THE UNIVERSITY OF MISSOURI BULLETIN

VOLUME 40, NUMBER 5 GENERAL SERIES 1939, NO. 5

CATALOG

NINETY-SEVENTH REPORT OF THE CURATORS TO THE GOVERNOR OF THE STATE, 1938-1939

COLUMBIA, MISSOURI

ANNOUNCEMENTS, 1939-1940

ISSUED TWO TIMES MONTHLY; ENTERED AS SECOND-CLASS MATTER AT THE POSTOFFICE AT COLUMBIA, MISSOURI—20,000
MARCH 1, 1939

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X17174

CALENDAR, 1939

SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
..	..	..	..	..	1	2	1	2	3	4	5	6	7	..	..	..	1	2	3	4	..	..	..	..	..	1	2
3	4	5	6	7	8	9	8	9	10	11	12	13	14	5	6	7	8	9	10	11	3	4	5	6	7	8	9
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17	18	19	20	21	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23
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CALENDAR, 1940

JANUARY							FEBRUARY							MARCH							APRIL						
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7	8	9	10	11	12	13	4	5	6	7	8	9	10	3	4	5	6	7	8	9	7	8	9	10	11	12	13
14	15	16	17	18	19	20	11	12	13	14	15	16	17	10	11	12	13	14	15	16	14	15	16	17	18	19	20
21	22	23	24	25	26	27	18	19	20	21	22	23	24	17	18	19	20	21	22	23	21	22	23	24	25	26	27
28	29	30	31	..	..	..	25	26	27	28	29	..	..	24	25	26	27	28	29	30	28	29	30	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	..	..	..	..	..	..	..	..	..	..	..	..	..

MAY							JUNE							JULY							AUGUST						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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5	6	7	8	9	10	11	2	3	4	5	6	7	8	7	8	9	10	11	12	13	4	5	6	7	8	9	10
12	13	14	15	16	17	18	9	10	11	12	13	14	15	14	15	16	17	18	19	20	11	12	13	14	15	16	17
19	20	21	22	23	24	25	16	17	18	19	20	21	22	21	22	23	24	25	26	27	18	19	20	21	22	23	24
26	27	28	29	30	31	..	23	24	25	26	27	28	29	28	29	30	31	..	..	..	25	26	27	28	29	30	31
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SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9	8	9	10	11	12	13	14
15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16	15	16	17	18	19	20	21
22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23	22	23	24	25	26	27	28
29	30	..	..	..	..	..	27	28	29	30	31	..	..	24	25	26	27	28	29	30	29	30	31	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

UNIVERSITY CALENDAR AT COLUMBIA, 1939-40

1939 *First Semester*

September 11-13.....Monday to Wednesday noon, freshman week and pre-registration conferences with advisers.
September 12.....Tuesday, freshman convocation, 10 a. m.
September 13-14.....Wednesday afternoon and Thursday, registration.
September 15.....Friday, class work begins, 8 a. m.
November 11.....Saturday, Armistice Day Exercises, 4 p. m.
November 29.....Wednesday, Thanksgiving holidays begin, 12 noon.
December 4.....Monday, Thanksgiving holidays close, 8 a. m.
December 21.....Thursday, Christmas holidays begin, 12 noon.

1940

January 3.....Wednesday, Christmas holidays close, 8 a. m.
January 20.....Saturday, mid-year examinations.
January 27.....Saturday, first semester closes, 4 p. m.

Second Semester

January 29-30.....Monday afternoon and Tuesday, registration.
January 31.....Wednesday, class work begins, 8 a. m.
March 21.....Thursday, Easter holidays begin, 12 noon.
March 25.....Monday, Easter holidays close, 1 p. m.
May 25 / June 1.....Saturday, final examinations.
June 2.....Sunday, Baccalaureate address, 11 a. m.
June 4.....Tuesday, Commencement exercises, 10 a. m.

Summer Session

June 10.....Monday, registration.
June 11.....Tuesday, class work begins, 7 a. m.
July 4.....Thursday, Independence Day, holiday.
July 28.....Sunday, Baccalaureate address, 11 a. m.
August 2.....Friday, summer session class work closes, 4 p. m.
August 2.....Friday, Commencement exercises, 8 p. m.

UNIVERSITY CALENDAR AT ROLLA, 1939-40

1939 *First Semester*

September 6 to September 9 — Wednesday to Saturday — Placement examination and orientation lectures for Freshmen.
September 11 — Monday, 8 a. m., Freshmen class work begins.
September 11 — Monday, registration for three upper classes.
September 12 — Tuesday, Class Day.
September 13 — Wednesday, 8 a. m., class work for three upper classes begins.
November 29 — Thursday, 8 a. m., Thanksgiving holidays begin.
December 4 — Monday, 8 a. m., Thanksgiving holidays end.
December 21 — Thursday, 8 a. m., Christmas holidays begin.

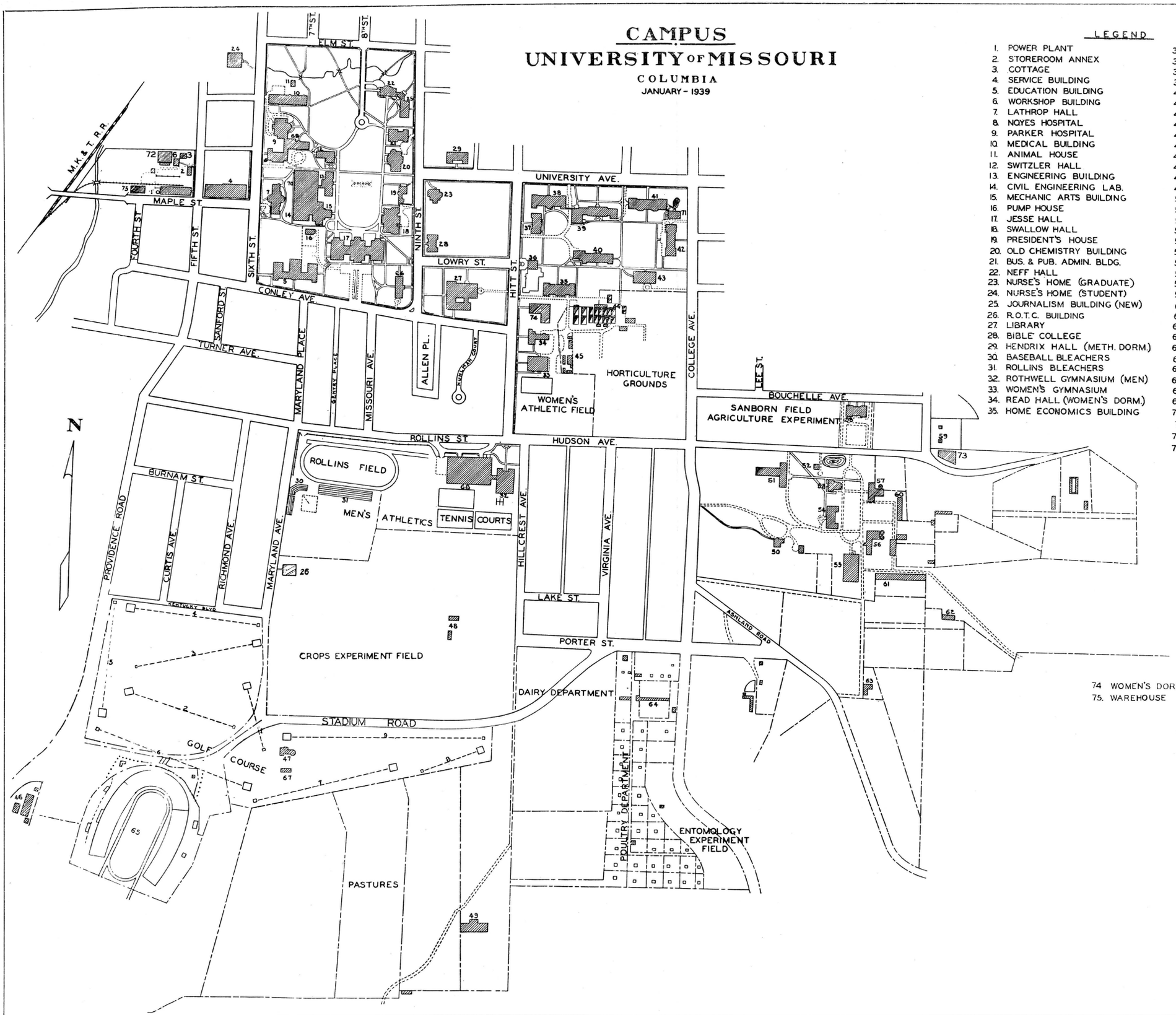
1940

January 4 — Thursday, 8 a. m., Christmas holidays end.
January 26 — Friday, 12 noon, first semester closes.

Second Semester

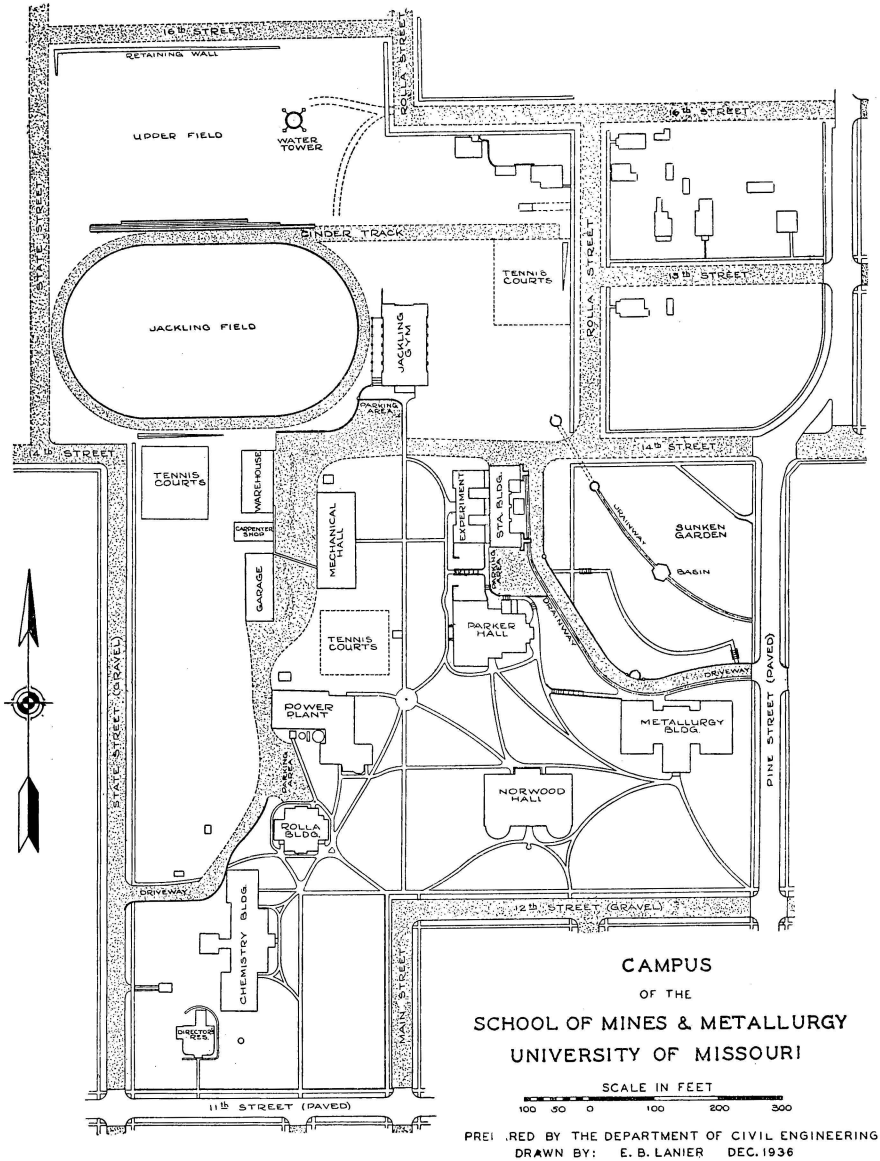
January 29 — Monday, entrance examinations and registration.
January 30 — Tuesday, 8 a. m., class work begins.
February 22 — Thursday, Washington's Birthday, holiday.
March 14 — Thursday, 8 a. m., Spring intermission begins.
March 18 — Monday, 8 a. m., Spring intermission closes.
May 26 — Sunday, Baccalaureate address.
May 28 — Tuesday, Final examinations close.
May 29 — Wednesday, Commencement exercises.

