **Ineligibility for Admission to Junior Class**

A student who, at the end of the quarter in which he acquired 90-96 credits (dependent upon requirement in physical education), has a deficiency of 20 or more grade points, shall not be admitted to further work in Montana State University.

### **Admission to Graduate Standing**

Candidates for admission to graduate standing must have a Bachelor's degree from Montana State University or from another institution of approved standing. Admission to candidacy for the Master's degree is granted by the Graduate Committee to students, who, in addition to holding the baccalaureate degree from an institution of approved standing, have completed the requisite undergraduate work in the departments in which they wish to do graduate work and are enrolled in an approved schedule of graduate courses.

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## **Requirements for Graduation**

### **Degrees and Certificates**

The Bachelor's degree is awarded to regular students who complete the courses offered by Montana State University and who fulfill the other conditions required for graduation.

The College of Arts and Sciences confers upon its graduates the Degree of Bachelor of Arts, Bachelor of Science in Medical Technology, or Bachelor of Science in Nursing. Students doing major work in Law may also secure the Bachelor of Arts degree by meeting the requirements of the College of Arts and Sciences.

The degree of Bachelor of Arts in Business Administration is conferred upon graduates of the School of Business Administration.

The degree of Bachelor of Arts in Education is conferred upon graduates of the School of Education.

The degree of Bachelor of Arts in Journalism is conferred upon graduates of the School of Journalism.

The degree of Bachelor of Music is conferred upon graduates of the School of Music.

The degree of Bachelor of Laws is conferred upon graduates of the School of Law who have previously completed two years of college work.

The degree of Bachelor of Science in Forestry is conferred upon graduates of the School of Forestry.

The degree of Bachelor of Science in Pharmacy is conferred upon graduates of the School of Pharmacy.

The Secondary State certificate of qualification to teach may be obtained by graduates of Montana State University who meet the requirements set forth in the School of Education. (See Certification page 65.)

The Montana State University issues a certificate for public accountability under specified conditions (see School of Business Administration).

The degrees of Master of Arts, Master of Science in Forestry, Master of Science in Pharmacy, and Master of Science with a combined major in Botany and Forestry are granted to those who complete a satisfactory course of at least one year in work beyond that required

for a Bachelor's degree provided they comply with the regulations governing graduate work set forth on pages 88 to 90.

The Master of Education degree is granted to those who, in addition to completing a minimum period of teaching and at least one year of work beyond that for a Bachelor's degree, offer additional graduate work in lieu of a thesis. See page 90.

### **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 a degree or certificate must file formal application with the Registrar on the date specified on Official University Notices (at least one quarter preceding the quarter in which requirements are to be completed).

### **Credits Required for Graduation**

The work in Montana State University is named 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.

**Credits Required for a Degree.** Candidates for the degree of Bachelor of Arts, Bachelor of Arts in Business Administration, Bachelor of Arts in Education, Bachelor of Arts in Journalism, Bachelor of Music, or Bachelor of Science in Pharmacy are required to complete 180 credits in addition to the required credits in Physical Education. Candidates for the degree of Bachelor of Science in Forestry must complete 186 credits in addition to two summers of approved field work and the regular requirements in Physical Education and Military Science. 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.

**Credits Required for a Major.** A department or school may require that the major students complete from 40 to 55 credits in the chosen field. Not more than 65 credits in any one department or school, including 5 credits earned in survey courses given in the Division, may be counted toward graduation. These rulings do not apply in the Schools of Forestry, Journalism, Law, Music, or Pharmacy. Exceptions to these regulations may be made on the basis of entrance credits in the Departments of Modern and Classical Languages and Mathematics. Not more than 65 credits in one foreign language, nor more than 90 credits in all foreign languages, may be counted toward graduation. Not more than 90 credits of English, Dramatics and Speech for a combined major and teaching minor may be counted toward graduation. Not more than 21 credits in Military Science, nor 15 credits in Religion may be counted toward graduation. Except in the School of Music, not more than 12 credits in applied music nor 6 credits in ensemble music may be counted toward graduation.

### **Course Requirements for Graduation**

**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 (except discharged veterans) less than 27 years of age, unless excused for cause.



- (2) **Military Drill**, 6 quarters (6 credits) required of all freshmen and sophomore men, (except discharged veterans) unless excused for cause.
- (3) **English Composition**, 3 quarters (9 credits) or 2 quarters (10 credits). During Freshman Week all freshmen must take a placement examination in English composition. Students who place high in this examination will be excused from taking the first quarter of required composition (English 11a or 12a). Students failing to attain an acceptable college standard in this placement will be required to take English A without credit before enrolling for English 11a or 12a. English Composition 11ab or 12abc, must be taken in the freshman year, preferably consecutively. Students who receive a grade of "A" in English 11a will be exempted from the requirement of the second quarter; those who receive "A" in 12b, from 12c.

**Restricted Elective Courses.** All candidates for the Bachelor's degree, except candidates for the degree of Bachelor of Laws, Bachelor of Science in Forestry, Bachelor of Science in Pharmacy, or Bachelor of Music must meet the following requirements, unless otherwise indicated:

- (1) Two of the following general courses must be completed: Social Science 11abc, Biological Science 13abc, Humanities 15abc, Physical Science 17abc. This requirement may be waived for transfer students entering Montana State University with junior standing. Five of the credits earned in survey courses given in the division (whether the course was taken for one, two, or three quarters) are included in the maximum of 65 credits allowed in any one department. Completion of courses 13abc or 17abc, 11abc, 15abc also satisfies the specific requirements under (3), (4), and (5), respectively, as listed below. NOTE: For the duration of the war, this requirement will be discontinued for students entering the University after June 5, 1942.
- (2) Classical or modern language, 5 quarters (23 to 25 credits) in one language or a reading knowledge of it, subject to the following conditions:

Entrance credit in modern or classical language may be offered in satisfaction of this requirement, one unit being regarded as equivalent to two quarters of university work. Thus students who enter with one unit of language are normally required to complete only three quarters of the same language in the University; those who enter with two units, one quarter; and those who enter with three or more units in one foreign language shall be regarded as having fulfilled all foreign language requirements for graduation upon passing a reading test at the University. However, all students desiring to offer entrance credit in fulfillment of or toward this requirement or who wish to take further work in a language offered for entrance must take a placement examination preferably at the time of entrance, during Freshman Week. Those who are found by the placement examination to be unprepared for the class for which they are normally eligible will be placed in a lower class; such students may receive credit for only one quarter of a foreign language below the class for which their entrance credits would normally prepare them.

A reading knowledge of a foreign language at the level of attainment expected of a student who has passed at least four quarters in



a language as demonstrated by a suitable achievement test will be accepted as satisfying the foreign language requirement for graduation.

Foreign languages will not be required in the Schools of Business Administration, Education, Journalism, and Music.

- (3) Bacteriology, Botany, Chemistry, Geology, Mathematics, Physics, Zoology; 3 quarters (12 credits, eight of which must be in one science or in mathematics) or one of the general courses, Biological Science 13abc, Introduction to Biological Science, and Physical Science 17abc, Introduction to Physical Science. The combined sciences for high school and the University must include not less than two different sciences of this group. In each of these two sciences the student must offer not less than one unit or eight credits. With the exception of the two general courses, science subjects in which laboratory work is not required shall not be considered as satisfying the restricted elective requirement in science. The amount of laboratory work necessary to the courses for fulfillment of the requirement is one laboratory period of not less than two hours per week.
- (4) Anthropology, Economics, History, Political Science, Sociology; 2 quarters (8 credits) or the course, Social Science 11abc, Introduction to Social Science.
- (5) English Literature, Philosophy, Psychology; 2 quarters (8 credits) or the course, Humanities 15abc, Introduction to the Humanities.

**Elective Courses.** The remainder of the credits required for graduation after the restricted electives and the divisional and major requirements have been completed are free electives.

#### **Divisional, Departmental, and School Requirements for Graduation**

All candidates for a Bachelor's degree must comply with any requirements announced by the college or school from which the degree is to be granted, in addition to the general requirements included under "Requirements for Graduation."

#### **Grade Point Requirements for Graduation**

**First Period.** A candidate for a degree or certificate granted by Montana State University must at the time of his candidacy have obtained a number of grade points at least equal to the number of credits earned on courses taken to the end of the quarter in which he earns his 90-96th credit (i.e., over his freshman and sophomore years). This is equivalent to an average grade of C in all courses for which he has received credit. Grade points are computed as follows: 3 grade points for each credit of A; 2 grade points for each credit of B; 1 grade point for each credit of C. In a subject in which an "incomplete" grade has been received, grade points are counted only after the incomplete has been removed.

**Second Period.** In the period succeeding the quarter in which the student receives his 90-96th credit (i.e., junior and senior years), he must obtain as many grade points as credits for which he has registered. **Note:** When a student has once entered the second period he cannot in any way (by repetition, duplication, etc.) be changed back into the first period. An incomplete or condition received in the first period and removed or allowed to revert to an F during the second period, will be included in the record of the second period. Courses dropped without a grade (i.e., courses in which a "W" is given) are not counted. Courses graded F (failure), I (unremoved incomplete), E

(condition), are given one negative grade point (-1) per credit. The negative grade points must be subtracted from the positive grade points earned to determine the number of grade points acquired toward meeting this requirement. In the case that a student who has failed to make a C average during the first period is admitted to the second period, he must make up the deficiency under the regulations which are in force during the second period. However, deficiencies made in the second period cannot be removed by applying excess grade points earned in the first period.

When credits are accepted from another institution, grade points are evaluated at the time of transfer; however, a student must meet the above requirement on credits earned at Montana State University as well as on his entire record.

### **Residence Requirements for Graduation**

1. One year of residence, or three summer sessions of ten weeks each, at Montana State University, during which the student must complete 45 credits of college work, is the minimum requirement.
2. Thirty-five of the last 45 credits required for graduation must be earned in residence in the University.
3. Not more than 45 credits earned by correspondence study may be counted toward graduation.

### **Senior Examinations**

1. All students, before receiving the Bachelor's degree from Montana State University, may be required by the school or department in which they are majoring, to pass a special examination to be known as "Senior Examination" covering the field of concentration. This examination shall not in any way replace the regular quarterly examination except that departments adopting these Senior Examinations may excuse their major students during the senior year from regular quarterly examinations in major department subjects. Each department or school must announce its intention with regard to Senior Examinations in the catalog.
2. The field of concentration shall include the total major requirements and such additional subjects as the major department or school may determine. It is to be understood that the questions asked are not to be limited to the courses taken.
3. The examination shall be a written examination of at least three hours, and in addition further oral or written examinations may be given.
4. The examination in each case shall be in charge of the major department or school concerned. Such parts of the examination as lie outside of the major subjects shall be furnished by the departments whose work is represented.
5. The examinations shall be given in the last quarter of senior residence and may be arranged in each department or school at the convenience of the persons concerned. Reports on such examinations shall be made to the Registrar not less than four weeks prior to the close of the quarter.
6. The same grades shall apply as in the quarterly examinations. If a student fails to pass this special examination he shall be given another opportunity within 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.

### Senior Examinations for Honors

A student who wishes to be graduated with honors must meet with the following requirements: (1) At the beginning of his last quarter he must have an index of 2.0 ("B" average) for every credit taken over his entire record as well as in the major field. Students who transfer credits earned elsewhere to this university must meet the scholastic index indicated on grades earned at Montana State University as well as on those transferred. (2) He must take an examination, oral or written, or both, as determined by the major department. (3) He must pass these examinations with a grade of A or B. (4) 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.

### Registration

Not later than the junior year, every student must choose a major department or school. Regular students are required to follow a curriculum so that they will normally complete all the required courses and restricted electives by the end of their junior year. A student's registration is subject to the approval of an appointed faculty adviser until choice of a major department or school has been made; after this choice, the head of the department or school selected becomes the adviser.

**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.

**Rules Regarding Registration.** Students in all divisions of Montana State University, except those registered in an approved curriculum shown in a Division or School or in the special "pre-induction" curriculum, must follow the regulations outlined in the following table:

Classification of Student	Number of Courses Allowed*	Restricted Elective Requirement (See page 25)	Maximum Credit**
		In Addition to Required Phys. Ed. and Mil. Sci.	
Freshmen	3	2 courses from 2 different groups	15+2 Cr. †
Sophomores	4	1 course	16+1 Cr. †
Juniors	no limit	1 course until requirements are completed	16
Seniors	no limit	1 course until requirements are completed	16

\*Exclusive of the required physical education and military science and optional applied music.

\*\*Juniors or seniors of distinctive ability may be permitted by their adviser to register for 18 credits.

†These 2 credits may be in applied or ensemble music, or in applied acting and stagecraft, or in a combination of these courses, and are permitted only when the student maintained a C average during the previous quarter in residence. Note that in the sophomore year only one credit in the applied courses listed above may be permitted in addition to the regular 16 credits.

## Freshman Week

The first week of the autumn quarter is set aside exclusively for freshmen. They register during that week and are given the opportunity to become acquainted with the ways of university life; everything practicable is done to prepare the freshman for his college course. No regular classes are held.

Freshman Week grew out of the need of making the transition from high school to college as smooth as possible, and the desirability of giving the freshman an idea of the proper attitude to be taken toward his college work. This is accomplished by giving the freshman time to become acquainted with the campus and the proper use of equipment before instruction begins. Methods and practice of college study are explained in order that, from the beginning, the student may obtain more from his courses.

## Scholarship and Conduct

The University requires all its students to conform to the usual standards of society and law-abiding citizenship, and to manifest a serious purpose by maintaining satisfactory standing in the courses which they undertake. No student is permitted to continue his connection with the University who shows persistent unwillingness or inability to comply with these requirements.

The Student Handbook, which is published for the guidance of students, is an official memorandum of requirements. *The student is held responsible for a knowledge of its contents.*

### Deans of Men and Women

The deans have general supervision and, subject to the rules of the faculty, final authority over scholarship honors and deficiencies, student affairs, the conduct, manner of living, and all other matters pertaining to the welfare of students. They are always ready to render any help in their power to any student, either in educational or personal matters. They work through instructors and advisers in scholarship matters, but in personal affairs they are always accessible to the student who desires conference or counsel.

### Veterans in the University

In order to facilitate most effectively the resumption of civilian student life by returning veterans, an office of Veterans Education has been instituted at Montana State University. The returning veteran, man or woman, should make initial contact with this office, the purpose of which is to furnish aid in problems of registration, housing, adjustment of credits, relations with the Veterans Bureau, and counseling.

### The Counselor Service

As a part of the University's program, a counselor service was established in the autumn quarter, 1944. The counselor, who works in cooperation with the Deans and supplements their functions, coordinates the contributions of the various agencies on the campus in order to assist students most satisfactorily in the solution of their personal or curricular problems.

### Advisers

Upon registration at Montana State University, each student is assigned to a faculty adviser. The assignment is made on the basis of the student's probable field of major endeavor. The adviser assists the stu-

dent in the selection and arrangement of his course of study, and acts in an advisory capacity only; his approval of a student's registration does not legalize a change in faculty rules. In the professional schools the deans act as advisers of the students. In the College of Arts and Sciences, after the student has selected a major department (at the beginning of his junior year), the chairman of that department regularly becomes his adviser throughout his university work. The adviser is always ready to counsel with the student in any matter, whether or not directly connected with his work in the institution. The University rule requires that the student shall consult his adviser at each registration period, but consultation should be more frequent. The adviser is consulted by the administrative authorities of the University in matters of discipline affecting a student under his supervision.

### **Social Functions of the University**

The approval of the Dean of Women is obtained for all social functions of student organizations at which women are present. The Dean of Women sees that approved chaperons are provided and schedules these functions for Friday and Saturday evenings only.

### **Women in the University**

The social welfare of all women students is under the guidance of the Dean of Women. Scholarship deficiencies of women students receive the personal attention of the Dean of Women.

Housing facilities for women will be provided in dormitories operated by the University and under the supervision of trained social directors selected by the University. This enables the Dean of Women and the social directors to give that personal attention to the individual girl which has always characterized the dormitory plan. In addition to these dormitories, there are seven sororities and one cooperative house.

All women students under twenty-one years of age not residents of Missoula and not working in private homes for board and room are required to live in the dormitories or sorority houses.

The sorority houses, in which many upperclass women reside, are under the immediate social supervision of housemothers whose appointment is made with the approval of the Dean of Women. The private homes in which upperclass girls obtain rooms must be approved.

All women in the University are members of the Associated Women Students, an organization which has general direction of matters pertaining to student life not under the direct supervision of the faculty. This Association also has charge of many of the campus activities carried on by the women students, including the Counselor System, the May Fête, the Co-ed Prom, parties to enable students to become better acquainted, awards for scholarship, and a loan fund.

### **Student Marriages**

Any marriage, either party to which is a student of Montana State University, must be publicly announced. For this purpose notice of the marriage must be promptly filed with the Registrar. Any attempt to keep the fact of the marriage secret will result in indefinite suspension effective from the date of the marriage.

At each registration period students must indicate on the registration forms whether they are married or single. Falsification or willful suppression of any information called for on the blanks will be ground for cancellation of registration.

### Attendance

Work which a student has missed through absence must be made up as his instructors direct.

All students compelled to be absent from Missoula should report their intended absence in advance to the Dean of Men, to the Dean of Women, or to the Registrar.

Absences incurred when a student is on assigned departmental activity or representing the University in extra-curricular activities will be reported by those in charge of the activity.

### Eligibility Rules

Montana State University is a member of the Pacific Coast Intercollegiate Athletic Conference, and its rules, as approved by the Faculty, govern all intercollegiate athletic contests.

### Scholarship Grades

Grades are given at Montana State University according to the following system of marking:

A—Work of the best grade; B—work better than average; C—average work; +—pass without defining grade; D—work below average, but of barely passing grade; E—condition; F—failure.

If all the work in a course has not been done and there is sufficient reason for this, the grade I, which carries with it one of the four passing grades, is given. This incomplete work must be completed not later than one calendar year after the incomplete grade was assigned. See also page 26.

In continuous courses, if a grade of F is given, the student's connection with the course is severed. All other grades must be followed by the letter "n," indicating that the course is a continuous one and that the completion of the quarter's work carries no credit toward graduation until the remaining quarters of the course are completed. The grade of any quarter of a continuous course shall be final, except in thesis courses. In this case 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.

A student may withdraw from a course in which he has registered: (1) during the first four weeks of a quarter, with the consent of his adviser and the instructors concerned; (2) during the period from the fourth through the ninth week, with the consent of adviser and instructor and the permission of the chairman of the Board of Advisers. In these cases the student is given a grade W, which carries no credit; if a student withdraws for unsatisfactory scholarship a grade of F may be assigned. After the ninth week the student who withdraws receives a grade, usually incomplete. All withdrawals must be formal and must be recorded by the student with the Registrar.

### Grade Points

Each student receives the following number of grade points for each quarter credit for which he has been registered and for which he has received a grade: 3 grade points for each credit of grade A; 2 grade points for each credit of grade B; 1 grade point for each credit of grade C; 1 grade point for each credit of grade "plus"; 0 grade points for each credit of grade D or E; 1 grade point is deducted from his total for each credit of grade F. See grade point requirements for graduation, page 26.

### 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

Fees paid by "full time" new students during the first quarter of attendance total \$45.17, which include a deposit of \$10.00 (refundable at the close of the college year, or upon withdrawal from the University, except for charges for loss, breakage, and fines). During succeeding quarters, after the first quarter in attendance, the amount is \$30.17, plus the general deposit of \$10.00 which is paid during the first quarter of attendance each year. There are additional fees in various schools and for special purposes, and a tuition fee for out-of-state students. All fees must be paid at the time of registration.

The following is a detailed schedule of fees authorized for the college year 1945-46 in all schools and departments except where otherwise specified.

<b>All students registered for seven or more credits:</b>	<b>Per Quarter</b>	
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, etc.)	10.00	Waived to holders of Montana high school and university honor scholarships.
Building	5.00	
Student Union Building	1.67	
Student Activity For support of activities sponsored by the Associated Students of Montana State University.	5.50	Optional to graduate students and to students registered for less than seven credits.
Health Service (see page 38)	3.00	Required of all students enrolled for class work.
	<hr/> \$30.17	
Entrance (or matriculation). Payable by all students on first registration.	5.00	Waived to holders of Montana high school honor scholarships.
General Deposit (charges for loss, breakage, and fines deducted)	10.00	Paid once each year and unused portion refunded.
<b>Total, first quarter in attendance</b>	<hr/> <b>\$45.17</b>	
(other quarters, \$30.17)		

**Departmental fees:**

Majors in Schools of Forestry, Journalism (except freshmen), and Pharmacy pay a laboratory-incidental fee, and majors in the School of Law pay a tuition fee, additional (also majors in other departments enrolled for five or more credits in these schools)	\$ 5.00	
Majors in School of Music pay tuition additional	25.00	
Non-residents (out-of-state) pay additional	25.00	If registered for less than 12 credits, \$2.00 per credit with minimum of \$10.00 per quarter. See special statement furnished on request.

**War Service Fee Exemptions.** The registration, incidental, entrance, and departmental and school 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 the state 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.

**Limited Registrants** (students registered for less than seven credits): Registration Fee, \$5.00; Incidental Fee, \$5.00; General Deposit, \$5.00; Building Fee, \$2.50; Student Union Building, \$1.00; Health Service, \$3.00. Majors in Forestry, Journalism, Pharmacy pay the laboratory-incidental fee of \$5.00. Students registered for less than five credits in Forestry, Journalism, Pharmacy, but who are majors in other departments, pay \$2.50 instead of \$5.00 laboratory-incidental fee; students registered for less than five credits in Law pay \$2.50 instead of \$5.00 law tuition. Non-residents pay \$2.00 per credit with minimum of \$10.00. "Listeners" (students who enroll for courses without credit) pay the same fees as students enrolled for less than seven credits. Applied music courses and other courses for which there are special fees are not included when determining the number of credits for which a student is registered.

**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 program requires 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 for graduate students.

**Fees for Special Purposes:**

**Late Registration**, payable by students who complete registration after the prescribed registration days 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.

**Diploma Fee**, by candidates for degrees at time application is filed, \$5.00. For late filing, \$5.00 additional.

**Placement Bureau Registration Fee**, \$5.00.

**Removal of Incompletes or Conditions** (not due to illness or fault of institution), \$2.00.

**Transcript of Record** (first transcript is free), \$1.00.

**Student Handbooks** (first handbook is free), \$1.00.

**Textbook Fees** (Charged in lieu of requirements to purchase textbooks):

Introduction to Biological Science, per quarter.....	\$1.00
Introduction to Social Science, per quarter .....	1.00
Education Courses (except Seminar courses), per quarter....	1.00
Education Seminar Courses, per quarter .....	1.50

For fees charged for courses in **School of Music**, see page 116; in **Correspondence Study**, page 77; in **Summer Session**, page 130.

### Refunds:

All fees are refunded to students who withdraw during the period of registration and before beginning of classes, in which case registration is cancelled. The Entrance, Registration, Student Union Building fees are not refunded except when registration is cancelled. The Incidental, Building, Student Activity, Laboratory-Incidental in Forestry, Journalism, Pharmacy, tuition in Law, are refunded to students withdrawing during the first week of classes, and fifty per cent of these fees are refunded to students withdrawing after the first week of classes but prior to the close of the third week of classes. The Health Service fee is refunded during the first week of classes except to those who have had a physical examination or received medical service. Refunds in courses in Music and other courses for which there are special fees are based upon service rendered or supplies furnished. Refunds are calculated from date of application for refund and not from date of last attendance at classes except in cases of illness. No refunds are made if application for refund is delayed beyond close of quarter in attendance.

**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.

## Expenses and Living Accommodations

### The Residence Halls

Montana State University has four modern residence halls located on the campus—North Hall, New Hall, South Hall, and Corbin Hall—which will be used as needed for housing college students.

Montana State University adopted the freshman dormitory plan in 1923. All freshman men and women whose homes are not in Missoula are required to live in the University residence halls. This requirement, that freshmen live in the halls, may be waived by the Dean of Men or Dean of Women for certain special reasons. Upper-class women students under twenty-one years of age are required to live in the University residence halls or sorority houses unless expressly excused by the Dean of Women to live in approved homes.

Married students and students carrying less than 10 credits of work must have permission to live in the residence halls. **All occupants of the halls are required to board in the halls.**

The social, moral, and educational welfare of the residents of the halls is under the general supervision of the Deans of Men and Women. Social directors, who give personal attention to the needs of each student, reside in each hall. The students who live in the halls are organized into clubs and assist in the management of social and general interests. In the construction and arrangements of the residence halls, and in their management, the most highly recommended and successful means of attaining a happy, healthful, inspiring, industrious atmosphere have been considered.

The health of the residents of the halls is looked after by the University Health Service.

The management of the halls is in charge of the Director of Residence Halls.

The four residence halls are three-story fireproof brick buildings, steam heated. Each student room has a lavatory with hot and cold running water, a center light and lavatory light, floor plug for study lamp, clothes closets or wardrobes; each room is furnished with a dresser, study table, chairs, single beds size 36" x 76", and wastebasket. Each bed is supplied with mattress, bed pad, pillow, sheets, pillow cases, and two woolen blankets; face and turkish towels and marquisette window curtains are also furnished and the laundering of the above is cared for by the residence halls without extra charge to the students. Each hall has a students' laundry and trunk room.

Students should furnish a day cover or spread for the bed, dresser scarf, and wash cloths. Also desirable are a study lamp and a small floor rug.

### **Rates**

The following rates apply to the four residence halls. The University reserves the right to raise or lower the rates with reasonable notice.

Double rooms, \$30 per quarter for each occupant.

Single rooms, \$45 per quarter.

Board by the month, \$30.

Club fee. A fee not to exceed \$1 per quarter may be assessed the residents of each hall. This fund is expended under the direction of the club officers for social activities.

Application for admission to the halls must be accompanied by a deposit of \$10; the application must be made upon a form furnished by Montana State University. Dormitory circular and room reservation form may be obtained by writing to the Registrar, Montana State University.

### **Additional Living Accommodations**

The Dean of Men has general supervision over the housing of men students, and the Dean of Women, of women students.

Upperclass students may obtain satisfactory rooms in private homes or in rooming houses near the campus at rates varying from \$10.00 to \$15.00 a month; for single rooms, from \$12.00 to \$18.00. Board may be obtained at boarding houses at rates varying from \$30.00 to \$35.00.

Student rooms must be approved by the University. A list of approved rooms in private residences may be obtained on application to

the Dean of Women or the Dean of Men. Arrangements for reservation of rooms in private residence must be made directly with the landlady.

**Women's Cooperative House.** Women students who wish to reduce their living expenses and participate in a cooperative living experience may live in the Women's Cooperative House at 601 Daly Avenue where they share in the work and expenses of the house. The group takes part in campus activities and has a housemother who works with the office of the Dean of Women.

### Expenses

Average expenses of students for the college year are estimated as follows:

See Note below regarding clothing and incidentals.

Books and Equipment.....	\$ 25.00 to \$ 45.00
Fees (See Note) .....	45.50 to 106.00
Room rent for one (two in a room).....	90.00 to 135.00
Board .....	250.00 to 275.00
Cleaning and Laundry.....	15.00 to 40.00

Total .....	\$425.50 to \$601.00
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**Note:** The minimum expense of \$45.50 for fees is applicable only to holders of high school honor and State University scholarships registered for work in the College of Arts and Sciences and the Schools of Business Administration and Education. An additional \$15 each year is charged all students taking work in the Schools of Forestry, Journalism (except in the Freshman year), Law, or Pharmacy. For additional fees for music majors, see page 116. Students not residents of the State of Montana require \$75 additional for payment of the non-resident fee.

The above table includes only the necessary expenses. Other expenses should be provided for, including clothing, \$100 to \$200, and incidentals about \$10 to \$15 per month. The amount allotted for clothing and incidentals is similar to expenditures for those purposes at home. If a single room is desired, a minimum of \$45 additional should be provided.

Parents are advised to place all students on a fixed allowance rather than to give them an unlimited sum on which to draw.

For information about earning expenses see page 37; student loans, page 37; scholarships and prizes, pages 39-42; for railway fare refund, see below.

### 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 satisfactorily carry 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.

### General University Student Loan Funds

The Montana Bankers' Association Student Loan Fund and the Edward C. Elliott Loan Fund are available for students in the junior and senior classes of any of the institutions of the University of Montana who are unable to continue their studies without financial aid. Such students must be recommended as to character and scholarship by the dean or director of the department in which the applicant's major work is done. The loan to any one student is limited to two hundred dollars during his course, and not more than one hundred dollars in any year. Loans must be repaid within one year after the borrower's graduation. Loans bear two per cent interest to maturity and six per cent thereafter.

The Grand Commandery of Knights Templar of Montana has established a loan fund which is available under similar conditions. Loans from this fund bear five per cent interest, and are payable in specified installments, one, two, three, and four years after the borrower's graduation.

University women may borrow under similar terms from the loan fund founded in 1922 by the Missoula branch of the American Association of University Women and from the loan fund of the Associated Women Students.

Application blanks and a statement of detailed regulations governing these loans may be obtained from the Controller.

### Opportunities for Earning One's Way Through College

Although many students earn all or a part of their expenses while in attendance at Montana State University, the young man or young woman who is confronted with the problem of working for self-support while attending college should realize that there are certain "musts" which cannot be disregarded in making his plans: (1) reasonably good health, (2) industry and reliability, (3) a carefully worked out schedule of employment, class, study, and recreation hours, (4) willingness to give time from activities and amusements if necessary to carry out the required employment and education program. The necessary effort and sacrifice can be made only when there is an earnest desire on the part of the student for higher education. Self-supporting students enjoy the highest respect and regard both of their fellow students and of the faculty.

In the depression and post depression days, prospective students were frankly discouraged from entering college unless they had at least \$200 to use for expenses while employment was being found. This amount can now be reduced by half since the demand for student help has more than doubled and the opportunities for almost immediate employment have therefore greatly increased. Some money to meet immediate living expenses, fees, cost of books, etc., at the beginning of the school year is, of course, necessary.

Some business houses in Missoula employ students as clerks, janitors, stenographers, bookkeepers, waiters, dishwashers, porters, bell boys, automobile mechanics, musicians, clothes pressers, solicitors and collectors. There are calls for students to do "odd jobs" in private homes such as garden work, window washing, furnace tending, handling coal and wood, housework, care of children, and general clean-up work. There are some jobs at the University such as janitor service, work in the Residence Halls, stenography, and for upperclass students, employment as laboratory and library assistants.

While students are constantly demonstrating the fact that they can earn their entire way, the University recommends against this for freshmen. When a first year student attempts to earn all his expenses and to do his best school work in a new environment at the same time it is a big undertaking, and should it prove to be too big, what might have been an excellent educational career may be cut off. For this reason it is advisable that students who have limited funds for a college education use more of their resources during their freshman year and plan to earn increasing amounts as they become more and more familiar with University life and work.

It is impossible for the University to give students any definite assurance of employment **in advance of their arrival and personal application.** Upon arriving at the University, students should apply either to Mrs. Mary Elrod Ferguson, Dean of Women, or J. E. Miller, Dean of Men, who will welcome inquiries regarding work for self-support, housing (including cooperative living), courses of instruction, military service, or any other matter connected with student life at Montana State University. Students in need of employment should call at the Deans' Offices as early as possible during Freshman week.

### Students' Health Service

The Health Service is maintained in order to safeguard the health of students and to furnish competent medical service to those who become ill. Emphasis is placed on the prevention of disease.

The facilities and services which are available by or under the supervision of regularly practicing physicians include: (1) office and house calls by University nurses, (2) medicines dispensed at Health Service, (3) prescriptions, (4) usual office call treatments by nurses, (5) immunization for smallpox, typhoid fever, diphtheria, spotted fever, and tetanus, and (6) health certifications. All new students are required to take a physician's physical examination.

Services of private physicians and hospitalization are furnished when authorized in advance by the Health Service. In such cases, payment is made in any one quarter for (1) fees of private physicians and surgeons not exceeding \$50.00, and (2) eight days hospitalization in ward or semi-private room. No payments are made by the Health Service for (1) surgery, except in case of emergencies, (2) hospitalization and treatment for chronic illness, (3) eye examinations and glasses, (4) dental services, (5) allergies, (6) special nurses, (7) injuries incurred through accidents which occur off the campus.

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 is maintained on a self-supporting basis by a fee of \$3.00 per quarter, charged all students enrolled for class work.

## Scholarships and Prizes

The Deans of Men and Women in conference with the President are authorized to administer all matters connected with prizes and scholarships, subject to the condition of gift and any actions by the faculty. Where the awarding of a prize is conditional upon performance in, or in relation to the work of a department of the University, the award is made by the department concerned. Those that are established at present are stated as follows:

**High School Honor Scholarships.** The principal of each fully accredited high school in the state may name from each year's graduating class from one to four members, depending on the size of the class to be recipients of high school honor scholarships. These scholarships exempt the holders from the payment of the entrance fee, the registration fee, and the incidental fee, described on pages 33-34, during their freshman year. Blanks for the nomination of scholars, with detailed statement of conditions, are furnished to principals from the office of the Executive Secretary of the University of Montana at Helena.

**Music School Foundation Scholarships.** The Missoula Kiwanis Club Music Scholarship, the Missoula Rotary Club Music Scholarship, KGVO Radio Station Music Scholarship, and the Heftle Music Shop Music Scholarship of \$75 each (covering music tuition for one year) will be awarded to a new student by the faculty of the School of Music on the basis of musical talent and performance, scholastic record, personality, character, and versatility. Written applications should be sent to the Dean of the School of Music not later than July 1, 1945.

**The American Foundation of Pharmacy Education.** This foundation is providing the sum of \$400 to be used as scholarships for high school graduates of exceptional ability and aptitude. These scholarships will cover fees for three full quarters for students maintaining a satisfactory average in their studies. Students should apply to the Dean of the School of Pharmacy, Montana State University, for information and application forms not later than September 1, 1945.

**The Aber Memorial Oratorical Prizes.** A fund of \$1000 was set aside by the late Professor William M. Aber for the establishment of the Aber Memorial Oratorical prizes. Prizes are given to the winners of first, second, and third places, payable from the interest on this fund.

**Alpha Lambda Delta Scholarship Award.** The national scholarship honorary organization awards a book annually to the member of Alpha Lambda Delta in that year's graduating class who has maintained the highest scholarship average throughout her college work.

**American Association of University Women.** The Butte Branch of the American Association of University Women maintains five loan scholarships at the University, as follows: Claribel Leggat Couse Scholarship, Eleanor Humphrey Smith Scholarship, Rosemary MacGinnis Creden Scholarship, Natalie Lahr Dwight Scholarship, and the Jane Hutchens Moore Scholarship.

One scholarship each year is offered to a Butte high school girl graduate. Candidates for the scholarships must have outstanding grades in the high school and must receive the vote of two-thirds of the club's active membership. These scholarships are on the loan plan, \$300 being allowed each year to each recipient.

**American Legion Military Award.** The Hell Gate Post No. 27 of the American Legion awards a medal at the end of each regular quarter to a student of good scholarship and conduct who excels in military science and tactics.

**The Bennett Essay Prize.** This prize, the annual proceeds from a \$500 endowment, is awarded upon recommendation of the Department of History and Political Science for the best essay by any regular undergraduate student of the Montana State University, on some topic pertaining to good government. No prize is awarded in case the judges decide that no essay submitted is good enough to receive recognition.

**The Bonner Scholarship.** This scholarship, payable from the income of an endowment, was established by Mrs. E. L. Bonner. It is awarded to a student ranking among the highest in scholarship at the end of his freshman year, to be held by him for three years unless forfeited.

**The Edwin B. Craighead Memorial Prize in Art.** This prize is given annually to the freshman or sophomore student in the Department of Fine Arts who has shown the greatest ability in art during the year.

**The Duniway Scholarship Books.** A fund of \$400, established by former President C. A. Duniway, provides standard books, within various fields of knowledge, to be awarded annually to students distinguishing themselves by scholarship in the several departments of the University.

**Elks' Scholarships.** Two scholarships are offered by the B. P. O. E. One annual scholarship of \$150 is given by the Hellgate Lodge No. 383 to some freshman student enrolled at Montana State University. The selection of the recipient is to be made by the Deans' Conference.

A second Elks' scholarship, which ranges from \$100 to \$600, is given annually following a nation wide contest. Any student in the graduating class of a high school within the jurisdiction of the Order, may enter the contest. Information concerning the details of application may be obtained from Dean J. E. Miller, Montana State University.

**Faculty Women's Junior Scholarship Prize.** A cash prize is given annually to a junior woman of excellent scholarship record.

**The Samuel W. Fairchild Scholarship.** Second year pharmacy students are eligible to compete for a scholarship which amounts to \$500 in cash. The examinations are held annually at Montana State University the second Monday in June. Students desiring to compete for this scholarship should apply to the Dean of the School of Pharmacy not later than May 1.

**The Grizzly Cup.** This cup is awarded to the athlete of good scholastic record who has been outstanding in service to Montana State University. The award is withheld in case no student meets the qualifications.

**The Annie Lewis Joyce Memorial Prize.** This prize, the annual proceeds from a \$200 endowment, is awarded upon recommendation of the English Department.

**W. K. Kellogg Foundation Scholarships.** Amounts up to \$300 may be awarded to Medical Technology students who have maintained a scholarship index of more than 2.25 during their regular college course. The grant must be used to defray a part of the expenses incurred during the hospital training. Recipients are selected by an administrative committee. The award is withheld in case no student meets the general qualifications set by the committee.

**Justin Miller Prize in Law.** A \$100 Defense Bond is awarded for the best comment each year in the Montana Law Review. The recipient is selected by vote of the faculty of the School of Law.

**The Montana State Press Association Scholarship in Journalism.** This scholarship, amounting to \$100, is awarded to the journalism major



entering the senior year, on the basis of outstanding scholarship and achievement in journalism. It was established by the Montana State Press Association.

**Music Scholarships.** The State Board of Education approved the establishment of six music scholarships of \$75 each (the cost of music tuition for one year). These are to be awarded annually to students of sophomore, junior, or senior standing on the basis of their past record in the School of Music at Montana State University and the faculty's estimate of their future success in music. These recipients may be required to perform certain duties, such as organizing and coaching small ensembles or similar work at the request of the faculty. In addition, the State Board of Education has established six music scholarships for the Summer Session, 1945, of \$25 each (the cost of music tuition for the summer quarter). See also summer session bulletin.

**The 1904 Class Prize.** This is a cash prize for scholarship payable from the interest on an endowment of \$400.

**Pharmacy Prizes.** The Kappa Psi Senior Scholarship prize is given by the Kappa Psi National Pharmacy fraternity annually to one of its members, provided that a member of Kappa Psi makes the highest general average among all of the pharmacy students in all pharmacy classes.

The Lehn and Fink gold medal is awarded annually to a member of the graduating class showing satisfactory scholarship and promise in pharmacy courses.

Merck and Company, chemical manufacturers, give an annual award of three scientific books to some student who is outstanding in scholarship.

**Phi Sigma Award.** A certificate of excellence is awarded annually by the national honorary biological organization to a graduating senior who has been the outstanding student in the study of biological science and its related fields.

**The Pi Mu Epsilon Prize.** This prize is given in the Department of Mathematics and the Department of Physics. It is of the same nature as the Duniway prize, but is not awarded in the same year that the Duniway prize is allotted to these two departments. It is given by the local chapter of Pi Mu Epsilon, honorary mathematics fraternity.

**The Rhodes Scholarship.** Men who have completed their sophomore year at Montana State University, and are between 19 and 25 years of age, are eligible to compete for the Cecil Rhodes Scholarship, tenable for three years at Oxford University, England, with a stipend of four hundred pounds each year. These scholarships have been suspended for the duration of the war. Dean J. E. Miller, Montana State University, Missoula, is the University representative for the Rhodes Scholarship.

**The Ryman Fellowship in Economics.** This fellowship was founded in 1927 by the late J. H. T. Ryman, Esq., of Missoula, by a bequest of \$10,000, the income of which is to be awarded every fourth even year (first awarded in 1930) to a student of that year's graduating class who has shown distinctive ability and promise in Economics. The purpose of the fellowship is to enable such a student to pursue study in some graduate school of recognized standing leading to the degree of Doctor of Philosophy.

**Sigma Delta Chi Award.** Certificates of recognition and scholarship keys are awarded annually by the national professional journalistic fraternity to the highest ten per cent of the graduating class in journalism.



**The David B. Smith Memorial Prize.** A cash prize is awarded annually to the student doing the best work in the Department of Psychology during the year.

**State Federation of Women's Clubs Scholarships.** The Montana Federation of Women's Clubs assumes the payment of expenses for board, room rent, and necessary books by a gift for the first year and funds provided on the loan basis for the remaining three years.

**State University Scholarships.** Montana State University is authorized to award to five per cent of the students in regular attendance above the freshman year, scholarships exempting the holders from payment of the registration and incidental fees during the three quarters of the following college year. See page 32. These scholarships are to be awarded on or about July 1 of each year to students who, during the preceding year, attended all three quarters and made a scholastic index of 2.0 on a minimum of 40 credits. The awards are made on the basis of ability, character, and promise.

**The Warden Scholarship in Journalism.** The sum of \$100 is awarded to the journalism major entering the sophomore year on the basis of improvement and scholarship in the freshman year in journalism. It was established by Mr. O. S. Warden, publisher of the Great Falls Tribune and Great Falls Leader.

**The Whetstone Scholarship in Journalism.** This award, amounting to \$100, is granted to a journalism major in the sophomore, junior, or senior year, on the basis of scholarship and achievement in journalism. It was established by Mr. Dan Whetstone, publisher of the Cut Bank Pioneer Press.

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## Activities

### Athletics

All athletic activities at Montana State University are under the control and supervision of the Faculty Athletic Committee. Athletic eligibility, schedules of competition, and relationship with other institutions are subject to the approval of the Faculty Athletic Committee. The details of management of intercollegiate athletics are handled by the athletic manager and the coaches, subject to the approval of the Associated Students' Athletic Board, which consists of two members of the faculty, three members of the Central Board of the Associated Students, and two alumni members.

The University has two gymnasiums, one for women and one for men. The men's gymnasium floor is 75x140 feet in size with separate rooms for boxing, wrestling, and theory classes. The first floor is given up to administrative offices, locker rooms, varsity teams' rooms, and training rooms. A wing of the building contains the shower rooms and swimming pool.

The women's gymnasium is equipped with dressing rooms, shower rooms, rest rooms, offices, class rooms, and has a gymnasium floor 45x90 feet in size.

To the north of the men's gymnasium is the Dornblaser athletic field, which was presented to the University by the Alumni Association. A standard quarter-mile cinder track encloses the football field and pits for pole-vaulting and jumping. The track has a 220-yard straight-away, 35 feet wide. The bleachers, extending nearly the full length of

the field, have a seating capacity of 8,500. Ten concrete tennis courts have been constructed north of the women's gymnasium. To the east of the tennis courts is a women's athletic field for hockey, association football, and baseball. North of the library is the intramural football field.

### Annual Interscholastic Games

For thirty-nine years Montana State University held an annual interscholastic 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 the finest 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.

### 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 Associated Men Students is a similar organization for men.

The University Inter-Church Club and various church clubs and associations carry on work for the religious and social life of the University.

There are three musical organizations—the University Women's Chorus; the University Symphony Orchestra; and the University 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 Chapter of Intercollegiate Knights is a national honorary for sophomore men who have evidenced loyalty and a desire to serve the University.

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.

Kappa Tau is a local honorary for seniors who have maintained outstanding scholarship records throughout their college work.

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

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

#### NOTICE

The University reserves the right to change the rules regulating admission to, instruction in, and graduation from the University and its various divisions and any other regulations affecting the student body. Such regulations shall go into force whenever the proper authorities may determine, and shall apply not only to prospective students but also to those who may, at such time, be matriculated in the University. The University also reserves the right to withdraw courses or change fees at any time.

# Organization of Instruction

COLLEGE OF ARTS AND SCIENCES (page 46).

## Division of Biological Sciences

Medical Technology (page 104).  
Nursing Education (page 117).  
Wild Life Technology  
(page 127).  
Bacteriology and Hygiene  
(page 50).  
Botany (page 51).  
Physical Education (page 121).  
Psychology and Philosophy  
(page 126).  
Zoology (page 128).

## Division of Humanities

Classical Languages (page 60).  
English and Speech and  
Dramatics (page 70).  
Fine Arts (page 79).  
Modern Languages: French,  
German, Spanish (page 106).

## Division of Physical Sciences

Chemistry (page 58).  
Geology (page 87).  
Home Economics (page 93).  
Mathematics (page 102).  
Physics (page 123).  
Pre-Medical Course (page 125).

## Division of Social Sciences

Economics and Sociology  
(page 61).  
History and Political Science  
(page 90).  
Pre-Business Administration  
(page 124).  
Pre-Education (page 124).  
Pre-Legal (page 124).

GRADUATE SCHOOL (page 88).

DIVISION OF EXTENSION AND PUBLIC SERVICE (page 75).

SCHOOL OF BUSINESS ADMINISTRATION (page 53).

SCHOOL OF EDUCATION (page 64).

SCHOOL OF FORESTRY (page 79).

SCHOOL OF JOURNALISM (page 95).

SCHOOL OF LAW (page 98).

SCHOOL OF MUSIC (page 110).

SCHOOL OF PHARMACY (page 117).

MILITARY SCIENCE AND TACTICS (page 104).

SUMMER SESSION (page 129).

AFFILIATED SCHOOL OF RELIGION (page 127).

## 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 the courses designated "continuous" the student may receive credit only upon the completion of the entire course. In courses numbered a, b, c, credits may be granted upon completion of a quarter's work. In continuous courses or 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 expected 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.

# College of Arts and Sciences

PROFESSOR RICHARD H. JESSE, DEAN.

The College of Arts and Sciences offers the student a liberal education and special training in some chosen field of work.

## Requirements for Admission

The regular University requirements for admission apply to the College of Arts and Sciences. See pages 19-23.

## Requirements for Graduation

Candidates for the Bachelor of Arts degree must meet the following requirements:

The general University requirements for graduation, pages 23-28, including 93 credits in the College of Arts and Sciences. Special requirements in the Division of which the major department is a member, and the major requirements of the department from which the degree is to be granted must also be met.

## Divisional Requirements for Graduation

**Division of Biological Sciences.** Candidates for the degree of Bachelor of Arts in this Division should complete the following curriculum during the freshman and sophomore years:

### Freshman Year

	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Botany 11ab, 12 or Zoology 11ab, and 12 .....	5	5	3
Chemistry 11abc or 13abc .....	5	5	5
English 11ab and Psychology 11 or elective.....	5	5	5
Physical Education 11abc .....	1	1	1
Military Science 11abc (Men) .....	1	1	1
	16-17	16-17	14-15

**Note:** Botany majors take Botany 11ab, 12; others take Zoology 11ab, 23 or 24. Bacteriology majors take Mathematics 13; Psychology majors substitute Modern Language for Chemistry; Physical Education majors take Zoology 11ab and Chemistry. Other students may substitute Mathematics or Modern Language for Chemistry.

### Sophomore Year

Botany 11ab, 12 or Zoology 11ab, 12, 23 or 24....	5	5	3-5
Social Science 11abc or Humanities 15abc or elective .....	5	5	5
*Foreign Language or Elective .....	4-5	4-5	4-5
Physical Education 12abc .....	1	1	1
Military Science 12abc (Men) .....	1	1	1
	15-17	15-17	15-17

**Note:** Course selected dependent upon major department requirements and course taken in freshman year. Bacteriology majors substitute Chemistry 101ab, 17 for Botany or Zoology and Physics 20abc for Social Science or Humanities. Physical Education majors take Botany 11a, Zoology 24 and Physical Education 20ab. Psychology majors take Psychology 12ab.

\*Course entered dependent upon high school preparation. See Departments of Classical and Modern Languages, pages 60 and 106.

**Division of the Humanities.** Candidates for the degree of Bachelor of Arts in this Division should complete the following curriculum during the freshman and sophomore years:

**Freshman Year**

	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Humanities 15abc or Social Science 11abc or Biological Science 13abc .....	5	5	5
English 11ab and elective or English 12abc .....	3-5	3-5	3-5
*Foreign Language .....	5	5	5
Physical Education 11abc .....	1	1	1
Military Science 11abc (Men) .....	1	1	1
	<hr/> 14-17	<hr/> 14-17	<hr/> 14-17

**Sophomore Year**

Biological Science 13abc, Social Science 11abc, or Humanities 15abc .....	5	5	5
*Foreign Language and Psychology 11 .....	4-5	4-5	4-5
Electives .....	5	5	5
Physical Education 12abc .....	1	1	1
Military Science 12abc (Men) .....	1	1	1
	<hr/> 15-17	<hr/> 15-17	<hr/> 15-17

**Note:** Majors in English or in Speech and Dramatics must complete English 25abc instead of Humanities 15abc and English 11ab or 12abc. Speech and Dramatics majors complete English 15 (3 cr.) and 21. In the sophomore year English majors select two quarters of English 59abc, and either 30a or 30b; Speech and Dramatics majors take English 16 (2 cr.), 46ab, 47, and 68.

**Division of Physical Sciences.** Candidates for the Degree of Bachelor of Arts in this division should complete the following curriculum during the freshman and sophomore years:

**Freshman Year**

	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
English 11ab and restricted elective .....	5	5	5
Chemistry 11abc or 13abc .....	5	5	5
*Mathematics .....	5	5	5
Physical Education 11abc .....	1	1	1
Military Science 11abc (Men) .....	1	1	1
	<hr/> 16-17	<hr/> 16-17	<hr/> 16-17

**Sophomore Year**

Physics 20abc .....	5	5	5
*Modern Language .....	5	5	5
Restricted elective .....	5	5	5
Physical Education 12abc .....	1	1	1
Military Science 12abc (Men) .....	1	1	1
	<hr/> 16-17	<hr/> 16-17	<hr/> 16-17

**Note:** Students intending to major in Home Economics should replace Mathematics with Home Economics 17abc in the freshman year and in the sophomore year, should replace Physics 20abc with Humanities. An interchange between chemistry and foreign language is also permissible. Students intending to major in Geology should replace Physics 20abc in the sophomore year with Geology 11ab and an elective.

\*Course entered dependent upon high school preparation. See Department of Classical and Modern Languages, pages 60 and 106, and Department of Mathematics, page 102.

**Division of Social Sciences.** Candidates for the degree of Bachelor of Arts in this Division should complete the following curriculum during the freshman and sophomore years:

### Freshman Year

	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Humanities 15abc or Biological Science 13abc or *Foreign Language .....	5	5	5
Social Science 11abc .....	5	5	5
English 11ab and Psychology .....	5	5	5
Physical Education 11abc .....	1	1	1
Military Science 11abc (Men) .....	1	1	1
	16-17	16-17	16-17

### Sophomore Year

Biological Science 13abc, Humanities 15abc or English Literature .....	4-5	4-5	4-5
Economics 14ab or History 21abc .....	4	4	4
*Foreign Language or Elective .....	5-7	5-7	5-7
Physical Education 12abc .....	1	1	1
Military Science 12abc (Men) .....	1	1	1
	15-18	15-18	15-18

**Note:** Economics majors should complete Economics 14; History majors, History 21abc. Electives in sophomore year: Economics majors, Economics 16, 17, 19; History majors, History 13abc or 33, 28, 29.

### ONE-YEAR PRE-INDUCTION COURSE

Autumn Quarter	Cr.	Winter Quarter	Cr.	Spring Quarter	Cr.
English 11a .....	5	English 11b or 20....	5	English 11b or 20....	5
*Mathematics 10 or 16	5	*Mathematics 13		Mathematics 21 .....	5
Major elective or *Mod. Language or Chemistry or Physics .....	5	Major elective or *Mod. Language or Chemistry or Physics .....	5	Major Elective or *Mod. Language or Chemistry or Physics .....	5
Physical Education 11a .....	1	Physical Education 11b .....	1	Physical Education 11c .....	1
Military Science 11a....	1	Military Science 11b	1	Military Science 11c	1
Total .....	17	Total .....	17	Total .....	17

## DIVISION OF BIOLOGICAL SCIENCES

PROFESSOR J. W. SEVERY, CHAIRMAN.

It is advisable for students interested in majoring in any department of this Division to include in their high school preparation as many courses as possible in mathematics, physics, and chemistry, as well as work in either French or German.

Requirements for a Bachelor of Arts Degree with a major in Biology: A minimum of 45 credits including Bacteriology 19, Botany 11ab, 12, 126; Zoology 11ab, 12 (3 cr.), 24, 129 (2 cr.).

See also requirements for certification to teach listed on page 65.

\*Course entered dependent upon high school preparation.

### The Biological Station

PROFESSOR GORDON B. CASTLE, DIRECTOR.

Through an act of Congress when the Flathead Indian Reservation was thrown open for settlement, Montana State University received a grant of 160 acres of land for use as a Biological Station. This land is in three tracts at Flathead Lake, 89 acres at Yellow Bay, 36 acres on Bull (Idylwild) Island, and 34 acres on Wild Horse Island. At Yellow Bay a brick laboratory building, a log house for a dining room, a boat house, and a kitchen were erected. Sleeping quarters were in tents. The adjacent region is largely a virgin forest.

The station was maintained and operated as a center for field and laboratory instruction and research in biology for many years. Owing to lack of funds it has not been opened for these purposes for the past several years. During the school year, however, especially in the autumn and spring quarters, the station is used by classes in ornithology, mammalogy, ecology, and entomology for field studies supplementing the regular class work on the campus at Missoula.

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For "Pre-Medical Course" see page 125.

The following course is offered as a general introduction to the field of the Biological Sciences.

**13abc. Introduction to Biological Sciences.** 3 Q. Autumn, winter, spring. 5 cr. each quarter. Students may enter 13b without 13a, but 13ab or Botany 11ab or Zoology 11ab, 23, or 24 shall be prerequisite to 13c. Students who have earned 7 or more college credits in laboratory botany or zoology or both may not be allowed credit for 13a or 13b or both. (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) Morphology, physiology, and phylogeny of the principal animal phyla; habitat relationships. (c) Geographic distribution of plants and animals; principles of heredity and eugenics; history and theory of evolution; evidences for evolution from all fields of biology; modern concepts of mechanism of evolution. A textbook fee of \$1.00 is charged each quarter. Given conjointly by the departments of Botany and Zoology. Mr. Castle. Mr. Kramer. Mr. Severy. Mr. Wright.

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### DIVISION OF THE HUMANITIES

PROFESSOR HAROLD G. MERRIAM, CHAIRMAN.

The following course is offered as a general survey of the field of the Humanities.

**15abc. Introduction to the Humanities.** 3 Q. Autumn, winter, spring. 5 cr. each quarter. Students may enter any quarter. Students 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. Offered conjointly by the Departments of English, Fine Arts, and Modern and Classical Languages. Mr. Arnold. Mr. Clark. Mr. Merriam.

Students who expect to do major work in English or in Speech and Dramatics must register for English 25abc instead of for Humanities 15abc.



## DIVISION OF PHYSICAL SCIENCES

PROFESSOR A. S. MERRILL, CHAIRMAN.

The following course is offered as a general survey of the field of Physical Sciences.

**17. Introduction to Physical Sciences.** 3 Q. Autumn, winter, spring. Continuous. 15 cr. Students who have 8 or more college credits in chemistry or physics may not receive credit in this course. Consideration is given to astronomical phenomena and concepts; chemical changes and their uses; geological features and processes; the various theories of matter and energy as well as the laws and principles that describe their behavior and application. A textbook fee of seventy-five cents is charged each quarter. Given conjointly by the Departments of Chemistry, Mathematics, and Physics. Not given in 1945-46.

## DIVISION OF SOCIAL SCIENCES

PROFESSOR J. EARLL MILLER, CHAIRMAN.

The following course is offered as an introduction to the field of Social Sciences.

**11abc. Introduction to Social Sciences.** 3 Q. Autumn, winter, spring. 5 cr. each quarter. Open to freshmen and sophomores only. Students may enter any quarter. The background and development of political, social, and economic institutions that influence modern life. Special emphasis given present day problems. A textbook fee of \$1.00 is charged each quarter. Divisional Staff.

## Bacteriology and Hygiene

PROFESSOR DONALD M. HETLER (CHAIRMAN).

**Major Requirements:** 40 or more credits including courses 117, 118, 119, 121, 131, and 3 credits of 129. Five credits of Biological Science 13abc and 5 credits of either botany or zoology laboratory or equivalent may be counted in partial fulfillment of this credit requirement. The following courses must be completed: Chemistry 13, 17, 101; Physics 20abc. In addition, major students must have a reading knowledge of a modern foreign language.

Senior examinations will not be given except to candidates for honors.

### 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, pharmacy, 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 subject 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

**117. General Bacteriology.** 1 Q. Autumn. 5 cr. Prerequisite, Chemistry 101 and Physics 20abc or equivalent. Laboratory technique; physiology of bacteria and effect of environmental factors on bacteria; microbiology of soil, water, milk, and other foods; microbiology in industry. In-

roduction to the study of pathogenic bacteria, infectious diseases, and immunity. 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. Prerequisite, course 117. 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, course 118. The characteristics of microorganisms 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, course 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.

**126. Sanitation and Public Health.** 1 Q. Spring. 5 cr. Prerequisite, junior standing, and course 19 or 117. Sanitation and disease prevention with relation to the community. Surveys, reports. Not given in 1945-46.

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

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

### For Graduates

**200. Advanced Bacteriological Problems.** 1 to 3 Q. Autumn, winter, spring. Credit variable. Prerequisite, course 131 or equivalent and consent of instructor. Opportunity is given graduate students to pursue original or assigned investigations individually.

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## Botany

PROFESSORS J. W. SEVERY (CHAIRMAN), CHARLES W. WATERS;  
ASSOCIATE PROFESSOR REUBEN A. DIETERT; ASSISTANT PROFESSOR JOSEPH  
KRAMER.

**Major Requirements:** 50 or more credits including Botany 11ab, 12, 21, 22, 126, 3 credits of 129, 141, 142, 143. Zoology 125 may be applied in partial fulfillment of this credit requirement. The following courses must be completed: Zoology 11ab, 125, and Chemistry 11 or 13. Additional courses may be elected from the following: Botany 51, 161ab, 165, 168; Biological Science 13c.

Senior examinations will not be given except to candidates for honors.

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Students who plan to secure a certificate to teach should consult the certification requirements listed on page 65.

**General Information.** The region is rich in opportunity for research in ecology, pathology, systematic botany, and other branches of the science. Graduate work in these subjects leading to the degree of Master of Arts is offered.

### For Undergraduates

**11a. General Botany.** 1 Q. Autumn. Summer. No prerequisite. A presentation of the general principles of the anatomy and physiology of the flowering plants. Mr. Diettert.

**11b. General Botany.** 1 Q. Winter. 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 structures of plants Mr. Kramer.

**12. Classification of Spring Flora.** 1 Q. Spring. 3 cr. Prerequisite, Biological Science 13ab or Botany 11ab and consent of instructor. A laboratory and field introduction to the classification of the higher plants as exemplified in the spring flora. Students who have completed former courses Botany 11c or 12b may not receive credit in this course. Mr. Severy.

**S14. Economic Botany.** 1 Q. Summer. 2½ cr. No prerequisite. Plants from the standpoint of their uses and products; their geographic distribution; the methods of culture and utilization of those plants of chief economic importance. This course may not be applied toward the restricted elective requirements in laboratory science. Not given summer, 1945.

**21. Plant Anatomy.** 1 Q. Autumn. 5 cr. Prerequisite, 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. Mr. Kramer.

**22. Plant Physiology.** 1 Q. Winter. 5 cr. Prerequisite, Botany 11ab and Chemistry 11 or 13. 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. Mr. Diettert.

**51. Plant Ecology.** 1 Q. Spring. 5 cr. Prerequisite, Botany 12 and 22. The relation of vegetation to the factors of the environment; the influence of environmental factors upon the distribution of plants; the problems of plant succession; plant geography. Mr. Kramer.

**S61. An Introduction to Systematic Botany.** 1 Q. Summer. 4 cr. Open to all students. The classification of flowering plants and a survey of the origin and relationships of the higher plants. Plant identification; use of a manual; methods of collecting, preserving, and mounting plants. The work deals with the summer flora of Western Montana.

### For Undergraduates and Graduates

**\*121. Applied Histology.** 1 Q. Winter. 3 cr. Prerequisite, Botany 21 and Zoology 23. Methods and procedure essential for the dissection of stomachs and identification of stomach contents with some training in pellet and skat analysis. Identification of contents based on stem and leaf remains and seeds. Mr. Diettert. Mr. Wright.

**125. Forest Pathology.** 1 Q. Spring. 5 cr. Prerequisite, junior standing and Botany 51. The agencies of disease and decay of trees and structural timbers. Problems of government forests. Students who have completed the former course Botany 31 may not receive credit in this course. Mr. Waters.

**126. Evolution.** 1 Q. Winter. 3 cr. Prerequisite, Botany 11ab, 12 and Zoology 11ab, 12. 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. Mr. Severy.

**129. Biological Literature.** See Zoology.

**\*141. Morphology of the Thallophytes.** 1 Q. Autumn. 5 cr. Prerequisite, junior standing and Botany 11ab and 12. A systematic study of the morphology and life histories of representative Thallophytes. Mr. Diettert.

**\*142. Morphology of the Bryophytes and Pteridophytes.** 1 Q. Winter. 4 cr. Prerequisite, junior standing and Botany 11ab and 12. Comparative morphology of the Bryophytes and Pteridophytes. Mr. Diettert.

**\*143. Morphology of the Spermatophytes.** 1 Q. Spring. 4 cr. Prerequisite, junior standing and Botany 11ab and 12. Morphology and life histories of representatives of the major groups of Gymnosperms and Angiosperms. Mr. Diettert.

\*Class work will not be given unless demand is sufficient. Qualified students may be permitted to register independently for tutorial instruction.

**152. Advanced Physiology and Ecology.** 1 to 3 Q. Winter, spring. 3-5 cr. Prerequisite, Botany 22 or 51. Intensive study in advanced phases of plant physiology or plant ecology, with emphasis upon special methods and techniques used in investigation. Not given in 1945-46. Mr. Kramer. Mr. Severy.

**161a. Systematic Botany.** 1 Q. Winter. 5 cr. Prerequisite, junior standing and Botany 11ab and 12. Classification of the flowering plants; Monocots, with special emphasis on the grasses; elements of nomenclature; methods of collecting, preserving, and mounting plants. Mr. Severy.

**161b. Systematic Botany.** 1 Q. Spring. 5 cr. Prerequisite, junior standing and Botany 11ab and 12. Classification of the flowering plants; Dicots, especially those of Montana. A field trip may be required. Mr. Severy.

**162. Advanced Taxonomy.** 1 Q. Autumn. 3-5 cr. Prerequisite, Botany 161ab. A continued study of the classification of vascular plants, with additional practice in the determination of the more critical groups. Not given in 1945-46.

**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. Not given in 1945-46. Mr. Diettert.

**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, Botany 21. Methods of preparing microscopic slides; instruction in the paraffin method, venetian turpentine method, celloidin method, and the glycerine method. Mr. Diettert. Mr. Kramer.

### For Graduates

**200. Advanced Botanical Problems.** 1 to 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. Botany Staff.

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## School of Business Administration

PROFESSOR ROBERT C. LINE (DEAN); ASSOCIATE PROFESSOR ROY J. W. ELY; ASSISTANT PROFESSOR BRENDA FARRELL WILSON. MARY FERRO, EDMUND T. FRITZ, EVERETT G. MARBLE, JAMES W. VAN WINKLE, INSTRUCTORS.

The School of Business Administration presents the following suggested courses with a twofold objective: (1) the preparation of students for secretarial positions, furnishing the training necessary to qualify for the many opportunities made available through our present economic situation, and (2) the training for those whose objective may be in the field of executive situations, sales managers, banking, accounting, or general commerce and finance.

### Requirements for Admission

The course in business requires a solid foundation in non-technical subjects. In addition to the University requirements for admission (pages 21 to 24), a student must have completed two years of approved college work.

For regulations regarding admission of special students see page 22.

### Requirements for Graduation

Candidates for the degree of Bachelor of Arts in Business Administration must meet the following requirements:

- (1) The general University requirements for graduation (see pages 23 to 28), except in foreign languages.
- (2) A minimum of 53 credits in Business Administration. The following courses, described under the Department of Economics, are accepted as Business Administration subjects: Economics 101, 102, 103, 104.
- (3) The following courses must be completed: Economics 14, Psychology 11, Business Administration 11, 12, 13, 41, 133, and 151.
- (4) The following courses should be completed: Mathematics 18, 19, and 25.

In addition to the above requirements, each student must be able to typewrite at a minimum rate of 35 words a minute. It is advisable for students to be able to write shorthand.

The School of Business Administration may refuse to recommend a student for a degree until he has shown a satisfactory knowledge of arithmetic, use of English, and use of certain business machines.

Senior examinations will not be given except to candidates for honors.

### Cooperating Schools

The School of Business Administration cooperates with the School of Law so that it is possible to obtain in six years both the degrees of Bachelor of Arts in Business Administration and Bachelor of Laws. This is a very desirable combination for those expecting to enter the legal profession.

Students who wish to specialize in advertising should in their sophomore year complete Journalism 10abc, and in their junior year Journalism 40abc.

The school of Business Administration cooperates with the School of Education in order that those who expect to teach commercial subjects in secondary schools may qualify for a Secondary State Certificate. For this certificate, students should take Psychology 11 in the sophomore year; Education 25ab in the junior year; and Education 25c, 26a, 142, 143, and an elective in the senior year. They are also required to take Business Administration 22c or its equivalent, and to meet a typing requirement of 50 words per minute in a 10 minute test with no more than 5 errors.

**Note:** Students who plan to secure a certificate to teach should consult the certification requirements listed on page 65.

### C. P. A. Examinations

The laws of the State of Montana provide for the certification of public accountants. The University grants the C. P. A. certificate to legally qualified persons who have successfully passed a written examination in "Theory and Practical Accounting," "Auditing," and "Commercial Law." Graduates of the School of Business Administration who have taken the courses suggested in the accounting group will

65-5-6-9-04  
Econ  
Psych  
11 and  
12 and  
13 and  
Law

have the fundamental education required for these examinations. Further intensive study is suggested. One year's residence in Montana is prerequisite for admission to the examination for a Montana certificate.

### Business Research

A Bureau of Business Research, organized in 1940, conducts studies of business problems in Montana and disseminates this information to the business men of the state.

### The Two-Year Secretarial Course

The two-year secretarial training course to prepare students for secretarial or Civil Service positions, is as follows:

	First Year		
	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Business Administration 10 and 15 and English 20 or 25ab.....	5	3-5	2-5
Business Administration 20abc .....	1	1	1
*Business Administration 22abc.....	4	4	4
**Mathematics 10 or Psychology 11 and English 11ab .....	5	5	5
Physical Education 11abc .....	1	1	1
Military Science 11abc (Men) .....	1	1	1
	16-17	16-17	16-17

	Second Year		
	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Business Administration 23 or 24, 23ab.....	4	4	4
Business Administration 11, 12, 13 .....	5	5	5
Business Administration 21abc .....	1	1	1
Economics 14ab and Psychology 32 or Mathematics 25 .....	4	4	5
Physical Education 12abc .....	1	1	1
Military Science 12abc (Men) .....	1	1	1
	15-16	15-16	16-17

### Suggested Curricula for Majors in Business Administration

	Freshman Year		
	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Humanities 15abc or Biological Science 13abc.....	5	5	5
English 11ab and Psychology 11 .....	5	5	5
Business Administration 20abc .....	1	1	1
*Mathematics 10, 19, 25 .....	5	5	5
Physical Education 11abc .....	1	1	1
Military Science 11abc (Men) .....	1	1	1
	17-18	17-18	17-18

	Sophomore Year		
	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Biological Science 13abc or Humanities 15abc.....	5	5	5
Business Administration 11, 12, 13 .....	5	5	5
Business Administration 21abc .....	1	1	1
Economics 14ab and Psychology 32 .....	4	4	5
Physical Education 12abc .....	1	1	1
Military Science 12abc (Men) .....	1	1	1
	16-17	16-17	17-18

\*Course entered dependent upon high school preparation.

\*\*Students who have completed Mathematics 35a or who present 1½ entrance units in algebra may not register for Mathematics 10, but may substitute Business Administration 24.

## ACCOUNTING

## Junior Year

	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Business Administration 41ab .....	.....	3	3
Business Administration 132 and 133 .....	7	.....	.....
Business Administration 113ab and 114 .....	4	4	4
Economics 101 .....	.....	4	.....
Economics 102 and 104a and Business Administration 154 .....	4	4	3
Business Administration 25ab and English 20.....	2	2	5-7
	<u>17</u>	<u>17</u>	<u>15-17</u>

## Senior Year

Business Administration 151 and 129 .....	3	5	.....
Business Administration 115ab and 145 .....	4	4	4
History and Political Science 116 .....	.....	.....	4
Elective .....	9	8	5
Economics 104b .....	.....	.....	4
	<u>16</u>	<u>17</u>	<u>17</u>

GENERAL BUSINESS, COMMERCIAL TEACHING,  
SECRETARIAL TRAINING

## Junior Year

Business Administration 22abc .....	4	4	4
Business Administration 132 and 41ab .....	2	3	3
Business Administration 133 .....	5	.....	.....
Business Administration 142 or 143 .....	.....	.....	3
Economics 101 and 104ab .....	.....	8	4
Economics 103 or Business Administration 154.....	4	.....	3
Business Administration 25ab .....	2	2	.....
	<u>17</u>	<u>17</u>	<u>17</u>

## Senior Year

Business Administration 151, 150, and 156 .....	3	3	3
Business Administration 24 and 23ab .....	4	4	4
Business Administration 131, 129, 142 or 143 .....	2	5	3
Economics 103 or Business Administration 154 .....	4	.....	3
Electives and English 20 .....	3	3-5	3
	<u>16</u>	<u>15-17</u>	<u>16</u>

Note: For Secretarial Training, in the junior year substitute Business Administration 25ab and 20abc or 21abc for 142 or 143; in the senior year substitute 24, 28, and 21abc for 131, 142 or 143.

## For Undergraduates

10. Introduction to Business. 1 Q. Autumn. 5 cr. Open to two-year secretarial students. An orientation course briefly touching on all fields of business. Mr. Marble.

11. Elementary Accounting. 1 Q. Autumn. Summer. 5 cr. Prerequisite, sophomore standing. A student may be exempted from this course upon passing a placement examination admitting him to 12. Fundamental principles of accounting as applied to the single proprietorship. Mr. Van Winkle.

12. Intermediate Accounting. 1 Q. Winter. Summer. 5 cr. Prerequisite, sophomore standing and Business Administration 11 or equivalent by placement examination. Methods of modern accounting practice, with classification of accounts for a partnership. Controlling accounts and columnar books. Mr. Van Winkle.

13. Corporation Accounts. 1 Q. Spring. 5 cr. Prerequisite, sophomore standing and Business Administration 11 and 12 or placement examination in lieu of 12. Trading, non-trading, and manufacturing corporations, together with joint ventures, consignments, etc. Mr. Van Winkle.

15. Office Management. 1 Q. Winter. 3 cr. Open to two-year secretarial students. Prerequisite, Business Administration 10 or sophomore standing. Mrs. Wilson.

**\*20abc. Beginning Typewriting.** 3 Q. Autumn, winter, spring. Summer. 1 cr. each quarter. Keyboard drills, copy work, speed and accuracy drills, letters. Miss Ferro. Mrs. Wilson.

**\*21abc. Advanced Typewriting.** 3 Q. Autumn, winter, spring. Summer. 1 cr. each quarter. Prerequisite, minimum typing speed 35 net words a minute. Letter forms, speed and accuracy drills, corrective work, legal forms, rough draft, tabulation, transcription. Miss Ferro. Mrs. Wilson.

**\*22abc. Stenography.** 3 Q. Autumn, winter, spring. 4 cr. each quarter. Summer, 22ac. Combined shorthand and transcription practice; principles and dictation, reading, speed work. Miss Ferro. Mrs. Wilson.

**\*23ab. Advanced Stenography.** 2 Q. Winter, spring. 4 cr. each quarter. Prerequisite for 23a, dictation speed of 80 words a minute in a five minute test; for 23b, dictation speed of 100 words a minute in a five minute test. Combined transcription and shorthand practice. Mrs. Wilson.

**\*24. Secretarial Practice.** 1 Q. Autumn. 4 cr. Prerequisite, Business Administration 22c. Lectures and practice. Mrs. Wilson.

**25ab. Office Machines Practice.** 2 Q. Any Q. 2 cr. each quarter. No prerequisite for 25a; for 25b, typing speed of 40 words per minute. (a) Calculating, bookkeeping, posting machines, and filing. (b) Duplication machines; ediphone and dictaphone. Miss Ferro.

**\*28. Civil Service Training.** 1 Q. Autumn. 4 cr. Prerequisite, Business Administration 22c or 90 words a minute dictation speed. Civil Service type of dictation and typing; general tests; vocabulary building. Mrs. Wilson.

**41ab. Business Law.** 2 Q. Winter, spring, 3 cr. each quarter. Prerequisite, sophomore standing. (a) Introduction; Contracts; Sales. (b) Agency, Negotiable Instruments; Partnerships; Corporations. Mr. Fritz.