CAMPUS
UNIVERSITY OF MISSOURI
COLUMBIA
JANUARY - 1939



LEGEND

1. POWER PLANT
2. STOREROOM ANNEX
3. COTTAGE
4. SERVICE BUILDING
5. EDUCATION BUILDING
6. WORKSHOP BUILDING
7. LATHROP HALL
8. NOYES HOSPITAL
9. PARKER HOSPITAL
10. MEDICAL BUILDING
11. ANIMAL HOUSE
12. SWITZLER HALL
13. ENGINEERING BUILDING
14. CIVIL ENGINEERING LAB.
15. MECHANIC ARTS BUILDING
16. PUMP HOUSE
17. JESSE HALL
18. SWALLOW HALL
19. PRESIDENT'S HOUSE
20. OLD CHEMISTRY BUILDING
21. BUS. & PUB. ADMIN. BLDG.
22. NEFF HALL
23. NURSE'S HOME (GRADUATE)
24. NURSE'S HOME (STUDENT)
25. JOURNALISM BUILDING (NEW)
26. R.O.T.C. BUILDING
27. LIBRARY
28. BIBLE COLLEGE
29. HENDRIX HALL (METH. DORM.)
30. BASEBALL BLEACHERS
31. ROLLINS BLEACHERS
32. ROTHWELL GYMNASIUM (MEN)
33. WOMEN'S GYMNASIUM
34. READ HALL (WOMEN'S DORM.)
35. HOME ECONOMICS BUILDING
36. MEMORIAL TOWER
37. WHITTEN HALL
38. MUMFORD HALL
39. WATERS HALL
40. PHYSICS BUILDING
41. LEFEVRE HALL
42. SCHWEITZER HALL
43. NEW CHEMISTRY BUILDING
44. GREENHOUSES
45. CAMPUS SHOPS
46. MILITARY STABLES
47. OBSERVATORY
48. SEED HOUSES
49. BEEF CATTLE BARN
50. DEAN'S HOUSE (AGR.)
51. DAIRY BUILDING
52. FARM HEATING PLANT
53. AGRICULTURAL ENGG. BUILDING
54. AGRICULTURAL ENGG. LAB.
55. STOCK PAVILION
56. DAIRY CATTLE BARN
57. HORSE BARN
58. VETERINARY BUILDING
59. COTTAGES
60. WAGON SHED
61. LONG CATTLE SHED
62. HOG BARN
63. SHEEP BARN
64. POULTRY PLANT
65. MEMORIAL STADIUM
66. TATE HALL
67. GOLF CLUB HOUSE
68. FIELD HOUSE
69. STUDENT HEALTH BUILDING
70. ENGINEERING LABORATORIES
71. CONSERVATION LAB (WILD LIFE)
72. WEST PUMPING PLANT
73. EAST PUMPING PLANT
74. WOMEN'S DORMITORY
75. WAREHOUSE



CAMPUS

OF THE

SCHOOL OF MINES & METALLURGY

UNIVERSITY OF MISSOURI

SCALE IN FEET

100 50 0 100 200 300

PREPARED BY THE DEPARTMENT OF CIVIL ENGINEERING

DRAWN BY: E. B. LANIER DEC. 1936

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REPORT OF THE CURATORS OF THE UNIVERSITY

Columbia, Missouri
January 1, 1939.

To His Excellency, The Honorable Lloyd C. Stark, the Governor of Missouri:

Sir: I have the honor to present herewith the ninety-seventh report of the Curators of the University of Missouri to the Governor of the State of Missouri as is required by the State law. This report covers the work of the several divisions of the University at Columbia and Rolla and outlines the program for the school year 1939-40.

The year 1939 marks the Centennial of the year in which the Geyer Act creating the University was enacted by the General Assembly. The first one hundred years work of the State's chief educational institution represents the earnest, unselfish, and capable work of many public spirited citizens of the State, as well as the efforts of those who have served the State and the University as members of the Board of Curators. These one hundred years of service to the University and through the University to the citizens of Missouri, also represent the services of the many members of the fifty-nine General Assemblies of the State, and in addition, and by no means of less importance, the services of many Governors and other public officials of the State. Even with these contributions on the part of the citizens of the State, it would not have been possible for the University to have served the State so effectively without the services of loyal and efficient members of the entire University staff, many of whom have devoted their entire adult years to the cause of higher education. During its first century, the University has had on its faculty a number of the outstanding scholars of the Nation who have made significant contributions to the teaching and research program. Through its teaching and research staff, the University has not only trained young people for service to their communities and to the State and Nation, but has also given information and extended help in many ways to the citizens of the State through its service bureaus, extension lectures, demonstration centers, and conferences. The contributions to society, by means of good citizenship and other accomplishments of the graduates and students of the University, have more than repaid the State for the cost of operating the institution.

In general, the people of Missouri can well be proud of the useful and faithful service rendered to them by their University during the one hundred years just being completed, and they will be justified in looking forward to the future with equal confidence in the excellent service which will be extended to them by their University during its second one hundred years.

During the past year changes have taken place which have a direct bearing on the program of the University. An increase in enrollment of approximately six per cent over last year has placed the resident enrollment during the first semester of the session 1938-39 at 5212, the largest in the history of the University. Of this number 3883 are men and 1329 are women. The total resident enrollment for all divisions at Columbia for the academic year ending June 1, 1938, which

includes the 1937 summer session, was 7324. A total of 1156 degrees were conferred on the graduating classes in June and August, 1938, as compared with 1035 in the year 1937.

The need for additions to the faculty to take care of such a large student body has been recognized and every effort has been made to secure and retain the services of a qualified personnel. A number of changes have been made in the staff due to resignation and retirement from service.

The College of Agriculture through its Experiment Station and Extension Service is carrying directly to the farmer all available knowledge which may be of value to him.

The University has, during the past year, been able to make some progress toward the building up of the equipment needs of the University. Some of the items urgently needed for the physical plant and laboratories have been supplied. The libraries have been rehabilitated to some extent.

The fundamental aims of the University remain the same. These are: to educate the youth of the State for useful citizenship and to offer them training for a profession; to carry forward a program of research to extend the boundaries of knowledge in many fields of activity; and to serve the citizens of the State directly through the service agencies.

In the following pages there appears a brief description of the University, information regarding admission to the various divisions, student expenses, sources of aid to students, student activities, announcement of the courses offered in the several divisions of the University, and a list of degrees and certificates conferred in 1938 and the names of the winners of fellowships, scholarships, honors and prizes.

Respectfully submitted,

FRANK M. McDAVID,
President of the Board of Curators.

CORPORATION

THE BOARD OF CURATORS

Term Expires January 1, 1939

Frank M. McDavid ..... Springfield
H. Charles Cox ..... Rockport
George C. Willson ..... St. Louis

Term Expires January 1, 1941

John H. Lathrop ..... Kansas City
J. H. Wolpers ..... Poplar Bluff
James A. Potter ..... Jefferson City

Term Expires January 1, 1943

H. J. Blanton ..... Paris
Earl F. Nelson ..... St. Louis
Harold J. Moore ..... Brookfield

OFFICERS OF THE BOARD

Frank M. McDavid ..... President
John H. Lathrop ..... Vice-President
Leslie Cowan ..... Secretary
R. B. Price ..... Treasurer

The Executive Board at Columbia

J. H. Wolpers, Chairman ..... Poplar Bluff
Earl F. Nelson ..... St. Louis
James A. Potter ..... Jefferson City

The Executive Committee at Rolla

H. J. Blanton, Chairman ..... Paris
Harold J. Moore ..... Brookfield
George C. Willson ..... St. Louis

THE BOARD OF VISITORS

Tom K. Smith, Chairman ..... St. Louis
Cowgill Blair ..... Joplin
E. A. Ikenberry ..... Independence
Clif Langsdale ..... Kansas City
Clay H. Stark ..... Louisiana

OFFICERS OF INSTRUCTION AND ADMINISTRATION

NOTE—

Figures indicate:

1 Leave of absence.
2 Officers or members of the Faculty of the School of Mines and Metallurgy at Rolla.
3 Resignation.
4 Deceased.

Dates:

The first date is the date of first appointment in the University.
The last date indicates the date of appointment to present title.
The date in parentheses indicates the time of appointment to a rank higher than that of instructor.
*Indicates that the service has not been continuous.

Faculty

PRESIDENT

FREDERICK ARNOLD MIDDLEBUSH, President, Professor of Political Science and Public Law, (1922), 1935.

A.B., 1913, A.M., 1914, Ph.D., 1916, Michigan; LL.D., Knox, 1937, Hope, 1937.

DEANS

HENRY EDWARD BENT, Dean of the Graduate Faculty, Professor of Chemistry, (1936), 1938.

A.B., Oberlin, 1922; M.S., Northwestern, 1923; Ph.D., California, 1926.

JOHN COY BOUR, Acting Dean of the Faculty of Law, Professor of Law, (1926), 1938.

A.B., 1917, LL.B., 1920, Missouri; S.J.D., Harvard, 1925.

[2]WILLIAM REUEL CHEDSEY, Director of the School of Mines and Metallurgy, 1937.

E.M., 1908, D.E., 1938, Colorado School of Mines.

DUDLEY STEELE CONLEY, Dean of the Faculty of Medicine, Director of the University Hospitals, Professor of Surgery, and Director of Surgical Services in The University Hospitals, (1919), 1933.

B.L., Missouri, 1899; M.D., Columbia, 1906.

HARRY ALFRED CURTIS, Dean Faculty of Engineering, Director of the Engineering Experiment Station, Professor of Chemical Engineering (1938).

B.S in Ch.E., 1908, M.S., 1910, Colorado; Ph.D., 1914, Wisconsin; D.Sc., 1930, Colorado, 1937, Wisconsin.