**50. Retail Stores.** 1 Q. Winter. 3 cr. Prerequisite, Economics 14a or Pharmacy 27. Types of retail stores, location, buying, pricing, merchandise display, store selling, types of display advertising, and store costs. Mr. Line.

**52. Salesmanship.** 1 Q. Spring. 3 cr. Prerequisite, sophomore standing. Mr. Line.

### For Undergraduates and Graduates

**113ab. Advanced Accounting.** 2 Q. Autumn, winter. 4 cr. each quarter. Prerequisite, Business Administration 12 and 13. (a) Corporation accounting; theory of balance sheets; valuation of assets on the balance sheet; depreciation; profits; reserves; dividends; surplus. (b) Sinking and other funds; income summaries; analysis of balance sheets; liquidations; consolidations; mergers and branch house accounting. Mr. Marble.

**114. Cost Accounting.** 1 Q. Spring. 4 cr. Prerequisite, Business Administration 113ab. Elements of cost; principles and general methods of cost findings; direct and indirect costs; payroll and labor costs; compiling costs and cost data; control of cost records. Mr. Marble.

**115ab. Auditing.** 2 Q. Autumn, spring. 4 cr. each quarter. Prerequisite, Business Administration 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 final reports, with full analysis in approved form for submission to clients. Mr. Van Winkle.

**124. Insurance.** 1 Q. Spring. 3 cr. Prerequisite, junior standing and Economics 14. Methods of meeting risk; fundamental principles of life, fire, marine, and other insurance. Mr. Line.

**129. Principles of Organization and Management.** 1 Q. Winter. 5 cr. Prerequisite, junior standing. Mr. Line.

**131. Real Estate.** 1 Q. Autumn. 2 cr. Prerequisite, Economics 14. Mr. Line.

**132. Credits and Collections.** 1 Q. Autumn. 2 cr. Prerequisite, junior standing and Economics 14. Credit organization; the credit department; the mercantile agencies; sources of credit information; securing and granting credit; collection methods. Mr. Line.

\*Not more than 15 credits earned in Business Administration 20, 21, 22, 23ab, and 28 may be applied toward graduation by students not majoring in Business Administration.



**133. Corporation Finance.** 1 Q. Autumn. 5 cr. Prerequisite, junior standing and Economics 14. 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. Mr. Ely.

**142. Methods of Teaching Shorthand.** See Special Methods Courses page 70.

**143. Methods of Teaching Typewriting.** See Special Methods Courses page 70.

**145. Income Tax.** 1 Q. Winter. 4 cr. Prerequisite, Business Administration 113ab and 41. The accounting requirements of the law, the regulations and a digest of the law, with practical problems in the preparation of returns for individuals, partnerships, and corporations. Mr. Van Winkle.

**150. Business Ethics.** 1 Q. Winter. 3 cr. Prerequisite, senior standing. Mr. Line.

**151. Marketing.** 1 Q. Autumn. Summer. 3 cr. Prerequisite, Economics 14. The prevailing methods of marketing as applied to manufactured products, industrial raw materials, agricultural products, and consumers' goods; functions of middlemen. Mr. Line.

**152. Foreign Trade.** 1 Q. Winter. 3 cr. Prerequisite, Economics 14 and 101, or consent of instructor. Theories, principles, and methods of international trade. Economic resources and products of the principal countries, their chief exports and imports.

**154. Investments.** 1 Q. Spring. 3 cr. Prerequisite, Business Administration 133. Investment principles and plans; kinds of securities; tests of investment values; outline of financial analysis of industrial, public utility, railroad, financial, real estate, governmental, and foreign securities; the mechanics of investment. Mr. Ely.

**156. Business Cycles.** 1 Q. Spring. 3 cr. Prerequisite, Economics 101 or junior standing and Mathematics 25. Business cycles with special reference to their history, causes, duration, and effects; business forecasting is considered. Mr. Line.

**160. Retail Store Management.** 2 Q. Winter, spring. 4 cr. each quarter. Prerequisite, Business Administration 151 or junior standing and consent of instructor. A special training course in the principles and practice of the management of retail stores. Mr. Line.

**191. Business Administration Seminar.** 1 Q. Any Q. 1 to 3 cr. Prerequisite, senior standing. An intensive study of specific problems in Business Administration. Mr. Line.

**192. Retail Store Seminar.** 3 Q. Winter, spring. 4 cr. each quarter. Prerequisite, senior standing and consent of instructor. A study of retail problems, particularly those arising from the student's practical store experience. Mr. Line.

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## Chemistry

PROFESSORS WILLIAM G. BATEMAN, JOSEPH W. HOWARD, RICHARD H. JESSE (CHAIRMAN).

**Major Requirements:** 50 credits, including Chemistry 11 or 13, 15 cr.; 15, 5 cr.; 17 and at least 2 cr. of 111, 7 to 9 cr.; 101, 10 cr.; 106, 10 cr.; 113, 3 cr. At the time of his graduation, a major student in Chemistry should have acquired a reading knowledge of German or French, and a working knowledge of English composition, college physics, algebra, trigonometry, analytic geometry, calculus, and elementary mineralogy.

Senior examinations will not be given except to candidates for honors.

Students who plan to secure a certificate to teach should consult the certification requirements listed on page 65.

### For Undergraduates

**11. General Chemistry.** 3 Q. Autumn, winter, spring. Continuous. 15 cr. Open to students who present no entrance units and no college credit in chemistry. Mr. Howard. Mr. Jesse.

**13. Inorganic Chemistry and Qualitative Analysis.** 3 Q. Autumn, winter, spring. Continuous. 15 cr. Summer, 13c. 5 cr. Prerequisite, one year of high school chemistry. The fundamental laws of chemistry; properties and relations of the non-metallic and metallic elements; theory and methods of inorganic qualitative analysis. Students who have completed Chemistry 11 may not receive credit for 13ab but are eligible for credit in 13c. Mr. Bateman.

**15. Advanced Qualitative Analysis.** 1 Q. Winter. Summer. 5 cr. Prerequisite, Chemistry 13c. An extension of course 13c, including many of the less common elements. Mr. Bateman.

**17. Quantitative Analysis.** 1 Q. Spring. 5 cr. Prerequisite, Chemistry 13c. Introduction to quantitative gravimetric and volumetric methods. Mr. Jesse.

**19. Organic Chemistry.** 1 Q. Winter. 5 cr. Prerequisite, Chemistry 11 or 13. Brief survey of the field of organic chemistry. Intended primarily for students of home economics. Mr. Howard.

### For Undergraduates and Graduates

**101. The Carbon Compounds.** 2 Q. Autumn, winter. Continuous. 10 cr. Summer, 101b. 5 cr. Prerequisite, Chemistry 11 or 13. 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. Mr. Howard.

**102. Organic Qualitative Analysis.** 1 Q. Spring. 2 cr. Prerequisite, Chemistry 101. Systematic methods of identification of pure organic compounds and mixtures; general class reactions of organic chemistry. Mr. Howard.

**103. Physiological Chemistry.** 1 Q. Spring. 5 or 6 cr. Prerequisite, Chemistry 19 or 101. Chemistry of the human body; blood, bile, urine, feces, milk, etc. Mr. Bateman.

**106. Physical Chemistry.** 2 Q. Autumn, winter. Continuous. 10 cr. Prerequisite, Chemistry 17, 101, 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. Mr. Jesse.

**109. Inorganic Industrial Chemistry.** 1 Q. Spring. 5 cr. Prerequisite, Chemistry 13c and 101. The chemistry of industrial and engineering materials and the discussion of technical chemical processes. Given in 1945-46. Mr. Howard.

**110. Organic Industrial Chemistry.** 1 Q. Spring. 5 cr. Prerequisite, Chemistry 13c and 101. Not given in 1945-46. Mr. Howard.

**111. Technical Analysis.** 1 Q. Autumn. Winter. Spring. 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. Mr. Howard. Mr. Jesse.

**113abc. Journal Club.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Prerequisite, Chemistry 17, 101, 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. Staff.

### 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. Staff.

## Classical Languages

PROFESSOR WESLEY P. CLARK (CHAIRMAN).

**Major Requirements:** The requirement is in attainment rather than credits. Four courses numbered above 100 should assure a good major in Latin. Two courses in Greek may be substituted for two in Latin. Humanities 15abc and History 15 and 16 are recommended.

Senior Examinations are required of all students who major in Latin.

Students who plan to secure a certificate to teach should consult the certification requirements listed on page 65.

**General Information.** Placement examinations are required of all students who continue a language in which entrance credit is presented. Students who offer two entrance units should enter Latin 13a; those offering four units, 15a, subject, however, to the placement examination. The restricted elective requirement is fulfilled upon completion of course 13a for students who present adequate entrance units in Latin.

### Latin

#### For Undergraduates

**11abc. Elementary Latin.** 3 Q. Autumn, winter, spring. 5 cr. each quarter. For students who enter with no high school or college credit in Latin.

**13abc. Intermediate Latin.** 3 Q. Autumn, winter, spring. 5 cr. each quarter. Prerequisite, Latin 11c or equivalent. (a) Selections from Cicero's *De Senectute* and *De Amicitia*, or from Livy. (b) Catullus and Terence. Reading of the commonest metrical forms; outline of Roman literature.

**15ab. College Freshman Latin.** 2 Q. Autumn, winter. 5 cr. each quarter. Prerequisite, Latin 13c or equivalent. (a) Readings from Cicero's *De Senectute* and *De Amicitia*, or from Livy. (b) Catullus and Terence. Reading of the commonest metrical forms; outline of Roman literature.

**17ab. Second Year College Latin.** 2 Q. Subject to demand. 5 cr. each quarter. Prerequisite, Latin 15b. (a) Pliny and Martial; (b) Horace.

#### For Undergraduates and Graduates

**139. Lucretius.** 1 Q. Spring. 5 cr. Prerequisite, Latin 15b and junior standing. Reading and appreciation of portions of *De Rerum Natura*.

**149. Writing Latin (Advanced).** 1 Q. Spring. 4 cr. Prerequisite, Latin 15b and junior standing. Prepared exercises in translating into Latin from text-book or selected passages of English. Given in 1945-46, and in alternate years.

**150. Latin Seminar.** 1 Q. Any quarter. 2-5 cr. Prerequisite, Latin 15b and junior standing. Advanced readings which fit the needs and interest of the student in selected periods and authors. Course may be repeated during succeeding quarters by variation in content.

#### For Graduates

**200. Research in Latin.** 3 Q. Any quarter. Credit variable. Directed individual work. Course may be repeated by variation in content. Given subject to demand.

### Greek

#### For Undergraduates

**11ab. Elementary Greek.** 2 Q. Winter, spring, 5 cr. each quarter. The reading method used; Attic Greek read from the first. Forms, vocabulary, idioms learned by use only.

**13ab. Intermediate Greek.** 2 Q. Autumn, winter. 3 cr. each quarter. Prerequisite, Greek 11b or equivalent. (a) Selections from Plato and Herodotus. (b) Introduction to Greek Tragedy.

**15a. Advanced Greek.** 1 Q. Spring. 3 cr. Prerequisite, Greek 13b or equivalent. Selections from Lucian.

Further work in Greek will be offered as there may be a demand for it; the work will be suited to the interest of the students.

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**20. Latin and Greek in Current Use.** 1 Q. Spring. 2 cr. Open to all students. Cognate languages, language groups, word formation; derivatives from and elements of Greek and Latin required for understanding and making of scientific and other terminologies. This credit may not be applied toward the restricted elective requirement in languages. Not given in 1945-46.

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## Economics and Sociology

ASSOCIATE PROFESSOR ROY J. W. ELY (ACTING CHAIRMAN); ASSISTANT PROFESSORS PAUL MEADOWS, MELVIN C. WREN. CATHERINE NUTTERVILLE, LECTURER.

**Major Requirements:** 50 to 55 credits in Economics and Sociology, including courses 14, 16, 17 or 19, and 118. Not more than 12 credits selected from advanced courses in Business Administration may be applied toward the fulfillment of this requirement.

A comprehensive examination over the major field of study is given to all graduating seniors. Honors candidates must prepare a senior thesis based on original research.

Students who plan to secure a certificate to teach should consult the certification requirements listed on page 65.

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### A. For Students who Plan to do Graduate Work in Sociology or Economics.

Junior and Senior Years: A minimum of 28 credits chosen from the advanced courses in the Department with not less than 20 of these credits in the field selected.

### B. For Students Who Plan to Teach Economics and Sociology.

Sophomore, Junior, and Senior Years: (a) At least 26 elective credits selected to total a minimum of 45 credits in the Department; (b) the educational requirements for the secondary state certificate indicated on page 65.

### C. For Students Who Plan to Become Government Economists.

The following courses are recommended:

Sophomore Year: History 21bc; Business Administration 11, 12, and 13.

Junior and Senior Years: (a) History and Political Science 17, 18, and 116; (b) approximately 20 credits in Economics beyond course 14; Business Administration 133, 151, 152, 154, 156; Mathematics 25, 26; (c) approximately 6 credits of work in course 190 in the special field selected.

**D. For Students Who Plan to do Social Work.**

The following courses are recommended:

Sophomore Year: Bacteriology and Hygiene 19, 26, and Zoology 24.

Junior and Senior years: (a) Courses 130, 135, 136, and a minimum of 10 credits in course 134; (b) approximately 12 credits more in upper division courses in Economics and Sociology; (c) History and Political Science 17, 18, 116; (d) Psychology 11, 33, 115, 130; (e) Home Economics 17b, 28.

**The Ryman Economics Foundation.** The Ryman Foundation in Economics and Sociology was established in 1927 by the late J. H. T. Ryman, Esq., of Missoula. The gift included the testator's personal library in these fields, as well as a gift of \$5,000 for its amplification. A sum of \$7,500 was also bequeathed, the income of which is devoted to a systematic extension of the Economics and Sociology Library.

The bequest also included the sum of \$10,000, the income of which is to be awarded every fourth even year to a student of that year's graduating class who has shown distinctive ability and promise in the field of economics. The purpose of the fellowship is to enable such a student to pursue study in some graduate school of recognized standing leading to the degree of Doctor of Philosophy. The award will next be made in 1946.

**For Undergraduates**

✓14. **Principles of Economics.** 2 Q. Autumn, winter. Summer. Continuous 8 cr., except that 14a, 4 cr., may be applied toward the degree of Bachelor of Science in Forestry. Prerequisite, sophomore standing. Staff.

15. **Elementary Anthropology.** 1. Q. Autumn. 5 cr. Prerequisite, sophomore standing. An introduction to the study of man and culture. Not given in 1945-46.

16. **Elementary Sociology.** 1 Q. Winter. Summer. 4 cr. Prerequisite, sophomore standing. A general study of interhuman relations. Mr. Meadows.

17. **Social Problems.** 1 Q. Spring. Summer. 4 cr. Prerequisite, sophomore standing. An analysis of social change and the problems it causes. Mr. Meadows.

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. Special attention is given to the social, political, and military significance of the distribution of resources and industries, and the interdependence of specialized economic areas. Mr. Ely.

**For Undergraduates and Graduates****Economics**

101. **Money and Banking.** 1 Q. Winter. 4 cr. Prerequisite, junior standing and course 14. Theories of money, international distribution of gold; principles of monetary regulation, commercial banking, and other financial institutions. Federal Reserve system. Mr. Ely.

102. **Transportation.** 1 Q. Autumn. 4 cr. Prerequisite, junior standing and course 14. The principles of railway, ocean and waterway, motor truck, bus, and air transportation. Problems of operation and public regulation. Not given in 1945-46.

103. **Public Utilities.** 1 Q. Autumn. 4 cr. Prerequisite, junior standing and course 14. An economic analysis of problems of the public utility industries. Needs for regulation analyzed and problems of regulation treated. Mr. Wren.

104ab. **Public Finance.** 2 Q. Winter, spring. 4 cr. each quarter. Students may enter either quarter. Prerequisite, junior standing and course 14. (a) Federal finance; (b) state and local taxation. Students who completed the former course Economics 104 may not receive credit in 104a. Course 104a will be given in 1945-46; 104b in 1946-47. Mr. Wren.

**S106. War Economics.** 1 Q. Summer. 4 cr. Prerequisite, junior standing and course 14. The causes of war, pre-war preparations; an analysis of war economy; postwar adjustments. Not given summer, 1945. Mr. Ely.

**107. Postwar Economic Problems.** 1 Q. Winter. 4 cr. Prerequisite, junior standing, Economics 14, and consent of instructor. Emphasis placed on the analysis of postwar problems and international economic plans and the promotion of peace. Mr. Ely.

**109. Economics of Consumption.** 1 Q. Winter. 3 cr. Prerequisite, junior standing and course 14. An analysis of the final stages of the economic process. Mr. Ely.

**110. Agricultural Economics.** 1 Q. Winter. 3 cr. Prerequisite, junior standing and course 14. The economic problems which confront the citizens of an agricultural community and the means applied or advocated as solutions. Not given in 1945-46.

**111. Advanced Economics.** 1 Q. Autumn. 4 cr. Prerequisite, junior standing and course 14. An advanced course in the methods, concepts, and data of economics. Mr. Ely.

**112. Development of Economic Theory.** 1 Q. Autumn. 4 cr. Prerequisite, junior standing and course 14. A history and analysis of economic theories, emphasizing the Classical, Historical and Austrian Schools. Not given in 1945-46. Mr. Ely.

**113ab. Labor Economics.** 2 Q. Winter, spring. 3 cr. each quarter. Students may enter either quarter. Prerequisite, junior standing and course 14. (a) The beginnings, growth, development and current status of the labor movement. (b) Forces behind modern labor conditions, management-labor and government-labor relations. Students who completed the former course Economics 113 may not receive credit in 113b. Course 113a will be given in 1945-46; 113b in 1946-47. Mr. Wren.

**118. Social Science Methods.** 1 Q. Spring. 4 cr. Prerequisite, junior standing and 10 credits in the Social Science Division. An introduction to the methods used in the studies included in the Division of Social Sciences. Divisional Staff.

### Sociology

**120. Population.** 1 Q. Spring. 3 cr. Prerequisite, junior standing and course 16. A quantitative and qualitative analysis of world population; vital statistics and population change; migration and immigration. Mr. Meadows.

**122. Criminology.** 1 Q. Autumn. 5 cr. Prerequisite, junior standing and course 16. A study of the causes, prevention, detection, and correction of crime. Not given in 1945-46.

**125. Development of Social Theory.** 1 Q. Spring. 4 cr. Prerequisite, junior standing and 10 credits in economics and sociology for majors; for others, senior standing. Social theories from earliest times until the present, and the forces which produced them. Not given in 1945-46.

**126. Advanced Sociology.** 1 Q. Winter. 3 cr. Prerequisite, junior standing and course 16. An advanced course in the methods, concepts, and data of sociology. Mr. Meadows.

**129. The Family.** 1 Q. Autumn. 4 cr. Prerequisite, junior standing and course 16. A comparative, historical, and analytical study of matrimonial institutions. Mr. Meadows.

**130. Principles of Social Case Work.** 1 Q. Autumn. 4 cr. Prerequisite, junior standing, course 16, and Psychology 11. The principles of modern organized relief and the analysis of actual case histories describing family problems. Miss Nutterville.

**133. Community Organization.** 1 Q. Autumn. Summer. 3 cr. Prerequisite, senior standing and course 16. Mr. Meadows.

**134. Field Work: Social Administration.** 1 Q. Any quarter. 2-5 cr. Prerequisite junior standing and consent of instructor. This course may be repeated to a maximum of 15 credits. Provides integrated experience in the Social Work Laboratory. Miss Nutterville.

**135. Child Welfare.** 1 Q. Winter. 4 cr. Prerequisite junior standing and course 16. A study of the social problems involving children. Miss Nutterville.

**136. Public Welfare Administration.** 1 Q. Spring. 4 cr. Prerequisite, junior standing and course 16. The history, methods, and policies of the social work and activities of government. Miss Nutterville.

### Anthropology

**140. The Rise of Old World Civilization.** 1 Q. Winter. 4 cr. Prerequisite, junior standing and course 15. The development of civilization from the Neolithic age to the dawn of written history. Not given in 1945-46.

**141. The Archaeology of North America.** 1 Q. Winter. 4 cr. Prerequisite, junior standing and course 15. The study of origins and background of pre-Columbian North American peoples and cultures. Not given in 1945-46.

**145. Ethnography.** 1 Q. Spring. 4 cr. Prerequisite, junior standing and course 15. In accordance with student demand, work may be offered in the ethnography of the Americas, of Africa, of Oceania, and of Asia. By variation in the content as indicated, the course may be repeated for credit. Not given in 1945-46.

**180. Archaeological Survey.** 1 Q. Any quarter. 1-4 cr. Prerequisite, course 141 or 145. A field course in Montana archaeology. Not given in 1945-46.

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**190. Advanced Problems.** Any quarter. 2 cr. Prerequisite, senior standing, and consent of instructor. Staff.

### For Graduates

**234. Advanced Field Work: Social Administration.** 1 to 3 Q. Any quarter. 3 cr. each quarter. Prerequisite, graduate standing and course 130 or equivalent. Course may be repeated to a maximum of 9 credits. Not given in 1945-46.

## School of Education

PROFESSORS WALTER R. AMES, WALTER A. ANDERSON (DEAN); ASSISTANT PROFESSORS AGNES M. BRADY, EDWARD A. KRUG.

Staff Members of Cooperating Departments and Schools Who Offer Special Methods Courses: PROFESSOR LUCIA B. MIRIELEES; ASSOCIATE PROFESSOR STANLEY M. TEEL; ASSISTANT PROFESSORS AGNES M. BRADY, CHARLES F. HERTLER, BRENDA FARRELL WILSON.

The School of Education has the following objectives:

1. To provide professional preparation for teachers of the junior and senior high schools and to qualify them for the State Secondary Certificate. Emphasis is placed on helping these educational workers acquire (a) understanding of the school as an institution; (b) understanding of physical and mental development of pupils; (c) a philosophy of education based on American democracy; (d) techniques and competence needed for doing their work in the practical public school situation.
2. To give advanced preparation for superintendents, principals, supervisors, and guidance workers.
3. To offer advanced and graduate work for elementary teachers.
4. To conduct refresher programs leading to improved certification during the period of teacher shortage.
5. To provide extension and field services to public school systems.
6. To prepare leaders for adult education programs and to assist adult groups through educational services.
7. To cooperate with the State Department of Public Instruction in curriculum revision and in services to the schools.

8. To unify and coordinate the teacher education program in the University.

### Requirements for Admission

In addition to the regular University requirements for admission (pages 19 to 23), a student must complete two years of college work. Pre-education students should follow the curriculum of the Division of Social Sciences on page 48; the completion of a foreign language is elective for students majoring in Education (see pages 26 and 48). General psychology is prerequisite to all courses in Education and should be taken in the freshman or sophomore year.

Students who expect to be certified to teach are required to file with the Dean of the School of Education at the beginning of their junior year a statement of their intended major and minor fields of specialization, which should include one teaching field of at least 45 quarter credits and one of at least 30 quarter credits. See requirements for the Secondary State Certificate below. Each candidate for the Certificate who has not already received credit in Education 26a (Observation and Teaching) will, at the beginning of the junior year, be assigned a definite quarter of the senior year in which he must register for that course.

### Requirements for Graduation

Candidates for the degree of Bachelor of Arts in Education must meet the following requirements:

- (1) The general University requirements for graduation (see pages 23 to 28), except in foreign languages.
- (2) A minimum of 40 credits in Education, including Education 25abc, 26a, and a selection from the following courses or their equivalents: Education 26b, 130, 140, 134, 150ab, 152, 154abc, 158, 162, 165, or 166.

Senior examinations will not be given except to candidates for honors.

**Masters' Degrees.** Applicants for admission to the Graduate School must meet the requirements indicated on page 88; candidates for the degree of Master of Arts or Master of Education must comply with the regulations governing graduate work on pages 88 to 90. For the Master of Arts degree, a candidate must take a general examination on the field of Education early in the period of his candidacy in order to separate satisfactorily his general examination from his special examination on his thesis, which comes shortly before the granting of the degree. A candidate for the Master of Education degree must pass a preliminary examination on his undergraduate courses in Education as a condition to full admission to graduate work within one quarter after beginning his graduate residence. He must, in addition, pass a final examination over the graduate field of Education before being recommended for the degree. No thesis is required. For further information, see pages 88 to 90.

### SECONDARY STATE CERTIFICATE\*

Montana State University recommends its graduates who meet state certification requirements to the State Department of Public Instruction. All such recommendations are approved by the Dean of the School of Education. The Secondary State Certificate meets the North

\*See statement of change in authority for granting teaching certificates on page 66.



Central and Northwest Associations' requirements. However, students who expect to teach in states other than Montana should investigate specific requirements, since they differ in the various states. Academic and professional requirements for Secondary State Certificates to teach in fully accredited high schools of Montana are as follows:

- (1) A Bachelor's or Master's Degree from Montana State University.
- (2) Twenty-four or more quarter credits in education designated by the Dean of the School of Education.
- (3) A teaching major of 45 or more quarter credits in a field taught in high school; this may be in a combination of one or more related subjects.
- (4) A teaching minor of 30 or more quarter credits in a field taught in high school.
- (5) Adjustment in the above minimum credit requirements may be made for the combination of high school and University work in foreign language and mathematics. For each unit earned in high school three quarter credits may be deducted from the 45 or 30 credit minimum. Not more than nine quarter credits may be allowed for high school work in any one field.
- (6) The major or minor subject matter fields may include English, classical or modern languages, commercial work, mathematics, biological sciences, physical sciences, physical education, history and political science, economics and sociology, combined social science, home economics, fine arts, music.

**Note:** Students who began their work on teaching certificate requirements before June, 1944, should consult with the Dean of the School of Education regarding the requirements outlined above. Candidates for the teaching certificate must submit an application blank supplied by the State Department of Public Instruction, which includes a signed certificate of health and a signed oath of allegiance. Transcripts of all college work completed by the applicant must be submitted with the application.

**Candidates for a certificate should confer with the Dean of the School of Education not later than the beginning of their junior year, at which time a statement regarding intended major and minor fields must be filed with the Dean.**

#### **Change in Authority for Granting Teaching Certificates**

Since July 1, 1943, the State Department of Public Instruction issues all teaching certificates in accordance with the law on teacher certification passed by the 1943 Legislature. (Montana Laws, 1943.) The University will continue to offer the courses needed for certification and will recommend candidates to the State Department.

The section of the law which applies to students at Montana State University, preparing to teach, is "a secondary state certificate valid for six (6) years in grades six (6) to twelve (12) inclusive, in the public schools of Montana may be issued by the State Board of Education to a graduate of any fully accredited four (4) year college or university within or without the state in accordance with rules and regulations adopted by such State Board of Education. Montana state institutions recommending for certification shall file complete transcripts of record in the office of the State Superintendent of Public Instruction in such form as may be prescribed and required by the State Board of Education." (Laws of Montana, 1943.)

### Sequence of Certification Courses

The courses required for the teaching certificate should be taken both by Education majors and by non-majors in the following sequence:

Freshman or

Sophomore year: General Psychology.

Junior year: Education 25a, Educational Psychology, 4 credits; and 25b, Principles of Education, 4 credits; Education 25c, Secondary School Teaching Procedures, 4 credits, and electives.

Senior year: Education 25c or elective, 3-4 credits; Education 26a, 5 credits, and elective, 3-4 credits; Education 26b or elective, 3-4 credits.

### Course Requirements in Major and Minor Teaching Fields

Students who wish to qualify for the Secondary State Certificate must complete a minimum of 45 credits in a major teaching field and a minimum of 30 credits in a minor teaching field (see requirements 3 and 4 on page 66). The specific courses required in each major or minor teaching field are outlined by the school or department concerned. These course requirements are available in a special bulletin.

### General Information

Students preparing for the work of superintendent, principal, or supervisor in public schools, for educational research, or for teaching professional subjects, should do major work in Education. Those desiring to become teachers of particular subjects, either in the junior or senior high school, may major in Education or in the subject to be taught.

### For Undergraduates

**\*25a. Educational Psychology.** 1 Q. Autumn. Spring. 4 cr. Prerequisite, junior standing and Psychology 11; sophomores may enroll in their third quarter. Emphasis on psychological foundations of learning; individual differences; pupil guidance and development; psychology of teaching secondary school subjects. Directed observation and study of pupils in school and in out-of-school situations. Staff.

**\*25b. Principles of Education.** 1 Q. Autumn. Winter. 4 cr. Prerequisite, junior standing and Psychology 11; Education 19 (or 25a) recommended. Emphasis on the school as a social institution; backgrounds of education; organization of public schools; current trends and problems in education, looking forward toward the development of a basic philosophy of education. Directed observation of grade and high school classes. Staff.

**\*25c. Secondary School Teaching Procedures.** 1 Q. Winter. Spring. 4 cr. Prerequisite, junior standing and Education 18 and 19 (or 25ab). Emphasis on classroom management; teaching procedures and materials; selection of content, lesson planning; testing and evaluation. Directed observation of school classes in student's major and minor teaching fields. Staff.

**\*26a. Observation and Teaching.** 1 Q. Autumn. Winter. Spring. 5 cr. Education 22 or 25c is prerequisite or must be taken concurrently. Students must, at the beginning of their junior year, consult with the Dean of the School in order to be assigned a definite quarter of the senior year in which this course is to be taken. Observation of classroom teaching; conferences; preparation of lesson plans; and teaching under supervision of critic teachers and staff of the School of Education in cooperation with the Missoula County High School and the Missoula city schools. Mr. Anderson. Mr. Ames. Miss Brady. Mr. Krug.

**26b. Observation and Teaching.** 1 Q. Autumn. Winter. Spring. 4 cr. Prerequisite, 26a and consent of Dean of the School of Education. The second quarter of Observation and Teaching must be done in a teaching

\*Courses required for the Secondary State certificate.

field other than the one registered for in 26a. One hour conference required each week. Mr. Krug.

**42. School Libraries—Survey Course.** 1 Q. Spring. 5 cr. Prerequisite, sophomore standing. Organization and management; book selection; cataloging and classification; selection and use of reference materials. Students who have completed Library Economy S28 may not receive credit in this course. Not given in 1945-46. Library Staff.

**S65. Refresher Program for Returning Teachers.** 1 Q. Summer. 8 cr. Refresher program for former teachers and others with college training seeking permanent or temporary certificates.

**S85. Occupational Therapy and Weaving.** 1 Q. Summer. 1-3 cr. No prerequisite. Procedures and materials useful in occupational therapy and rehabilitation work in hospitals and schools.

### For Undergraduates and Graduates

**S108. Wartime and Postwar Administrative and Teaching Problems.** 1 Q. Summer. Students may take any one or more units. 2 cr. each. Prerequisite, junior standing and 12 credits in education or administrative experience. Not more than 12 credits in unit courses (under S108) may be applied on an undergraduate or graduate degree.

**S111. Aviation Education.** 1 Q. Summer. 5 cr. Prerequisite, high school teaching certificate and consent of instructor. Not given summer 1945.

**130. Fundamentals of School Health.** 1 Q. Spring. 4 cr. Prerequisite, senior standing. The physical and mental health of school children, the hygiene of the school program and instruction, and the problems of the teacher and staff. Mr. Anderson. Mr. Krug.

**134. School Supervision.** 1 Q. Autumn. Summer. 4 cr. Prerequisite, Education 19 or 25a. Instruction—its quality, technique, rating, and improvement; discipline, supervised study, and other problems bearing upon the instructional side of school work. Mr. Anderson.

**S135. High School Supervision.** 1 Q. Summer. 4 cr. Prerequisite, teaching experience and Education 22 or 25c. The problems involved and the means, methods, and plans for improving instruction in the high school. Not given summer, 1945.

**140. Educational and Vocational Guidance.** 1 Q. Winter. Summer. 4 cr. Prerequisite, junior standing or extensive teaching experience. The individual and his aptitudes; direction in education; vocational guidance, its technique, means, and problems. Mr. Ames.

**S148. Problems in Special Education.** 1 Q. Summer. 4 cr. Prerequisite, junior standing, 12 credits in Education or Psychology, and consent of instructor. Diagnostic and remedial techniques and specialized procedures in teaching the handicapped and slow learner. Students who completed Education S136 or S138 may not receive credit in this course.

**150ab. Educational Administration.** 2 Q. Winter, spring. 3 cr. each quarter. Prerequisite, 7 credits in Education. Students may enter either quarter. (a) City school organization and administration. (b) Federal, state, county, and rural school organization and administration. Not given in 1945-46. Mr. Anderson.

**152. Educational Measurements.** 1 Q. Spring. Summer. 4 cr. Prerequisite, Education 19 or 25a. Statistical methods. Development and use of scales, and measurement of educational products. Mr. Ames.

**154a. Seminar in Education.** 1 Q. Autumn. Summer. 4 cr. Prerequisite, senior standing, 8 credits in education, and consent of instructor. Emphasizes historical development of education and current educational problems. Mr. Anderson.

**154b. Seminar in Education.** 1 Q. Winter. 4 cr. Prerequisite, senior standing, 8 credits in education, and consent of instructor. Emphasizes problems of teaching and supervision. Mr. Anderson.

**154c. Seminar in Education.** 1 Q. Spring. 4 cr. Prerequisite, senior standing, 8 credits in education, and consent of instructor. Emphasizes problems of school administration and school finance. Mr. Anderson.

**156. School Finance.** 1 Q. Spring. 4 cr. Prerequisite, senior standing or 12 credits in Education and experience as a principal or superintendent. History and sources of school revenue. Funds, relative costs, inequalities, legal limitations, and proper expenditures. Comparative study of finances. Not given in 1945-46.

**158. Educational Sociology.** 1 Q. Winter. 4 cr. Prerequisite, junior standing and 6 credits in Education. The role of education in modern so-

cial, 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. Mr. Krug.

**S159. Problems of the Junior High School.** 1 Q. Summer. 4 cr. Prerequisite, junior standing, 15 credits in education, and teaching experience. Not given summer, 1945.

**S160. New Developments in the High School Curriculum.** 1 Q. Summer. 4 cr. Prerequisite, junior standing or teaching experience. Not given summer, 1945.

**S161 Curriculum Workshop.** 1 Q. Summer. 1-8 cr. Prerequisite, senior standing and Education 22. A laboratory dealing with curriculum making and the problems of the curriculum. Not more than 10 credits earned in workshop (under course S161) may be applied on an undergraduate or graduate degree.

**162. Problems in Elementary Education.** 1 Q. Autumn. Summer. 4 cr. Prerequisite, junior standing and Psychology 11. The elementary school, its history, organization, management, curriculum, types of teaching; its special problems; the kindergarten and other features with which supervisors should be acquainted. Mr. Anderson.

**165. Workshop in Education.** 1 Q. Autumn. Winter. Spring. Summer. Credit variable. Prerequisite, junior standing and 10 credits in education or teaching experience. This course may be elected for two or more quarters for a total of not more than ten credits. Individual problems in teaching and administration, elementary education, secondary education, curriculum, guidance, teaching literature, dramatics, art, social studies, science. Experimental programs in modern schools. Mr. Anderson.

**166. History of Education.** 1 Q. Spring. 4 cr. Prerequisite, junior standing and 8 credits in Education. Historical backgrounds of present-day problems in education. History of educational thought, school organization and support, curriculum development, and teacher procedures. Mr. Krug.

**S175. Education and the Contemporary Scene.** 1 Q. Summer. 3 cr. Prerequisite, junior standing and 10 credits in Education. The background of contemporary problems which affect education; emphasis on the Montana and Northwest scene as investigated by the Montana Study.

**183. Home and Family Life Education.** 1 Q. Spring. Summer. 3 cr. Prerequisite, 8 credits in education. Consideration of problems and procedures dealing with satisfactory homemaking education in the upper grades and in high schools. Miss Brady.

### For Graduates

**266. Seminar in History of American Education.** 1 Q. Winter. 1-5 cr. Prerequisite, 12 credits in education, including Education 66 or equivalent. Special fields in American educational history; special problems and research. Not given in 1945-46.

**S271. Montana Educational Problems.** 1 Q. Summer. 4 cr. Prerequisite, graduate standing in education. Montana's district system, feasible reorganizations, teaching conditions, curricular defects. Not given summer, 1945.

**S272. Philosophy of Education.** 1 Q. Summer. 4 cr. Prerequisite, graduate standing in education. Leading philosophies, concepts of the individual and society, civilization and the place of education. Not given summer, 1945.

**280. Seminar in Administrative Problems.** 1 Q. Spring. Credit variable. Prerequisite, Education 150ab or equivalent. Intensive study of administrative problems; original research. Not given in 1945-46. Mr. Anderson.

**285. Educational Research and Thesis Writing.** 1 Q. Winter. Summer. 4 cr. Prerequisite, graduate standing in the School of Education. Research problems; their statement, organization, techniques, tabulation of materials. Mathematical concepts necessary for interpretation of research data and conclusions. A study of many types of theses. Mr. Ames.

### SPECIAL METHODS COURSES

Only one of the following Special Methods courses may be used in meeting the minimum professional education requirement of 24 credits for the Secondary State Certificate. If students desire to take more than one of them, they may do so, but must then offer more than 24 education credits. In many instances this will be the desirable and

proper thing to do. These courses are offered in the School of Education by representatives of departments and schools of the University.

**31. Teaching of Secondary Mathematics.** 1 Q. Summer. 4 cr. Prerequisite, consent of instructor. Aims, purposes, and possible curricula for high school mathematics. Not given summer, 1945. Mr. Merrill.

**35a. Systems and Methods in Physical Education.** 1 Q. Autumn. 3 cr. Open only to major or minor students in Physical Education. Prerequisite, Physical Education 12abc. Various systems of physical education; their place in American schools; practical application in methods of handling gymnastic class work. Mr. Hertler.

**105a. Teaching of Composition.** 1 Q. Autumn. 3 cr. Prerequisite, senior standing. For English major and minor students only. Investigation of: various methods of teaching grammar, mechanics, and vocabulary; composition units; oral work. Laboratory exercises in teaching. Miss Mirrielees.

**105b. Teaching of Literature.** 1 Q. Winter. 3 cr. Prerequisite, senior standing. For English major and minor students only. Investigation of: courses of study, methods of teaching various units; books and magazines for free reading; library ordering and up-keep. Laboratory exercises in teaching. Miss Mirrielees.

**123a. School Music.** 1 Q. Autumn. 3 cr. Prerequisite, 10 credits in music other than applied or ensemble music selected to include 11ab. Music methods and materials for elementary schools including child voice, rhythmic development, rote singing. Mr. Teel.

**123b. School Music.** 1 Q. Winter. 3 cr. Prerequisite, 10 credits in music other than applied or ensemble music selected to include 11ab. Music methods and materials for junior high school grades. Mr. Teel.

**123c. School Music.** 1 Q. Spring. 3 cr. Prerequisite, 10 credits in music other than applied or ensemble music selected to include 11ab. Music methods and materials for senior high schools including bands, orchestras, glee clubs, chorus, problems of community music, operettas, festivals. Mr. Teel.

**142. Methods of Teaching Shorthand.** 1 Q. Spring. 3 cr. Summer. 4 cr. Prerequisite, junior standing, and a minor or major in Business Administration, including course 22b or equivalent, or teaching experience in shorthand. Objectives, methods, and materials. Given in 1946-47, and in alternate years. Mrs. Wilson.

**143. Methods of Teaching Typewriting.** 1 Q. Spring. 3 cr. Summer. 4 cr. Prerequisite, junior standing, and a minor or major in Business Administration, or teaching experience in typewriting. Objectives, methods, and materials. Given in 1945-46, and in alternate years. Mrs. Wilson.

**163. Problems in Teaching Home Economics.** 1 Q. Winter. Spring. Summer. 4 cr. Prerequisite, Education 18 and 19 (or 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. Miss Brady.

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## English

PROFESSORS RUFUS A. COLEMAN, EDMUND L. FREEMAN, HAROLD G. MERRIAM (CHAIRMAN), LUCIA B. MIRRIELES; ASSISTANT PROFESSOR GRANT H. REDFORD. MARY B. CLAPP, G. EDWARD HEARN, JOHN E. MOORE, DONALD B. YOUEL, INSTRUCTORS.

**Major Requirements:** 50 or more credits in English. The required courses in English are listed in the schedules given below, which are designed for students of different types of needs and interests. By the beginning of his junior year the student should have decided definitely which of the schedules he is to follow. Fine Arts 31abc; Music 35abc; Psychology 14, 52abc, 55; and at least two quarters of study in sociology and in history are strongly recommended. A reading knowledge in the literature of some foreign language, classical or modern, is recommended. See also *Speech and Dramatics*, page 74.

Senior examinations must be taken by all students who do major work in English or in Speech and Dramatics. The examinations require a knowledge of critical literary terms and a general knowledge of the fields of English and American literature.

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Students who plan to secure a teacher's certificate should consult the certification requirements listed on page 65.

All freshmen will be given an examination in speech. During the year clinical work may be offered students whose speech needs correction.

The English department is prepared to offer major work in six schedules as follows:

**Required in all Schedules:**

Freshman Year: English 25abc, or Humanities 15abc, and English 11ab.

**Schedule A** is planned to give the prospective teacher of English in high schools and in adult education an understanding of the basic relations between literature and human life and a training in the techniques required of the successful teacher of English.

Sophomore Year: 30a or b; 59abc (two quarters).

Junior and Senior Years: Education 105a or b; English 169abc (two quarters); 173ac, 174bc; 192 (one quarter, preferably Chaucer); 199 (two quarters, 4 cr.) The student should also prepare himself to handle speech and dramatics in the high school.

**Schedule B** is designed for those students who look forward to graduate study in English to enable them to teach in colleges, universities, and schools providing adult education.

Sophomore Year: 57b; 59abc (two quarters).

Junior and Senior Years: 169abc (two quarters); 173abc, 174abc (three quarters); 187; 192 (one quarter); 199 (two quarters, 4 cr.)

**Schedule C** has been prepared for students who desire a purely liberal education with possible additional training in a professional field. The studies provide thorough contact with the meaningful thought and emotion of the past and of the present, particularly in the humanities, and constitute an excellent approach to cultural maturity. The student may add training in many fields, especially in librarianship, secretarial work, social service, personnel work, the arts, history, and the languages.

Sophomore Year: 19 (or two quarters of 169abc in the junior year); 59abc (two quarters).

Junior and Senior Years: 75abc (two quarters); 77abc (two quarters); 169abc (two quarters, or 19 in the sophomore year); 174abc (two quarters).

**Schedule D** is designed for students whose major interest is writing. It aims to help the student find himself and free his capacities for expression. The writing done comprises all kinds of writing other than for newspapers, although it is especially adapted to students who wish to develop abilities in the writing of fiction, poetry, essays, drama.

Sophomore Year: 19 (or two quarters of 169abc in the junior year), 57abc (two quarters).

Junior and Senior Years: 72abc (at least 6 credits); 75abc (one quarter); 77abc (one quarter); 96 (two quarters); 169abc (two quarters or 19 in the freshman or sophomore year); 173abc, 174abc (two quarters); 187.

For Schedules E and F see page 74.

### 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 standard in the English placement examination at the time of entrance. A fee of \$5 is charged for this course. Mrs. Clapp.

**Note:** Either English 11ab (10 credits) or 12abc (9 credits) is required of all students in the freshman year except that those who place high in the examination given at the time of entrance may be exempted from 11a or 12a. Majors in the department complete English 25abc instead of the 11ab, 12abc sequence. A student must complete the sequence he begins; i.e., he may not begin with English 11a and then change to English 12b, etc. (See divisional or school curriculum.)

**11ab. Language in Action (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. The gathering and organization of materials, the writing of papers, and the development of personal ideas. Study of words and syntax. Mr. Moore and Staff.

**12abc. Language in Action (Composition).** 3 Q. Autumn, winter, spring. 3 cr. each quarter. See Note above. The gathering and organization of materials, the writing of papers, and the development of personal ideas. Study of words and syntax. Students who receive a grade of "A" in 12b will be exempted from 12c. Mr. Moore and Staff.

**19. Technique of Poetry.** 1 Q. Spring. 4 cr. Open to all students. Understanding of poetry through analysis of forms, conceptions, and modern trends. Guidance in writing verse for students who desire it. Given in 1946-47, and in alternate years. Mr. Moore.

**25abc. Literature and Composition.** 3 Q. Autumn, winter, spring. 5 cr. each quarter. Open only to freshmen who expect to do their major work in English or in Speech and Dramatics. Not open to freshmen who place in English A. Students who have completed course 11a or b or 12a or b or c or 18a or b or c; Humanities 15abc, the former course 25ab or 57c may not register for this course for credit. Three-fifths of the work each week is a study of world literature with extended reading of Shakespeare's plays and poems; two-fifths is practice in writing. Mr. Merriam.

**29abc. Lectures and Readings.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Open to all students. American civilization. Not given in 1945-46. Staff.

**30ab. Composition.** 2 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. Prerequisite, English 11ab or 12abc, and sophomore standing. (a) Autumn and winter. Work in exposition. (b) Spring. A beginner's course in the writing of narrative. Mr. Freeman. Mr. Merriam.

**55abc. Contemporary Literature.** 3 Q. Autumn, winter, spring. 4 cr. each quarter. Summer, 55c. Prerequisite, sophomore standing. Students may enter any quarter. (a) Contemporary American magazines. (b) American essay and fiction. (c) Biography, drama, short story. Some attention is given to verse and non-fictional material in b and c. Miss Mirrielees.

**57abc. Shakespeare and Contemporaries.** 3 Q. Autumn, winter, spring. 4 cr. each quarter. Summer, 57c. Prerequisite, sophomore standing. Students may enter any quarter. (a) Dramatic beginnings in England; Shakespeare and his fellow craftsmen contrasted in relation to different dramatic forms. About twelve plays will be read. (b) Intensive study of three of Shakespeare's plays. Source materials. (c) Extensive reading of Shakespeare's plays. Background material. Students who have completed English 25abc may not receive credit in 57c. Staff.

**59abc. American Literature.** 3 Q. Autumn, winter, spring. 4 cr. each quarter. Summer, 59b. Students may enter any quarter. Prerequisite, sophomore standing. (a) Irving to Whitman. (b) Whitman to Garland. (c) Garland to the present day. Mr. Coleman.



**72abc. Literary Composition.** 3 Q. Autumn, winter, spring. 1-3 cr. each quarter. Students may enter any quarter. Prerequisite, junior standing and English 30a or 30b or consent of instructor on the basis of submitted writings. The writing of fiction and other literary forms. Mr. Merriam

**75abc. 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 1946-47, and in alternate years. Staff.

**77abc. The Drama.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. Prerequisite, junior standing. (a) Periods of world drama. (b) Drama since Ibsen, in England and in Europe. (c) Contemporary American drama. Given in 1945-46, and in alternate years. Mr. Merriam.

**96. English Club.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Open to English major or minor senior students. Discussion of current trends in literature; papers. Staff.

### For Undergraduates and Graduates

**105ab. The Teaching of Literature and Composition.** See Special Methods courses, page 70.

**S154. Social Thought of Literary Men.** 1 Q. Summer. 4 cr. Prerequisite, junior standing and 8 credits of literature or history. A study of the reaction of several eminent literary men, past and present, to the social problems and ideals of their own day. Not given summer, 1945. Mr. Freeman.

**S160. Imaginative Writing: Workshop in Creative Expression.** 1 Q. Summer. 1-3 cr. Prerequisite, junior standing and English 30a or 30b, or 72. Counsel and practice in writing.

**169abc. Literary Values.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Students may enter any quarter. Prerequisite, junior standing and 9 credits in literature. (a) Literary terms and forms. (b) History of criticism. (c) Contemporary theories of value. Given in 1945-46, and in alternate years. Staff.

**173abc. British Literature (1500-1745).** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. Prerequisite, junior standing and for 173a one quarter of 57abc and 6 credits in literature; for 173bc, 8 credits in literature courses. (a) Renaissance verse and prose. (b) Literature up to the Restoration. (c) Restoration and early eighteenth century literature. Given in 1946-47, and in alternate years. Mr. Coleman. Mr. Freeman.

**174abc. British Literature (1745-1914).** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Summer, 174b. Students may enter any quarter. Prerequisite, junior standing and 8 credits in literature; 173c recommended for 174a. (a) Late eighteenth century literature. (b) Writing of the Romantic and early Victorian periods. (c) Victorian and Edwardian literature. Given in 1945-46, and in alternate years. Mr. Freeman.

**S177b. European Drama Since Ibsen.** 1 Q. Summer. 2 cr. Prerequisite, junior standing and 4 credits in literature, preferably in the study of drama. Post-Ibsen drama in France, Italy, Germany, Russia, Great Britain from 1890-1914. Not given summer, 1945. Mr. Merriam.

**S177c. American Drama.** 1 Q. Summer. 2 cr. Prerequisite, junior standing and 8 credits in literature, preferably in the study of drama. Study of the plays and playwrights of the 1920's and the 1930's. O'Neill, Barry, Sherwood, Saroyan, Crothers, Anderson, and others. Contemporary Broadway. Not given summer, 1945. Mr. Merriam.

**187. The English Language** 1 Q. Spring. Summer. 4 cr. Prerequisite, junior standing and 9 credits in composition or literature. Survey of the development of the English language. Words and word histories. Miss Mirrielees.

**192. Major Writers.** 1 Q. Autumn. Winter. Spring. 3 cr. Prerequisite, senior standing and 18 credits in literature. The subject and the instructor change from quarter to quarter. Each year a study of Chaucer will be offered. Staff.

**199. Seminar.** 2 Q. Autumn, winter. 1-3 cr. each quarter. Continuous for seniors. Summer 1-4 cr. Prerequisite, senior standing and consent of instructor. First instruction and practice in research. Mr. Freeman. Mr. Merriam.



### Speech and Dramatics

This major is for students who expect to teach Speech and Dramatics as well as English in the high school. It includes the courses in Education that are required for the certificate to teach and a minor in English. Students with a primary interest in Speech follow schedule E and those whose interest is principally in Dramatics follow schedule F.

For the curriculum in the freshman and sophomore years, see the Division of the Humanities on page 47.

#### Required in both schedules.

English 15 (3 cr.), 16 (2 cr.), 21, 25abc, 30a or b, 46ab, 47, 62, 68, 134, 143.

**Schedule E** has been arranged primarily for students with interest in speech arts. All students wishing to train themselves in clear, logical thinking should study public speech and argumentation (English 20 and 21) and logic (Psychology 50).

Junior and Senior Years: English 62 and 143, and 15 credits selected from English 42, 45ab, 61, 67, 69.

**Schedule F** leads principally to the teaching of dramatics in schools, clubs, and little theaters, or to a stage career; but the studies in this schedule also help toward the attainment of desirable personal qualities—a clear and pleasant voice, poise, self-confidence, imaginative insight into people, a sense of the dramatic.

Junior and Senior Years: English 62 and 143, and 15 credits selected from English 16 (2 cr.), 45ab, 57bc, 77abc, 168.

Students who plan to secure a certificate to teach should consult the certification requirements listed on page 65.

### For Undergraduates

**15. Applied Acting: Voice and Diction.** 3 Q. Autumn, winter, spring. Summer. 1-2 cr. each quarter. Students may enter any quarter. Sophomores may elect the course for only 1 credit each quarter. Principles and practice of acting; participation in the production of plays. Fundamentals of good voice and articulation, proper breathing, and sound attitude. Mr. Hearn.

**16. Applied Stagecraft.** 2 Q. Autumn, winter. Summer. 1-2 cr. each quarter. Open to all students. Sophomores may elect the course for only 1 credit each quarter. Principles and practice of stagecraft. Exercises in construction, planning, and lighting of scenery and costumes. Participation in production of plays. Mr. Hearn.

**17. Stage Lighting.** 1 Q. Autumn. Summer. 2 cr. Prerequisite, 2 cr. of English 16. Given in 1945-46, and in alternate years.

**20. Principles of Speech.** 1 Q. Autumn. Winter. Spring. 5 cr. A beginning course in public speaking with platform practice. Emphasis on audience analysis, purpose, organization of thought, and conversational delivery. Mr. Redford.

**21. Argumentation.** 1 Q. Autumn. Winter. Summer. 5 cr. Open to freshmen but only with consent of instructor. The principles of persuasive speaking with special attention to their application to debate. Research, analysis, evidence, logic, speech composition. Class arguments on current problems. Mr. Redford.

**S23. Reading and Vocabulary Improvement.** 1 Q. Summer. 4 cr. A course to assist students in developing greater speed and comprehension of reading through analysis, practice, and the intensive study of words. Not given summer, 1945. Mr. Redford.

**S27. Informal Speech.** 1 Q. Summer. 4 cr. Open to all students. Discussion of and practice in speaking to clubs, the reading of papers, talk over the telephone, table talk, friendly conversation, introductions, conferences with students. Not given summer, 1945. Mr. Redford.

**42. Discussion.** 1 Q. Spring. 3 cr. Prerequisite, sophomore standing. Theory and application of discussion and group thinking. Extempore speaking in discussion groups. Research, analysis, and organization of thought in the solving of problems. Given in 1945-46, and in alternate years. Mr. Redford.

**45ab. Radio Speech.** 2 Q. Winter, spring. 2 cr. each quarter. Prerequisite, English 20 or 2 credits of course 15, and Music 45a. Study of the adaptation of speech composition and presentation to the broadcasting situation. Script writing, program building, announcing. (a) Speech. (b) Drama. Given in 1945-46, and in alternate years. Mr. Hearn. Mr. Redford.

**46ab. Acting.** 2 Q. Winter, spring. 2 cr. each quarter. Prerequisite, sophomore standing and 3 credits of course 15. Theory and practical application in productions. Mr. Hearn.

**47. Makeup.** 1 Q. Autumn. 2 cr. Prerequisite, 2 credits of course 16. Given in 1946-47, and in alternate years. Mr. Hearn.

**61. Business and Professional Speaking.** 1 Q. Spring. 3 cr. Prerequisite, junior standing and course 20 or 21. Organization and adaptation of speech and materials to special types of audiences. Practice in preparing speeches and lectures on subjects of business or professional interest to the student. Given in 1946-47, and in alternate years. Mr. Redford.

**62. Play Directing.** 2 Q. Autumn, winter. Continuous. 4 cr. Summer. 4 cr. Prerequisite, junior standing, two credits of course 15, and one credit of 16; English 46ab recommended. Theory and practice of play presentation, including play selection; budgets. Directing for children's theater, high school, and non-professional theater; Little Theater management. Mr. Hearn.

**64. Play Production.** 1 Q. Summer. 4 cr. Prerequisite, junior standing or consent of instructor on the basis of practical work in the theater. Casting and rehearsing. Stage grouping and other matters concerned with direction. Mr. Hearn.

**67. Debate.** 2 Q. Winter, 2 cr., spring, 1 cr. Prerequisite, junior standing and English 21. Study of historical debates. Participation in intercollegiate debating. Given in 1945-46, and in alternate years. Mr. Redford.

**68. Advanced Voice and Diction.** 1 Q. Autumn. 3 cr. Prerequisite, junior standing. Study of the social, physiological, neurological, and psychological bases of speech, leading to understanding of speech as a mode of behavior. Given in 1946-47, and in alternate years. Mr. Redford.

**69. Oral Interpretation.** 2 Q. Winter, spring. Continuous. 4 cr. Open to major students of junior standing; to others with consent of instructor. Practice in reading aloud, with criticism. Attention to declamation. Mr. Redford. Mr. Hearn.

### For Undergraduates and Graduates

**134. The Correction of Speech Disorders.** 1 Q. Winter. 3 cr. Prerequisite, junior standing and consent of instructor. Consideration and methods of diagnosis of basic types of abnormal speech; methods of correction. Given in 1946-47, and in alternate years. Mr. Redford.

**143. Advanced Public Speaking.** 1 Q. Autumn. 3 cr. Prerequisite, course 15 (2 cr.), 21, and 68. Theory of oral style. Study of models of speech composition. Mr. Redford.

**S156. Literature of the Theater.** 1 Q. Summer. 1 cr. Prerequisite, junior standing. Literature for high school and for college students, and for high school producers in acting, producing, and theater history.

**168. History of the Theater.** 1 Q. Spring. Summer. 3 cr. Prerequisite, junior standing and 8 credits in literature or dramatics. History of the theater, drama, acting, and stagecraft, with tributary arts, from the beginning to the present day. Mr. Hearn.

## Division of Extension and Public Service

PROFESSOR E. A. ATKINSON, DIRECTOR.

The University is actuated by the idea that, so far as its resources permit, it should perform any public service for which it is more naturally adapted than other existing agencies. For this reason it undertakes various extension activities, such as correspondence study, extension lecturing, etc.

## Correspondence Study

For a bulletin of courses, address Correspondence Study Department, Montana State University, Missoula, Montana.

During the past year the University has offered the following correspondence courses:

### Bacteriology and Hygiene

General Hygiene.

### Business Administration

Elementary Accounting, Intermediate Accounting, Corporation Accounts, Advanced Accounting, Auditing, Cost Accounting, Credits and Collections, Corporation Finance, Foreign Trade, Marketing, Methods of Teaching Typewriting, Methods of Teaching Shorthand, Salesmanship.

### Classical Languages

Elementary Latin, Intermediate Latin, Writing Latin (Elementary), College Freshman Latin, Pliny and Martial, Catullus and Terence, the Annals of Tacitus, Life and Works of Vergil, Latin Seminar.

### Economics and Sociology

Principles of Economics, Money and Banking, Taxation and Public Finance, Elementary Sociology, Child Welfare, Social Problems, Transportation, Principles of Social Case Work, Labor Economics, Agricultural Economics, Public Welfare Administration, Elementary Anthropology, Community Organization, The Family.

### Education

History of Education, Principles of Education, Educational Psychology, The High School, School Supervision, History of American Education, Educational Administration, Fundamentals of School Health, School Finance, Educational and Vocational Guidance.

### English

British Literature, Backgrounds of Irish Literature, Language in Action (Composition) 11ab, American Literature (59abc), The Novel (75a and b), Contemporary Literature (55b and c).

### Geology

General Geology, World Geography.

### History and Political Science

Introduction to Social Science, English History, American Government and Politics, State and Local Government, United States History, Contemporary United States History, Montana History and Government, Europe in the Nineteenth Century, Medieval Europe.

### Home Economics

Elementary Nutrition, House Planning and Furnishing, Textiles.

### Journalism

The High School Newspaper.

### Mathematics

Introductory Business Mathematics, Intermediate Algebra, Solid Geometry, Survey of College Mathematics, College Algebra, Plane Trigonometry, Mathematics of Investments (Elementary), Elementary Statistics, Plane Analytic Geometry, Differential Calculus, Integral Calculus, Seminar, Spherical Trigonometry.

### Modern Languages

Elementary French; Intermediate French; Advanced French; General Survey of French Literature; French Culture and Life; French Grammar Review and Composition; The Seventeenth Century French Literature; The Eighteenth Century French Literature; French Readings; The Nineteenth Century French Literature; Advanced French Composition. Elementary German, Intermediate German; Advanced German; German Grammar, Composition, Conversation; German Readings. Elementary Spanish; Intermediate Spanish; Advanced Spanish; Spanish Grammar, Composition, Conversation; General Survey of Spanish Literature; Spanish Drama of the Golden Age; Spanish Novel and Drama of the Nineteenth Century; Contemporary Spanish Drama; Spanish-American Literature; Commercial Spanish; Contemporary Spanish Novel; Spanish-American Civilization.

### Music

Survey of History of Music, Elementary Harmony, Advanced Harmony, Counterpoint, Class Piano Methods, Band and Orchestra Management, School Music.

### Psychology and Philosophy

General Psychology, Social Psychology, Abnormal Psychology, Ethics, Child Psychology, Psychology of Business, Psychology of Personality, Logic, History of Philosophy.

### Religion

The Religions of Mankind, Our Prophetic Heritage. Further work upon request.

### Correspondence Study Fees

The fees for correspondence courses are payable in advance.

For each quarter credit .....	\$2.50
To cover cost of postage on returned assignments, per course .....	\$1.00

A charge of \$2.00 will be made for extension of time for the completion of a correspondence study course, except in the case of students required to suspend the correspondence study work while in attendance at some institution. If no work has been done on a course, and all other rules have been complied with, upon payment of \$2.00, the fee will be transferred to another course on request.

In case books are borrowed from the University Library a deposit of \$4.00 should be sent to the Correspondence Study Department. When the student no longer desires books, \$3.00 of the deposit is returned, less postage and fines for delay in returning books. This fee is refunded **only when requested** by the student. The other \$1.00 is retained as a rental charge.

## Extension Courses

Regular university courses are made available to the public through the extension program. These courses are usually given in the evening, and are offered in any accessible community where there is sufficient demand to justify the organization of the work. In nearly every case, the instructor in charge of an extension course is the instructor who teaches that course regularly at the University. The fee for extension courses is based upon the charge of \$2.50 for each quarter credit. Persons who wish to attend these courses merely as "auditors" are charged at the flat rate of \$5.00 per course.

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## Public Lectures

The services of members of the University staff may be secured for public addresses and lectures by application to the Division of Extension and Public Service.

Owing to financial limitations Montana State University has no separate staff for public service work, but is compelled to call upon the members of the regular staff for extra-mural services. For this reason it is usually necessary to plan some time in advance for any work which calls staff members away from the institution for any considerable length of time.

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## PLACEMENT BUREAU

Montana State University endeavors to assist all of its graduates and graduate students in finding positions and in securing advancement. This work is done by the Placement Bureau, the Director of which is Dr. G. D. Shallenberger and the secretary of which is Miss Helen Elliot. Confidential information showing the preparation, character, ability, and success of all persons registered in this Bureau is collected. This information is furnished to prospective employers.

The Placement Bureau particularly assists school authorities in need of teachers, principals, and superintendents; in like manner, it assists teachers, principals, and superintendents in finding positions which they are qualified, by training, ability, and experience, to fill. A registration fee of \$5.00 is charged teachers for this service to cover the cost of gathering material, making up sets of papers, and sending them out to employing school officials. No additional charge is made for renewal of registration in subsequent years. Students who have paid the fee of \$5.00 for the University Certificate of Qualification to Teach are not required to pay the \$5.00 fee for the services of the Placement Bureau.

## Fine Arts

ASSISTANT PROFESSOR ADEN F. ARNOLD.

**Major Requirements:** 55 or more credits, including Fine Arts 23, 25ab, 31abc, 40, and 51.

Senior examinations will not be given except to candidates for honors.

Students who plan to secure a certificate to teach should consult the certification requirements listed on page 65.

### For Undergraduates

**Drawing.** 3 Q. Autumn, winter, spring, summer. 3 cr. each quarter. Open to all students. Fundamentals of objective and expressive drawing, using varied methods and subject matter.

**25ab. Color and Design.** 2 Q. Autumn, winter, summer. 3 cr. each quarter. Open to all students. A course in creative design and use of color, offering an introductory study of theories, methods and problems.

**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 Fine Arts 23. A basic course in the methods and techniques of sculpture.

**37. Mediums.** 1 Q. Autumn, summer. 3 cr. Prerequisite, 6 credits of Fine Arts 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, summer. 3 cr. Prerequisite, 6 credits of Fine Arts 23. Water color techniques and expressive use of subject matter. Still life and landscape.

**40. Painting.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, 6 credits of Fine Arts 23. Methods and techniques of oil painting, with individual criticism directed towards significant expression.

**51. Life Drawing.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Prerequisite, 6 credits of Fine Arts 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

**125. Advanced Design.** 3 Q. Autumn, winter, spring. 1 to 3 cr. each quarter. Prerequisite, junior standing and Fine Arts 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 3 cr. each quarter. Prerequisite, junior standing and Fine Arts 40. Advanced training with emphasis on creative work. With consent of instructor, this course may be repeated to a maximum of 12 credits.

## School of Forestry

PROFESSORS FAY G. CLARK, THOMAS C. SPAULDING (DEAN), CHARLES W. WATERS; ASSOCIATE PROFESSOR MELVIN S. MORRIS; ASSISTANT PROFESSORS CHARLES W. BLOOM, THOMAS G. SWEARINGEN. O. M. PATEN, INSTRUCTOR AND EXTENSION FORESTER. EDNA HOLDING CAMPBELL, SECRETARY-LIBRARIAN.

Staff members of the School of Forestry assigned to specific activities in the Montana State Forest and Conservation Experiment Station: Assistant Professor Charles W. Bloom, Forest Engineer; As-

sociate Professor Melvin S. Morris, Range Ecologist; Instructor O. M. Patten, Extension Forester; Professor T. C. Spaulding, Director; and Professor Charles W. Waters, Silviculturist and Forest Pathologist.

The School of Forestry provides instruction along the following lines: (1) A basic undergraduate course in Forestry with optional specialization in either (a) General Forestry and Forest Engineering, (b) Range management, (c) Wildlife Management, or (d) Industrial Forestry; (2) a graduate course with opportunities for research in Silviculture, Management, Forest Engineering, Range Management, Forest Utilization, or allied subjects may be offered to selected applicants.

**Undergraduate Course.** The undergraduate curricula have been arranged to provide a broad training in the profession of Forestry, with particular reference to the various lines of scientific and administrative work in federal and state services and management in the lumber industry. That the student may grasp both the practice and theory of forestry, technical instruction is supplemented by field practice or its equivalent and one summer's training in Forestry methods and technique.

**Graduate Course.** The School of Forestry offers opportunity for graduate and research work, to a limited number of students, leading to the degree of Master of Science in Forestry in the fields of Silviculture, Forest Management, Forest Technology, Forest Products, Lumbering and Logging, and Range Management.

**ESMWT.** The School of Forestry, in cooperation with the United States Office of Education, offers special adult education courses under the Engineering, Science and Management War Training Program for critical industry and the war effort in engineering fundamentals, drafting, and machine design. Staff assigned to this special course: Professor T. C. Spaulding, in charge; Edna Holding Campbell, secretary; instructors in engineering fundamentals, drafting, and machine design: Joe B. Hahn, Cullen E. Waldo, Ray Beutell, and Thelma T. Reed; instructor in mathematics: Boyd F. Baldwin.

### Requirements for Admission

The regular University requirements for admission apply to the School of Forestry (see pages 19 to 23). Since it is desired to limit the undergraduate registration, applications, with transcripts of high school or previous college work, must be filed in advance.

Placement examinations in mathematics may be required at the time of entrance.

### Requirements for Graduation

**Note:** Students failing to maintain a scholarship index of one (average grade of "C") may not be permitted to continue as majors in the School of Forestry.

Candidates for the degree of Bachelor of Science in Forestry must meet the following requirements:

- (1) The general University requirements for graduation (see pages 23 to 28).
- (2) A minimum of 186 credits of work, not including credits obtained in Military Science and Physical Education.
- (3) A curriculum in Forestry which is satisfactory to the staff of the School.

- (4) Candidates for the degree of Bachelor of Science in Forestry may elect (a) the four-year curriculum with a required Summer Session or (b) a five-year curriculum. In (a) the Summer Session will be required in the summer immediately following the completion of the sophomore year curriculum. A student must elect his field of specialization and either the four-year curriculum or the five-year curriculum by the end of his sophomore year in Forestry. During the present emergency it may be possible for a student to complete his work in four academic years.
- (5) The increasing complexity and breadth of the forest and conservation problems now require a wider basic preparation on the part of the student. That he may be more adequately equipped to meet the future demands of the profession and its fields of specialization, the curricula have been so arranged that he may, if he desires, secure a wide background as well as an adequate professional education. Students are strongly advised to elect the five-year curriculum.

**Note:** Those students specializing in Wildlife Management must elect the five-year curriculum.

Senior examinations will not be given, except to candidates for honors.

Candidates for either the degree of Master of Science in Forestry or Master of Science with a combined major in Botany and Forestry must comply with the regulations governing graduate work set forth on pages 88 to 90.

### **Summer Quarter**

As soon as war conditions permit, a summer quarter consisting of a combined classroom and laboratory session of ten weeks may be required of undergraduates in the School of Forestry who have elected the four-year curriculum. Since the subjects given in the Summer Quarter are prerequisite to those in the junior and senior years of the four-year curriculum, this Summer Quarter should be taken not later than the end of the sophomore year.

The Summer Quarter will be held on the campus and in the field. The courses to be offered and the credit to be earned during this period may be found on page 83. Trips may be taken to adjacent forest and range regions to accomplish more satisfactorily the instruction of the student.

### **Summer Work**

One of the features of the Montana School of Forestry is the opportunity students have had for summer work. Each student should spend at least two summers, of not less than three months each, in gaining field experience in some type of approved forestry work. Federal and state agencies and the forest industries all have assisted, in the past, in making positions available for summer work for the student.

Students always have had opportunities to earn while gaining field experience. Positions for summer work cannot be guaranteed. The assignment to these positions and employment after graduation are dependent on the student's character, scholarship, and ability and the availability of positions.



### Field Work

As much technical instruction as possible is carried on in the field. The school forests with their 21,000 acres of forest soils, national and private timber holdings, logging operations, and sawmills offer excellent laboratories in the practice of the various phases of Forestry, Range Management, Wildlife Management, and Industrial Forestry.

*Field trips of from one to several weeks' duration are required as a part of the regular curricular work. Upperclass and graduate students must be prepared to bear the expenses of such trips. These do not normally exceed \$80 per academic year.*

### General Information

The School of Forestry possesses a marked advantage in location and equipment. Every forest type of the inland Northwest is found within a few miles of the campus. Railroads and bus lines place the School within easy reach of extensive logging, lumbering, and lumber manufacturing operations. Mills, with an average annual cut of 120,000,000 feet B. M., are located within thirty minutes of the campus. These mills and plants are available for use by the School as laboratories in forestry.

The School of Forestry maintains its own forest nursery with a potential capacity of one million trees a year. In addition, it has, in cooperation with the Montana State Forest and Conservation Experiment Station, school forests of some 21,000 acres of forest and range lands, embracing some of the choicest sites and forest conditions in the Northern Rocky Mountain forest area. The school forests are accessible to the camps.

The Montana Forest and Conservation Experiment Station was created by the State Legislature in 1937. It is operated as an integral part of the School of Forestry and students use the Station and its forest as a part of their instructional plant. The Experiment Station has recently acquired a forest area of the highest value, not only from the standpoint of its silvicultural and forest stand characteristics, but also as a forest pasture for both domestic livestock and wildlife.

The headquarters of the Northern Region of the United States Forest Service, the Northern Rocky Mountain Forest and Range Experiment Station, the Lolo National Forest, and the State Forester are located in Missoula. The boundaries of the Lolo National Forest and the Blackfoot Forest Protective Association surround the School. These include more than 3,000,000 acres of public and privately owned timber lands under forest management. Within 100 miles of the campus are ten national forests, two other government timber reserves, several state forests, a national park, and two forest protective associations.

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The Forestry Club has established a loan fund available to students of forestry. The fund now contains about \$5000, and is open to juniors and seniors who have been active members of the club for at least one year.

**Required of All Majors in Forestry**

## Freshman Year

	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Chemistry 11abc or 13abc .....	5	5	5
English 11ab .....	5	...	5
*Mathematics 13 and Forestry 11 .....	...	5	3
Botany 11ab and 12 .....	5	5	3
Physical Education 11abc .....	1	1	1
Military Science 11abc .....	1	1	1
	<u>17</u>	<u>17</u>	<u>18</u>

## Sophomore Year

Zoology 11a, Botany 22 and 51 .....	5	5	5
Physics 20a and 25 (or Mathematics 25) .....	5	...	5
Economics 14a and electives .....	4	3	3
Forestry 42, 45 and 44a .....	2	3	2
Physical Education 12abc .....	1	1	1
Military Science 12abc .....	1	1	1
	<u>18</u>	<u>18</u>	<u>17</u>

Upon satisfactory completion of the subjects listed in the freshman and sophomore years the students must elect one of three fields of specialization; namely, Forest Management, Range Management, or Wildlife Management. See Note under Wildlife Management page 85.

## Four-Year Curriculum

## Summer Quarter

(Between sophomore and junior years)

Forestry S41 .....	3
Forestry 44b .....	2
Forestry 24a .....	5
	<u>15</u>

## Junior Year

(Required in all schedules)

Forestry 23abc .....	4	4	4
Forestry 25ab .....	4	4	...
Geology 11a and Botany 125 .....	5	...	5

## Forest Management

Forestry 31 and 32 .....	...	3	4
Forestry 33 and 34 .....	4	3	...
Forestry 46ab or 14 .....	...	2-3	3
	<u>17</u>	<u>16-17</u>	<u>16</u>

## Range Management

Forestry 39abc .....	3	2	5
Botany 161a .....	...	5	...
Elective .....	...	...	3
	<u>16</u>	<u>15</u>	<u>17</u>

## Senior Year

(Required in all schedules)

Forestry 24b .....	5	...	...
Forestry 12 and 26ab .....	4	5	2
Forestry 103 and 104 .....	2	2	4
Zoology 118 and Forestry 13 .....	3	...	4

\*Course entered dependent upon high school preparation. Students who offer entrance credit in trigonometry may not receive credit for Mathematics 13. Students who do not present 1½ entrance units in algebra will find it necessary to register for Mathematics 10 in the autumn quarter and for English 11a in the spring quarter.