ROY EMERSON CURTIS, Dean of the Faculty of Business and Public Administration, Professor of Economics and Finance, (1928), 1936.
A.B., Nebraska Wesleyan, 1907; A.M., 1908, Ph.D., 1912, Wisconsin.

ALBERT KERR HECKEL, Dean of Men, Professor of Citizenship, (1924).
A.B., 1903, A.M., 1906, Roanoke Col.; Ph.D., Pennsylvania, 1913.

THEOPHIL WILLIAM HENRY IRION, Dean of the Faculty of Education, Director of the Summer Session, Professor of Education, (1926), 1930.
A.B., B.S. in Ed., 1911, Missouri; A.M., 1916, Ph.D., 1925, Columbia.

[3]F. ELLIS JOHNSON, Dean of the Faculty of Engineering, Director of the Engineering Experiment Station, Professor of Electrical Engineering, (1935).
B.A., 1906, E.E., 1909, Wisconsin.

FRANK LEE MARTIN, Dean of the Faculty of Journalism, Professor of the Theory and Practice of Journalism, (1909), 1935.
A.B., Nebraska, 1902.

[1]WILLIAM EDWARD MASTERSON, Dean of the Faculty of Law, Professor of Law, (1934).
A.B., Texas, 1915; M.A., 1917, LL.B., 1920, S.J.D., 1926, Harvard; LL.D., University of London, 1928.

MERRITT FINLEY MILLER, Dean of the Faculty of Agriculture, Director of the Agricultural Experiment Station, Professor of Soils, (1904), 1938.
B.S.A., Ohio State, 1900; M.S.A., Cornell, 1901; D.Sc., Kansas State, 1938.

FREDERICK BLACKMAR MUMFORD, Dean Emeritus of the Faculty of Agriculture, Director Emeritus of the Agricultural Experiment Station, Professor Emeritus of Animal Husbandry (1895), 1938.
B.S., 1891, M.S., 1893, Michigan State Col.; D.Agr., Nebraska, 1927, Michigan State Col., 1927.

FRANK FLETCHER STEPHENS, Dean of Underclassmen in the College of Arts and Science, Professor of History, 1907, (1912), 1929.
Ph.B., 1904, Ph.M., 1905, Chicago; Ph.D., Pennsylvania, 1907.

FREDERICK MONROE TISDEL, Dean of the Faculty of Arts and Science, Professor of English, 1910, (1911), 1922.
A.B., Northwestern, 1891; A.M., Wisconsin, 1893; A.M., 1894, Ph.D., 1900, Harvard.

PROFESSORS

WILLIAM ALBERT ALBRECHT, Professor of Soils, 1916, (1919), 1930.
A.B., 1911, B.S., 1914, M.S., 1915, Ph.D., 1919, Illinois.

HERMANN BENJAMIN ALMSTEDT, Professor of Germanic Languages, (1901), 1904.
L.B., Pe.B., 1895, Missouri; Ph.D., Chicago, 1900.

THOMAS E. ATKINSON, Professor of Law, (1935).
LL.B., Michigan, 1917; A.B., North Dakota, 1925; J.S.D., Yale, 1926.

[12]CLARENCE EDWARD BARDSLEY, Professor of Hydraulic Engineering, 1920, (1930), 1931.
B.S., 1920, C.E., 1922, M.S., 1924, Missouri School of Mines; Sc.D., Michigan, 1926.

[2]JOSEPH WAYNE BARLEY, Professor of English, (1912), 1915.
A.B., 1897, A.M., 1905, William Jewell Col.; Ph.D., Pennsylvania, 1911.

HENRY MARVIN BELDEN, Professor Emeritus of English, (1895), 1937.
A.B., Trinity, 1898; Ph.D., Johns Hopkins, 1895, L.H.D., Trinity, 1928.

RUDOLF BENNITT, Professor of Zoology, (1927).
S.B., 1920, A.M., 1921, Boston, Univ.; A.M., Ph.D., 1923, Harvard.

BERTHA BISBEY, Professor of Home Economics, (1931), 1938.
B.S., 1921, A.M., 1924, Ph.D., 1930, Columbia.

EDWIN BAYER BRANSON, Professor of Geology, (1910).
A.B., A.M., 1903, Kansas; Ph.D., Chicago, 1905.

SAMUEL TILDEN BRATTON, Professor of Geography, 1918, (1920), 1930.
B.S. in Ed., 1915, A.M., 1916, Missouri; Ph.D., Chicago, 1925.

CHESTER LELAND BREWER, Professor of Physical Training in the Department of Physical Education and Physical Training, (1910), *1935.

HARRY GUNNISON BROWN, Professor of Economics and Finance, (1915), 1931.
B.A., Williams, 1904; Ph.D., Yale, 1909; L.H.D., Williams, 1936.

JAMES WILLARD BURCH, Director of the Agricultural Extension Service, Professor of Agricultural Extension, (1923), 1939.
B.S. in Agr., 1916, A.M., 1931, Missouri.

[2]JOE BEATY BUTLER, Professor of Civil Engineering, 1920, (1922), 1931.
B.S. in C.E., 1915; B.S. in Ed., 1924, Oklahoma A. and M. Col.; C.E., 1922, M.S. in C.E., 1924, Missouri School of Mines.

SIDNEY CALVERT, Professor of Organic Chemistry, (1894), 1906.
B.S., McGill, 1890; A.M., Harvard, 1892.

ARLIE GLENN CAPPS, Professor of Education, (1921), 1924.
B.S. in Ed., Northeast Missouri State Teachers, Col., 1913; B.S. in Ed., 1916, A.M., 1917, Missouri; Ph.D., Illinois, 1921.

[2]ERNEST WILSON CARLTON, Professor of Structural Engineering, 1923, (1927), 1936.
B.S. in M.E., 1920, M.S. Ind.Ed., 1926, Colorado Agricultural Col.; B.S. in C.E., 1926, C.E., 1935, Missouri School of Mines.

WILLIAM WESTON CARPENTER, Professor of Education, (1928).
A.B., 1912, A.M., 1917, Kansas; Ph.D., Columbia, 1926.

[2]CHARLES YANCEY CLAYTON, Professor of Metallurgical Engineering and Ore Dressing, 1913, (1916), 1920.
B.S. in Met., 1913, Met.E., 1916, Missouri School of Mines.

JESSIE ALICE CLINE, Professor of Home Economics, 1921, (1922), 1930.
B.S. in Ed., 1915; A.B., 1916, A.M., 1925, Missouri.

JOHN WALDO CONNAWAY, Professor of Veterinary Science and Comparative Medicine, Veterinarian to the Agricultural Experiment Station, 1888, (1891), 1900.
D.V.S., Chicago Veterinary Col., 1890; M.D., Missouri, 1891.

WINTERTON CONWAY CURTIS, Professor of Zoology, 1901, (1904), 1908.
A.B., 1897, A.M., 1898, Williams Col.; Ph.D., Johns Hopkins, 1901; Sc.D., Williams Col., 1934.

SHERMAN DICKINSON, Professor of Agricultural Education, (1924), 1925.
B.S., Iowa State Col., 1913; M.S., 1920, Ph.D., 1925, Minnesota.

[2]CHARLES MITCHENER DODD, Professor of Ceramic Engineering, (1927), 1935.
B.Cer.E., 1927, Cer.E., 1933, Ohio State.

ADRIAN J. DURANT, Professor of Veterinary Science, 1913, (1921), 1931.
B.S. in Agr., 1913, A.M., 1915, Missouri; D.V.M., Michigan State Col., 1925.

CECIL ELDER, Professor of Veterinary Science, (1931).
D.V.M., Kansas State Col., 1916; M.S., Ohio State, 1924.

ROSCOE BRABAZON ELLARD, Professor of Journalism, (1930).
A.B., B.J., 1917, A.M., 1930, Missouri.

JOSEPH DOLIVER ELLIFF, Professor Emeritus of High School Administration, (1904), 1936.
B.S.D., Central Missouri State Teachers College, 1893; A.B., 1903, A.M., 1906, Missouri; LL.D., St. Louis University, 1933.

MAX MAPES ELLIS, Professor of Physiology and Pharmacology, (1919), 1936.
A.B., 1907, A.M., 1908, Ph.D., 1911, Indiana; Sc.D., Vincennes Univ., 1914.

ARTHUR SAMUEL EMIG, Professor of Sociology, (1927), 1931.
A.B., Missouri, 1916; S.T.B., Boston, 1920; Ph.D., Northwestern, 1930.

WILLIAM CARLYLE ETHERIDGE, Professor of Field Crops, (1916).
B.S. in Agr., North Carolina, 1906; M.S., 1912, Ph.D., 1915, Cornell.

ARTHUR HENRY ROLPH FAIRCHILD, Professor of English, 1904, (1905), 1914.
A.B., Toronto, 1900; A.M., 1903, Ph.D., 1904, Yale.

MARTIN LUTHER FAUST, Professor of Political Science and Public Law, (1929), 1937.
A.B., 1919, A.M., 1920, Gettysburg Col.; Ph.D., Chicago, 1924.

[2]CARROLL RALPH FORBES, Professor of Mining Engineering, (1909), 1912.
B.S., 1902, E.M., 1903, Michigan College of Mines.

[2]FLOYD HILL FRAME, Professor of Electrical Engineering, 1914, (1919), 1925.
A.B., Clark, 1912, E.E., W.P.I., 1924.

[2]CHARLES HERMAN FULTON, Research Professor of Metallurgy, (1920), 1937.
E.M., Columbia, 1897; D.Sc., South Dakota, 1911.

[4] [2]LEON ELLIS GARRETT, Professor of Mechanics, 1902, (1905), 1921.
B.S., Missouri School of Mines, 1901.

CHARLES E. GERMANE, Professor of Education, (1925.)
A.B., Indiana Tri-State Col., 1910; A.M., 1918, Ph.D., 1920, Iowa.

ROBERT CHARLES FREDERICK GOETZ, Lt. Colonel, Field Artillery, United States Army, Professor of Military Science and Tactics, 1937.
B.S., United States Military Academy, 1909; Mounted Service School, 1913; Honorary A.M., Harvard, 1924; Advanced Course, Field Artillery School, 1929; Command and General Staff School, 1931.

[2]LEWIS C. GORDON, Major, Corps of Engineers, United States Army, Professor of Military Science and Tactics, 1936.

CHARLES WILSON GREENE, Professor Emeritus of Physiology and Pharmacology, (1900), 1937.
A.B., 1892, A.M., 1893, Stanford; Ph.D., Johns Hopkins, 1898.

ADDISON GULICK, Professor of Physiological Chemistry, 1912, (1913), 1921.
A.B., Oberlin Col., 1904; A.M., Harvard, 1905; Ph.D., Würzburg, Germany, 1910.

MARY JANE GUTHRIE, Professor of Zoology, (1922), 1938.
A.B., 1916, A.M., 1918, Missouri; Ph.D., Bryn Mawr Col., 1922.

CONRAD HAROLD HAMMAR, Professor of Agricultural Economics, (1929), 1938.
B.S., 1924, Ph.D., 1930, Minnesota.