		Forest Management		
		Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Forestry 36ab .....		4	4	....
Forestry 37 .....		....	5	....
		18	16	10
		Range Management		
Forestry 14 or 35 .....		....	3-4	....
Forestry 40abc .....		4	4	2
		18	14-15	12

**Note:** Forestry 14, Forest Fire Control, and 38, Wildlife Management, are highly advised electives and should be completed by all majors before the spring quarter of the senior year.

Five-Year Curriculum				
Junior Year				
(Required in all schedules)				
Geology 11a and Botany 125 .....		5	....	5
Forestry 41ab .....		4	....	4
Forestry 44b .....		....	....	2
		Forest Management		
Forestry 14 and 31 .....		3	3	....
Forestry 33 and 34 .....		4	3	....
Electives .....		....	10	7
		16	16	18
		Range Management		
Botany 161a .....		....	5	....
Forestry 39abc .....		3	2	5
Electives .....		5	10	....
		17	17	16
Senior (Fourth) Year				
(Required in all schedules)				
Forestry 23abc .....		4	4	4
Forestry 25ab .....		4	4	....
Forestry 24a .....		....	....	5
Zoology 118 .....		3	....	....
		Forest Management		
Forestry 46ab .....		....	2	3
Forestry 37 .....		....	5	....
Electives .....		5	....	4
		16	15	16
		Range Management		
Forestry 40abc .....		4	4	2
Forestry 35 .....		....	4	....
Electives .....		....	....	4
		15	16	15
Senior (Fifth) Year				
(Required in all schedules)				
Forestry 24b .....		5	....	....
Forestry 12 and 26ab .....		4	5	2
Forestry 38 and 104 .....		3	....	4
Forestry 103 and 13 .....		2	2	4
		Forest Management		
Forestry 36ab .....		4	4	....
Electives and Forestry 32 .....		....	5	4
		18	16	14
		Range Management		
Electives .....		4	9	4
		18	16	14

## Wildlife Management

As previously indicated, the curriculum in Wildlife Management specialization requires five years in residence or its equivalent. During the third, fourth, and fifth years, in addition to those courses required in all schedules, the student should elect the following courses: Zoology 11, 23, 107, 108, 109, 125, 131, and Botany 161ab.

## For Undergraduates

**11. Survey of Forestry.** 1 Q. Autumn. Spring. 3 cr. The field of forestry as a profession; functions and characteristics of forests, their benefits, use, distribution, and importance, as well as the relationship of the forest resources to the conservation of all natural resources. Mr. Spaulding.

**12. Economics of Forestry.** 1 Q. Autumn. 4 cr. Prerequisite, Economics 14a or equivalent and junior standing. The economics underlying the management of the forest stand and the utilization of the forest soil crop. Mr. Spaulding.

**13. Forest Policy.** 1 Q. Spring. 4 cr. Prerequisite, junior standing. The development of the forest law and forest policy of the states, the United States, and other nations; public land law as it affects forest administration. Mr. Spaulding.

**14. Forest Fire Control.** 1 Q. Autumn. Winter. 3 cr. Prerequisite, Mathematics 35b or equivalent. The problem of forest fire control; prevention, detection, and suppression; equipment and improvements. Mr. Bloom.

**23abc. Silviculture.** 3 Q. Autumn, winter, spring. 4 cr. each quarter. Students may enter any quarter. Prerequisite, Botany 51. The foundations of silviculture upon an ecological basis. The effects of climatic, adaphic, and biotic factors on the growth and development of trees and stands. The influences of the forest upon the site. Principles underlying the regeneration, care, and protection of forest stands. The silvicultural systems of harvesting and reproducing the final crop and the intermediate treatments such as weedings, thinnings, and improvement cuttings. Application of silvicultural methods in the various forest regions of America. Artificial reproduction of the forest, including sowing, planting, and nursery practice. Mr. Waters.

**24ab. Forest Mensuration.** 2 Q. Spring, autumn. 24a also given in summer session. 5 cr. each quarter. Prerequisite, Forestry 23ab or consent of instructor, Forestry 41a, and Mathematics 35c. Elements of Forest Mensuration and application of growth to the regulation of timber stands. Mr. Clark.

**25ab. Dendrology.** 2 Q. Autumn, winter. 4 cr. each quarter. Students may enter either quarter. Prerequisite, Botany 22 or consent of instructor. The microstructural and taxonomic relationships of the principal forest trees of the United States and Canada, with some consideration of important foreign species. Mr. Waters.

**26ab. Forest Management.** 2 Q. Winter, 5 cr.; spring, 2 cr. Prerequisite, Forestry 24ab and Forestry 23abc. Forest regulation and finance. Mr. Clark.

**\*27. Forest Recreation.** 1 Q. Autumn. Spring. 3 cr. Prerequisite, junior standing. Administrative, economic, and social aspects of the recreational use of forest lands. Field trips may be required. Mr. Clark.

**31. Wood Technology.** 1 Q. Winter. 3 cr. Prerequisite, Botany 22 or consent of instructor. The physical, chemical, and mechanical properties of wood. Mr. Waters.

**32. Forest Products.** 1 Q. Spring. 4 cr. Prerequisite, Forestry 31 or consent of instructor. Character, extent, and value of the products derived from the forests of the United States and Canada, with some reference to important forest products produced elsewhere. Mr. Spaulding.

**33. Logging.** 1 Q. Autumn. 4 cr. Prerequisite, sophomore standing. Methods of logging and transportation systems used in the United States, with special reference to conditions, equipment, and practices involved in logging; comparative foreign methods. Field trips. Mr. Bloom.

**34. Lumbering.** 1 Q. Winter. 3 cr. Prerequisite, junior standing. Advised prerequisites, Forestry 24a and 31. The milling, seasoning, and grading of lumber. Field trips to various type lumber mills may be required. Mr. Clark.

**\*35. Forest Utilization.** 1 Q. Winter. 4 cr. Prerequisite, junior standing. A condensation of logging, lumbering, and forest products into one course for Range Management and Wildlife Management students only. Not open to students in Forest Management. Staff.

\*Classwork will not be given unless demand is sufficient. Qualified students may be permitted to register independently for tutorial instruction.

**36ab. Forest Engineering.** 2 Q. Autumn, winter. 4 cr. each quarter. Prerequisite, Forestry 24a and 33. Measurement of water flow, route surveying, earthwork computation; timber appraisals; output, time and cost studies. Application of engineering principles to logging operations. Field trips. Mr. Bloom.

**37. Timber Mechanics.** 1 Q. Winter. 5 cr. Prerequisite, Mathematics 35b, or equivalent, and Forestry 31. Factors governing the strength and utility of wood as a structural material; determination of stresses in wooden structures. Mr. Swearingen.

**\*38. Wildlife Management.** 1 Q. Autumn. 3 cr. Prerequisite, junior standing. The management of wildlife as a resource. Required of all specializing in Range Management. Mr. Morris.

**39abc. Range Management.** 3 Q. Autumn, 3 cr.; winter, 2 cr.; spring, 5 cr. Prerequisite, Botany 51, and 161a for 39c. Suitability of various breeds of livestock to forest range use; factors in forest range livestock production. Range evaluation, range surveys, and appraisals. Mr. Morris. Mr. Spaulding.

**40abc. Range Management.** 3 Q. Autumn, 4 cr.; winter, 4 cr.; spring, 2 cr. Prerequisite, Forestry 39abc. Range types, distribution, forage value, forage production and utilization; range regulation, improvement. Correlation with other forest soil uses. Management plans. Mr. Morris. Mr. Spaulding.

**41ab. Surveying.** 2 Q. Autumn, spring. 4 cr. each quarter. Prerequisite, Mathematics 13. Use, care, and adjustment of instruments; tape, compass, and traverse board surveys; land measurements, computation of areas by coordinates and double meridian distance; transit and stadia surveys; differential, profile, and reciprocal leveling; primary and secondary horizontal and vertical control in mapping large areas; plane table, Abney, and traller tape surveys for topographic and type maps; U. S. land survey methods. Astronomical observations. Mr. Bloom.

**42. Elementary Mapping.** 1 Q. Any quarter. 2 cr. Elementary lettering and drawing. Mr. Bloom. Mr. Swearingen.

**44ab. Advanced Mapping.** 2 Q. Any quarter. 2 cr. each quarter. Prerequisite, Forestry 42 and 41a for 44b. Advanced lettering; construction of maps from surveys; tracings. Mr. Bloom. Mr. Swearingen.

**45. Soils.** 1 Q. Winter. 3 cr. Prerequisite, Chemistry 11 or equivalent. Soil development, physical and chemical properties. Soil classification and surveys. Management of soils. Soil erosion control. Mr. Morris.

**\*46ab. Survey of Range Management.** 2 Q. Winter, 2 cr.; spring, 3 cr. Prerequisite, Botany 51 or consent of instructor. Methods of handling stock under range conditions; range evaluation; range improvement. Required of all majors in General Forestry and Forest Engineering. Not open to students specializing in Range Management. Mr. Morris. Mr. Spaulding.

### For Undergraduates and Graduates

**101. Forestry Problems.** 3 Q. Any quarter. 2-5 cr. each quarter. Prerequisite, the completion of basic undergraduate work or its equivalent and consent of forestry staff. Advanced classroom and laboratory work in the undergraduate and graduate fields of forest economics, forest policy and law, silviculture, mensuration, dendrology, regulation and finance, wood technology, products, forest engineering, range management, soil technology and industrial forestry. Staff.

**102. Research Technique.** 1 Q. Autumn. Winter. Credit variable. Prerequisite, junior standing and Mathematics 35c or equivalent; Mathematics 26 recommended. Analysis of variance and factorial design of experiments. Students must design and solve at least one experimental problem. Staff.

**103. Pro-Seminar.** 2 Q. Autumn, winter. 2 cr. each quarter. Prerequisite, senior standing. The newer developments in the various fields of forestry and forest soil use. A review of current literature. Mr. Spaulding and Staff.

**104. Field Seminar.** 1 Q. Spring. 4 cr. Required of all seniors in Forestry (end of 4th year for students in Wildlife Management). An extended field trip through the range types of the Great Basin, the forest types of the Rocky, Cascade, Sierra, and Coast mountain ranges. Inspection of plants and processes involved in forest utilization. Study and reports on range management and taxonomy, silviculture and dendrology, forest management and utilization. Staff.

\*Classwork will not be given unless demand is sufficient. Qualified students may be permitted to register independently for tutorial instruction.

### For Graduates

**201. Problems in Forest Production and Utilization.** 1 to 3 Q. Any quarter. 3-5 cr. each quarter. Prerequisite, undergraduate work of sufficient competence to permit graduate study in the field selected. Staff.

**202. Problems in Range Management.** 1 to 3 Q. Any quarter. 3-5 cr. each quarter. Prerequisite, undergraduate work acceptable to the staff. Staff.

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## Geology

ASSISTANT PROFESSOR WAYNE R. LOWELL (ACTING CHAIRMAN).

**Objectives and Functions:** The objectives which motivate the organization of the department and the courses of instruction given by the Department of Geology are: (1) To provide sound training in the fundamentals and principles of Geology. (2) To contribute to the subject knowledge of Geology through active research on original problems. (3) To demonstrate to the students the scientific method of thinking and the significance of science in modern civilization. (4) To prepare superior students for graduate training and an ultimate career as professional geologists. (5) To help the future citizens of Montana intelligently exploit and conserve the vast natural resources of the state.

The Department of Geology attempts to attain its objectives by performing the following functions: (1) To disseminate information through integrated fundamental courses of instruction, and museum exhibits of geologic phenomena. (2) To add to the subject matter of Geology through a program of scientific research on problems related directly or indirectly to the natural resources of Montana. (3) To preserve fossils, mineral types, and other related materials of natural science in Montana as part of the cultural life and heritage of future citizens.

**Major Requirements:** Major students must complete 40 or more credits in Geology. The following courses must be completed: Geology 11ab, 22, 23, 24, 26, 35, and 121, Chemistry 13, Forestry 41ab, German 15 or French 15, Mathematics 12, and Physics 20abc. Mathematics 21 also should be completed. Students preparing for graduate training in Economic Geology must also complete Geology 101 and 103, Mathematics 23, and Chemistry 106. Students preparing for graduate training in Paleontology and Stratigraphy must complete Geology 101, 111, Zoology 11 and 23, and also should complete Zoology 101, Anthropology 15, and Botany 11.

Senior examinations will not be given.

### For Undergraduates

**10. World Geography.** 1 Q. Autumn. Winter. Summer. 3 cr. Open to all students. Distribution of lands and oceans, physiographic features, and climates of the major populated areas of the earth. Emphasis placed on distribution of national resources such as rubber, petroleum, and strategic minerals. This course does not apply toward the restricted elective requirement in laboratory science unless credit is offered in Geology 11ab.

**11ab. General Geology.** 2 Q. Autumn, winter. Summer. 5 cr. each quarter. The first quarter is given to a study of the origin and development of the surface features of the earth and its broad structural features. The second quarter is directed to the origin and evolution of the earth and its organisms.

**22. Historical Geology.** 2 Q. Autumn, winter. Continuous. 8 cr. Prerequisite, Geology 11a. The first quarter takes the study to the close of the Paleozoic era, and the second quarter continues it to the present time. Not given in 1945-46.

**23. Stratigraphy of North America.** 1 Q. Spring. 4 cr. Prerequisite, Geology 22 or 111. The stratigraphic record of North America in terms of paleogeography. Not given in 1945-46.

**24. Mineralogy.** 2 Q. Autumn, winter. Continuous for geology majors. 8 cr. Chemistry 11 or 13 is prerequisite or may be taken concurrently. The elements of crystallography and the classification and determination by means of physical properties, blowpipe analysis, and other simple chemical tests, of about 175 common minerals of geologic and economic importance. Given in 1945-46, and in alternate years.

**26. Petrology.** 1 Q. Spring. 4 cr. Prerequisite, Geology 24. Study of the common rocks by means of their physical characters and mineral composition, their identification in the field, classification, origin, and structural features. Given in 1945-46, and in alternate years.

**35. Field Geology.** 1 Q. Spring. 2 cr. Prerequisite, Geology 11b. A course designed primarily to illustrate geologic features and principles by study of actual cases in the field.

### For Undergraduates and Graduates

**101. Economic Geology.** 1 Q. Autumn. 4 cr. Prerequisite, Geology 11b and 24. A study of the non-metallic mineral deposits of North America. Given in 1945-46 and in alternate years.

**103. Mineral Deposits.** 2 Q. Winter, spring. Continuous. 8 cr. Prerequisite, Geology 26 and 101. A course in the more theoretical aspects of the geology of metallic mineral deposits. Given in 1945-46, and in alternate years.

**111. Invertebrate Paleontology.** 2 Q. Autumn, winter. Continuous, 8 cr. Prerequisite, Geology 11b; Zoology 11ab recommended. An introduction to fossil organisms with equal emphasis placed on anatomy, evolution, and faunas. Not given in 1945-46.

**121. Structural Geology.** 1 Q. Spring. 4 cr. Prerequisite, Geology 11a, 22, 26, high school physics, and Mathematics 12. A detailed study of the structural features of the earth's crust, presented largely by means of lectures and problems. Not given in 1945-46.

**135. Geologic Surveying.** 1 Q. Spring. 2-3 cr. Prerequisite, Geology 22, 26, and 35. Methods used in making a detailed study of field problems and preparing a formal report upon the investigation. Not given in 1945-46.

**137. Advanced Geologic Problems.** 1 Q. Any quarter. 2-5 cr. Prerequisite, Geology 11ab, junior standing, and consent of instructor.

### For Graduates

**201. Research.** Any quarter. 2-4 cr. The department is prepared to arrange for properly qualified students to do independent investigation in paleontology, stratigraphy, structural geology, mineralogy, and economic geology. Not given in 1945-46.

## Graduate School

### Admission

Candidates for admission to the Graduate School must hold a Bachelor's degree from Montana State University or from another institution of approved standing. In order to become a candidate for a Master's degree, the student must offer evidence of completion of satisfactory undergraduate work in the field he has selected for graduate study. To receive graduate credit the student must register in the Graduate School and his program must receive the approval of the Chairman of the Graduate Committee.

### Courses

Graduate work is offered in the following departments or schools: Bacteriology and Hygiene, Botany, Business Administration, Chemistry, Economics and Sociology, Education, English, Fine Arts, Classical and Modern Languages, Forestry, Geology, History and Political Science, Home Economics, Journalism, Mathematics, Music, Pharmacy, Physical Education, Physics, Psychology and Philosophy, and Zoology.

Undergraduate courses of advanced character are accepted for graduate credit. Such courses, however, must be of at least junior character. Courses numbered from 100 to 199 will meet this requirement.

At the present time **no** credits earned through correspondence study may be applied on any advanced degree at Montana State University. With the approval of the Graduate Committee, however, credits earned in Extension-Lecture courses of graduate caliber taught by members of the University faculty, may be accepted for a Master's degree to a maximum of 15 quarter credits. One quarter's residence (of the three regularly required) may be waived by the satisfactory completion of ten credits so earned.

**Note:** Students who begin work for a Master's degree are expected to complete the various requirements within a period of six years. If a student does not complete the requirements for his degree within the six-year period from the date of his first graduate work, those credits shall be outlawed and may not be applied on a degree.

### Requirements for a Master of Arts Degree

Candidates for a Master of Arts degree must present thirty course credits of graduate work and a thesis, for which fifteen credits may be assigned. The major department may distribute the thirty course credits and the fifteen thesis credits in any way among the quarters in residence, but not more than fifteen credits may be taken in any one quarter. Candidates must be registered for a full graduate course for three academic year quarters. The residence requirements may be met by carrying a normal graduate course for three summer sessions of ten weeks each and preparing the thesis *in absentia* or *in residence*. In the case of students transferring graduate credits from other institutions, the residence requirements are three quarters or summer sessions and not less than twenty-two course credits and fifteen thesis credits at Montana State University. Students of superior ability may earn the degree within a year if they give all their time to graduate study. A minimum of two-thirds of the course credits must be in the major field; the remainder may be in a related field. Candidates for the Master of Arts degree must earn a "B" average (an index of 2.0) on credits offered for the degree. No course in which a "D" grade is received may be applied towards a Master's degree.

Before receiving the Master of Arts degree, the candidate must present evidence of intensive study and investigation in some field of interest. In connection with this study he must prepare a thesis. The subject of this thesis must receive the approval of the major professor and the chairman of the Graduate Committee. Finally he must pass an examination over the whole field of his special study, and this examination may be taken only after the thesis is accepted. Final acceptance of the thesis and the granting of the fifteen thesis credits are subject to the approval of a special examining committee which also conducts the examination over the special field of study. The examination may be oral or written or both. Before the degree is conferred, three copies of the thesis must be deposited with the Registrar. The thesis must be prepared in the form prescribed by the Graduate Committee.

In the departments and schools from which a Master's degree may be earned the following course is offered subject to demand.

**220. Thesis Writing.** 1 to 3 Q. Any quarter. 15 cr. These credits may be applied only toward the Master of Arts degree, and will be assigned upon satisfactory selection and preparation of a thesis.



### Master of Education Degree

Candidates for a Master of Education degree must have completed a minimum of three years' satisfactory teaching and offer forty-five credits of graduate work. No thesis is required. Work for this degree may be done in the minimum required residence of three regular quarters or three summer sessions of ten weeks each; at least thirty-three of the credits presented must be earned in residence at Montana State University. The School of Education may give such examinations, oral and written, for admission to candidacy and prior to final recommendation for the degree as may be necessary to secure reasonable standards of proficiency. Candidates for this degree may offer thirty credits in the minor field if the undergraduate major was Education. In other cases the maximum credit for the minor field is fifteen credits. An index of 2.0 must be earned on credits offered for the Master of Education degree. See statement above regarding "D" grades. See also page 65.

The degrees of Master of Education and Master of Arts in Education are mutually exclusive, so that both degrees may not be conferred upon the same individual.

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## History and Political Science

PROFESSORS EDWARD E. BENNETT, WESLEY P. CLARK, J. EARLE MILLER (CHAIRMAN), PAUL C. PHILLIPS; ASSISTANT PROFESSOR MELVIN C. WEEN. ROBERT T. TURNER, INSTRUCTOR.

**Major Requirements:** 50 credits in History and Political Science; 20 of these credits must be taken from courses numbered over 100. Freshmen who expect to take major or minor work in History should register for Social Science 11abc. Major students must elect either History or Political Science and offer the larger portion of their credits from the field selected. All majors should complete course 118 during their junior year. Economics 103 and 104 may be applied toward a major in Political Science.

Senior examinations are required of all students who major in History or Political Science.

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Students who plan to secure a certificate to teach should consult the certification requirements listed on page 65.

### History For Undergraduates

**13abc. English History.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, sophomore standing. Students may enter any quarter. The political, economic, and social history of England and the British Empire. Mr. Miller.

**15. History of Greece.** 1 Q. Winter. 4 cr. Prerequisite, sophomore standing. The cultural, social, and political development of ancient Greece from prehistoric times to the Roman conquest. Mr. Clark.

**16. History of Rome.** 1 Q. Spring. 4 cr. Prerequisite, sophomore standing. The institutional, social, and cultural development of Rome to 395 A. D., with emphasis upon the period from the founding of the Republic to the death of Marcus Aurelius. Mr. Clark.

**21abc. United States History.** 3 Q. Autumn, winter, spring. 4 cr. each quarter. Summer, 21b. Prerequisite, sophomore standing. Students may enter any quarter. (a) 1492-1783. Colonial beginnings and types of governments, with attention to social and economic conditions; causes, course, and results of the Revolution. (b) 1783-1865. The function of the

national government; the development of nationality and democracy; the western movement; slavery and the nullification controversy; the Civil War. (c) 1865-1945. Reconstruction; the new west; agricultural and industrial development; influence of business and of organized labor; reform movements; the First World War; the golden age; the depression; the New Deal and after; the Second World War. Mr. Bennett.

**22. Montana History and Government.** 1 Q. Summer. 4 cr. Open to all students. Exploration, fur trade, missions, gold mining, social and economic conditions, transportation, development of silver and copper mining, agriculture, territorial and state government, and political questions. Not given summer, 1945. Mr. Phillips.

**23. Early Modern Europe.** 1 Q. Winter. Summer. 4 cr. Prerequisite, sophomore standing. European history from 1500 to the outbreak of the French Revolution; the Reformation, the Wars of Religion, the age of Louis XIV; the rise of Russia and Prussia; the backgrounds of the French Revolution. Mr. Bennett.

**29. French Revolution and Napoleonic Era.** 1 Q. Spring. 4 cr. Prerequisite, sophomore standing. Economic, social, political, and religious developments, and the international reaction to the Revolution. Mr. Bennett.

**30ab. Europe in the 19th Century.** 2 Q. Autumn, winter. 3 cr. each quarter. Students may enter either quarter. Prerequisite, sophomore standing. The internal economic, social, political, and religious development of France, Germany, Austria, and Italy. (a) 1815-1870. (b) 1870-1900. Mr. Bennett.

**33. Medieval Europe.** 1 Q. Autumn. 4 cr. Prerequisite, sophomore standing. The political, social, and economic development of Europe from the barbarian invasions to 1500. Mr. Wren.

### For Undergraduates and Graduates

**102ab. History of the Northwest.** 2 Q. Autumn, winter. 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. Not given in 1945-46. Mr. Phillips.

**103. The Early 20th Century (1900-1931).** 1 Q. Spring. 3 cr. Summer. 4 cr. Prerequisite, junior standing and 15 credits in the department. 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 to 1935. Mr. Bennett.

**104. Seminar in American History.** 3 Q. Autumn, winter, spring. Credit variable. Prerequisite, senior standing and 25 credits in history, including 8 credits in United States history. Mr. Phillips.

**105. Seminar in European History.** 3 Q. Autumn, winter, spring. Credit variable. Prerequisite, senior standing and 25 credits in history. Mr. Bennett.

**110. The British Empire Since 1783.** 1 Q. Autumn. 4 cr. Prerequisite, junior standing and course 13bc. Organization of the Old Empire at the close of the American Revolution; new colonial policy and British expansion in the 19th century; evolution of the self-governing dominions, and their relations with the mother country; the Empire and World War II. Not given in 1945-46. Mr. Bennett.

**113. Representative Americans.** 1 Q. Autumn. 4 cr. Prerequisite, History 21abc. Studies in American biography. Mr. Bennett.

**114ab. Russia and the Near East.** 2 Q. Autumn, winter. 4 cr. each quarter. Prerequisite, junior standing and 15 credits of European history. (a) Earlier history of Russia; rise and decline of Turkish power in the Near East; beginnings of the Balkan States. (b) Modern Russia, Turkey, and the Balkans, with some attention to the recent problems of the other Near Eastern areas. Not given in 1945-46. Mr. Wren.

**117abc. History of the Far East.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, junior standing and 15 credits in history. The social, political, and economic aspects of the modernization of China, Japan, and the Philippine Islands; the conflicting interests of the Great Powers in the East. Mr. Wren.

**118. Social Science Methods.** 1 Q. Spring. 4 cr. Prerequisite, junior standing and 10 credits in the department. An introduction to the methods used in the studies included in the Division of Social Sciences. Divisional Staff.

**123abc. Hispanic-American History.** 3 Q. Autumn, winter, spring. 4 cr. each quarter. Summer, S123a. 4 cr. Prerequisite, junior standing. (a) The European background; the political and economic development of Spain and Portugal to the foundation of the Latin American colonies. (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. Mr. Turner and Staff of the Spanish Department.

**125. Economic History of the United States.** 1 Q. Summer. 4 cr. Prerequisite, junior standing and a college course in American history. Colonial economy, the expansion of the United States; industrial, planter, and pioneer economics, the heyday of laissez-faire; the agrarian movement; war and postwar prosperity; the great depression and recovery. Mr. Wren.

**131. Recent American History.** 1 Q. Spring. 4 cr. Prerequisite, junior standing and a college course in American history. The internal affairs and external relationships of the United States in the 20th century. Mr. Bennett.

**132. Contemporary European History.** 1 Q. Winter. 4 cr. Prerequisite, junior standing and a college course in modern European history. The internal affairs and the external relationships of the principal European states during the past fifteen years. Mr. Wren.

### For Graduates

**200. Seminar in American History.** 1 Q. Summer. 2-4 cr. Open to graduates who have a major or minor in history or political science, including course 21abc. A study of special problems in American history. Mr. Wren. Mr. Turner.

**201. Seminar in European History.** 1 Q. Summer. 2-4 cr. Prerequisite, 30 credits in history. A study of special problems in European history. Not given summer, 1945. Mr. Bennett.

### Political Science

#### For Undergraduates

**10. World Politics.** 1 Q. Spring. 3 cr. Open to all students; Geology 10 recommended as prerequisite. A survey of international political backgrounds; traditional policies of the Powers; nationalism; imperialism; security; modern ideologies, etc., in their relation to the present conflict. Not given in 1945-46. Departmental Staff.

**17. American Government and Politics.** 1 Q. Autumn. 4 cr. Prerequisite, sophomore standing. The organization and functions of federal government and the problems of the present time. Mr. Turner.

**18. State and Local Government.** 1 Q. Winter. Summer. 4 cr. Prerequisite, course 17 or 21b. A study of state, county, and municipal governments and their relation to the federal government. The changing functions of the states. Mr. Turner.

**20. Comparative Governments.** 1 Q. Spring. 4 cr. Prerequisite, sophomore standing and Social Science 11ab or course 17. A study of representative types of government; constitutional beginnings, organization, methods of legislation and administration. Soviet, Fascist, and other programs. Mr. Turner.

#### For Undergraduates and Graduates

**106ab. International Public Law.** 2 Q. Winter, spring. 3 cr. each quarter. Prerequisite, junior standing and 15 credits in the department. The law of nations in relation to peace, war, and neutrality. Not given in 1945-46. Mr. Miller.

**107ab. Diplomatic History of Europe.** 2 Q. Autumn, winter. 3 cr. each quarter. Prerequisite, junior standing and 15 credits in the department. Students may enter either quarter. International relations and world politics from the Congress of Vienna to World War I. Not given in 1945-46. Mr. Turner.

**108. Present World Problems.** 1 Q. Spring. 4 cr. Prerequisite, History 103 or 107ab. The failure of the Versailles treaty. The decline of democracy and the rise of dictatorship. Foreign relations of the Great Powers. The present world situation. Mr. Wren.

**109. American Political Problems.** 1 Q. Winter. 4 cr. Prerequisite, course 21bc or 17 and 18. Present day political problems, such as governmental reorganization, relation of government and business, states' rights, and powers of Congress and the Chief Executive in time of war; foreign problems. Mr. Phillips.

**112. Seminar in Political Science.** 3 Q. Autumn, winter, spring. Credit variable. Prerequisite, 15 credits in political science and senior standing. Mr. Miller.

**115. Theories of the State.** 1 Q. Autumn. 4 cr. Prerequisite, junior standing and 15 credits in the department. The theories of ancient and modern political philosophers with regard to the origin, the nature, the attributes, and the functions of the State. Mr. Clark.

**116. Government Regulation of Business.** 1 Q. Spring. 4 cr. Prerequisite, junior standing and 15 credits in the department or Economics 103. The necessity for and the theories of government regulation; regulation in practice by legislation, by commission, and by judicial decision; the government in business. Not given in 1945-46.

**119. Constitutional History of the U. S.** 1 Q. Spring. 4 cr. Prerequisite, History 21abc. The origin and growth of the constitution in relation to the institutional development of the United States. Not given in 1945-46. Mr. Phillips.

**120. American Foreign Relations.** 1 Q. Winter. 4 cr. Prerequisite, junior standing and History 21abc. The policies and practices of the United States in her relations with foreign powers. Mr. Bennett.

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## Home Economics

PROFESSORS HELEN GLEASON (CHAIRMAN), ANNE C. PLATT; ASSISTANT PROFESSORS AGNES M. BRADY, ELEANOR MACARTHUR. HELEN I. BEAVER, INSTRUCTOR.

**Major Requirements:** 50 or more credits in Home Economics, selected from one of the following groups, in addition to Chemistry 11 or 13, 19, and 103.

1. Home-making: 17abc, 18, 28, 119, 120, 122, 125, 127, 128, 129, 130, 131, 138.
2. Teaching: 17abc, 18, 28, 119, 120, 122, 125, 133, 135, 127, 128, 129, 130, 131, 138. In addition, a major student should take Fine Arts 31abc and Education 25abc, 26a, 163, 183. These courses prepare teachers of Vocational Home Economics in reimbursed schools.
3. Institutional Management: 17abc, 119, 122, 123, 125, 133, 135, 138, 198. In addition, a major student should select one or more from the following: 28, 127, 128, 129, 130, 131. To qualify for a dietetic internship in a hospital the following are also required: Bacteriology 19, Zoology 24, Business Administration 11, Economics and Sociology 16, and a minimum of 5 credits in Education.

For information regarding opportunities in other business and professional fields open to Home Economics graduates, students should consult the chairman of the department.

Senior examinations will not be given except to candidates for honors.

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Students who plan to secure a certificate to teach should consult the certification requirements listed on page 65.

### 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. Mrs. Beaver. Miss Gleason.

**18. Clothing Design.** 1 Q. Winter. 4 cr. The principles of design and their application to clothing. Miss Gleason.

**19. Food Conservation.** 1 Q. Summer 5 cr. Open to all students. The fundamental methods used in conserving, processing, and storing the various foods for family needs. Miss Platt.

**22. Nutrition.** 1 Q. Winter. Spring. Summer. 3 cr. Open to student nurses who have completed elementary physiology, chemistry, and anatomy. Beginning course in dietetics. Miss Platt.

**23. Elementary Nutrition in Disease.** 1 Q. Spring. 2 cr. Open to student nurses who have completed elementary physiology, chemistry, and anatomy. Prophylactics and feeding in disease. Miss Platt.

**28. Child Development.** 3 Q. Autumn, winter, spring. 3-5 cr. Prerequisite, 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. Miss Gleason.

**29. Food Problems in War Time.** 1 Q. Summer. 3 cr. Open to all students. Current problems in food consumption, with special emphasis on adequate meal planning with the use of food point stamps. Miss Platt.

### For Undergraduates and Graduates

**117. Textiles.** 1 Q. Spring. 4 or 5 cr. Prerequisite, junior standing. Fibers, their manufacture and use; physical and chemical tests to aid in the selection of clothing and household furnishings. Miss Gleason.

**119. House Planning and Furnishing.** 1 Q. Winter. 5 cr. Prerequisite, junior standing. The aesthetic, economic, and hygienic problems in house planning and furnishing. Miss Gleason.

**120. Clothing.** 1 Q. Winter. 5 cr. Prerequisite, Home Economics 17c and 18; 117 recommended. The clothing problem of the family studied from the economic and social point of view. Miss Brady.

**122. Nutrition.** 1 Q. Autumn. 5 cr. Prerequisite, Home Economics 17b and Chemistry 103. Dietetics given in the light of the chemistry and physiology of digestion. Miss Platt.

**123. Nutrition in Disease.** 1 Q. Spring. 4 cr. Prerequisite, Home Economics 122. The symptoms of disease, prophylactics, and feeding in disease. Miss Platt.

**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. Miss Platt.

**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. 5 cr. Prerequisite, 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 to home problems. Mrs. Beaver.

**128. Home Management.** 1 Q. Autumn. Winter. Spring. 2 cr. Prerequisite, Home Economics 122 or consent of instructor and senior standing. Management studies and discussion presented on problems in the home living center. Mrs. Beaver.

**129. Problems in Family Living.** 1 Q. Autumn. 3 cr. Prerequisite, Psychology 11 and Home Economics 17abc. A critical study of theories and practices in relation to the home and family life. Mrs. Beaver.

**130. Problems in Home Equipment.** 1 Q. Winter. Summer. 4 cr. Prerequisite, junior standing and one year of college chemistry. Materials, specifications, selection, care, and use of equipment. Miss Platt.

**131. Problems of the Consumer.** 1 Q. Spring. 3 cr. Prerequisite, 8 cr. in Economics and Sociology and consent of instructor. A critical analysis of problems confronting the consumer. Miss Brady.

**133. Institutional Cookery.** 1 Q. Autumn. 5 cr. Prerequisite, Home Economics 122 or concurrent registration. The application of scientific, economic, and sociological principles to the feeding of large numbers of people. Miss MacArthur.

**135. Institutional Management.** 1 Q. Winter. 5 cr. Prerequisite, Home Economics 133. Organization, management, and equipment of special types of institutions, such as dormitories, hospitals, tea rooms, cafeterias, and hotel dining rooms. Miss MacArthur.

**138. Experimental Foods.** 1 Q. Spring. 4 cr. Prerequisite, Home Economics 17b and Chemistry 19. 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. Miss Platt.

**163. Problems in Teaching Home Economics.** See Special Methods courses page 70.

**183. Home and Family Life Education.** See School of Education page 70.

**198. Problems in Home Economics.** 1 to 6 Q. Any quarter. Cr. 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. Staff.

## School of Journalism

PROFESSOR JAMES L. C. FORD (DEAN); ASSOCIATE PROFESSORS OLAF J. BUE, ANDREW C. COGSWELL. PROFESSIONAL LECTURER G. G. HOOLE.

Today, as never before, citizens of the United States need an honest and efficient journalism to inform them of the developments and problems of the war and postwar world. Today, as never before, trained journalists are required to fill the ranks depleted by the thousands of men called into the armed forces and government work.

The School of Journalism has a wartime program to meet this emergency: in a curriculum re-directed towards special war needs; in training specially designed to fit women for journalism.

The School of Journalism maintains three constant objectives:

1. To qualify students for the profession of journalism through a broad and liberal education.
2. To provide professional training for the practice of journalism in the fields of the newspaper, the magazine, advertising, and the radio.
3. To further the progress and standing of the American press.

Organized in 1913, the School is one of the pioneers in journalism training in the United States. Its rank is recognized through its membership in the American Association of Schools and Departments of Journalism, composed of the thirty-four institutions offering Class A journalism training.

### Requirements for Admission

The regular University requirements for admission apply to the School of Journalism (pages 19 to 23).

### Requirements for Graduation

Candidates for the degree of Bachelor of Arts in Journalism must meet the following requirements:

- (1) The general University requirements for graduation, (pages 23 to 28), except in foreign languages.
- (2) A minimum of 63 credits in Journalism.
- (3) The curriculum for majors, page 96.
- (4) A comprehensive examination in the senior year over the major field of study. An additional examination will be required of candidates for honors.

Candidates for the degree of Master of Arts in Journalism must comply with the regulations governing graduate work set forth on pages 88 to 90.

### General Information

The School of Journalism's course is four years.

During the first two years of enrollment in the School of Journalism, the student is required to complete the survey courses of the divisions of the College of Arts and Sciences. These serve as a cultural basis for the professional training which follows. The School of Journalism may accept equivalent substitutes for survey courses to suit cases of individual necessity or special interest.

Aside from the professional courses which the student is required to take, he is given a choice of electives from widely distributed courses

in other departments during his college course. Journalism training should not emphasize narrow specialization.

The School of Journalism is unusually well equipped to give the student contact with the mechanical phases of journalism. Laboratory and working equipment offer the future journalist the opportunity to acquaint himself with type, engraving, news photography, printing and press work, and radio processes. The Journalism building is essentially a model newspaper plant and offers unsurpassed teaching facilities.

The relationship between the School of Journalism and the press of Montana is close and pleasant, involving a number of mutual services. The field secretary-manager of the Montana State Press Association also serves on the faculty of the School and has his office in the Journalism building. This arrangement of mutual cooperation makes for mutual benefits.

The Montana Kaimin, university student newspaper, is published in the School of Journalism building. On this newspaper, the students supplement class instruction with actual editorial, advertising, and business experience.

For scholarships awarded to students in the School of Journalism see pages 40 to 42.

### Curriculum for Majors in Journalism

	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Freshman Year			
Journalism 10abc .....	2	2	2
Social Science 11abc .....	5	5	5
Biological Science 13abc .....	5	5	5
English 12abc .....	3	3	3
Physical Education 11abc .....	1	1	1
Military Science 11abc (Men) .....	1	1	1
	16-17	16-17	16-17
Sophomore Year			
Journalism 21abc .....	3	3	3
Journalism 38 and elective .....	3	3	3
Humanities 15abc .....	5	5	5
Elective .....	5	5	5
Physical Education 12abc .....	1	1	1
Military Science 12abc (Men) .....	1	1	1
	17-18	17-18	17-18
Junior Year			
Journalism 23ab and 24 .....	2	2	3
Journalism 30abc .....	3	3	3
Journalism 40abc .....	3	3	3
Electives .....	8	8	7
	16	16	16
Senior Year			
Journalism 37 .....	...	3	...
Journalism 100abc .....	4	4	4
Electives .....	12	9	12
	16	16	16

### For Undergraduates

**10abc. Introduction to Journalism.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Open to all students; required of freshman journalism majors. Introduction to the field of journalism; elementary work in reporting and copyreading; analysis of the opportunities and various professions in journalism; ethics of journalism; journalism in the world today. Not subject to the laboratory-incidental fee. Mr. Ford.

**513. The Press as a Social Instrument.** 1 Q. Summer. 2½ cr. Open to all students. The newspaper in its relation to social groups and the problems involved; history and development of the press. Not given summer, 1945.



**18. Propaganda and Censorship.** 1 Q. Autumn. 3 cr. Principles and practices of propaganda and censorship; their effect upon opinion. Emphasis on period between 1914 and the present. Not subject to laboratory-incidental fee. Mr. Cogswell.

**21abc. Reporting.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, Journalism 10abc or consent of instructor. Reporting methods, news story construction, evaluation of news, the coverage of public affairs; press association techniques. Practice reporting on the student newspaper. Mr. Cogswell.

**23ab. Rural Journalism.** 2 Q. Autumn, winter. 2 cr. each quarter. Prerequisite, Journalism 21abc. A study of news, editorial, circulation, and advertising problems of weekly and small daily newspapers.

**24. Newspaper Management.** 1 Q. Spring. 3 cr. Prerequisite, Journalism 23ab. 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.

**25ab. Editorial Writing.** 2 Q. Winter, spring. 3 cr. each quarter. Prerequisite, Journalism 21abc or consent of instructor. Preparation and presentation of editorial interpretation and comment. Editorial history; functions of the editorial page. Mr. Bue.

**30abc. Copyreading.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, Journalism 21abc. The editing of local, state, and wire copy; law of the press, headline writing, makeup. Practice copy desk work on the student newspaper. Mr. Cogswell.

**35. Journalistic Specialties for Women.** 1 Q. Autumn. 3 cr. Prerequisite, junior standing. Open to non-majors as well as majors in journalism. Training in fields of journalism which offer special opportunities and advantages to women; trade and technical publications, magazine and feature writing, advertising and publicity, radio. Not subject to the laboratory-incidental fee. Mr. Bue. Mr. Ford.

**36. Current Events.** 1 Q. Any quarter. 1 cr. Open to all students. Current history of the world; its background; its relationships and probable influences. Emphasis on current journalistic handling. May be repeated to a maximum of 3 credits. Not subject to the laboratory-incidental fee. Mr. Ford and Staff.

**37. Law of Journalism.** 1 Q. Winter. 3 cr. Prerequisite, Journalism 21abc. The laws of libel, slander, and right of privacy as they affect both press and radio. Contempt of court by publication, newspaper rights in newsgathering; property rights in news; regulatory provisions of state and federal statutes. Mr. Cogswell.

**38. Typography.** 1 Q. Autumn. Winter. Spring. 3 cr. Prerequisite, consent of instructor. Students may enter any quarter. Mechanical problems of newspaper production. Practical work in printing and typographical laboratory. Mr. Hardy.

**39. Advanced Typography.** 1 Q. Autumn. Winter. Spring. 2 cr. Prerequisite, Journalism 38 and consent of instructor. Students may enter any quarter. Advanced work in typographical, printing, and publishing problems. Mr. Hardy.

**40abc. Principles of Advertising.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Prerequisite, junior standing. Fundamentals of advertising theory and technique, coupled with practice in copy writing, layout, and advertising salesmanship on the student newspaper. Mr. Bue.

**42. Newspaper Photography.** 1 Q. Autumn. Spring. 2 cr. Prerequisite, Journalism 21abc and consent of instructor. The news picture and how to take it; photographic reporting. Mr. Bue. Mr. Cogswell.

**45a. Microphone and Program Technique.** See School of Music.

**48ab. Newscasting.** 2 Q. Winter, spring. 3 cr. each quarter. Prerequisite, Journalism 45a, and 21abc or consent of instructor. Radio news organization and writing; radio script writing; practice in newscasting. Mr. Ford.

**49. History of Journalism.** 1 Q. Spring. 3 cr. Prerequisite, Journalism 21abc or consent of instructor. The historical background of the American Press. Mr. Cogswell.

### For Undergraduates and Graduates

**100abc. Senior Seminar.** 3 Q. Autumn, winter, spring. 4 cr. each quarter. Prerequisite, senior standing in journalism. Open to senior students with consent of instructor. An over-all journalism course on the seminar pattern, incorporating the project method. Correlates work of the four years in journalism and other fields, covering: history and ethics of journalism, public opinion and propaganda problems; technological phases of journalism; editorial and advertising techniques; the press as a social institution. Mr. Ford.



**126. The High School Newspaper.** 1 Q. Spring. 3 cr. Summer 4 cr. Prerequisite, 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. Not subject to the laboratory-incidental fee. Mr. Ford.

**136. Advanced Journalism Problems.** 1 to 3 Q. Autumn, winter, spring. Credit variable. Prerequisite, junior standing and consent of instructor. Training and research in advanced journalism problems. Mr. Ford and Staff.

### For Graduates

**201. Research in Journalism.** 1 to 3 Q. Autumn, winter, spring. Credit variable. Prerequisite, graduate standing and consent of instructor. Research in journalism for graduate students. Mr. Ford and Staff.

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## School of Law

PROFESSORS CHARLES W. LEAPHART (DEAN), HOWARD TOELLE; ASSOCIATE PROFESSOR EDWIN W. BRIGGS. EDMUND T. FRITZ, INSTRUCTOR. CHARLOTTE RUSSEL, LIBRARIAN.

The School of Law is located in a modernly equipped law school building with adequate class, office, library, and court room facilities. The school has a good working library of more than 29,300 volumes. To a very great extent the library is the result of the generous gifts and legacies of Mrs. W. W. Dixon, and gifts of Judge John J. McHatton, and the Anaconda Copper Mining Company. The school is a member of the Association of American Law Schools and is one of the schools approved by the American Bar Association.

The School of Law will continue, as during the past two years, to alternate advanced courses. Students will have an opportunity to take substantially the same courses in three years that they had in the years preceding the war. In addition, in the summer session, students, including entering students, will be able to take a full quarter's work. The offerings will continue to be so arranged that students whose work is interrupted by the war will be able to resume after its termination with a minimum of inconvenience.

### Requirements for Admission

Applicants for admission must have completed at least 93 quarter credits (in residence at an approved college or university) of work acceptable for the Bachelor's degree, of which not more than 10 per cent may include work in non-theory courses in military science, hygiene, domestic arts, physical education, vocal or instrumental music, or other courses of similar character. Applicants must offer for admission as many grade points as credits earned on all work of such character as to be acceptable toward satisfaction of the above requirements for admission.

A veteran of the present war, however, may satisfy the residence requirements by only one academic year of work in residence either as a civilian or in the uniform of his country on an approved college or university campus in class under the direction of regular members of the faculty if such institution will give credit for such work toward its own degree.

Furthermore, to the extent of one year's work (46½ credits), veterans will be given pre-law credit, provided the above-mentioned grade point requirements are satisfied, as allowed by an approved college or university for:

- (1) Military training as such (not to exceed 12 quarter credits).
- (2) Study or intellectual growth while the applicant was in the armed forces if the achievements resulting from such study or intellectual growth have been evaluated by a testing program within the armed forces or by examination given by an approved college.
- (3) Work done on a college campus in class under the direction of regular members of the college faculty if that college will give credit for such work towards its own degree.

In addition, veterans will be allowed credit under (2) or (3) above, to be applied on the second year's pre-legal requirements if the available data or tests show above average performance or ability on their part.

Although students may be admitted who have met the foregoing requirements, three years of pre-legal preparation are recommended.

It is recommended that pre-legal students complete the curriculum of the Division of Social Sciences, page 48.

Special students are not admitted to the School of Law.

For University admission requirements, see page 19.

#### **Requirements for Graduation**

Candidates for the Bachelor of Laws degree are required to complete:

- (1) The requirements for admission listed above.
- (2) A total of 126 credits in Law with an average of at least one grade point for each credit.
- (3) The following courses: Contracts, Property, Torts, Criminal Law and Procedure, Practice Court, and Forms of Action and Code Pleading, or Civil Procedure, and Legal Writing I and II.
- (4) Nine quarters of work in a Law School of recognized standing, the last three of which must be completed in residence. Two summer sessions of approximately 6 weeks each will be counted as one quarter.

Candidates for the Bachelor of Arts degree with Law as a major must meet the regular University and College of Arts and Sciences requirements for graduation (pages 23 to 28 and page 48).

Any student who has conditions or failures in more than nine hours of work standing against him at the end of any year will be dropped from the Law School. Any student who has a condition or a failure in one course of six hours or more at the end of his first year will be dropped from the Law School, unless he obtained at least eighteen grade points in his other courses; and any student having a deficiency of fifteen or more grade points at the end of his first year will be required to repeat, during the next year in which he is in attendance at the Law School, at least one-half of the hours of work in which he received a grade of D or less. Any student having a deficiency of more than twelve grade points at the end of his second year will be dropped from the Law School.

No student will be recommended for a degree in Law who is markedly deficient in English, or who, in the opinion of the majority of the members of the faculty of the School of Law, is unfitted for admission to the practice of law by reason of a lack of honesty and integrity.

The special senior examination provided for on page 27 will not be given except to candidates for honors.

### General Information

No student will be allowed credit in any one quarter for over 15 hours of work in the School of Law; except that in addition, within the discretion of the Dean, a student may be allowed to take an examination to remove a condition and be given credit upon satisfactory passage of the same.

The case system of instruction is employed. Special attention is given to practice court work, in which the students are required not only to argue legal questions, but to try cases, prepare appeals, and go through all the steps incident to the trial of a law suit. A thorough course is given in the use of law books.

Examinations and final credits will be given at the end of each quarter in courses extending over more than one quarter as well as in those which end in one quarter.

The honor system has been in successful operation since the foundation of the School.

The curriculum of the School of Law is designed to afford preparation for the practice of law in any of the United States, but special attention will be given in all courses to the codes and decisions of Montana.

Graduates of the School of Law may, in the discretion of the Supreme Court of Montana, be admitted to practice in the Courts of Montana without further examination.

### Curriculum

#### First Year

	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Civil Procedure .....	3	3	3
Contracts .....	3	3	3
Criminal Law and Procedure .....	2	2	2
Property .....	3	3	3
Torts .....	3	3	3

#### Second and Third Years

*Agency and Partnership .....	3	3	3
**Appellate Practice .....	1	1	1
*Bills and Notes .....	2	2	2
**Conflict of Laws .....	2	2	2
**Constitutional Law .....	3	3	2
*Corporations .....	2	2	2
**Creditors' Rights .....	2	2	2
**Damages .....	2	2	2
**Equity .....	2	2	2
**Evidence .....	2	2	2
**Irrigation Law .....	---	2	2
**Legal Ethics .....	---	2	---
Legal Writing I and II .....	---	---	1
*Mining Law .....	---	---	2
*Practice Court .....	1	1	1
**Sales .....	2	2	2
**Suretyship .....	---	---	3
*Trusts .....	2	2	2
*Use of Law Books .....	1	1	---
*Wills and Administration .....	2	2	---

In addition to the above curriculum, second and third year students taking History 106ab (International Law) may apply credit received in it toward a law degree.

\*Course will be given in 1945-46.

\*\*Course will be given in 1946-47, but not in 1945-46.

## Courses

**\*Agency and Partnership.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Casebook to be announced.

**\*\*Appellate Practice.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Smith's Cases and Materials on Appellate Practice. Mr. Briggs.

**\*Bills and Notes.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Smith and Moore's Cases on Bills and Notes (third edition).

**Civil Procedure.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Sunderland's Cases and Materials on Judicial Administration (second edition). Mr. Toelle.

**\*\*Conflict of Laws.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Cheatham, Dowling and Goodrich's Cases on Conflict of Laws. Mr. Briggs.

**\*\*Constitutional Law.** 2 Q. Autumn, winter. 3 cr. each quarter. Dodd's Cases on Constitutional Law (third edition). Mr. Leaphart.

**Contracts.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Summer, 9 cr. Williston's Cases on Contracts (fourth edition). Mr. Leaphart.

**\*Corporations.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Casebook to be announced.

**\*\*Creditors' Rights.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Hanna and McLaughlin's Cases on Creditors' Rights. Mr. Toelle.

**Criminal Law and Procedure.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Mikell's Cases on Criminal Law and Procedure (third edition). Mr. Briggs.

**\*\*Damages.** 1 Q. Autumn. 2 cr. Crane's Cases on Damages (second edition). Mr. Toelle.

**Domestic Relations.** 1 Q. Summer. 3 cr. Mr. Briggs.

**\*\*Equity.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Cook's Cases on Equity (third edition). Mr. Leaphart.

**\*\*Evidence.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. McCormick's Cases on Evidence. Mr. Briggs.

**Insurance.** 1 Q. Summer. 4 cr. Mr. Briggs.

**\*\*Irrigation Law.** 1 Q. Spring. 2 cr. Bingham's Cases on Water Rights. Mr. Toelle.

**Labor Law.** 1 Q. Summer. 4 cr. Mr. Briggs.

**\*\*Legal Ethics.** 1 Q. Winter. 2 cr. Costigan's Cases and Materials on the Legal Profession and Its Ethics (second edition). Mr. Toelle.

**Legal Writing I and II.** 1 Q. Spring. 1 cr. For second and third year students. No text. Staff.

**\*Mining Law.** 1 Q. Spring. 2 cr. Costigan's Cases on Mining Law.

**Mortgages.** 1 Q. Summer. 2 cr. Mr. Leaphart.

**\*\*Practice Court.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Montana Code of Civil Procedure, selected cases, and practical exercises. Mr. Fritz.

**Property.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Fraser's Cases on Property (Vols. 1 and 2, second edition); Kirkwood's Cases on Conveyances (second edition). Mr. Briggs.

**\*Sales.** 3 Q. 2 cr. each quarter. Williston and McCurdy's Cases on Sales. Mr. Mason.

**\*\*Suretyship.** 1 Q. Spring. 3 cr. Langmaid's Cases on Suretyship. Mr. Leaphart.

**Torts.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Harper's Bohlen Cases on the Law of Torts (fourth edition). Mr. Toelle.

**\*Trusts.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Scott's Cases on Trusts (third edition). Mr. Leaphart.

**\*Use of Law Books.** 2 Q. Autumn, winter. 1 cr. each quarter. Beard-sley's Legal Bibliography and Use of Law Books.

**\*Wills and Administration.** 2 Q. Autumn, winter. 2 cr. each quarter. Bingham's Costigan Cases on Wills and Administration (third edition).

\*Course will be given in 1945-46.

\*\*Course will be given in 1946-47, but not in 1945-46.

## Mathematics

PROFESSOR A. S. MERRILL (CHAIRMAN); ASSISTANT PROFESSOR HAROLD CHATLAND. ROY DUBISCH, INSTRUCTOR.

**Major Requirements:** 45 or more credits. However, for students presenting three and a half entrance units in mathematics, a 40 credit minimum, and for students with four entrance units, a 35 credit minimum may be permitted at the discretion of the Department. No student may offer in fulfillment of these minimum requirements more than four of the following courses or their high school equivalents: Mathematics 12, 13, 14, 16, 19, 21, or 25. Courses 10, 11, 18, and A11 may not be counted toward a major in Mathematics. Students majoring in Mathematics must complete Physics 20abc or the equivalent.

Senior examinations will not be given except to candidates for honors.

Students who plan to secure a certificate to teach should consult the certificate requirements listed on page 65.

**General Information.** Major students are expected to take part in extra-curricular activities of the Department, such as the Mathematics Club and the Mathematics Fraternity.

The Mathematics Library contains complete sets of all the American mathematical journals and several of the most important foreign journals, such as *Crelle*, *Annalen*, *Liouville*, *Fortschritte*. Important new books are constantly added.

Courses A, A11, 11, and 31 and those numbered over 100 (except 101 and 107ab) are offered subject to demand.

### For Undergraduates

**A. Elementary Algebra.** 1 Q. Spring. No cr. A sub-freshman course for students who have had no algebra in high school. Staff.

**10. Intermediate Algebra.** 1 Q. Autumn. Summer. 5 cr. Prerequisite, 1 entrance unit of algebra. That portion of algebra usually described as "quadratics and beyond." Students entering with  $1\frac{1}{2}$  units of algebra or who have completed Mathematics 18 or 35a may not receive credit in this course. Staff.

**11. Solid Geometry.** 1 Q. 5 cr. Prerequisite, Mathematics 10 and one entrance unit in plane geometry. Students who present entrance credit in solid geometry may not receive credit in this course. Mr. Chatland. Mr. Dubisch.

**12. Survey of College Mathematics.** 1 Q. Autumn. Winter. Summer. 5 cr. Prerequisite, 1 entrance unit of plane geometry and Mathematics 10 or equivalent. A survey of the fields of trigonometry, analytical geometry, and calculus. See Note below. Staff.

**13. Plane Trigonometry.** 1 Q. Winter. 5 cr. Prerequisite, plane geometry and Mathematics 10 or equivalent. Students who present entrance credit in trigonometry or who have completed Mathematics 35b may not receive credit in this course. Staff.

**14. Spherical Trigonometry.** 1 Q. Winter. 5 cr. Prerequisite, Mathematics 13 or equivalent. Spherical trigonometry and certain topics in plane trigonometry. Mr. Chatland. Mr. Dubisch.

**16. College Algebra.** 1 Q. Autumn. 5 cr. Prerequisite, Mathematics 10 or equivalent. Students who present 2 entrance units of high school algebra must have the permission of the Mathematics Department before receiving credit in this course. See Note below. Staff.

**Note:** Mathematics 12 and Mathematics 16 are not equivalent. Students who have credit in Mathematics 12 are permitted to take 16 for credit, but not vice versa. A student who enters with 2 entrance units of high school algebra (with or without high school trigonometry) may be allowed to take Mathematics 12, and at the option of the department may be required to take that course as a prerequisite to Mathematics 21.

**18. Introductory Business Mathematics.** 1 Q. Autumn. 5 cr. Prerequisite, 1 entrance unit of algebra. This course covers practically the same field as Mathematics 10, except that work on progressions and binomial theorem replaces the study of quadratic equations and systems. Students who present 1½ entrance units of algebra or who have completed Mathematics 10 or 35a may not receive credit in this course. Staff.

**19. Elementary Mathematics of Investments.** 1 Q. Winter. 5 cr. Prerequisite, Mathematics 18 or 1½ entrance units of algebra. Mathematics 19 may not be taken for credit by those who have had 25 or more credits in mathematics. Staff.

**20. Advanced Mathematics of Investments.** 1 Q. Winter. 5 cr. Prerequisite, Mathematics 19 or 25 credits in the Department of Mathematics. Not given in 1945-46. Mr. Merrill.

**21. Plane Analytic Geometry.** 1 Q. Spring. 5 cr. Prerequisite, Mathematics 13 or equivalent, and Mathematics 12 or 16. Staff.

**22. Calculus I.** 1 Q. Autumn. 5 cr. Prerequisite, Mathematics 21. Differential calculus, including introductory work on integration. Staff.

**23. Calculus II.** 1 Q. Winter. 5 cr. Prerequisite, Mathematics 22. Applications of differential calculus; integral calculus. Staff.

**25. Statistics.** 1 Q. Spring. 5 cr. Prerequisite, Mathematics 10 or 18 or equivalent. Staff.

**26. Advanced Statistics.** 1 Q. Winter. 5 cr. Prerequisite, Mathematics 12 and 25, or 25 credits in mathematics. Not given in 1945-46. Mr. Merrill.

**31. Teaching of Secondary Mathematics.** See Special Methods courses page 70.

**35a. Forestry Mathematics (Algebra).** 1 Q. Winter. 4 cr. Prerequisite, 1 entrance unit of algebra. A briefer course covering most of the field of Mathematics 10. Students who have completed Mathematics 10 or 18 may not receive credit in this course. Not given in 1945-46. Mr. Chatland. Mr. Merrill.

**35b. Forestry Mathematics (Trigonometry).** 1 Q. Spring. 4 cr. Prerequisite, Mathematics 35a or equivalent (i.e., 1½ entrance units of algebra or Mathematics 10 or 18), and one entrance unit of plane geometry. Students who offer entrance credit in trigonometry or who have completed Mathematics 13 may not receive credit in this course. Not given in 1945-46. Mr. Chatland. Mr. Merrill.

**35c. Forestry Mathematics (Statistics).** 1 Q. Winter. 4 cr. Prerequisite, Mathematics 35a (or 10 or 18). Students who have completed Mathematics 25 may not receive credit in this course. Not given in 1944-45. Mr. Chatland. Mr. Merrill.

### For Undergraduates and Graduates

**101. Ordinary Differential Equations.** 1 Q. Spring. 5 cr. Prerequisite, Mathematics 23. Staff.

**104. Theory of Equations.** 1 Q. 5 cr. Prerequisite, Mathematics 22. Staff.

**107a. Calculus III.** 1 Q. Autumn. Spring. 5 cr. Prerequisite, Mathematics 23. Infinite series; expansion of functions; hyperbolic functions; partial differentiation; multiple integration. Staff.

**107b. Calculus IV.** 1 Q. Winter. 5 cr. Prerequisite, Mathematics 107a. Introductory theory of functions. Staff.

**150. Seminar.** 1 Q. Any quarter. Credit variable. Prerequisite, junior standing and consent of instructor. This course provides guidance in special work for advanced students. Staff.

### 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. Staff.

### Astronomy

**A11. Descriptive Astronomy.** 1 Q. Spring. 5 cr. Open to all students. An introductory course. Credit does not apply toward the restricted elective requirement in laboratory science. Mr. Chatland.

## Medical Technology

Clinical analyses are based on a knowledge of serology, bacteriology, chemistry, physics, and zoology. It is, therefore, essential for the laboratory technicians to have accurate knowledge in these sciences. It is also important that the workers receive routine practical training in a hospital laboratory under the supervision of a qualified clinical pathologist.

For students desiring to enter this work a four-year course is offered in the Division of Biological Sciences which involves three academic years of scientific training and twelve months of practical laboratory experience in an approved hospital. Upon the completion of the fourth year's work the student will be required to pass an examination given by the American Society of Clinical Pathologists covering the practical laboratory instruction. At least the third year of University work prescribed in this course must be taken in residence at Montana State University. Satisfactory completion of this course leads to the degree of Bachelor of Science in Medical Technology.

The curriculum for this course has been designed for those students who have had adequate high school preparation, which should include one and one-half units of algebra, one unit of geometry, one of chemistry, and two units of a modern foreign language. Students who lack this preparation should plan to spend four years in the University before going to a hospital for the practical laboratory instruction.

Since the number of hospital internships available is limited, the department will recommend candidates for these internships largely on the basis of superior scholarship.

The curriculum is as follows, and has been approved by the Council of Education and Hospitals of the American Medical Association:

**Freshman Year:** Zoology 11ab; Chemistry 11 or 13; English Composition 11ab; Mathematics 13; Physical Education 11abc; Military Science 11abc (Men).

**Sophomore Year:** Physics 20abc; Chemistry 101 and 17; \*Modern Language 11ab, 13a; Physical Education 12abc; Military Science 12abc (Men).

**Junior Year:** Zoology 24, 105; Bacteriology 117, 118, 119, and 121; English Literature or Philosophy, 8 cr.; History or Economics, 8 cr.; Modern Language 13b and 15.

**Senior Year:** Twelve months' internship in an accredited hospital.

Credits earned in practical laboratory work may be applied toward graduation only for the degree of Bachelor of Science in Medical Technology.

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## Military Science and Tactics

PROFESSOR GEORGE W. MISEVIC (Major, Infantry) CHAIRMAN;  
BURNIE L. EUBANKS (Sgt., D.E.M.L.), FRANK J. STANEK (Staff  
Sgt., D.E.M.L.), ASSISTANTS (United States Army).

The University maintains a Branch Immaterial of the Reserve Officers' Training Corps, Senior Division, organized in 1919, under authority of the National Defense Act.

"The general object of the courses of instruction of the Reserve Officers' Training Corps is to qualify students for positions of leader-

\*Course entered dependent upon high school preparation.

ship in time of national emergency."—Extract, War Department publication A. G. 353 R. O. T. C., 1932. Every effort is made to develop the initiative and other qualities of leadership necessary for success in any walk of life.

Students enrolled in the R. O. T. C. courses have no obligation for military service in a national emergency other than that of an able-bodied citizen. Students satisfactorily completing the advanced course are commissioned as second lieutenants, Infantry Reserve, Army of the United States, with attendant obligations. Note: Suspended for duration of the war.

All resident men students of freshman and sophomore standing who are citizens of the United States and who are physically fit are required to take the basic R. O. T. C. course, except those who may claim exemption under any of the following reasons:

#### SECTION I. Complete exemption.

- (a) **MILITARY REQUIREMENTS:** (Upon presentment of the necessary credentials.)
1. Completion of two years of military instruction in a Senior R. O. T. C. Unit.
  2. Attendance at two Citizen's Military Training Camps.
  3. Completion of one enlistment in the National Guard.
  4. Attendance at two National Guard Training Camps which consisted of at least two weeks of training at each camp.
  5. Students who have served in any branch of the Army or Navy for at least one year.

#### SECTION II. Exemption of one year.

- (a) Attendance at one Citizen's Military Training Camp.
- (b) Attendance at one National Guard Training Camp, which consisted of at least two weeks of training.

**SECTION III. Exemption for training in a Junior Division, or in any college or school conducting military training.**

Students who have received previous military training in a Junior ROTC Unit or in some other school or college conducting military training under an officer of the Army, will receive such credit adjustment as the professor of Military Science and Tactics and the head of the institution may jointly determine.

A first- or second-year student claiming exemption because of non-citizenship, physical disability, or age must present to the Department of Military Science and Tactics a petition for such exemption. Pending action on this petition, the student must enroll in the course prescribed for his year and enter the work of the course.

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All male students, unless exempted under Section I of the above regulations, must register in the Department during the first quarter of their attendance at Montana State University and each succeeding quarter until the requirement is completed.

Students who have satisfactorily completed the basic course are eligible to make application for the advanced course which covers two additional years. Students are carefully selected according to military and scholastic merit from those who make application for this course. Before being admitted to the advanced course they must pass a



thorough physical examination and must execute a written contract to complete the course and pursue a period of summer camp training, normally 6 weeks at government expense, as a prerequisite to graduation from the institution. **Note:** Suspended for the duration of the war.

The Federal Government supports military training at this institution by providing uniforms and by furnishing instructional material, weapons, equipment, and army personnel for instruction and administration. The president of the university is bonded for the full value of government property so furnished. Each member of the basic course is issued a uniform which must be properly worn while attending military classes. No special deposit is required for military property issued, but articles lost, worn out, or damaged through other than fair wear and tear must be paid for by the student. Uniforms must be kept in first class condition and so returned at the close of the college year or when the student for any reason discontinues military training.

War Department manuals are provided for the students in all courses.

### For Undergraduates

**Note:** Students who are irregular in the sequence of the basic courses 11abc and 12abc should note that the work of the winter quarters (11b, 12b) may **not** be substituted for either an autumn or a spring quarter's work. Not more than two winter quarters of basic Military Science will be accepted in fulfilling the general university requirement.

**\*11abc. Military Science and Tactics.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Students may enter any quarter. (a) Dismounted drill; military courtesy and customs of the service; rifle marksmanship; protection against carelessness; interior guard duty; safeguarding military information. (b) Organization of the Army; field sanitation; first aid; personal and sex hygiene; map and aerial photography reading. (c) Extended order formations; formations and ceremonies. Staff.

**\*12abc. Military Science and Tactics.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Students may enter any quarter. Formations and ceremonies; scouts, observers, and messengers; patrol operations; technique of rifle fire; U. S. rifle caliber .30M1903; U. S. rifle caliber .30M1; concealment and camouflage; cover and movement; marches and bivouacs; equipment and clothing; tent pitching. Staff.

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## Modern Languages

PROFESSORS LOUISE G. ARNOLDSON, RUDOLPH O. HOFFMAN, BART E. THOMAS (CHAIRMAN); ASSOCIATE PROFESSOR PAUL A. BISCHOFF. THORA SORENSON, INSTRUCTOR.

**General Information.** Not more than 90 credits in all languages may be counted towards the Bachelor of Arts degree. Placement examinations are required of all entering students who continue languages in which entrance credit is presented (see page 25). Students who have one high school unit in a modern language should enter course 13a; those with two units, 15; those with three units, courses numbered over 100, subject, however, to a placement examination.

Senior examinations will not be given except to candidates for honors.

### French

**Major Requirements.** Candidates for the degree of Bachelor of Arts in French must meet the following requirements:

\*Basic Course.

1. French 11 to 119 inclusive, or equivalent, and 15 credits selected from courses numbered 121 to 132 inclusive. If a student, on the basis of a placement examination, places in a course numbered over 100, 18 credits may be the minimum requirement.

2. Five quarters (or equivalent) of another language. Students should not start another language until they have had three quarters of work in the first language.

3. Two quarters in the history of Europe, chosen from the following: History 28, 29, 30ab, 33.

Students who plan to secure a certificate to teach should consult the certification requirements listed on page 65.

### For Undergraduates

**11. Elementary French.** 2 Q. Autumn, winter. Continuous. 10 cr. Summer, 11a. 5 cr. French Staff.

**13a. Intermediate French.** 1 Q. Spring. 5 cr. Prerequisite, French 11 or equivalent. French Staff.

**13b. Intermediate French.** 1 Q. Autumn. Summer. 4 cr. Prerequisite, French 13a or equivalent. French Staff.

**15. Advanced French.** 1 Q. Winter. Summer. 4 cr. Prerequisite, French 13b or equivalent. French Staff.

**17. French Grammar Review and Composition.** 1 Q. Spring. 4 cr. Prerequisite, French 15 or equivalent. French Staff.

### For Undergraduates and Graduates

**115. Practical Phonetics.** 1 Q. Autumn. Spring. 1 cr. Prerequisite, French 15 or equivalent. French Staff.

**119. General Survey of French Literature.** 1 Q. Winter. 4 cr. Prerequisite, French 17 or equivalent. Mrs. Arnoldson.

**\*121. The 17th Century French Literature.** 1 Q. Autumn. 3 cr. Prerequisite, French 17 or equivalent. Given in 1945-46, and in alternate years. Mr. Hoffman.

**\*123. The 18th Century French Literature.** 1 Q. Winter. 3 cr. Prerequisite, French 17 or equivalent. Given in 1945-46, and in alternate years. Mrs. Arnoldson.

**\*125. French Culture and Life.** 1 Q. Autumn. 3 cr. Prerequisite, French 17 or equivalent. Mr. Hoffman.

**\*126. French Poetry.** 1 Q. Spring. 3 cr. Prerequisite, French 17 Given in 1945-46, and in alternate years. Mr. Hoffman.

**\*127. The 19th Century French Literature.** 1 Q. Winter. 3 cr. Prerequisite, French 17 or equivalent. Mrs. Arnoldson.

**\*131. Advanced French Composition.** 1 Q. Spring. 3 cr. Prerequisite, French 17 and one additional course numbered over 100, or equivalent. Mr. Hoffman.

**132. Seminar: Studies in Outstanding Writers.** 1 to 3 Q. Autumn. Winter. Spring. 2-3 cr. Open to French majors of senior standing with consent of instructor. Writer and instructor change from quarter to quarter, and from year to year. French Staff.

### German

**Major Requirements.** Candidates for the degree of Bachelor of Arts in German must meet the following requirements:

(1) German 11 to 119 inclusive, or equivalent, and 15 credits of course 150. If a student, on the basis of a placement examination, places in a course numbered over 100, 18 credits may be the minimum requirement.

\*Classwork will not be given unless demand is sufficient. Qualified students may be permitted to register independently for tutorial instruction.

(2) Five quarters (or equivalent) of another language. Students should not start another language until they have had three quarters of work in the first language.

(3) Two quarters in the history of Europe, chosen from the following: History 28, 29, 30ab, 33.

Senior examinations will not be given except to candidates for honors.

### For Undergraduates

**11. Elementary German.** 2 Q. Autumn, winter. Continuous. 10 cr. German Staff.

**13a. Intermediate German.** 1 Q. Spring. 5 cr. Prerequisite, German 11 or equivalent. German Staff.

**13b. Intermediate German.** 1 Q. Autumn. 4 cr. Prerequisite, German 13a or equivalent. German Staff.

**15. Advanced German.** 1 Q. Winter. 4 cr. Prerequisite, German 13b or equivalent. German Staff.

**17. German Grammar, Composition, Conversation.** 1 Q. Spring. 4 cr. Prerequisite, German 15 or equivalent. German Staff.

### For Undergraduates and Graduates

**\*119. General Survey of German Literature.** 1 Q. Autumn. 3 cr. Prerequisite, German 17 or equivalent. Given in 1945-46, and in alternate years. German Staff.

**\*150. German Readings.** 1 Q. Any quarter. 2-5 cr. Prerequisite, German 17 or equivalent. Advanced readings which fit the interests and needs of the student selected from outstanding German writers. Course may be repeated during succeeding quarters by variation in content to a maximum of 25 credits. German Staff.

### Spanish

Spanish courses offer preparation (1) for prospective teachers or for those interested in literary information and (2) for students interested in Pan American studies, governmental work, or commercial work in Spanish-American countries.

**Major Requirements:** For (1) above, courses 11 to 119 inclusive, or equivalent, 15 credits selected from courses 121 to 133 inclusive, and History 123abc (Hispanic-American).

### Pan American Studies

For (2) above during the first two years the student should select his courses and electives in the curriculum of the Division of Humanities (see page 47), to include Spanish 11 through 117, or equivalent; Humanities 15abc; either Biological Science 13abc or Physical Science 17; Psychology 11; English 11ab, 59b; Economics 14ab; History 17, 18, 20.

**Junior Year:** Spanish 119 and two other courses from the group numbered 120 to 129 inclusive; History 123abc; Economics 15, 141, 145, and English 59c.

**Senior Year:** Religion 20R or electives; History 103; Journalism 36; Business Administration 41 or electives. In addition, from each of the following groups three quarter courses should be selected: (a) History 106ab, 108, 109, 115; Psychology 52abc; Business Administration 152. (b) Music 35abc; Fine Arts 31abc; English 75abc, 77abc. (c) Spanish, the remaining courses not yet completed in the group numbered 120 to 129, 131 to 133 inclusive.

\*Classwork will not be given unless the demand is sufficient. Qualified students may be permitted to register independently for tutorial instruction.

Note: The total number of college credits required in Spanish varies with the student's high school preparation; the minimum requirement is 18 credits. Students who intend to complete the work in this field should consult early with the adviser of Pan American studies.

Students who plan to secure a certificate to teach should consult the certification requirements listed on page 65.