[2]HERBERT RUSSELL HANLEY, Professor of Metallurgy, (1923), 1929.
B.S. in M.E., 1901; Met.E., 1918, Missouri School of Mines.

[2]ELMO GOLIGHTLY HARRIS, Professor Emeritus of Civil Engineering, (1891), 1931.
C.E., Virginia, 1882.

FLORENCE HARRISON, Professor of Home Economics, (1938).
B.S. in H.E., Illinois, 1908; M.A. in H.E. Educ., Columbia, 1918.

LEONARD HASEMAN, Professor of Entomology, 1906,* (1912), 1918.
A.B., 1905, M.A., 1907, Indiana; Ph.D., Cornell, 1910.

ELI STUART HAYNES, Professor of Astronomy, 1905,* (1923).
A.B., 1905, A.M., 1907, Missouri; Ph.D., California, 1913.

CHARLES ALTON HELM, Professor of Field Crops, (1916), 1937.
B.S. in Agr., Missouri, 1913; A.M., Nebraska, 1916.

[2]OSCAR ADAM HENNING, Professor of Modern Languages, 1920, (1921), 1931.
A.B., 1913, A.M., 1915, Central Wesleyan Col.

DARWIN ALEXANDER HINDMAN, Professor of Physical Education and Physical Training, (1935).
A.B., Oberlin, 1918; M.A., Illinois, 1928; Ph.D., Ohio State, 1934.

[2]VAN BUREN HINSCH, Professor of Mathematics, 1915, (1922), 1931.
B.S. in Min. Eng., 1909, E.M., 1917, Missouri School of Mines.

BENJAMIN FRANKLIN HOFFMAN, Professor Emeritus of Germanic Languages, (1887), 1930.
B.L., Pe.B., 1884, M.L., 1888, Missouri; Litt.D., Oklahoma Baptist Univ., 1922.

ALBERT GARLAND HOGAN, Professor of Animal Nutrition, (1920).
B.S. in Agr., 1909, A.M., 1912, Missouri; Ph.D., Yale, 1914.

ROBERT LORENZO HOWARD, Professor of Law, 1919, (1925), 1929.
A.B., 1917, A.M., 1918, LL.B., 1925, Missouri; S.J.D., Harvard, 1933.

JAY WILLIAM HUDSON, John H. Lathrop Professor of Philosophy (1908), 1930.
A.B., 1905, A.M., 1906, California; A.M., 1907, Ph.D., 1908, Harvard.

[3]KENNETH EUGENE HUDSON, Professor of Art, (1929).
B.F.A., Yale, 1927; Assistant to Eugene F. Savage, 1926; Fontainebleau School, France, 1930; Fellow of C.R.B. Educational Foundation, 1936.

MINNIE LUCY IRONS, Professor of Home Economics Education, (1929).
A.B., Indiana State Teachers Col., 1922; A.M., Columbia, 1924.

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B.S. in M.E., 1913, M.E., 1923, Maine.

[2]EUGENE LEE JOHNSON, Professor of English, (1918), 1931.
B.Ph., Emory, 1899; LL.B., Mercer, 1902; B.Ph., Chicago, 1909; M.A., Columbia, 1920.

OLIVER RAY JOHNSON, Professor of Agricultural Economics, 1911, (1914), 1919.
B.S. in Agr. 1910, M.A., 1912, Missouri.

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B.S. in E.E., Illinois, 1918; M.S., Iowa State Col., 1927.

HARRY LAVERNE KEMPSTER, Professor of Poultry Husbandry, (1911), 1919.
B.S., Michigan Agr. Col., 1929; M.S., Wisconsin, 1928.

[2]KARL KENNETH KERSHNER, Professor of Chemistry, 1920, (1921), 1929.
B.S., M.S., Chem.E., 1920, Missouri School of Mines.

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B.S.A., 1908, A.M., 1916, Missouri.

ALEXANDER CARTWRIGHT LANIER, Professor of Electrical Engineering, (1915).
B.S. in E.E., 1900, M.E., 1905, Tennessee; M.E.E., Harvard, 1909.

CHARLES ELSON LIVELY, Professor of Rural Sociology, (1938).
A.B., 1917, A.M., 1918; Ph.D., 1930, Minnesota.

[2]ISRAEL HERRICK LOVETT, Professor of Electrical Engineering, (1921), 1931.
S.B., Mass. Inst. of Tech., 1914; E.E., Missouri School of Mines, 1924; M.S.E., Michigan, 1928.

[1]ELLSWORTH ALLAN MACLEOD, Professor of Piano, (1924).
New England Conservatory of Music, 1918; Paris, France, 1921-24, 1931-32; Ganz, 1934.

GLENN AVANN MCCLEARY, Professor of Law, (1929), 1931.
A.B., Ohio Wesleyan, 1917; J.D., Michigan, 1924; S.J.D., Harvard, 1936.

MARY R. MCKEE, Professor of Physical Education, (1923), 1933.
B.A., Wisconsin, 1910; Graduate Certificate, Wellesley, 1916.

[2]CLAIR VICTOR MANN, Professor of Engineering Drawing and Descriptive Geometry, (1920), 1923.
B.S. in C.E., 1914, C.E., 1921, Colorado; Ph.D., Iowa, 1929.

ARTHUR WEEVER MELTON, Professor of Psychology, (1935), 1937.
B.A., Washington Univ., 1928; M.A., 1929, Ph.D., 1932, Yale.

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A.M., Michigan, 1884; LL.D., Arkansas, 1916; Litt.D., Michigan, 1932.

HAROLD Y. MOFFETT, Professor of English, (1924), 1938.
A.B., Iowa Wesleyan Col., 1913; M.A., 1922, Ph.D., 1923, Iowa.

[2]GARRETT A. MUILENBURG, Professor of Geology, 1916, (1917), 1930.
B.A., 1912, M.S., 1913, Iowa; E.M., Missouri School of Mines, 1925; Ph.D., Columbia, 1925.

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M.D., University Col. of Medicine, 1912.

[3]JOHN FREDERICK NICHOLSON, Extension Professor, State Extension Agent, (1924) 1928.
B.S., 1900, M.S., 1902, Wisconsin.

[2]MAURICE D. ORTEN, Professor of Economics, (1924), 1935.
A.B., Drury College, 1919; A.M., Kentucky Wesleyan, 1922; M.A., Washington University, 1923.

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A.B., 1923, A.M., 1924, Missouri; Ph.D., New York, 1928; M.D., Univ. and Bellevue Hospital Medical Col., New York Univ., 1931.

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B.S., Odessa Col., 1892; M.A., Chicago, 1910; Ph.D., George Peabody, 1920.

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Mus. Doc., Denver Col. of Music, 1931; Chicago Musical College, 1938; A.A.G.O., 1903.

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B.S. in Agr., Missouri, 1912; M.S., Wisconsin, 1925.

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A.B., Frederickburg Col., 1899; Ph.D., Johns Hopkins, 1905.

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A.B., 1892; A.M., 1904; Ph.D., 1909, Harvard.

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M.D., Medical Col. of South Carolina, 1884.

HERBERT MEREDITH REESE, Professor of Physics, 1904, (1907), 1920.
A.B., 1897, Ph.D., 1900, Johns Hopkins.

WILLIAM H. E. REID, Professor of Dairy Husbandry, 1919, (1920), 1927.
B.S., Wisconsin, 1919; M.S., Missouri, 1920.

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B.S. in C.E., Missouri, 1897; M.C.E., Cornell, 1905.

HARRY RUBEY, Professor of Civil Engineering, (1924).
B.S., 1905, C.E., 1925, Illinois.

JOHN RUFI, Professor of Education, (1928).
B.S., 1918, Kansas State Teachers Col. (Emporia); M.A., 1920, Ph.D., 1927, Columbia.

[1]WALTER JULIUS SAUPE, Professor of Education, 1921, (1924), 1931.
B.S. in Ed., Southeast Missouri State Teachers Col., 1920; A.M., Missouri, 1921; Ph.D., Minnesota, 1924.

[2]WALTER THEODORE SCHRENK, Professor of Chemical Engineering, (1926), 1929.
B.S., Monmouth, 1915; M.S., 1919, Ph.D., 1922, Wisconsin.

DR SCOTT, Professor of Accounting and Statistics, 1914, (1917), 1931.
A.B., B.S. in Journalism, Missouri, 1910; Ph.D., Harvard, 1930.

ROBERT WASHINGTON SELVIDGE, Professor of Industrial Education, 1908, (1910),* 1919.
B.Pd., Central Missouri State Teachers Col., 1900; B.S., 1908; M.A., 1909, Columbia.

LEWIS JOHN STADLER, Professor of Field Crops, 1918, (1920), 1937.
B.S.A., Florida, 1917; A.M., 1918, Ph.D., 1922, Missouri.

ALLEN EDWIN STEARN, Professor of Chemistry, (1921), 1938.
A.B., 1915, A.M., 1916, Stanford; M.S., 1917, Ph.D., 1919, Illinois.

OSCAR MILTON STEWART, Professor of Physics, (1901), 1905.
Ph.B., DePauw, 1892; Ph.D., Cornell, 1897; D.Sc., DePauw, 1928.

DAN GISH STINE, Professor of Medicine, Director of the Medical and Student Health Services.
A.B., Missouri, 1907; M.D., Harvard, 1911.

THOMAS JESSE TALBERT, Professor of Horticulture, 1913, (1915), 1922.
B.S. in Agr., 1913, A.M., 1917, Missouri.

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B.S., Oklahoma A. and M. Col., 1904; B.S., Min.E., Arizona, 1908; Ph.D., Chicago, 1916; D.Sc. (Hon.), Oklahoma A. and M. Col., 1927.

ALBERT EDMUND TROMBLY, Professor of French and Italian, (1922), 1926.
A.B., Harvard, 1913; A.M., Pennsylvania, 1915.

EDWIN A. TROWBRIDGE, Professor of Animal Husbandry, 1906, (1909), 1911.
B.S. in Agr., Wisconsin, 1906.

CLARENCE MITCHELL TUCKER, Professor of Botany, (1931), 1937.
B.S. in Agr., 1920, Ph.D., 1930, Missouri.

CHARLES WESLEY TURNER, Professor of Dairy Husbandry, 1919, (1924), 1937.
B.S. in Agr., Wisconsin, 1919; A.M., Missouri, 1921; Ph.D., Wisconsin, 1927.

JONAS VILES, Professor of History, 1902, (1905), 1907.
A.B., 1896, A.M., 1897, Ph.D., 1901, Harvard.

CARL GEORGE VINSON, Professor of Horticulture, (1930).
B.S. in Agr., Missouri, 1916; M.S., Cornell, 1921; Ph.D., Minnesota, 1926.

GUSTAF ERIC WAHLIN, Professor of Mathematics, (1924).
A.B., Bethany Col., 1903; Ph.D., Yale, 1906.

JACOB WARSHAW, Professor of Spanish, 1909, (1912),* 1926.
A.B., Harvard, 1900; A.M., North Carolina, 1902; Ph.D., Missouri, 1912.