### For Undergraduates

11. Elementary Spanish. 2 Q. Autumn, winter. Winter, spring. 10 cr. Continuous. Summer, 11a. 5 cr. Spanish Staff.
- 13a. Intermediate Spanish. 1 Q. Autumn. Spring. Summer. 5 cr. Prerequisite, Spanish 11 or equivalent. Spanish Staff.
- 13b. Intermediate Spanish. 1 Q. Autumn. Winter. 4 cr. Prerequisite, Spanish 13a or equivalent. Spanish Staff.
15. Advanced Spanish. 1 Q. Autumn. Winter. Spring. Summer. 4 cr. Prerequisite, Spanish 13b or equivalent. Spanish Staff.
17. Spanish Grammar, Composition, Conversation. 1 Q. Winter. Spring. Summer. 4 cr. Prerequisite, Spanish 15 or equivalent. Mr. Thomas.
18. Advanced Spanish Composition and Conversation. 1 Q. Autumn. 3 cr. Prerequisite, Spanish 17. Mr. Thomas.

### For Undergraduates and Graduates

119. General Survey of Spanish Literature. 1 Q. Autumn. 3 cr. Prerequisite, Spanish 17. A general survey of the literary history of Spain. Assigned readings and class discussions of masterpieces. Mr. Thomas.
121. Spanish Drama of the Golden Age. 1 Q. Winter. 3 cr. Prerequisite, Spanish 17. Given in 1945-46, and in alternate years. Mr. Thomas.
122. Picaresque Novel. 1 Q. Spring. 3 cr. Prerequisite, junior standing and Spanish 17. Given in 1944-45, and in alternate years. Miss Sorenson.
123. 19th Century Spanish Novel. 1 Q. Autumn. 3 cr. Prerequisite, Spanish 17. Romanticism and the novel of this century. Given in 1945-46, and in alternate years. Mr. Bischoff.
124. 19th Century Spanish Drama. 1 Q. Winter. 3 cr. Prerequisite, junior standing and Spanish 17. Given in 1945-46, and in alternate years. Miss Sorenson.
- 125ab. 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 novelists of the Argentine, Mexico, Colombia, and Venezuela. Given in 1946-47, and in alternate years. Mr. Thomas.
127. Contemporary Spanish Drama. 1 Q. Autumn. 3 cr. Prerequisite, Spanish 17. Given in 1946-47, and in alternate years. Mr. Bischoff.
128. Advanced Spanish Conversation. 1 Q. Any quarter. 1 cr. Prerequisite, Spanish 17. Mr. Thomas.
129. Contemporary Spanish Novel. 1 Q. Winter. 3 cr. Prerequisite, Spanish 17. Given in 1946-47, and in alternate years. Mr. Bischoff.
131. Commercial Spanish. 1 Q. Spring. 3 cr. Prerequisite, Spanish 17. Writing of Spanish commercial letters and a study of commercial practices in Spanish-America. Designed for students in Pan American studies. Given in 1945-46, and in alternate years. Spanish Staff.
133. Seminar. 2 Q. Winter, spring. 2-3 cr. Open to Spanish major students with senior standing. Topics offered for study: outstanding authors and literary movements of Spain and Spanish America. All majors must take at least one quarter of course 133; not more than 6 credits may be applied toward graduation. Mr. Thomas.

## School of Music

PROFESSORS JOHN B. CROWDER (DEAN), FLORENCE R. SMITH, A. HERMAN WEISBERG; ASSOCIATE PROFESSORS JOHN LESTER, BERNICE BERRY RAMSKILL, STANLEY M. TEEL.

### Requirements for Admission

1. The regular University requirements for admission apply to the School of Music, pages 19 to 23. Credit for applied music is granted only to students who are eligible to register for regular University courses and to accredited applied music teachers desiring to meet the requirements for life certificates.

2. Students desiring to enter courses leading to the degree of Bachelor of Music in applied music must meet the following entrance requirements in the field of applied music in which they wish to major:

**Voice.** Must be able to sing on pitch and show talent for musical expression as demonstrated by the performance of standard songs in English and should be able to read a simple song at sight.

**Piano.** Major and minor scales, major and minor arpeggios in moderate tempo, some standard études such as Heller, Op. 47; small works of Bach such as Little Preludes and Two-Part Inventions; easy sonatas and standard compositions such as Haydn Sonata in G Major, Schubert Impromptu Op. 142, No. 2.

**Violin.** Ability to perform études such as Kreutzer études Nos. 1 to 32 and Tartini G Minor Sonata.

**Organ.** Same as piano.

**Wind Instruments.** Must have mastered elementary technique of his or her instrument.

3. An entrance examination in music aptitude and placement tests in applied music are required.

### Requirements for Graduation

1. Candidates for the degree of Bachelor of Music in music education are required to complete satisfactorily 186 credits as outlined in suggested Curriculum A, and must have a minimum proficiency in applied music as follows: Piano, two years of continuous study or its equivalent in performing ability; Voice, Wind Instruments, and Violin, each for one year of continuous study or the equivalent in performing ability.

2. Candidates for the degree of Bachelor of Music in applied music must meet the general university requirements for graduation (pages 23 to 28), with the exception that only two of the restricted elective requirements (to be selected from sections 2, 3, 4, and 5 under "Restricted Elective Requirements") must be completed. In addition, they must complete the music courses suggested in Curriculum B and meet the following requirements in the field of specialization:

**Voice.** The candidate must have the ability to perform satisfactorily and to demonstrate a knowledge of the technique of singing, including breath control, resonance, placement, diction, and interpretation. He must have both a singing and teaching knowledge of lieder, art song, oratorio, opera, and sacred literature, and a singing knowledge of French, Italian, and German.

For his specialization requirements the student in voice must include Music 31a, 10abc (Choral Groups, 2 years), 1 (Piano, 2 years or its equivalent in performing ability).

**Piano.** The candidate must be able to demonstrate the ability to play scales, arpeggios, chords, octaves, and double notes in various speeds and with various tonal effects. Repertoire must include classic, romantic, and modern compositions such as Bach, Chromatic Fantasia and Fugue, preludes and fugues from the Well-Tempered Clavier; Beethoven Sonata Op. 53 and a concerto; Brahms Sonata in F Minor, Mozart Concerto in E-Flat Major, large compositions of Chopin, Liszt, and Grieg; compositions from modern composers such as Rachmaninoff, MacDowell, Debussy, and Ravel. Candidates must be able to read compositions of moderate difficulty and average song accompaniments at sight.

For his specialization requirements the students in piano must include Music 10abc (Choral Groups, 2 years), 23abc, 40 (1 year), 47abc, and 140abc.

**Violin.** The candidate must be able to play scales, arpeggios, thirds, sixths, octaves, and harmonics satisfactorily and must have studied such representative works as Etudes of Kreutzer, Fiorillo, Rovelli, Rode; concertos chosen from Bach, Mozart, Viotti, Rode, Beethoven, Wieniawski, Vieuxtemps, Bruch, and Brahms, and sonatas chosen from Bach, Mozart, Beethoven, Grieg, and Brahms; miscellaneous concert pieces in the standard repertoire.

For his specialization requirements the student in violin must include Music 10abc (Orchestra, 3 years), 31ab, 40 (1 year), 129abc, and Piano (2 years or its equivalent in performing ability).

**Organ.** The candidate must be able to demonstrate ability in sight reading, in accompaniment of oratorios and masses, and in general service playing. He should have a large repertoire of organ literature of all schools, classic and modern, of the degree of difficulty indicated by the following: Bach, Fantasia and Fugue in B Minor; Handel, Concerto in G; advanced works of Guilmant, Widor, Franck, Vierne, Dupré, Mendelssohn, and others; works of contemporary French, English, German, and American schools.

For his specialization requirements the student in organ must include Music 10abc (Choral Groups, 2 years), 31a, 40 (1 year), 47abc.

**Wind Instruments.** The candidate must be able to perform representative solos from the literature for his instrument and to carry his part in a professional or semi-professional band or orchestra.

For his specialization requirements the student in wind instruments must include Music 10abc (Band, 3 years), 31ab, 40 (2 years), 52, and 1 (Piano, 2 years).

3. Candidates for the Bachelor of Arts degree with Music as a major must meet the regular University and College of Arts and Sciences requirements for graduation (see pages 23 to 28 and page 46).

4. Senior examinations are required of all students who major in music.

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Students who plan to secure a certificate to teach should consult the certification requirements listed on page 65.

### General Information

The Montana State University School of Music is a member of the National Association of Schools of Music.

The School of Music seeks to develop the musical interests and talents of students planning a professional career and of students

whose major interests lie in other fields wishing to add to their enjoyment of music and to the enrichment of their lives through the recreation of music for their own satisfaction. The curricula include not only systematic and progressive instruction in the structure, history, appreciation, and practice of music, but also instruction in those branches of higher learning which bear most directly upon music and without a knowledge of which success in the higher domain of music is impossible.

Students who do not major in music will be allowed to count towards graduation only 6 credits in ensemble work and 12 credits in applied music. These non-major students may register for one credit where one lesson per week is taken or for two credits if two lessons per week are taken. Ensemble music courses are indicated by an asterisk (\*) affixed to the number of the course description, and applied music courses are indicated by a dagger (†) affixed to the number of the course description.

Music majors who have not included 10abc and 40 in their music electives may be required to participate in these courses without credit.

Students are required to appear in recitals at the request of the instructor. The instructor's permission must be obtained before the student appears in public.

Students registered for courses numbered 1, 5, 6, 7, and 8 may be required to attend the lessons of another student registered in the same course.

For information concerning the Music School Foundation Scholarships and the State Board of Education Music Scholarships, see pages 39 and 41.

In keeping with advanced thought of leading educators, the faculty of the School of Music recommends to its students the adoption of a five-year course leading to the Bachelor's degree. This plan will enable the student to prepare more fully for professional activity and for post-graduate study. An adjusted curriculum for the five-year course will be worked out to meet the needs of the individual. Students electing this course should consult with the Dean of the School not later than the freshman year concerning the modification of the various curricula listed below.

The Music School Foundation has received funds from the students' Music Club to establish a loan fund for music majors. The funds are administered by the music faculty and loans are made without interest charges.

### A. Curriculum for Bachelor of Music Degree in Music Education

Curriculum A prepares for teaching in the public school if the electives are so chosen as to meet the state requirements. See certification requirements page 65.

#### Freshman Year

	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Applied Music 1 .....	2	2	2
Music 10 .....	1	1	1
Music 11abc .....	4	4	4
Music 25 or 29 .....	1	1	1
Music 35abc .....	3	3	3
English 12abc .....	3	3	3
Physical Education 11abc .....	1	1	1
Military Science 11abc (Men) .....	1	1	1
	15-16	15-16	15-16

Sophomore Year

	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Applied Music 1 .....	2	2	2
Music 10 .....	1	1	1
Music 25 or 29 .....	1	1	1
Music 31ab .....	3	3	3
Music 41abc .....	4	4	4
Psychology 11 .....	4	4	5
Electives .....	4	4	3
Physical Education 12abc .....	1	1	1
Military Science 12abc (Men) .....	1	1	1
	<hr/> 16-17	<hr/> 16-17	<hr/> 17-18

Junior Year

Applied Music 1 .....	2	2	2
Music 10 .....	1	1	1
Music 123abc .....	3	3	3
Music 125abc .....	2	2	2
Education 25abc .....	4	4	4
Electives .....	4	4	4
	<hr/> 16	<hr/> 16	<hr/> 16

Senior Year

Applied Music 1 .....	2	2	2
Music 10 .....	1	1	1
Music 134abc .....	2	2	2
Education 26ab .....	5	5	4
Electives .....	10	5	6
	<hr/> 15	<hr/> 15	<hr/> 15

**B. Curriculum for Bachelor of Music Degree  
in Applied Music**

Completion of the first two years of work in Curriculum B qualifies the student to receive the Elementary State Certificate in Applied Music by endorsement from the State Department of Public Instruction. 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.

Freshman Year

Applied Music 5 .....	4	4	4
Music 11abc .....	4	4	4
Music 35abc .....	3	3	3
Music Elective (See note below) .....	1	1	1
English 12abc .....	3	3	3
Physical Education 11abc .....	1	1	1
Military Science 11abc (Men) .....	1	1	1
	<hr/> 16-17	<hr/> 16-17	<hr/> 16-17

Sophomore Year

Applied Music 6 .....	4	4	4
Music 41abc .....	4	4	4
Music Elective (See note below) .....	1	1	1
Restricted Elective .....	4	4	4
Elective (Fine Arts 31abc recommended) .....	3	3	3
Physical Education 12abc .....	1	1	1
Military Science 12abc (Men) .....	1	1	1
	<hr/> 17-18	<hr/> 17-18	<hr/> 17-18

Junior Year

Applied Music 7 .....	4	4	4
Music 125abc .....	2	2	2
Music 158abc .....	2	2	2
Music Electives (See note below) .....	4	4	4
Electives .....	4-5	4-5	4-5
	<hr/> 16-17	<hr/> 16-17	<hr/> 16-17



	Senior Year		
	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Applied Music 8 .....	4	4	4
Music 134abc .....	2	2	2
Music 141 and 142 .....	2	...	2
Music Electives (See note below) .....	3	3	3
Electives .....	3-5	3-5	3-5
	14-16	14-16	14-16

**Note:** In addition to the courses specified in Curriculum B above, the student must also complete the work outlined as specialization requirements under voice, piano, violin, organ, wind instruments (pages 110 and 111) dependent upon which of those fields he selects.

### C. Curriculum for Bachelor of Arts with a Major in Music

Curriculum C does not lead to certification for teaching in the public schools.

	Freshman Year		
Applied Music 1 .....	1	1	1
Music 11abc .....	4	4	4
Music 35abc .....	3	3	3
General 11abc or 15abc .....	5	5	5
English 12abc .....	3	3	3
Physical Education 11abc .....	1	1	1
Military Science 11abc (Men) .....	1	1	1
	17-18	17-18	17-18
	Sophomore Year		
Applied Music 1 .....	1	1	1
Music 41abc .....	4	4	4
General 13abc .....	5	5	5
Foreign Language .....	5	5	5
Physical Education 12abc .....	1	1	1
Military Science 12abc (Men) .....	1	1	1
	16-17	16-17	16-17

**Note:** The work of the Junior and Senior years is devoted largely to completing any remaining University restricted electives, free electives, and music electives, as well as Applied Music 5 during each quarter of these years.

#### For Undergraduates

†1. **Applied Music.** (Voice, piano, violin, organ, wind instruments.) 3 Q. Autumn, winter, spring. Summer. 1 or 2 cr. Scales, arpeggios, sight reading, and interpretation. A course for students not majoring in applied music and for students who are unable to meet the entrance requirements in Music 5. Staff.

†5. **Applied Music.** (Voice, piano, violin, organ, wind instruments.) 3 Q. Autumn, winter, spring. Summer. 1 to 4 cr. Prerequisite, satisfactory placement examination as outlined in School of Music entrance requirements. Individual instruction designed to meet the requirements of first year students majoring in the various fields of applied music. Staff.

†6. **Applied Music.** (Voice, piano, violin, organ, wind instruments.) 3 Q. Autumn, winter, spring. Summer. 1 to 4 cr. Prerequisite, satisfactory completion of Music 5. Continuation of individual instruction. Staff.

†7. **Applied Music.** (Voice, piano, violin, organ, wind instruments.) 3 Q. Autumn, winter, spring. Summer. 1 to 4 cr. Prerequisite, satisfactory completion of Music 6. Continuation of individual instruction. Staff.

†8. **Applied Music.** (Voice, piano, violin, organ, wind instruments.) 3 Q. Autumn, winter, spring. Summer. 1 to 4 cr. Prerequisite, satisfactory completion of Music 7. Continuation of individual instruction leading to fulfillment of requirements as outlined for applied music majors. Staff.

\*10abc. **Band, Orchestra, Choral Groups.** 3 Q. Autumn, winter, spring. Summer. 1 cr. each quarter. Band, chorus, and orchestra. Prerequisite, consent of instructor. Staff.

†Applied Music.

\*Ensemble Music.

**11abc. Theory I.** 3 Q. Autumn, winter, spring. Summer, S11ab. 4 cr. each quarter. The art and science of musical 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. Mr. Teel.

†**12abc. Voice in Class.** 3 Q. Autumn, winter, spring. Summer, 12a. 1 cr. each quarter. Breathing methods, tone placement, and enunciation leading to the singing of simple songs. Designed for students who desire practical training in singing without specialization. Mr. Lester.

\***23abc. Class Piano Methods.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Summer, S23a. 2 cr. Prerequisite, placement in Piano 5. 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. Given in 1946-47, and in alternate years. Mrs. Ramskill.

†**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. Mr. Weisberg.

†**29. Wind 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 the student 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. Mr. Teel.

**31ab. Conducting.** 2 Q. Autumn, winter. 3 cr. each quarter. Summer, 31a. 3 cr. Students may enter either quarter. Prerequisite, 10 credits in music. Fundamentals of choral and instrumental conducting. (a) Choral conducting. (b) Instrumental conducting. The University choral and instrumental groups are made available to advanced students for practical experience. Mr. Teel.

**35abc. Listening to Music.** 3 Q. Autumn, winter, spring. Summer, S35c. 1-3 cr. Students may enter any quarter. This course with variable credit is designed to meet the needs of both non-music majors and music majors. A non-technical study of the elements essential to musical understanding with an evaluation of music of the 18th and 19th centuries from a musical and historical standpoint. One meeting a week will consist of a formal lecture-recital and one of directed listening to phonograph records. The other two meetings will be devoted to further analysis and discussion. Mr. Crowder and Staff.

†**40. Ensemble Groups.** 3 Q. Autumn, winter, spring. Summer. 1 cr. each quarter. 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. Staff.

**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. Mr. Weisberg.

**45abc. Microphone and Program Technique.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. (a) Use of public address system. (bc) Preparation and practice in broadcasting musical programs. Either quarter of 45b or c is interchangeable. Mr. Lester.

**47abc. Advanced Keyboard Harmony.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Prerequisite, Music 41abc or concurrent registration. Practical application of theory principles to the keyboard. Exercises in modulation, transposition, and development of extempore playing. Mrs. Ramskill.

\***52. Band and Orchestra Management.** 1 Q. Spring. 2 cr. Prerequisite, Music 31b and 10 credits in band and orchestral instruments selected from Music 1, 25, and 29. A course designed to furnish instrumental conductors with materials and methods of preparing instrumental groups for performances; program building.

†Applied Music.

\*Classwork will not be given unless demand is sufficient. Qualified students may be permitted to register independently for tutorial instruction.

### For Undergraduates and Graduates

†105. **Applied Music.** (Voice, piano, violin, organ, wind instruments.) 3 Q. Autumn. Winter. Spring. Summer. 1-8 cr. Prerequisite, completion of Music 8 or graduate standing in music education and consent of the Dean of the School of Music. Individual instruction. Staff.

\*119ab. **Band and Vocal Arranging.** 2 Q. Winter, spring. 2 cr. each quarter. Prerequisite, Music 129a. Individual and combined possibilities of instruments and voices; original work, arranging, and transcriptions for various combinations. Given in 1945-46, and in alternate years. Mr. Weisberg.

123abc. **School Music.** See Special Methods courses page 70.

125abc. **Counterpoint.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisite, Music 41c. Two-, three-, and four-part counterpoint. Mr. Weisberg.

\*129abc. **Orchestration.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisite, Music 125c. Given in 1945-46, and in alternate years. Mr. Weisberg.

134abc. **History of Music.** 3 Q. Autumn, winter, spring. 2 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. Mr. Teel.

140abc. **Interpretation and Style.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Prerequisite, consent of instructor. Piano compositions of different national schools and periods and characteristics of each from the standpoint of interpretation and style. Given in 1946-47, and in alternate years. Mr. Crowder.

\*141. **Score Reading.** 1 Q. Autumn. 2 cr. Prerequisite, junior standing. Given in 1946-47, and in alternate years. Staff.

142. **Senior Recital.** 1 Q. Spring. 2 cr. Prerequisite, registration in Music 8. Staff.

\*158abc. **Form and Analysis.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisite, Music 125c or concurrent registration. A course designed to familiarize the student with the melodic, harmonic, and formal structure of the different kinds of musical composition. Given in 1946-47, and in alternate years. Mr. Weisberg.

\*159abc. **Composition.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Prerequisite, Music 125c. A course in creative writing. Given in 1945-46, and in alternate years. Mr. Weisberg.

S162. **Seminar in Public School Music.** 1 Q. Summer. Cr. variable. Prerequisite, junior standing. Mr. Teel.

#### Applied Music Fees per quarter.

A fee of \$25.00 per quarter will be charged all music majors, to cover applied music instruction as required by the curricula and advised by the Dean of the School of Music.

For non-majors the fees per quarter will be:

Voice, Piano, Violin

Applied Music 1, 5, 6, 7, 8.	Two lessons a week.....	\$40.00
	One lesson a week.....	20.00

Organ

Applied Music 1, 5, 6, 7, 8.	Two lessons a week.....	36.00
	One lesson a week.....	18.00

Wind Instruments

Applied Music 1, 5, 6, 7, 8.	Two lessons a week.....	24.00
	One lesson a week.....	12.00

For majors and non-majors who register for applied music for less than a full quarter or who withdraw before the end of the quarter, a charge of \$1.75 per private lesson taken will be made.

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.

†Applied Music.

\*Classwork will not be given unless demand is sufficient. Qualified students may be permitted to register independently for tutorial instruction.

**Rentals, per quarter.**

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

Students registered in Music 25 and 29 must rent instruments unless they provide their own.

Rentals must be paid for entire quarter. No refunds of rentals will be made.

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## Nursing Education

Montana State University offers a course in Nursing Education which covers a period of nine quarters on the University campus followed by three years of training in an accredited nursing school. Upon completion of this program, the student receives the diploma in Nursing and the degree of Bachelor of Science in Nursing Education. At least the third year of university work in the following course must be completed in residence at Montana State University.

**Freshman Year:** Zoology 11ab; Chemistry 11 or 13, Home Economics 22; English 11ab, 20; Physical Education 11abc.

**Sophomore Year:** Bacteriology 19, 26; Economics 16 and 17; Chemistry 19, 103; Psychology 11; History or Literature or Foreign Language; Physical Education 12abc.

**Junior Year:** Foreign Language or Economics 14; Economics 130; Fine Arts 31bc; History or Literature; Home Economics 28, 123; Psychology 115; Zoology 24.

Although the course outlined above is intended to cover three years, by attendance during summer sessions and careful selection of courses, it is possible to accelerate the completion of the work. However, the field of nursing is increasing in its scope and importance to such an extent that there is a great deficiency of broadly educated persons to form its policies and direct its activities. For this reason the University is contemplating the establishment of a full four-year pre-nursing course.

The hospital schools in which this course is to be completed must follow the curriculum of the National League of Nursing Education.

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## School of Pharmacy

PROFESSOR CHARLES E. F. MOLLETT (DEAN), JOHN F. SUCHY, CURTIS H. WALDON.

### Training for a Career in Pharmacy

The science of pharmacy is assuming increasing importance as one of the recognized medical sciences and offers today the largest number of fine remedial agents the world has ever known, precisely standardized and of the highest potency, making it one of the vital health necessities of the nation.

The two specialized courses of instruction offered by the School are of the highest requirement of pharmaceutical instruction in America. The School is accredited by the American Council of Pharmaceutical Education, which insures recognition by the Boards of Pharmacy of practically all the states which require graduation from a four-

year course in pharmacy as a prerequisite for taking a licensing examination or for reciprocity. These two curricula—"Professional" and "Scientific"—provide a broad scientific education for both men and women, and offer almost unlimited opportunities for employment or for engaging privately in some phase of the science.

It has been demonstrated that students with or without previous training or degrees cannot successfully master the details and progress of the science of pharmacy unless the technical subjects are spread over at least three academic years. This is one of the requirements of the American Council on Pharmaceutical Education. Also, a course in the emergency aid is required of all Pharmacy majors.

The first curriculum prepares especially for the field of retail pharmacy or the "drug store" as pharmacists, managers, or owners of modern stores and strictly prescription or hospital pharmacies. The scientific curriculum provides for positions as pharmaceutical chemists and as pharmacognocists for many positions in government service, teachers in schools of pharmacy, and for research or as professional service representatives of large manufacturing concerns. Both curricula are planned as far as possible to meet the defense needs of the Army and Navy. Sufficient electives may be found to allow additional specialization in the other sciences, or in business.

The School is a member of the American Association of Colleges of Pharmacy and meets the standards of accrediting of the American Council on Pharmaceutical Education.

The School maintains a medicinal plant garden to provide materials for laboratory use and for training students in the recognition and culture of native and other drug-producing plants and in the selection and curing of the official products. It is also a fertile laboratory for research projects in this phase of pharmacy.

The School offers two degrees, a Bachelor of Science in Pharmacy (a four-year degree) and a Master of Science in Pharmacy (graduate degree). See pages 88 to 90.

### **Requirements for Admission**

The regular University requirements for admission apply to the School of Pharmacy (pages 19 to 23).

### **Requirements for Graduation**

Candidates for the degree of Bachelor of Science in Pharmacy must meet the following requirements:

- (1) The general University requirements for graduation (pages 23 to 28).
- (2) Complete satisfactorily one of the curricula outlined below.

Senior examinations will not be given except to candidates for honors.

Candidates for the degree of Master of Science in Pharmacy must comply with the regulations governing graduate work set forth on pages 88 to 90.

## Professional Curriculum

## Freshman Year

	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
Pharmacy 10abc .....	1	1	1
Pharmacy 11abc .....	5	5	5
*Chemistry 11abc or 13abc .....	5	5	5
English 12abc .....	3	3	3
Physical Education 11abc .....	1	1	1
Military Science 11abc (Men) .....	1	1	1
	15-16	15-16	15-16

## Sophomore Year

**Foreign Language .....	5	5	5
Pharmacy 13abc .....	5	5	5
Chemistry 101 .....	5	5	...
Zoology 24 .....	...	...	5
Physical Education 12abc .....	1	1	1
Military Science 12abc (Men) .....	1	1	1
	16-17	16-17	16-17

## Junior Year

Pharmacy 14abc .....	4	4	4
Pharmacy 22abc .....	4	4	4
Pharmacy 27abc .....	4	4	4
Bacteriology 19, Psychology 11 and 32 .....	5	5	5
	17	17	17

## Senior Year

Pharmacy 31abc .....	4	4	4
Pharmacy 35abc .....	4	4	4
Pharmacy 39 or 165 .....	...	4	4
Business Administration 11 and English 20 .....	5	5	...
History or Economics .....	4	...	5
	17	17	17

## Scientific Course

## Freshman Year

Pharmacy 10abc .....	1	1	1
Pharmacy 11abc .....	5	5	5
Chemistry 11abc or 13abc .....	5	5	5
†Mathematics 16 and English 11ab .....	5	5	5
Physical Education 11abc .....	1	1	1
Military Science 11abc (Men) .....	1	1	1
	17-18	17-18	17-18

## Sophomore Year

Pharmacy 13abc .....	5	5	5
Chemistry 101 and Zoology 24 .....	5	5	5
Psychology 11 and *Mathematics 13 .....	5	5	...
History or Economics elective .....	...	...	4-6
Physical Education 12abc .....	1	1	1
Military Science 12abc (Men) .....	1	1	1
	16-17	16-17	15-18

\*Students who did not present entrance units in chemistry and who complete Chemistry 11abc must also complete Chemistry 13c, preferably in the sophomore year.

\*\*The equivalent of 15 quarter credits in one foreign language is required.  
†Course entered dependent upon high school preparation; unless 1½ entrance units of algebra are offered, the Mathematics sequence is: Autumn Quarter, Mathematics 10; Winter Quarter, Mathematics 13.

## Junior Year

	Autumn Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
*Foreign Language .....	4-5	4-5	4-5
Pharmacy 14abc .....	4	4	4
Pharmacy 22abc .....	4	4	4
Bacteriology 19, Pharmacy 113, and Psychology 32 .....	5	2	5
History or Economics elective .....	---	4	---
	17-18	18-19	17-18

## Senior Year

Pharmacy 31abc .....	4	4	4
Pharmacy 35abc .....	4	4	4
Pharmacy 39 and 165 .....	---	4	4
Pharmacy 101abc .....	1	1	1
Foreign Language .....	4	---	4
Elective .....	4	4	---
	17	17	17

**Note:** Physics S11abc or 20abc is strongly recommended and should be completed in the Junior or Senior year (dependent upon entrance preparation in mathematics and foreign languages).

## For Undergraduates

**10abc. Survey of Pharmacy.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Required of all freshman Pharmacy students. The background, fields, and phases of the profession of pharmacy. Mr. Mollett and Staff.

**11. Introductory and Galenical Pharmacy.** 3 Q. Autumn, winter, spring. Continuous. 15 cr. Prerequisite, Chemistry 11ab or 13ab, or equivalent, or concurrent registration. (a) The study and application of metrology and pharmaceutical processes and technique. (bc) Theory and practice in the manufacture of U.S.P. and N.F. galenical preparations. Students who have completed former courses 12 and 20 may not receive credit in this course. Mr. Waldon.

**13. Pharmaceutical Botany.** 3 Q. Autumn, winter, spring. Continuous. 15 cr. A preliminary course in basic and fundamental botany followed by a comprehensive macroscopic and microscopic study of the official crude plant and animal drugs, including their nomenclature, sources, preparation, identification, constituents, doses, and uses. Mr. Suchy.

**14. Pharmaceutical Chemistry.** 3 Q. Autumn, winter, spring. Continuous. 12 cr. Prerequisite, Chemistry 11 or 13ab. The pharmaceutical chemistry of the official inorganic and organic substances and preparations is studied with regard to nomenclature; source and preparation; physical properties; and pharmaceutical uses, doses, and preparations. Mr. Waldon.

**15. Field Pharmacognosy.** 1 Q. Autumn. Spring. 3 cr. Prerequisite, Pharmacy 13 or consent of instructor. The official indigenous drug plants; those grown in the medicinal garden are studied as to propagation, methods of selection, and preservation of the parts used in pharmacy. Mr. Mollett.

**22. Pharmaceutical Analysis.** 3 Q. Autumn, winter, spring. Continuous. 12 cr. Prerequisite, Pharmacy 11, 13, and 14, and Chemistry 13c and 101 or concurrent registration in 101. Chemical qualitative and quantitative analysis of official drugs and preparations according to the methods of the U.S.P. and N.F. Mr. Suchy.

**27abc. Pharmaceutical Economics.** 3 Q. Autumn, winter, spring. 4 cr. each quarter. Prerequisite, Pharmacy 11 and 13. Lectures and recitations on the establishment, management, and development of the modern pharmacy. Abstracts of assigned readings in current pharmaceutical literature. Mr. Mollett.

**31. Pharmacology.** 3 Q. Autumn, winter, spring. Continuous. 12 cr. Prerequisite, senior standing in pharmacy, Zoology 24, Chemistry 19 or 101, and Bacteriology 19 or concurrent registration. The pharmacology, therapeutics, toxicology and posology of the U.S.P., N.F. remedies. Laboratory experiments on simple and uninvolved actions of drugs. Mr. Mollett.

**35. Dispensing.** 3 Q. Autumn, winter, spring. Continuous. 12 cr. Prerequisite, Pharmacy 22. A technical study of all phases of the prescription; practical exercises in sight reading; extemporaneous compounding. Mr. Waldon.

\*The equivalent of 23-25 quarter credits in one foreign language is required; course entered dependent upon high school preparation.

**39. Urinalysis.** 1 Q. Winter. 4 cr. Prerequisite, Chemistry 13c and 19 or 101. The different types of body metabolism as related to the excretion of urine. Macroscopic and microscopic examinations of normal and pathologic samples; qualitative and quantitative determinations. Mr. Suchy.

**40. History of Pharmacy.** 1 Q. Winter. 2 cr. Prerequisite, sophomore standing. The origin, evolution, and present status of the profession; outstanding pharmacists of the past and present and their scientific contributions. Mr. Mollett.

**42. Pharmaceutical Ethics.** 1 Q. Spring. 2 cr. Prerequisite, senior standing. The ethics of pharmacy from ancient to modern times, as embodied in the various codes. The major responsibilities of pharmacists: their duties in relation to the public, to the physician, to each other, and to the profession of pharmacy. Mr. Mollett.

### For Undergraduates and Graduates

**101abc. Seminar.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Prerequisite, senior standing. Staff.

**113. Drug Microscopy.** 1 Q. Winter. 2 cr. Prerequisite, junior standing and Pharmacy 13. Microscopic examination of drugs, foods, and spices. The detection of adulterants and impurities. Mr. Suchy.

**131. Advanced Pharmacy.** 1 to 3 Q. 2-4 cr. each quarter. Prerequisite, senior standing. Individual problems in special fields. Staff.

**165. Advanced Analysis.** 1 Q. Spring. 4 cr. Prerequisite, Pharmacy 22 and Chemistry 19 or 101. The more advanced physical and chemical processes used in pharmaceutical analyses. Mr. Suchy.

### For Graduates

**201. Research.** Advanced courses and research will be offered to properly qualified students in the following fields: (a) Practical pharmacy and dispensing; (b) pharmacognosy, (c) pharmaceutical chemistry, and (d) pharmacology. Staff.

## Physical Education

PROFESSOR WILLIAM E. SCHREIBER; ASSOCIATE PROFESSOR GEORGE P. DAHLBERG; ASSISTANT PROFESSOR CHARLES F. HERTLER (ACTING CHAIRMAN). VINCENT WILSON, INSTRUCTOR. RUTH M. GREENFIELD, ASSISTANT.

**Major Requirements:** 45 or more credits in addition to courses 11abc and 12abc. The following courses must be completed: Physical Education 15abc, 20ab, 32, 35ab, 136, 137, 141, 148, 149, 150, 153, 63abc (women), 60, 61, 62 (men); Zoology 11ab and 24. The following courses are recommended: Physical Education 45abc; Bacteriology 26, 19 or 117, 126; Zoology 23 and 105; Chemistry 11 or 13.

Senior examinations will not be given except to candidates for honors.

Students who plan to secure a certificate to teach should consult the certification requirements listed on page 65.

**General Information.** All students taking part in the work of the Department are required to take a physical examination.

All students enrolled in Montana State University are required to take 1 credit each quarter until 6 credits of Physical Education 11abc, 12abc have been completed. See also page 24. Students who are physically unable to take the regular class work are given excuses or exemptions by the University Health Service after consultation with the physician in charge of the case, or are required to enter corrective classes, or to do individual corrective work suited to their needs.

**Athletics.** All intercollegiate athletics are under the supervision of the Faculty Athletic Committee, varsity teams being maintained in football, basketball, track, and the minor sports.



Facilities are provided by the Department for participation in athletic work for every member of the student body, intra-mural competition being maintained in football, basketball, baseball, track, tennis, cross-country running, indoor baseball, boxing, wrestling, golf, gymnastics, and swimming.

Intercollegiate competition in minor sports—tennis, wrestling, and swimming—is provided for by the minor sports board.

### For Undergraduates

**11abc, 12abc. Freshman and Sophomore Physical Training (Men).** 6 Q. Autumn, winter, spring, freshman and sophomore years. Summer. 1 cr. each quarter. Practical work in swimming, floor work, apparatus work, competitive games, track, boxing, wrestling, tennis, fencing, and cross-country running. No student will be given the final grade in the last quarter of this course until he has passed the elementary examination in swimming. Mr. Wilson and Staff.

**11abc, 12abc. Freshman and Sophomore Physical Training (Women).** 6 Q. Autumn, winter, spring, freshman and sophomore years. Summer. 1 cr. each quarter. Practical work in hockey, tennis, recreative games, mass class drills, apparatus work, elementary and advanced dancing, swimming, fencing, basketball, volleyball, baseball, track, and tennis. Staff.

**15abc. Advanced Gymnastics.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. For major and minor students only. Students may enter any quarter. Prerequisite, 12abc or marked gymnastic ability. Gymnastic mass floor drills; apparatus work and military marching tactics; outdoor work in recreative games and athletics; class leading is also required in the 11abc classes. Mr. Hertler. Mr. Schreiber.

**20ab. Human Anatomy.** 2 Q. Winter, spring. 5 cr. each quarter. Prerequisite, sophomore standing. Students may enter either quarter. Mr. Schreiber.

**32. First Aid.** 1 Q. Spring. Summer. 2 cr. Prerequisite, for students majoring in Physical Education, 20ab; for majors in Forestry, junior standing; all others, senior standing. Accidental injuries of the human body; methods of treatment. Students preparing to coach will receive special work in treatment of athletic injuries, massage, and training room technique. Red Cross certification may be secured on completion of the course. Mr. Schreiber.

**35a. Systems and Methods.** See Special Methods courses, page 70.

**35b. Systems and Methods.** 1 Q. Winter. 3 cr. Prerequisite, Education 35a. A continuation of Education 35a. Mr. Hertler.