RALPH KNUPP WATKINS, Professor of Education, 1915, (1923), 1931.
B.S. in Ed., 1916, A.M., 1918, Ph.D., 1923, Missouri.

LUTHER ABRAHAM WEAVER, Professor of Animal Husbandry, 1910, (1913), 1919.
B.S. in Agr., Missouri, 1910.

MENDELL P. WEINBACH, Professor of Electrical Engineering, 1907, (1913), 1923.
A.B., 1905, B.S. in E.E., A.M., 1907, Missouri.

WILHELMUS DAVID ALLEN WESTFALL, Professor of Mathematics, 1905, (1907), 1921.
A.B., Yale, 1901; Ph.D., Goettingen, 1905.

ELMER WOOD, Professor of Economics and Finance, (1920) 1931.
A.B., Missouri, 1916; A.M., Princeton, 1930; Ph.D., Harvard, 1937.

[2]LEON ELMER WOODMAN, Professor of Physics, (1919).
A.B., 1899, A.M., 1902, Dartmouth Col.; Ph.D., Columbia, 1910.

JOHN COCHRAN WOOLEY, Professor of Agricultural Engineering, (1920).
M.Di., Iowa State Teachers Col., 1912; B.S. in A.E., 1917; M.S. in A.E., 1925, Iowa State.

JESSE ERWIN WRENCH, Professor of History, 1911, (1914), 1930.
A.B., Cornell, 1906.

ASSOCIATE PROFESSORS

JOHN QUINCY ADAMS, Associate Professor of Geography, 1923, (1929), 1938.
A.B., 1923, A.M., 1925, Ph.D., 1930, Missouri.

EDWARD GAY AINSWORTH, JR. Associate Professor of English, (1930), 1938.
A.B., 1925, M.A., 1926, Ph.D., 1929, Cornell.

RUSSELL STICKNEY BAUDER, Associate Professor of Economics and Finance, 1926, (1930), 1934.
B.S., Knox Col., 1924; M.A., 1925, Ph.D., 1933, Wisconsin.

ROYAL D. M. BAUER, Associate Professor of Accounting, (1929), 1935.
B.S. in Bus. Admin., Missouri, 1923; C.P.A., State of Missouri, 1927; M.B.A., Northwestern, 1935.

JAMES BREWTON BERRY, Associate Professor of Sociology, Director of the Anthropological Collection, (1931), 1938.
A.B., Wofford Col., 1922; B.D., Yale, 1925; Ph.D., Univ. of Edinburgh, 1930.

KARL RICHARD BOPP, Associate Professor of Economics and Finance, (1931), 1937.
A.B., B.S. in Bus. Admin., 1928, A.M., 1929, Ph.D., 1931, Missouri.

WILLIAM L. BRADSHAW, Associate Professor of Political Science and Public Law, 1927, (1930), 1933.
B.S. in Ed., 1917, A.M., 1924, Missouri; Ph.D., Iowa, 1930.

THOMAS ALLAN BRADY, Associate Professor of History, 1926,* (1930), 1938.
A.B., Missouri, 1924; A.M., 1926, Ph.D., 1931, Harvard.

SAMUEL BRODY, Associate Professor of Dairy Chemistry, (1920), 1928.
B.A., 1917, M.A., 1920, California; Ph.D., Chicago, 1928.

CLAUDE R. BRUNER, Associate Professor of Ophthalmology and Oto-Laryngology and Aurist and Laryngologist in the Student Health Service, 1928, (1930), 1938.
A.B., Missouri, 1924; M.D., Northwestern, 1926.

PAUL R. BURKHOLDER, Associate Professor of Botany, (1938).
A.B., Dickinson Col., 1924; Ph.D., Cornell, 1929.

JESSIE V. COLES, Associate Professor of Home Economics, 1924, (1925), 1930.
B.S., Iowa State Col., 1915; A.B., Coe Col. (Iowa), 1917; A.M., Columbia, 1922; Ph.D. Chicago, 1930.

[2]FRANK HEUSSY CONRAD, Associate Professor of Chemical Engineering, (1936), 1937.
B.S. in Ch.E., 1923, Ph.D., 1934, Washington.

RICHARD LEE CROUCH, Associate Professor of Anatomy, 1927, (1933), 1937.
A.B., 1925, B.S. in Med., 1926, A.M., 1929, Ph.D., 1932, Missouri; M.D., St. Louis University, 1937.

[2]FRANK EDWARD DENNIE, Associate Professor of Mathematics and Faculty Business Manager of Athletics, 1909, (1915), 1931.
B.S. in C.E., Brown, 1909.

GEORGE RAYMOND EDWARDS, Associate Professor of Physical Education, 1926, (1931).
B.J., Missouri, 1924.

ELMER ELLIS, ASSOCIATE Professor of History, (1930), 1932.
A.B., 1924, M.A., 1925, North Dakota; Ph.D., Iowa, 1930.

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B.S. in Agr., Missouri, 1916.

GILBERT MALCOLM FESS, Associate Professor of French, (1926), 1930.
Ph.B., Alfred Col., 1912; A.M., Syracuse, 1914; Ph.D., Pennsylvania, 1924.

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B.S. in Agr., 1921, A.M., 1924, Missouri.

HERBERT E. FRENCH, Associate Professor of Organic Chemistry, 1920, (1921), 1928.
A.B., Morningside Col., 1915; A.M., 1917, Ph.D., 1920, Illinois.

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B.A., West Texas State Col., 1927; B.J., 1928, A.M., 1932, Missouri.

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A.B., 1923, Ph.D., 1937, Cornell.

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A.B., 1922, M.S., 1924, Washington; Ph.D., Iowa, 1927.

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S.B., Massachusetts Institute of Technology, 1925; M.S., Purdue, 1937.

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A.B., William Jewell Col., 1921; A.M., Indiana, 1923; Ph.D., Princeton, 1930.

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B.S. in Agr., Missouri, 1930; Ph.D., Cornell, 1933.

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B.S., 1900, M.S., 1903, Michigan; Ph.D., Missouri, 1911.

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B.S. in Econ., Louisville, 1927; M.A., Harvard, 1928; Ph.D., Chicago, 1930.

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A.B., 1923, M.A., 1924, Washington; Ph.D., Brookings Graduate School of Economics and Government, 1927.

CLARA LOUISE HILLIGASS, Associate Professor of Nursing, Superintendent of the University Hospitals, 1922, (1926), 1931.
G.N., St. Luke's, 1908.

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A.B., Oklahoma, 1927; B.S. in Lib.Sc., Illinois, 1930.

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A.B., Carleton Col., 1920; A.M., Illinois, 1922.

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B.J., 1922, A.M., 1928, Missouri.

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A.B., Missouri, 1925; B.S. in Cer.Eng., Missouri School of Mines, 1930 ; A.M., Harvard, 1932; Ph.D., Missouri, 1933.

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B.S., South Dakota State College, 1908.

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B.S. in M.E., 1925, M.E., 1931, South Dakota State Col.

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B.S. in C.E., 1907, C.E., 1909, Missouri.

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A.B., DePauw, 1918; M.S., Missouri School of Mines, 1921.

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B.S. in Chem.E., 1921, M.S., 1925; Ph.D., 1928, Washington.

HORACE FAIRCHILD MAJOR, Associate Professor of Landscape Gardening, Landscape Architect, 1910, (1911), 1936.
B.S.A., Cornell, 1908.

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B.S., United States Military Academy, 1917; Graduate of the Field Artillery School, Basic Course, 1922.

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B.Sc., 1924, M.Sc., 1925, Manchester University (England); Ph.D., London University, 1927.

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A.B., Central Normal Col. (Indiana), 1918.

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S.B., 1911, Ph.D., 1914, Chicago.

[2]CHARLES J. MILLAR, Associate Professor of Biology, 1921, (1927), 1931.
B.S., 1921, M.S., 1923, Missouri School of Mines.

[2]CLARENCE JOHN MONROE, Associate Professor of Physical Chemistry, (1921), 1931.
S.B., 1917, Ph.D., 1921, Chicago.

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B.S.A., Oregon State Col., 1917; M.S., Iowa State Col., 1918; Ph.D., Wisconsin, 1925.

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B.A., Macalester Col., 1925; M.A., Columbia, 1928.

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B.S. in E.E., Oklahoma, 1921.

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SAMUEL BRYAN SHIRKY, Associate Professor, Superintendent of Short Courses, Assistant to the Dean of the Faculty of Agriculture, 1918, (1920), 1929.
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B.S., United States Naval Academy, 1920; M.S., 1927, J.D., 1934, Michigan.

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B.S. in M.E., 1905, M.E., 1906, Missouri.

ROGERS WHITMORE, Associate Professor of Violin, 1925, (1927), 1931.
Diplomas from Utica Conservatory of Music, 1920; Ithaca Conservatory of Music, 1922, Mus.B., 1931; Fontainebleau School, France, 1922; Pupil of Sevcik, Cesar Thomson, and Leopold Auer.

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B.S. in Agr., 1915, A.M., 1928, Missouri.

HORACE WALTER WOOD, JR., Associate Professor of Civil Engineering, (1931), 1936.
B.S. in Engineering, C.E., Missouri, 1925, M.S., Michigan, 1938.

[2]REGAN HARRIS YOUNG, Associate Professor of Engineering Drawing and Descriptive Geometry, 1925, (1927), 1931.
B.S. in M.E., Georgia School of Technology, 1921.

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B.S. in C.E., 1918, C.E., 1922, Missouri School of Mines.

NEWELL R. ZIEGLER, Associate Professor of Bacteriology and Preventive Medicine, (1931).
B.S., 1925, M.S., 1926, M.B., M.D., 1928, Ph.D., 1930, Minnesota.

ASSISTANT PROFESSORS

LAWRENCE ADAMS, Assistant Professor of the Theory and Practice of Art, 1930, (1932).
B.F.A., Yale, 1928.

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B.S., Southeast Missouri State Teachers Col., 1925; A.M., Missouri, 1926.

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M.D., St. Louis Univ., 1908.

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B.S., Iowa State Col., 1923.

HERMAN BETZ, Assistant Professor of Mathematics, (1924).
B.S., Rochester, 1912; Ph.D., Yale, 1923.

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B.A., DePauw, 1923; B.M., Michigan, 1935.

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B.S. in E., 1918, Ch.E., 1921, Missouri; Ph.D., California, 1924.

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B.S. in J., 1911.

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A.B., Ohio Univ., 1920; M.A., Ohio State, 1921.

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A.B., 1925, A.M., 1926, Nebraska; Ph.D., Missouri, 1934.

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B.S., Southwest Missouri State Teachers Col., 1918; M.A., Columbia, 1927.

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B.S. in Ed., A.M., 1928, Ph.D., 1931, Missouri.

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[1]IDA FRA CLARK, Extension Assistant Professor of Home Economics, (1921).
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A.O.S.M., Otago, 1929; B.Sc., 1928, B.E., 1929, New Zealand; M.S., Missouri School of Mines, 1930; Ph.D., Missouri, 1933.

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B.J., 1930, A.M., 1931, Missouri.

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B.S. in Agr., 1918, B.S. in Ed., 1920, A.M., 1926, Missouri; Ph.D., Cornell, 1931.

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C.E., Rensselaer, 1930; M.B.A., 1932, D.C.S., 1936, Harvard.

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B.Cer.E., 1931, M.Sc., 1932, Ph.D., 1934, Ohio State.

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B.S. in Agr., 1921, A.M., 1922, Missouri.

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A.B., Catawba College, 1930; M.Sc., 1932, Ph.D., 1934, Ohio State.

RALPH LOOMIS, Extension Assistant Professor of Rural Sociology (1919),* 1936.
B.S. in Agr., 1913, A.M., 1921, Missouri; B. of Div., Oberlin Graduate School of Theology, 1924.

BARBARA MCCLINTOCK, Assistant Professor of Botany, (1936).
B.S., 1923, M.A., 1925, Ph.D., 1927, Cornell.

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B.S. in F., Iowa State, 1931.

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B.S., 1924, M.S., 1926, Michigan State Col.

FREDERICK FRANCIS MCKENZIE, Assistant Professor of Animal Husbandry, 1925,* (1928).
B.S.A., British Columbia, 1921; A.M., 1923, Ph.D., 1925, Missouri.

FRED MCKINNEY, Assistant Professor of Psychology, and Psychologist in the Student Health Service, 1931, (1934), 1938.
A.B., 1928, M.A., 1929, Tulane; Ph.D., Chicago, 1931.

WILLIS EDGAR MANEVAL, Assistant Professor of Botany, 1915, (1917).
Ph.B., 1902, M.S., 1903, Bucknell; Ph.D., Johns Hopkins, 1912.

WILLIAM REDMOND MARTIN, JR., Extension Assistant Professor of Horticulture, (1929).
B.S., Kansas Agr. Col., 1917.

ERDLEY STONE MATTESON, Extension Assistant Professor of Animal Husbandry, (1935).
B.S. in Agr., Missouri, 1916.

DANIEL MAZIA, Assistant Professor of Zoology, (1938).
A.B., 1933, Ph.D., 1937, Pennsylvania.

DAVID MEEKER, Extension Assistant Professor, State Extension Agent, (1934),
B.S. in Agr., Missouri, 1924.

[2]AARON JEFFERSON MILES, Assistant Professor of Mechanical Engineering,* 1930, (1937).
B.S., 1930, M.S., 1931, Missouri School of Mines; Sc.D., Michigan, 1935.

RAYMOND GEORGE MILLER, Captain, Field Artillery, United States Army, Assistant Professor of Military Science and Tactics, (1938).
A.B., Washington State Col., 1921; Graduate, Field Artillery School, Basic Course, 1922.

[4]HUBERT C. MOFFETT, Assistant Professor of Animal Husbandry, 1927, (1936).
B.S. in Agr., 1927, A.M., 1929, Missouri.

JAMES DAUGHERTY MONIN, JR., Extension Assistant Professor, State Extension Agent, (1934).
B.S. in Agr., Missouri, 1928.

WILLIS MOORE, Assistant Professor of Philosophy, 1935, (1937).
A.B., 1930, A.M., 1931, Missouri; Ph.D., California, 1936.

ROBERT BURRUS BUCKNER MOORMAN, Assistant Professor of Civil Engineering, (1935).
B.S., 1929, M.S., 1931, Illinois; Ph.D., Iowa State, 1937.

[1]HURLEY LEE MOTLEY, Assistant Professor of Physiology and Pharmacology, (1936).

A.B., 1930, A.M., 1932, B.S. (with distinction in Medicine), 1932, Ph.D., 1934, Missouri; M.D., Harvard, 1936.

DARIS D. MOYER, Extension Assistant Professor of Poultry Husbandry, 1936, (1937).

B.S. in Agr., Ohio State, 1934.

[1]HELEN NAHM, Assistant Professor of Nursing, Principal of the School of Nursing, 1930,* (1935).

A.B., Missouri, 1926.

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B.S. in Agr., Kentucky, 1917.

[1]ERNST ELLIOTT NAYLOR, Assistant Professor of Botany, 1924,* (1931).

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A.B., Harvard, 1924; S.B., 1925, M.S., 1934, Sc.D., 1936, Massachusetts Institute of Technology.

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B.S. in Agr., Clemson Agr. Col. (South Carolina), 1926; A.M., Missouri, 1927.

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B.S. in F., Connecticut State Col., 1929; M.F., Yale School of Forestry, 1931.

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A.B., Park Col., 1926; A.M., 1928, Ph.D., 1932, Missouri.

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B.S., United States Military Academy, 1933; M.S. in C.E., Massachusetts Inst. of Tech., 1935.

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B.S. in Com., Iowa, 1925, M.F.A., Yale, 1938.

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Pe.P., Missouri, 1888.

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D.V.M., 1924, M.S., 1934, Michigan State.

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B.S. in Com., 1929, M.B.S., 1932, Ph.D., 1937, Northwestern.

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B.S. in Agr., 1925, A.M., 1927, Missouri.

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B.S. in C.E., Missouri School of Mines, 1931; M.S. in C.E., California Inst. of Tech., 1937.

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B.Sc., 1922, M.A., 1927, Ph.D., 1937, Ohio State.

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B.A., 1927, M.A., 1928, Acadia; Ph.D., Johns Hopkins, 1933.

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SECTION I

GENERAL INFORMATION

The statements and matters set forth in this catalog are made by way of announcement only for the school year covered by this catalog and are not made or intended to be made, nor should they be construed as being made, as options or as offers to contract with any person with respect thereto. The requirements for graduation, the content of courses, the credit given therefor, entrance requirements, fees, and all other matters announced and described herein may be changed by the University, without advance notice, at any time. (See also pages 54, 73.)

Historical Statement

During the year 1939, the University of Missouri, the oldest state university west of the Mississippi, celebrates its Centennial. It was created by the Geyer Act of February 11, 1839. The corner stone of the original Academic Hall, the columns of which still stand on Francis Quadrangle, was laid July 4, 1840; preparatory classes were opened April 14, 1841; and college classes, December 1 of the same year. The first commencement was held November 28, 1843, with two graduates, and the University was fairly launched.

John Hiram Lathrop (1841-1849), the first President, with his courage and unflagging confidence, carried the University through the difficult foundation years. Lathrop and three of his faculty held degrees from Yale, the fifth professor was a graduate of Amherst. They laid a strong foundation of scholarly ideals and standards. Lathrop resigned in 1849 to become the first Chancellor of the University of Wisconsin and later became President of the University of Indiana.

James Shannon (1850-1856) was the second President. He was a leading minister in the Christian church and while President continued his preaching. He was an extreme and outspoken pro-slavery and pro-Southern advocate. Through him the University was drawn into the bitter sectarian and partisan controversies of the fifties. He resigned in 1856. William Wilson Hudson (1856-1859), his successor, had been a member of the original faculty and Acting President from 1849 to 1850. Under him and his successor,

(Hudson died in 1859), Benjamin Blake Minor (1860-1862), the bitter opposition died down, but it was only the lull before the storm of the Civil War. By March, 1862, the future of the University seemed hopeless. The University was deeply in debt, most of the students had left and Academic Hall itself was occupied by Federal militia. Consequently the Board of Curators suspended the offices of president and professors and the University was closed.

Up to this time the University had been, basically, the traditional classical college, though both Lathrop and Hudson had built up unusually good scientific equipment, including an observatory. From 1846 to 1856 Dr. McDowell's Medical School in St. Louis had become nominally a part of the University but in reality was independent. In the late fifties courses were offered in Agriculture and a beginning was made in the training of teachers, which Lathrop had believed to be one of the chief functions of a state university. The annual enrollment of college students was more often below than above 100, and a large part of these were from Boone county and the wealthier river counties.

By the Morrill Act of 1862 the Federal Government donated to Missouri 330,000 acres of land for the endowment of a College of Agriculture and Mechanic Arts. In the hope of securing its location in Columbia, the Board, in November, 1862, revived University instruction with three professors. Lathrop, who had returned as Professor of English, served as Chairman of the Faculty from 1862 to 1865, and carried the University through its second and more critical time of trial. Commencements were resumed in 1864 and in 1865 the University was formally reopened with Lathrop again serving as President. He died the following year.

The administration of Daniel Read (1866-1876) marks the transition in the history of the institution from College to University. During this period, largely through the vision and devoted service of James S. Rollins, the College of Agriculture and Mechanic Arts was finally in 1870 located at Columbia. The School of Mines and Metallurgy was located at Rolla and opened in 1871. Meanwhile, urged on by President Read's vigorous speeches, the legislature in 1867 made its first outright appropriation for the University, $10,000 for rebuilding the President's house and a permanent annual appropriation of a percentage of the general revenue after 25% had been deducted for the common schools.

The Report on the Reorganization of the University in 1870, chiefly the work of President Read, and based on the recent organization of Cornell and the reforms of Charles William Eliot at Harvard, served as a guide in the further development of the University. The School of Law was organized in 1872 and the Medical School in 1873, both of the latter at Columbia. The elective system was introduced, the classical requirements modified, and mod-

ern languages and laboratory work in chemistry strongly stressed. And "females" were admitted to the University, cautiously and apprehensively. They were first admitted only to the Normal College (opened in 1867) in 1868, but were excluded from chapel, used the library only at hours when men were excluded and marched to classes from the Normal building in formation with a teacher in front and in the rear. But "no harm resulted" so by the session of 1870-71 they were on an equal footing with the men.

When Read retired in 1876, after fifty years of college teaching and administration, the new University had fairly taken form, and began to be looked upon as the State's University. There was a substantial increase in enrollment which reached 238 college students in 1875-76, and, more important, these students came from some 70 counties of the State. The institution was not merely a University, but a University of the State.

Under Samuel Spahr Laws (1876-1889) the University continued to develop. The School of Engineering was separated from the College of Agriculture and established as a Division in 1878. Both the Agricultural College and the School of Mines, though badly handicapped financially, made real progress in research and professional training, and the Agricultural Experiment Station was established in 1888. In 1885 wings were added to the original building, more than doubling its size.

But it was under the leadership of Richard Henry Jesse (1891-1907) that Missouri drew up with the tremendous advance in higher education then taking place in America. The original Academic Building burned in 1892 and under the energetic leadership of Governor Francis the legislature provided funds for the buildings on the Francis Quadrangle (Jesse Hall was completed in 1895) and greatly raised the level of its biennial appropriations. Lathrop Hall was opened in 1898, Parker Memorial Hospital in 1901, Read Hall in 1903 and Rothwell Gymnasium in 1906.

Some of the more important advances under Jesse's leadership were the abolition of the Preparatory Department; the establishment of higher and more definite admission requirements, enforced through University inspection and certification of high schools; and the organization of the School of Education in 1903. Graduate work was organized and standardized under a central committee. Scientific investigation and training in agriculture was rapidly developed as was the work of the School of Mines and Metallurgy. But probably the greatest advance came through Dr. Jesse's success in securing, for his rapidly expanding faculty, young men from the leading universities, imbued with the newer concepts of research and scholarship. Missouri was admitted to the Association of American Universities and approved by the Carnegie Foundation, the two most tangible recognitions of Class A ranking.