**45abc. Dancing Methods and Materials.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Summer, S45. 4 cr. Students may enter any quarter. Prerequisite, junior standing. (a) Tap dancing. (b) Folk dancing. (c) Social dancing. Staff.

**60. Coaching of Basketball.** 1 Q. Autumn. 4 cr. Open to junior men. Theory and practice in handling work in basketball. Mr. Dahlberg.

**61ab. Coaching of Track.** 2 Q. Winter, spring. 2 cr. each quarter. Summer, S61. 4 cr. Open to junior men. (a) Theory. (b) Practice. Mr. Dahlberg.

**62ab. Coaching of Football.** 2 Q. Spring, winter. 2 cr. each quarter. Open only to men of at least sophomore standing. 62a is prerequisite to 62b. (a) Practice. (b) Theory. Mr. Dahlberg.

**63abc. Coaching for Women.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Summer, S63. 4 cr. Prerequisite, Education 18 (or 25a) or concurrent registration. Course includes methods and materials. (a) Hockey, speedball. (b) Basketball, volleyball. (c) Tennis, softball, archery. Staff.

### For Undergraduates and Graduates

**136. Kinesiology.** 1 Q. Spring. 5 cr. Open only to major students. Prerequisite, Physical Education 20ab. The anatomical mechanism of the most common and representative types of gymnastic movements and positions with the view of developing subjective control. Mr. Schreiber.

**137. School Gymnastics.** 1 Q. Spring. 4 cr. Prerequisite, Physical Education 35b. Growth and development of the child. Theory and practice in selecting and teaching activities for each school grade. Mr. Hetler.

**141. Corrective Gymnastics.** 1 Q. Winter. 5 cr. Prerequisite, Physical Education 136 and 137. Open only to major students. The prevention and correction of deformities in the child. Not given in 1945-46. Mr. Schreiber.

**148. Physiology of Exercise.** 1 Q. Winter. 2 cr. Prerequisite, Zoology 24. Open only to major students. The physiological effects of the different types of exercises on the function of the human body. Mr. Schreiber.

**149. Anthropometry and Diagnosis.** 1 Q. Winter. 3 cr. Prerequisite, Physical Education 20ab or concurrent registration. Open only to major students. Examination of the human body for external signs of disease. Anthropometric measurement and tests; how to use and chart them; their value in physical education. Mr. Schreiber.

**150. Organization and Administration.** 1 Q. Autumn. Summer. 4 cr. Open to junior major students. The organization and administration of high school physical education departments. Management of the physical education plant. Mr. Hertler.

**151. Curriculum Construction.** 1 Q. Autumn. 3-4 cr. Prerequisite, senior standing and Physical Education 137. Classification and analysis of physical education activities; construction of programs and adaptation of programs to specific situations.

**152. Physiotherapy.** 1 Q. Spring. 4 cr. Prerequisite, senior standing and Physical Education 141. This course is a direct continuation of corrective gymnastics and deals with the treatment by physical means of defects which have a pathological basis and which come within the field of physical education. Not given in 1945-46. Mr. Schreiber.

**153. Health Education.** 1 Q. Spring. Summer. 4 cr. Open to junior students majoring or minoring in Physical Education. The aims, objectives, and possible curricula for teaching health education in the elementary and high schools. Mr. Schreiber. Mr. Hertler.

### For Graduates

**201. Problems of Physical Education.** 1 Q. Winter. 4 cr. Not given in 1945-46.

**203. Tests and Measurements in Physical Education.** 1 Q. Autumn. 4 cr. Types of tests and their reliability as part of a testing program. Methods for establishing distribution of scores; pupil rating in groups; correlation of scores. Not given in 1945-46.

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## Physics

PROFESSOR GARVIN D. SHALLENBERGER (CHAIRMAN); ASSOCIATE PROFESSOR C. RULON JEPPESEN.

**Major Requirements:** 40 or more credits in Physics. In preparation for the advanced courses, a student should take Physics 20abc in the sophomore year. Essential courses offered in other departments: Mathematics 13, 16, 21, 22, 23, and Chemistry 13. Students planning to teach should elect Psychology 11, and courses 25abc, 26a, and 7 additional credits in the School of Education.

Senior examinations will not be given except to candidates for honors.

Students who plan to secure a certificate to teach should consult the certification requirements listed on page 65.

### For Undergraduates

**S11abc. General Physics.** 1 Q. Summer. 5 cr. for each of the three courses. Prerequisite, a working knowledge of high school mathematics. (a) Mechanics and heat; (b) sound, magnetism, and electricity; (c) light and modern physics. Students may not receive credit in both Physics 11abc and 20abc. Mr. Jeppesen.

**20abc. General Physics.** 3 Q. Autumn, winter, spring. 5 cr. each quarter. Prerequisite, sophomore standing and Mathematics 12 or 13; high school physics is desirable. This course satisfies medical school and technical requirements in general physics. (a) Mechanics and heat; (b) sound, electricity, and magnetism; (c) light and modern physics. Mr. Shallenberger.

**25. Selected Topics from General Physics.** 1 Q. Spring. 5 cr. Prerequisite, Physics 20a. Topics selected include heat, light, electricity, and magnetism. This course is essentially a duplication of Physics 11bc and 20bc. Not given in 1945-46. Mr. Jeppesen.

**60. Weather.** 1 Q. Winter. 3 cr. Prerequisite, Physics 20abc. Not a laboratory course. Given in 1946-47, and in alternate years. Mr. Jeppesen.

### For Undergraduates and Graduates

**114. Electricity.** 1 Q. Winter. 5 cr. Prerequisite, Physics 20abc and Mathematics 23 or concurrent registration. Lectures and laboratory. Given in 1946-47, and in alternate years. Mr. Jeppesen.

**122. Light.** 1 Q. Autumn. 5 cr. Prerequisite, Physics 20abc and Mathematics 22 or concurrent registration. Lectures and laboratory. Given in 1946-47, and in alternate years. Mr. Jeppesen.

**131. Selected Topics.** 1 Q. Offered subject to demand. 3 cr. Prerequisite, 25 credits in physics and Mathematics 23. Lectures and laboratory. Mr. Jeppesen.

**146. Heat.** 1 Q. Winter. 5 cr. Prerequisite, Physics 20abc and Mathematics 23 or concurrent registration. Not a laboratory course. Given in 1945-46, and in alternate years. Mr. Jeppesen.

**152. Atomic Physics.** 1 Q. Autumn. 5 cr. Prerequisite, Physics 20abc and Mathematics 22 or concurrent registration. Lectures and laboratory. Given in 1945-46, and in alternate years. Mr. Jeppesen.

**154. Analytical Mechanics.** 1 Q. Spring. 5 cr. Prerequisite, Physics 20abc and Mathematics 23. Not a laboratory course. Given in 1945-46, and in alternate years. Mr. Jeppesen.

**166. Electronics.** 1 Q. Spring. 3 cr. Prerequisite, Physics 114 and Mathematics 23. Lectures and laboratory. Given in 1946-47, and in alternate years. Mr. Jeppesen.

**170ab. Theoretical Physics.** 2 Q. Winter, spring. 5 cr. each quarter. Prerequisite, Physics 20abc and Mathematics 23. Not a laboratory course. Mr. Jeppesen.

**180. Physics Seminar.** 1 Q. Spring. 1 cr. A library and discussion course required of physics majors. Mr. Jeppesen.

### For Graduates

**210abc. Advanced Theoretical Physics.** 3 Q. Autumn, winter, spring. 5 cr. each quarter. Prerequisite, a major or the equivalent in physics. Not a laboratory course. Given subject to demand. Mr. Jeppesen. Mr. Shallenberger.

**212abc. Advanced Experimental Physics.** 3 Q. Autumn, winter, spring. 2 cr. each quarter. Given subject to demand. Mr. Jeppesen. Mr. Shallenberger.

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## Pre-Business Administration

Students who plan to enter the School of Business Administration should see the suggested curriculum, the requirements for graduation, and the courses in the School of Business Administration, page 53.

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## Pre-Education

Students who plan to enter the School of Education should complete the curriculum of the Division of Social Sciences. For further information regarding the School of Education, see page 64.

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## Pre-Legal

Students who plan to enter the School of Law should complete the curriculum of the Division of Social Sciences. For further information regarding the School of Law, see page 98.

## Pre-Medical Course

Montana State University offers courses which prepare students for entrance to any medical school in the United States. The entrance requirements to such schools as adopted by the Council on Medical Education of the American Medical Association are as follows:

**High School.** Students must have completed a four-year course of at least fifteen units in a standard accredited high school or other school of standard secondary grade, or have passed examinations for unconditional entrance to college. The subjects taken in high school should include, if possible, at least two years of work in Latin.

**College.** The minimum requirement is two years of collegiate work extending through thirty-two weeks each and comprising ninety quarter credits. Many of the better medical schools, however, require three years of preparatory work and an increasing number require graduation from college.

### Pre-Medical Curriculum

The following courses will satisfy the requirements of medical schools requiring only two years of preparatory work:

**Chemistry:** Fifteen credits in general chemistry which may include qualitative analysis; ten credits in organic chemistry.

**Zoology:** Fifteen credits in zoology and botany, but not in botany alone.

**Physics:** Fifteen credits in general physics.

**English:** Nine credits in composition.

**French or German:** A reading knowledge of one modern language. This includes at least one year's college work in addition to high school credits.

**Electives:** To make ninety credit hours, electives should be selected from non-science courses in general.

These requirements will be fulfilled in the University by completing Chemistry 13 and 101, Zoology 11ab, Physics 20abc, English 11ab or 12abc, French 13b or German 13b.

In a few cases the above courses somewhat more than satisfy the minimum requirements; but many medical schools require other courses in addition. Students should plan their pre-medical work to fit the demands of the particular school they wish to attend.

While the minimum requirements as outlined comprise college credits for only two years, pre-medical majors should note that the general requirements of Montana State University, which apply to all students, and the extra requirements of most medical schools take **at least one more year to complete.** Medical schools ordinarily urge students to undertake a more thorough preparation than the minimum course outlined above. However, many medical schools have announced that during the war emergency students may begin their medical training with less than the usual pre-medical requirements. If in addition pre-medical majors wish to graduate, they may complete a fourth year at Montana State University and receive the Bachelor of Arts degree with a major in Pre-Medical Sciences. The additional courses required for this degree include Bacteriology 117, 118, 119; Chemistry 17, 103; Psychology 11; Modern Language 15 (French or German); Zoology 23.

**Aptitude Test.** In addition to the work outlined above, each candidate for entrance to any medical school in the United States must pass an aptitude test. This will be given at Montana State University during the winter quarter of the regular school year.

## Psychology and Philosophy

PROFESSOR E. A. ATKINSON (CHAIRMAN); ASSOCIATE PROFESSOR EDWIN L. MARVIN.

**Major Requirements:** 45 or more credits, including Psychology 11, 12ab, 104, 111, 130, and 190. Zoology 11ab should be completed.

Senior examinations will not be given except to candidates for honors.

### For Undergraduates

- 11. General 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. Staff.
- 12ab. Experimental Psychology.** 2 Q. Autumn, winter. 5 cr. each quarter. Prerequisite, Psychology 11. Laboratory methods; apparatus used in the study of some of the laws of mental processes; application of these laws. Mr. Atkinson.
- 13. Child Psychology.** 1 Q. Autumn. 3 cr. Prerequisite, Psychology 11. The development of the child from birth to adolescence. Emphasis upon the mental, emotional, and social factors in the formation of personality. Not given in 1945-46. Mr. Marvin.
- 14. Social Psychology.** 1 Q. Autumn. 5 cr. Prerequisite, Psychology 11. Effects of social factors on the personality and behavior of individuals. Psychology of propaganda, leadership, morale, warfare, racial antagonism, and related topics. Mr. Marvin.
- 15. Psychology of Personality.** 1 Q. Spring. 3 cr. Prerequisite, Psychology 11. Not given in 1945-46.
- 16. Psychology of Adjustment.** 1 Q. Spring. 3 cr. Prerequisite, Psychology 11. Personal and social adjustment, mental conflicts; mental hygiene. Not given in 1945-46.
- 25a. Educational Psychology.** See courses in Education.
- 30. Applied Psychology.** 1 Q. Winter. 5 cr. Prerequisite, Psychology 11. General principles of applied psychology; special reference to vocational and avocational psychology; the psychology of law, medicine, industry, music, religion, art, literature. Not given in 1945-46. Mr. Atkinson.
- 32. Psychology of Business.** 1 Q. Spring. 5 cr. Prerequisite, Psychology 11. Mr. Atkinson.
- 33. Vocational Psychology.** 1 Q. Spring. 5 cr. Prerequisite, Psychology 11. A study of the psychological principles in determining vocational fitness; theory and technique of objective methods of selection and guidance; special and general aptitude tests, trade tests, and rating scales, with special reference to the student's occupational problems.
- 50. Logic.** 1 Q. Spring. 5 cr. Open to all students. Mr. Marvin.
- 51. Ethics.** 1 Q. Winter. 5 cr. Open to all students. Inquiry into the nature of moral life, the evolution of ethics, the psychology of conduct, the meaning of moral values, with applications to current problems in the fields of law and justice, peace and war, marriage and the family, property, and business. Mr. Marvin.
- 52abc. History of Philosophy.** 3 Q. Autumn, winter, spring. 3 cr. each quarter. Students may enter any quarter. Open to all students. Mr. Marvin.
- 53. The Philosophical Basis of Democracy.** 1 Q. Autumn. 2 cr. Open to all students. The ideas which have formed the basis of the democratic way of life, with special attention to the concept of liberty, its development, and its implications for the individual and for society. Consideration of such topics as the ideal of equality, the limits of freedom and authority, tolerance and social controls, rights and responsibilities, competition and co-operation, individualism, and socialism. Mr. Marvin.
- 55. Introduction to Philosophy.** 1 Q. Spring. 3 cr. Open to all students. The major philosophical problems and their bearing on contemporary thought and culture. An attempt to give the student an approach and a background which will aid him in formulating his own philosophy of life. Mr. Marvin.

### For Undergraduates and Graduates

- 104. Systematic Psychology.** 1 Q. Winter. 5 cr. Prerequisite, junior standing and Psychology 12ab. A study of the historical development of the major psychological systems: functionalism, structuralism, behaviorism, psychoanalysis, gestalt. Mr. Atkinson.

**111. Advanced Psychology.** 1 Q. Autumn. 5 cr. Prerequisite, junior standing, Psychology 11, and consent of the Chairman of the Department for students other than psychology majors. Intensive study of the principles, and an attempt to integrate the various phases of psychology. Not given in 1945-46.

**115. Abnormal Psychology.** 1 Q. Autumn. Summer. 5 cr. Prerequisite, junior standing and Psychology 11. A study of abnormal phenomena and mental diseases; sleep and dreams; the subconscious; hypnotism; psychoanalysis. Mr. Atkinson.

**130. Psychological Testing.** 1 Q. Spring. 5 cr. Prerequisite, junior standing and Psychology 11. The theory and technique of devising, applying, and evaluating psychological tests of all kinds. Mr. Atkinson.

**190. Problems in Psychology.** 3 Q. Autumn, winter, spring. Credit variable. Open to junior students who are qualified to do creditable work on special problems. Not more than nine credits may be applied towards graduation. Staff.

### For Graduates

**201. Research.** Any quarter. Credit variable. Prerequisite, Psychology 11 and 130 or equivalent. Work on selected problems under direction. Staff.

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## The Montana School of Religion

ASSISTANT PROFESSOR AND DIRECTOR HARVEY F. BATY.

The Montana School of Religion was organized in 1924 by a committee representing the University and several religious denominations for the purpose of making courses in religion available to the students of Montana State University. The School of Religion is not a part of the University, but is under a director who is responsible to a Board of Trustees representing the cooperating denominations and the University.

The University allows a maximum of fifteen credits toward graduation for courses taken in Religion. Additional information concerning courses may be obtained from the Director of the School of Religion at Montana State University.

### For Undergraduates

**20R. Basic Values in Religion.** 1 Q. Autumn. Winter. Spring. 5 cr. Open to all students. A survey of the religions of the world with special consideration given to (1) their historical development; (2) their great leaders; (3) their teachings of universal value; (4) their present vitality. Contemporary religious scene in America. Mr. Baty.

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## Wild Life Technology

Although the curriculum for majors in Wild Life Technology is tentatively outlined for four years, students desiring to elect this major are strongly urged to take advantage of the more thorough training made possible in a five-year curriculum. This major should be elected only by those who feel that they are intensely interested, since the requirements in the sciences are rather demanding and the field is highly specialized.

The tentative curriculum for this course is as follows:

**Freshman Year:** Botany 11ab, 12; Chemistry 11 or 13; English 11ab and \*Mathematics 10 or 13 or both; Physical Education 11abc; Military Science 11abc (Men).

\*Course entered dependent upon high school preparation.

**Sophomore Year:** Forestry 41ab; Social Science 11abc; Mathematics 25 or 35c; Zoology 11ab and 23; Physical Education 12abc; Military Science 12abc (Men).

**Junior Year:** Botany 21, 22, 51, 121; English 55abc (8 cr.); Forestry 42; Foreign Language\*; Zoology 103, 107, 108.

**Senior Year:** Botany 126, 161ab; Foreign Language (until requirement is completed); Forestry 46ab; Zoology 109, 118, 125, 128.

For five-year majors, courses should be elected from the following: Physics 20abc, Chemistry 101, Bacteriology 117, Economics 14, Geology 11ab, Zoology 24, 105, English 20, Forestry 27, 38, 44ab, Psychology 11.

## Zoology

PROFESSOR GORDON B. CASTLE (CHAIRMAN); ASSOCIATE PROFESSOR LUDVIG G. BROWMAN; ASSISTANT PROFESSOR PHILIP L. WRIGHT.

**Major Requirements:** At least 40 credits including Zoology 11ab, 12, 23, 102, 125, 128, 3 credits of 129, 4 credits of 132 (I) and 24 or 3 credits of 131 (IV). The following courses must be completed: Botany 11ab, 12, 126, and Chemistry 11 or 13. Students who contemplate graduate work in Zoology should elect during the junior and senior years Physics 20abc and Zoology 105, and should secure a reading knowledge of French or German.

Students who plan to secure a certificate to teach should consult the certification requirements listed on page 65.

Senior examinations will not be given except to candidates for honors.

### For Undergraduates

**11ab. Elementary Zoology.** 2 Q. Autumn, winter. 5 cr. each quarter. Summer, 11a. Open to all students, but 11a is prerequisite to 11b. (a) Introduction to the Chordates; meiosis, mitosis, embryology; genetics. (b) Morphology, physiology, and phylogeny of the invertebrates and pro-chordates; evolution. Mr. Castle. Mr. Wright.

**12. Field Zoology.** 1 Q. Spring. 2-3 cr. Prerequisite, Zoology 11b. A field and laboratory course in the collection, preservation, and identification of animals. Mr. Castle.

**23. Comparative Vertebrate Zoology.** 1 Q. Spring. 5 cr. Prerequisite, sophomore standing and course 11ab or equivalent. Comparative anatomy, development, and phylogeny of the vertebrates. Mr. Browman.

**24. Human Physiology.** 1 Q. Spring. Summer. 5 cr. Prerequisite, sophomore standing. The problems of digestion, absorption, circulation, excretion, irritability, and locomotion, together with the physiological phenomena associated with tissue repair, growth, and reproduction. Mr. Browman.

### For Undergraduates and Graduates

**101. General Comparative Embryology.** 1 Q. Autumn. 5 cr. Prerequisite, Zoology 11ab and junior standing. The early stages of development of the invertebrates and vertebrates, including maturation of the germ cells, fertilization, cleavage, formation of germ layers, and origin of the embryo. Not given in 1945-46. Mr. Browman.

**102. Vertebrate Embryology.** 1 Q. Winter. 5 cr. Prerequisite, Zoology 11ab and junior standing. Later development especially of the vertebrates, with emphasis on birds (chick) and mammals (pig). A study of organ formation, based on prepared histological material, with a consideration of experimental evidence. Mr. Browman.

**103. Parasitology.** 1 Q. Autumn. 3 cr. Prerequisite, Zoology 11ab and junior standing. An introduction to animal parasitology with emphasis on parasites of game animals. Not given in 1945-46. Mr. Wright.

**105. General Histology.** 1 Q. Autumn. 5 cr. Prerequisite, Zoology 23 and junior standing; knowledge of chemistry is recommended. Methods of fixation, sectioning, and staining animal tissues. Use of the microscope and a study of basic tissues. Mr. Wright.

**107. Aquatic Biology.** 1 Q. Autumn. 3 cr. Prerequisite, Zoology 11ab, junior standing, and Botany 11ab. The plants and animals which make up the diet of fishes and the taxonomy and ecological distribution of the common game and coarse fishes. Not given in 1945-46. Mr. Castle. Mr. Severy.

**108. Ornithology.** 1 Q. Spring. 4 cr. Prerequisite, Zoology 23 and junior standing. The life histories, habits, and distribution of birds. Not given in 1945-46. Mr. Wright.

**109. Mammalogy.** 1 Q. Autumn. 4 cr. Prerequisite, Zoology 23 and junior standing. The life histories, habits, and distribution of mammals, with some experience in field identification and preparation of skeletons and skins. Mr. Wright.

**118. Forest Entomology.** 1 Q. Autumn. 3 cr. Prerequisite, Zoology 11ab and junior standing. The more common forest insects of Western Montana from the standpoint of distribution, economic importance, and methods of control. Not given in 1945-46. Mr. Castle.

**125. Genetics.** 1 Q. Autumn. 5 cr. Prerequisite, Zoology 23 or Botany 22, and junior standing. The facts and theories of heredity, mechanisms of heredity, involving considerations of segregation, random assortment, linkage systems, and mutations, and their relations to visible cell processes. Mr. Browman.

**128. Animal Ecology.** 1 Q. Spring. 5 cr. Prerequisite, Zoology 11ab and junior standing. The relationship between animals and their environment, illustrated by field studies of animal communities in Western Montana, with special emphasis on the invertebrates. Mr. Castle.

**129. Biological Literature.** 3 Q. Autumn, winter, spring. 1 cr. each quarter. Prerequisite, senior standing and 20 credits in Zoology or Botany. Reviews of recent literature as a survey of the trend of study and experimentation in biological fields. Reports of special studies. Zoology and Botany Staffs.

**131. Advanced Vertebrate Zoology.** 1 Q. Any quarter. 2-5 cr. Prerequisite, Zoology 23, junior standing, and consent of instructor. (I) Morphology. (II) Endocrinology. (III) Ecology. (IV) Physiology. By variation of content as indicated, the course may be repeated during succeeding quarters. Mr. Browman. Mr. Wright.

**132. Advanced Invertebrate Zoology.** 1 Q. Any quarter. 2-5 cr. Prerequisite, Zoology 11ab, junior standing, and consent of instructor. (I) Morphology and Taxonomy. (II) Ecology. (III) Physiology. By variation of content as indicated, the course may be repeated during succeeding quarters. Mr. Castle.

### For Graduates

**200. Advanced Zoological Problems.** 1 to 3 Q. Autumn, winter, spring. Credit variable. Opportunity is given graduate students with sufficient preparation and ability to pursue original investigations. Staff.

## Summer Session

**Note:** For information pertaining to the summer session consult the current summer session bulletin, which may be obtained upon request.

The summer session of Montana State University is a ten-weeks' session. In 1945 the session will begin June 11 and will close August 17. Students may attend the first six weeks, or the entire 10 weeks, or may take shorter programs.

### Courses

All of the departments of the College of Arts and Sciences usually offer courses during the summer sessions, as do the Schools of Business Administration, Education, Journalism, Law, and Music. For information regarding courses, see the summer session bulletin.



### Admission

Requirements for admission to the summer session are the same as the requirements for entrance during the regular college year (pages 19 to 23).

### FEES

#### Fees for the Summer Session:

For ten-week term .....	\$34.00
For six-week term .....	26.50
For two-week term .....	10.75

Part time students who register for less than seven credits for ten weeks, or less than four credits for six weeks, pay one-half the above schedule of fees. Students who register and attend classes regularly but without credit are charged the same fees as part time students.

Persons who are given the privileges of "special attendants" are charged \$2.00 for each subject.

With the exception of certain music and military service scholarships, scholarships, including high school honor scholarships, do not exempt holders from payment of the summer session fee.

For further information regarding summer session fees see summer session bulletin.

### Credit Toward Degrees

University credit toward degrees is given to those who satisfy the regular entrance requirements. The normal schedule which may be carried during the ten weeks of the session is 15 credits, plus 1 credit in Physical Education S11 and 1 credit in applied or ensemble music or in applied acting or stagecraft or in current events; the maximum registration for six weeks is 8 credits plus 1 credit in either Physical Education S11, or in applied or ensemble music, or in applied acting or stagecraft or in current events. Permission to carry more than this number is granted only for special reasons.

Residence requirements for the Bachelor's degree may be fulfilled by three summer sessions of ten weeks each, during which time the students must complete at least forty-five quarter credits. Of the last forty-five credits required for graduation, thirty-five credits must be earned in residence at Montana State University.

### Credit Toward Teachers' Certificates

Courses required for Montana teachers' certificates will be given.

### Graduate Work

During the summer session, properly qualified students may do work toward a Master of Arts or Master of Education degree. Residence requirements and other regulations governing graduate study and the granting of a Master's degree may be found on pages 88 to 90.

### Certificate of Attendance

Students in the summer session who are not registered as candidates for degrees, will, upon request to the Registrar, receive a certificate of attendance for courses satisfactorily completed.

SUMMARY OF REGISTRATION

SUMMARY OF REGISTRATION, 1944-45

COLLEGE, SCHOOL, OR COURSE	Graduates			Seniors			Juniors			Sophomores			Freshmen			Specials			Totals*		
	Total	Women	Men	Total	Women	Men	Total	Women	Men	Total	Women	Men	Total	Women	Men	Total	Women	Men	Total	Women	Men
Arts and Sciences	5	12	17	10	53	63	10	50	60	34	162	196	78	211	289	1	1	138	438	626	
Business Administration	4	6	10	3	16	19	4	12	16							1	1	7	29	36	
Education	1			2	5	7	3	12	15									9	23	32	
Forestry				4		4	3		3	2	5		12	12		1	1	24	2	26	
Journalism				2	7	9	1	6	7		17	17	4	36	40	1	1	8	66	74	
Law	2		2	4	3	7	4		4									10*	3	13	
Music				1	10	11		6	6		10	10	4	24	28			5	50	55	
Pharmacy					7	7		3	3		3	6	3	8	11			6	21	27	
Totals	12	18	30	26	101	127	25	89	114	40	194	234	101	279	380	3	1	207	632	889	
A.S.T.R.P.																		186		186	
Nursing Specials																			52	52	
Shorthand and Typing Specials																				4	
Unclassified																				4	
TOTALS																		395	744	1139	
Summer Quarter, 1944																		295	300	595	
TOTALS																		690	1044	1734	
Less Duplicates																		215	75	290	
Total Enrollment of Resident Students																		475	969	1444	
Correspondence and Extension Students																		340	417	757	
TOTALS																		815	1386	2201	
Less Duplicates																		11	90	101	
Total for year 1944-45																		804	1296	2100	

\*Includes 186 Students enrolled in Army Specialized Training Reserve Program.



## DEGREES GRANTED

### 1944-45\*

	Men	Women	Total
<b>Honorary Degrees:</b>			
Doctor of Laws .....	1	....	1
Total Honorary Degrees .....	1	....	1
<b>Master of Arts:</b>			
Education .....	1	....	1
Sociology .....	....	1	1
Zoology .....	1	....	1
Total Master of Arts Degrees .....	2	1	3
Master of Education .....	5	2	7
<b>Bachelor of Arts:</b>			
Bacteriology and Hygiene .....	....	5	5
Botany .....	....	1	1
Chemistry .....	3	1	4
Economics and Sociology .....	....	4	4
English .....	1	8	9
Fine Arts .....	1	1	2
French .....	....	2	2
History and Political Science .....	5	6	11
Home Economics .....	....	12	12
Law .....	1	....	1
Mathematics .....	1	1	2
Physical Education .....	....	3	3
Physics .....	1	....	1
Psychology and Philosophy .....	....	2	2
Spanish .....	1	4	5
Zoology .....	....	2	2
Total Bachelor's Degrees, Arts and Sciences....	14	52	66
Bachelor of Arts in Business Administration.....	5	13	18
Bachelor of Arts in Education .....	1	10	11
Bachelor of Arts in Journalism .....	3	2	5
Bachelor of Music .....	....	4	4
Bachelor of Science in Pharmacy .....	1	2	3
Bachelor of Laws .....	1	1	2
Secondary State Certificate .....	1	35	36

\*Spring 1944 to Winter 1945 inclusive.

# INDEX

	Page		Page
Accreditation of University .....	17	Forestry .....	79
Activities .....	42	French .....	106
Administrative Officers .....	5	Geology .....	87
Admission .....	19	German .....	107
General Requirements .....	20	Greek .....	60
By Certificate .....	20	History .....	90
By Examination .....	20	Home Economics .....	93
By Transfer .....	21	Hygiene .....	50
Conditional .....	21	Introductory Courses:	
Of Special Students .....	22	Biological Sciences .....	49
Of Students from Other Units .....	21	Humanities .....	49
To the School of Law .....	98	Physical Sciences .....	50
To Graduate Standing .....	88	Social Sciences .....	50
To Junior Class .....	23	Journalism .....	95
Advanced Degrees .....	23	Latin .....	60
Advisers .....	29	Law .....	98
Affiliated School of Religion.....	127	Mathematics .....	102
Aid for Students .....	37	Medical Technology .....	104
Arts and Sciences, College of... 46		Military Science .....	104
Associated Women Students 30, 43		Modern Languages .....	106
A. S. M. S. U. ....	43	Music .....	110
Fee .....	32	Nursing Education .....	117
Athletics .....	42, 121	Pharmacy .....	117
Attendance .....	31	Philosophy .....	126
Baccalaureate Degrees .....	23	Physical Education .....	121
Biology, see Zoology .....	128	Physics .....	123
Biological Sciences, Division of 48		Political Science .....	92
Biological Station .....	49	Pre-Medical .....	125
Board, Executive .....	5	Psychology .....	126
Board of Educ., State Inside Cover		Public Speaking .....	74
Board of Examiners (C.P.A.).....	15	Religion .....	127
Building Fee .....	32	Sociology .....	61
Business Research, Bureau of... 55		Spanish .....	108
Calendar, State University .....	4	Speech and Dramatics .....	74
Calendar, Condensed of Six		Wild Life Technology .....	127
Units of the		Zoology .....	128
University..... Inside Back Cover		Summer Session .....	129
Campus and Surroundings.....	17	Credits Admission .....	19
Certificate to Teach .....	65	For Graduation .....	24
Certificate of Admission .....	22	On Teachers' Certificates.....	65
Certified Public Accountancy... 54		Curriculum College of Arts and	
Board of Examiners in .....	15	Sciences .....	46
Chancellor .....	16	Pre-Induction Course .....	48
Change of Enrollment Fee.....	33	Deans of Men and Women.....	29
Christian Associations .....	43	Degrees .....	23
Christmas Holidays .....	4	Candidacy for .....	24
Clubs .....	43	With Honors .....	28
College of Arts and Sciences... 46		Delayed Application for Degrees 34	
Composition Requirement .....	25	Departments of Instruction, see	
Conditional Admission .....	21	Courses.	
Conduct and Scholarship .....	29	Deposit, Room .....	35
Contents, Table of .....	3	General .....	32
Correspondence Courses .....	76	Diploma Fee .....	34
Fee .....	77	Directory, Official .....	5
Counselor Service .....	29	Divisional Requirements .....	26, 46
Course, Requirements for		Biological Sciences .....	46
Graduation .....	24	Humanities .....	47
For Teaching Minors .....	65, 67	Physical Sciences .....	47
Number System .....	45	Social Sciences .....	48
Courses of Instruction:		Dormitories .....	34
Astronomy .....	103	Economics Fellowship .....	41, 62
Bacteriology and Hygiene ... 50		Electives, Restricted .....	25
Botany .....	51	Employment for Students .....	37
Business Administration .....	53	Enrollment, Summary of .....	131
Chemistry .....	58	Entrance .....	19
Classical Languages .....	60	Deficiencies .....	19, 21
Dramatics .....	74	Fee .....	32
Drawing .....	79	To Second Period .....	23, 26
Economics .....	61	Examination for Admission.....	20
Education .....	64	Examinations, Senior .....	27
English .....	70	Executive Board .....	5
Fine Arts .....	79	Executive Secretary .....	5, 16

	Page		Page
Expenses .....	32, 34, 36	Publications .....	43
Extension Work .....	75	R. O. T. C. ....	104
Faculty, The (Alphabetical List) .....	5	Railway Fare Refund .....	36
Fees .....	32	Refunds, Fees .....	34
Fees, Music .....	116	Registration Days .....	4
Financial Obligations .....	32	Registration Fee .....	32
Forestry-Wild Life Man- agement .....	85	Registration .....	28, 29
Freshman Week .....	29	Freshman .....	28
Grade Points .....	31	Junior and Senior .....	28
First or Second Period .....	26	Maximum .....	28
For Graduation .....	26	Scholarship, Regulations .....	
On Transfer Credits .....	27	Affecting .....	28, 29
Grades in Scholarship .....	31	Sophomore .....	28
Graduate School .....	23, 88	Statistical Summary of .....	131
Admission to .....	88	Summary by Counties, States and Countries .....	132
Requirements for Degrees .....	88	Religious Education .....	127
Graduation Requirements .....	23	Removal of Incomplete or Condition .....	26, 31
Health Service .....	38	Fee for .....	34
Fee .....	32, 38	Required Courses .....	24
High Schools, Admission from .....	20	Requirements for Admission .....	19
Honor Scholarships .....	39	Requirements for Graduation .....	23
Interscholastic Games .....	43	Residence Requirements .....	27
History of University of Montana .....	16	Restricted Elective Courses .....	25
History of Montana State University .....	16	Ryman Fellowship .....	41, 62
Honor Scholarships .....	39	Economics Library Founda- tion .....	62
Honors, Senior Examinations for .....	28	Scholarship and Conduct .....	29
Housing .....	34	Scholarship Grades .....	31
Incomplete Grades .....	26, 31	Scholarships .....	39
Independent Work .....	28	School of Business Adminis- tration .....	53
Instruction, Organization of .....	45	School of Education .....	64
Interscholastic Games .....	43	School of Forestry .....	79
Kaimin, The .....	43, 96	School of Journalism .....	95
Law .....		School of Law .....	98
Library .....	98	School of Music .....	110
Tuition .....	33	School of Pharmacy .....	117
Lectures, Public .....	78	School of Religion .....	127
Library, The .....	18	Second Period, Entrance to .....	23, 26
Living Accommodations .....	34, 35, 36	Secondary State Certificate .....	65
Loan Funds .....	37	Senior Examinations .....	27
Major, Credits for .....	24	Senior Examinations for Honors .....	28
Major Requirements (See each Dept.) .....		Sentinel, The .....	43
Master's Degrees .....	23, 88	Social Functions .....	30
Masquers' Club .....	43	Societies .....	43
Matriculation Fee .....	32	Special Attendance Fee .....	33
Medical Technology, Course in .....	104	Special Examination Fee .....	34
Medicine .....	125	Special Students, Admission of .....	22
Military Science Courses .....	104	State Board of Educa- tion .....	Inside Cover
Minor Requirements for .....		State Federation of Women's Clubs Scholarships .....	42
Teaching Certificate .....	67	Statistical Summary of Registration .....	131
Modern Languages .....	106	Student Activity Fee .....	32
Montana Masquers .....	43	Student Employment .....	37
Montana State University .....	16	Student Loans .....	37
Museums, The .....	18	Student Marriages .....	30
Music Degrees .....	23, 110	Summary of Degrees Granted .....	133
Scholarships .....	39, 41	Summer Session .....	129
Tuition .....	116	Special Appointments for .....	15
Non-Resident Fee .....	33	Table of Contents .....	3
Number System of Courses .....	45	Teacher's Certificate .....	65
Official Directory .....	5	Teacher Training .....	64, 67
Organization, University of Montana .....	Inside Cover	Track Meet, Interscholastic .....	43
Organization of Instruction .....	45	Transcripts, Fee for .....	34
Pharmacy .....	117	Transfer Students, Admission of .....	21
Placement Bureau .....	78	University Campus and Surroundings .....	17
Placement Examina- tions .....	25, 60, 106	Veterans in the University .....	29
Prizes and Awards .....	39	War Service Credits .....	22
Public Accountancy .....	54	Wild Life Management .....	85, 127
Board of Examiners .....	15	Withdrawals .....	32
Public Lectures .....	78	Women's Dormitories .....	34
Public Service Division .....	75	Zoology .....	128