Under Albert Ross Hill (1907-1921) progress continued. The School of Journalism was established in 1908; the Graduate School, as a separate Division in 1910; and the School of Commerce in 1914. Most of the present East or White Campus was built in 1913-1914, the central section of the Library was opened in 1916, and Neff Hall was dedicated in 1920. John Carleton Jones (1921-1923), Stratton Duluth Brooks (1923-1930) and Walter Williams (1930-1935) cover the years of post-war reaction and the depression, but the new University was broadened and strengthened, with clearer vision of its functions and obligations. The Women's Gymnasium and Mumford Hall were completed in 1923, and Noyes Hospital in 1924. The Memorial Tower and Stadium were dedicated in 1926, the Tate Law Building in 1927, and Brewer Field House in 1930.

The administration of Frederick Arnold Middlebush (1935-——) has opened auspiciously with generous appropriations from the legislature, steadily increasing enrollment, and the dedication in 1936 of the west wing of the Library, the Engineering Laboratories, the School of Education Building, the Student Health Center, Walter Williams Hall, and the new Home Economics Building. The new Dairy Building named Eckles Hall, in honor of a distinguished former member of the College of Agriculture faculty, was completed in 1938. The faculty is being further strengthened and the contributions of the University to the State of which it is an integral part are being extended.

Organization

The University of Missouri comprises the following divisions:

College of Arts and Science
College of Agriculture
School of Business and Public Administration
School of Education
College of Engineering
Graduate School
School of Journalism
School of Law
School of Medicine
School of Mines and Metallurgy
Extension Division

The School of Mines and Metallurgy is at Rolla. The other divisions are at Columbia.

Emphasis is given in particular lines of work by the establishment of minor divisions, chief of which are the Agricultural Experiment Station, the Engineering Experiment Station, the Missouri State Military School, and the Mining Experiment Station at Rolla.

The University Faculty consists of the President, the Deans, all professors and associate professors, and such other teachers and officers as may be elected to membership by them. Each

division—college or school—of the University has its own faculty, consisting of the dean, professors, associate professors, and such other teachers of that school or college as the faculty concerned may elect. The teachers in each department work together through a chairman appointed by the President for a term of one year.

The President is the executive head of the University and is a member of all the faculties.

Location

The University of Missouri, located at Columbia, is about half way between St. Louis and Kansas City, near the center of the state. By railroad it is reached by the Wabash and the Missouri-Kansas-Texas railways. It is on national highways, numbers 40 and 63. Columbia, with a population of approximately seventeen thousand, may be characterized as a town of schools, homes, and churches, with enough industrialism for efficiency. It offers the conveniences of a larger city without the distractions.

Equipment

Grounds and Buildings: The University grounds at Columbia cover more than 800 acres. The main divisions are Francis Quadrangle, the East Campus, the athletic fields, and the University farm. Within a ten-mile radius of the campus the University owns approximately 1,200 acres of land which are used for instructional and experimental purposes by the College of Agriculture. The University also owns about 38,000 acres mainly in the Ozark Mountains of Southern Missouri.

The following University Buildings are at Columbia: Brewer Field House, Conservation Laboratory (for care and conservation of wildlife in Missouri), Eckles Hall (for dairy husbandry), Marie Louise Gwynn Hall (for home economics), Jesse Hall (administration), Lathrop Hall (for fine arts), Lefevre Hall (for botany and zoology), McAlester Hall (for medicine), Mumford Hall (for agriculture), Jay H. Neff Hall (for the School of Journalism), Noyes Hospital, Parker Memorial Hospital, Practice School Building (for the use of the School of Education), R. O. T. C. Building, Rothwell Gymnasium, Schlundt Hall (for chemistry), Schweitzer Hall (for agricultural chemistry), Student Health Center, Swallow Hall (for geology), Switzler Hall, Lee Harry Tate Hall (for the School of Law), Walter Williams Hall (for the School of Journalism), Waters Hall (for agriculture), Whitten Hall (for horticulture), Women's Gymnasium, separate buildings for agriculture, astronomy, beef cattle barn, business and public administration, chemistry, dairy barn, engineering, engineering shops, greenhouses, hog barn, horse barn, industrial arts, library, livestock judging pavilion, machinery (for agricultural engineering), military stables, physics,

poultry, two power plants, service building, sheep barn, veterinary, workshop (for dramatic arts), and other small buildings; residences for the President of the University and the Dean of the Faculty of Agriculture, and Read Hall (dormitory for women).

Alumni, former students, present students, and friends of the University have presented the institution with a beautiful Gothic Memorial Tower and a Memorial Stadium, dedicated to the memory of the University students who lost their lives in the World War.

LABORATORIES AND MUSEUMS: Practical instruction in the sciences is provided in the following laboratories: Agricultural chemistry, agricultural engineering, anatomy, animal husbandry, astronomy, bacteriology (general and medical), botany, chemistry, conservation laboratory, dairy husbandry, educational psychology, engineering (civil, chemical, electrical, sanitary, and mechanical), entomology, experimental psychology, field crops, fine arts, geology and mineralogy, home economics, horticulture, industrial arts, journalism, military science, pathology, pharmacology, physics, physiology, physiological chemistry, poultry husbandry, soils, U. S. Bureau of Fisheries research, veterinary science, and zoology.

There are museums of agriculture, classical archaeology, ethnology, geology, history, journalism, mathematics, pathology, social museum, and zoology.

MISSOURI COOPERATIVE WILDLIFE RESEARCH UNIT: Through the cooperation of the Bureau of Biological Survey, the Missouri Conservation Commission, and the University, the tenth of these Regional units in the United States was established in 1937. Its purpose is to instruct students intending to enter the wildlife field, to conduct research, and to provide technical information concerning the relation of wildlife conservation and management to land use in Missouri and adjoining states.

DRAFTING ROOMS: Rooms are provided for the theory and practice of art and for engineering drawing.

DORMITORIES: The University has one dormitory for women. For detailed information, see page 79.

LIBRARIES: The University libraries include, in addition to the General Library, those of law, medicine, engineering, agriculture, and journalism. Laboratory collections are shelved in the chemistry, geology, and biology buildings. The libraries contain a total of 380,649 volumes. About 1,900 periodicals are currently received.

The library of the Bible College of Missouri was presented to the University in 1937. The addition of this collection of 5,600 volumes gives the University Library an excellent working collection in religion and related fields. Other significant gifts of recent years include the William Benjamin Smith Library of 2,000 vol-

umes, consisting chiefly of theology, history, mathematics, and philosophy, which was presented to the University in 1926. Gamma Chapter of Phi Delta Kappa has given to the University $1,000, the income from which is to be used for the development of a professional education library in the University. This is known as the Irion Library and now contains approximately 600 volumes. The Walter Williams Library, established in 1934 by the Alumni Association of the School of Journalism, provides an annual fund for the purchase of books.

The addition in 1936 of a new wing to the Library Building increased the seating capacity of the Library to 1,025. In this wing are the Reserved Book Reading Room; special reading rooms for social science, education, journalism, and languages; seminars and studies; and a room for art exhibits. Also in this wing are staff offices and work space for the Catalog and Acquisition Departments. The stacks have a capacity of 400,000 volumes. In the stacks are 124 carrells, which afford adequate study facilities for graduate students.

The State Historical Society Library occupies a portion of the Library Building, and faculty and students have access to its collection of approximately 350,000 State archives, books, pamphlets, Missouri official publications, etc.

The law library occupies the third floor of the law building, Lee H. Tate Hall. It consists of 33,061 volumes and includes a valuable collection of law books on criminal laws and criminal trials, presented by John D. Lawson, former dean of the law faculty. The library is open 13 hours daily from Monday through Friday, 10 hours on Saturday, and 3 hours on Sunday afternoon.

The medical library occupies the east end of the second floor of the new wing of the medical building and is open 8 hours daily from Monday through Friday, and 7 hours on Saturday. The collection consists of 11,992 volumes and the more important current journals.

The engineering library is shelved on the second floor of the Engineering Laboratories Building and is open 10½ hours daily from Monday through Thursday, 7½ hours on Friday, and 4 hours on Saturday. The collection consists of 11,587 volumes.

The agricultural library is on the second floor of Mumford Hall and is open 12 hours daily from Monday through Thursday, 9 hours daily on Friday and Saturday, and 3 hours on Sunday afternoon. The collection consists of 21,986 volumes.

The journalism library is open 11½ hours daily from Monday through Friday, and 8½ hours on Saturday, and consists of 4,929 volumes and about 300 periodicals and daily and weekly newspapers. It is on the main floor of Walter Williams Hall.

The General Library is open 14 hours daily, except Sunday, when it is open from two to six in the afternoon.

Other collections, shelved in the various laboratories, are accessible at certain hours daily, except Sunday. The collections are small, but have been selected with special reference to the need of students in these laboratories.

GYMNASIUMS AND ATHLETIC FIELDS: *For Men:* Rothwell Gymnasium and the new Field House present facilities for basketball, boxing, wrestling, badminton, volley ball, handball, and other indoor activities and also adequate bathing facilities.

Brewer Field House is built in connection with Rothwell Gymnasium and is splendidly planned for indoor track, basketball, volley ball, and a general recreative program and furnishes space and facilities for the entire program of physical education and athletics through the winter months and in inclement weather.

Rollins Field, adjacent to the Gymnasium and the Field House, is well equipped for recreational and intramural programs. It has a 440-yard cinder track with a 220-yard straightaway, several football, baseball, and other play fields, including 14 tennis courts and four three-wall handball courts.

As an addition to the outdoor equipment, there has been built Memorial Stadium, unique in design and complete in every respect for handling the crowds which come to the University for intercollegiate football games. The Stadium seats about 26,000. In addition to the football field, there is a 440-yard cinder track. Under the Stadium are quarters for training, dressing, and general care of the athletic teams.

For Women: The women of the University have a complete plant for their own use, a gymnasium with facilities for all indoor recreational activities, dressing and service quarters, and a swimming pool 30x60 with up-to-date chlorination and filtration equipment. Immediately adjacent to the Gymnasium are the girls' athletic fields. These include tennis courts, volley ball courts, soccer and hockey fields. There is space for archery and other outdoor games for women.

MEDICAL ATTENTION FOR STUDENTS

Students registered for more than eight credit hours in the University of Missouri and paying a full library, hospital, and incidental fee may have free medical attention and hospital care, at all times that beds in the University Hospitals are available, during terms for which they are registered and are in attendance.

Students who register for no more than eight credit hours nor less than four credit hours, and pay less than a full library, hospital and incidental fee are entitled to free consultation with the staff of the Student Health Service but not to other hospital privileges without the payment of regular hospital charges.

In the dispensary at the hospital, any student who has registered and paid fees as indicated above may consult with and have treatment by the members of the staff of the Student Health Service. The attention of the same staff physicians is available to students who have been admitted to the hospital.

Those students who are ill in any degree are urged to report at the hospital promptly for advice and treatment. A nurse is on duty in the hospital every day of the University session from 8 a. m. until 4:30 p. m. to give information about the medical and surgical service of the dispensary and to make appointments for consultation and treatment.

It is not the policy of the University to provide medical attention for students in their homes or rooming houses. The members of the staff do not treat students at any place other than at the University Hospitals except under unusual circumstances. The hospital facilities are adequate for the care of students under all ordinary conditions.

During epidemics which necessitate the hospitalization of large numbers of students so that the normal or expanded facilities of the University Hospitals are overtaxed, the University, although it cannot, under such circumstances, assure hospital care to all students, will attempt to provide such temporary arrangements for the care of students as, in the judgment of the Student Health Service, are deemed to be most satisfactory for the care of the affected students.

No charge will be made for surgical operations that are considered by the staff as imperative. Necessary hospital care is given without charge except for extraordinary medicines and for special nursing. When a special nurse is required the patient must pay the whole cost of that service. The need for a special nurse will usually be determined by the physician in charge.

The University has established quarters in which there may be detained and cared for a limited number of those who suffer from dangerous communicable diseases. Students who are detained in quarantine established by the University will be required to accept the exclusive professional service of the members of the staff of the Student Health Service, except when consultation is desired or required by the patient or his family. Under ordinary conditions a student may engage a physician of his own choice, in which case he will be responsible for the physician's fee. The University will not in any case undertake to furnish professional service except that rendered by the staff of the Student Health Service.

Vaccination against smallpox is required of all students and immunization from typhoid fever is recommended. All new students are required to report to the Student Health Center for a complete physical examination when notified. The purpose of this

examination is to furnish information to the Student Health Service that will assist the students in the proper adjustment of mental, physical and social activities of college life.

Publications of the University

The publications of the University consist of *The University of Missouri Studies, University of Missouri Bulletin,* and publications of the Agricultural Experiment Station and the Agricultural Extension Service.

The University of Missouri Bulletin, issued twice a month, comprises the astronomical series, the education series, engineering experiment station series, extension series, general series, journalism series, library series, and medical series. The publications of the Agricultural Experiment Station include research bulletins—bulletins and circulars of information based for the most part on the work of the local station. The publications of the Agricultural Extension Service are of a more popular nature, covering a wider range of work. *The University of Missouri Studies,* issued quarterly, contain the results of original research by the teachers and graduate students of the University.

The bulletins and circulars of information are sent free, within the State, on application. The catalog and special announcement of each school and college are issued annually and may be had by writing to the Registrar of the University.

ENTRANCE

All communications regarding entrance should be addressed to the Registrar, University of Missouri, Columbia, Missouri, who has charge of all matters relating to admission to any division of the University at Columbia; or to the Registrar, School of Mines and Metallurgy, Rolla, Missouri, who has charge of all matters relating to admission to that division of the University.

Prospective students should not attempt to determine finally for themselves their eligibility to enter the University, or any division thereof, from a consideration of the material contained in this catalog, which is only generally descriptive of entrance requirements, is always subject to change, without notice, and does not purport to be exhaustive. Those desiring to enter the University should correspond with the proper Registrar, inasmuch as an official determination of eligibility to enter the University can be based only upon a consideration of official credentials.

Admission

The University admits without examination graduates of the fully accredited high schools in Missouri who present the required units and who are officially recommended for admission.

Graduates of schools fully accredited by other state universities of similar rank, who comply with the requirements as stated, will also be admitted without examination.

Secondary or high school subjects required for admission are defined in terms of units, a unit representing a high school subject taught five times a week in periods of not less than forty minutes (laboratory eighty minutes) for a school year of at least thirty-six weeks. Manual Training, Home Economics, and similar subjects require double periods, as do the laboratory sciences.

College subjects required for admission to the professional schools are designated in terms of "hours," an hour being the equivalent of a subject pursued one period a week for one semester; fifteen hours constitute a normal semester's work.

The University does not admit any student who is under suspension from another institution and may refuse admission to any other student whose previous record shows work of an inferior or unsatisfactory quality.

The Colleges

The requirements for regular admission to the colleges are fifteen units, the equivalent of the four-year high school course. The following specific units are required:

College of Arts and Science: Eleven units from group A, including three units in English; two units in Mathematics; one unit in Social Studies; one unit in Science. Two units in a foreign language are strongly advised. These units and the two units in mathematics should be taken in the last two years of high school. The four additional units may be any appearing in groups A and B.

College of Agriculture: Three units in English; two units in Mathematics (students presenting only one unit in Mathematics will be admitted but additional work in Mathematics may be required); one unit in Social Studies; one unit in Natural Science (one unit in Vocational Agriculture accepted as Natural Science).

College of Engineering: Three units in English; three units in Mathematics, including Algebra one and one-half units, Plane Geometry one unit, and Solid Geometry or Trigonometry one-half unit; one unit of science, with laboratory; and two units in History and Government.

Students with superior high school records who have the required units in English and mathematics, but are short not to exceed one unit of the others required may be admitted by special permission.

The following exceptions to the requirement in mathematics may be allowed:

(a) Students who offer one unit in Algebra and one unit in Plane Geometry will be admitted but will be required to take, without credit, Mathematics 1, Introductory Course (3 hours), and Mathematics 3, Solid Geometry (2 hours).

(b) Students who offer one unit in Algebra, one in Plane Geometry, and a half unit in either Advanced Algebra or Trigonometry will be admitted but will be required to take, without credit, Mathematics 3, Solid Geometry (2 hours).

(c) Students who offer one unit in Algebra, one in Plane Geometry, and a half unit in Solid Geometry will be admitted but will be required to take, without credit, Mathematics 1, Introductory Course (3 hours).

School of Mines and Metallurgy (At Rolla): Three units in English; one unit in Algebra; one unit in Plane Geometry; two half units chosen from the three subjects of Advanced Algebra,

Solid Geometry, and Trigonometry; one unit of Science with Laboratory (Physics or Chemistry recommended); and two units of Social Science.

Students ranking in the upper half of their high school class may be admitted with two and one-half units of Mathematics, and those ranking in the upper third of their class with two units of Mathematics.

The remaining units may be in any subject offered by the high school except that not more than a total of one unit will be accepted in such subjects as Physical Training, Glee Club, Chorus, Band, etc., nor will more than two units each be accepted in Agriculture, Drawing, or Manual Training.

On account of crowded conditions at the School and because of the technical nature of the courses offered, no students can be admitted with any entrance conditions.

The Professional Schools

School of Business and Public Administration: The requirements for admission to the School of Business and Public Administration are the satisfactory completion of (1) a four-year high school course or its equivalent and (2) sixty hours credit in Arts and Science subjects (exclusive of required work in physical training and military science) in the University of Missouri or in any college or university of recognized standing. Students may be admitted also upon the satisfactory completion of four semesters in the College of Engineering.

Certain courses, including General Economics and American Government, which are offered ordinarily in the Sophomore year, are prerequisites to much of the work of the School of Business and Public Administration and should be completed before the student enters that school. However, these courses do not constitute a requirement for admission.

School of Education: The requirements for admission to the School of Education are the satisfactory completion of (1) a four-year high school course or its equivalent, and (2) 60 semester hours of credit (exclusive of the required work in physical training and military science) which may be accepted toward the degree of B. S. in Education.

School of Journalism: The requirements for admission to the School of Journalism are the satisfactory completion of (1) a four-year high school course or its equivalent, and (2) sixty hours' credit (exclusive of the required work in physical training and military science) in the College of Arts and Science of the University of Missouri, or the equivalent. The applicant's college record must show a scholastic average of at least medium quality, judged by the standards of the institution in which the

work was completed, and must include: English Composition, 6 hours; a physical or biological science, 5 hours; a modern foreign language, 10 hours; Mathematics or Logic, 3 hours, unless three units of mathematics were completed in high school; English Literature, 6 hours; American Government, 5 hours; General Economics, 5 hours. Although not required for admission, it is urgently advised that courses in general psychology and general sociology be included. Students who plan to specialize in Agricultural Journalism should also include 5 hours of chemistry.

Admission to the School of Journalism is by application only. A prospective student must secure from and file with the Registrar, at least a month in advance of the opening of the term in which he expects to enter, an application form intended to supply information necessary to judge his particular qualifications for work in journalism.

SCHOOL OF LAW: The following persons are eligible for admission to the School of Law:

First, persons who have received a bachelor's degree from the University of Missouri or from any institution accredited therewith;

Second, persons who have not received a bachelor's degree, but who have completed at least ninety (90) semester hours (or their equivalent) of college work acceptable for a bachelor's degree granted by the University of Missouri or any institution accredited therewith, exclusive of credit earned in correspondence courses and non-theory courses in military science, hygiene, domestic arts, physical education, vocal or instrumental music, or courses without intellectual content of substantial value. All of the pre-legal work undertaken by such persons, exclusive of correspondence courses and such courses as the non-theory courses described above, must have been passed with an average grade of M[1] or better.

The School of Law may refuse admission to any person whose previous record shows work of an inferior or unsatisfactory quality.

SCHOOL OF MEDICINE: The requirements for admission to the School of Medicine are the satisfactory completion of (1) a four-year high school course or its equivalent, and (2) the first three years' work or 90 semester hours of credit (exclusive of the required work in physical education and military science) in the College of Arts and Science of the University of Missouri or its equivalent. This credit must include normal credit hours as follows:

English composition and literature, 6 hours; German or French, 8 hours; General Zoology, 8 hours, of which at least 4 hours must be laboratory work; General Physics, 8 hours, of which at

[1]The grades given in courses at the University of Missouri are indicated by the letters E, S, M, I, and F. These respectively represent the quality of the student's work as Excellent, Superior, Medium, Inferior, and Failing. When a student offers for admission work done at another institution, the equivalent of his grade average is determined by the University of Missouri.

least 2 hours must be laboratory work; Inorganic Chemistry, 8 hours, of which at least 4 hours must be laboratory work; Organic Chemistry, 5 hours, of which at least 2 hours must be laboratory work; General Bacteriology, 3 hours.

Those who have not passed the Junior English Examination as administered in the College of Arts and Science will be required to do so before the beginning of the second year of medical work.

Applicants will be required to take the Aptitude Test of the Association of American Medical Colleges. Only for good cause will this requirement be waived.

The Graduate School

Graduates of colleges and universities accredited by the Association of American Universities, the Association of Colleges and Secondary Schools of the Southern States, the Missouri College Union, or the North Central Association of Colleges and Secondary Schools who present satisfactory records will be admitted to the Graduate School.

Graduates of other colleges and universities of high standing and graduates of reputable foreign colleges and universities may be admitted to the Graduate School.

Missouri State Teachers Colleges: (1) A graduate of a Missouri State Teachers College whose first regular enrollment for college work in a Teachers College was subsequent to September 1, 1916, and who has completed the 120-hour curriculum, may be admitted to the Graduate School of the University upon presentation of the proper credentials.

(2) A graduate of a Missouri State Teachers College whose first regular enrollment for college work in a Teachers College was prior to September 1, 1916, may be granted credit in the University of Missouri in accordance with the Conference Agreement of State Educational Institutions. In granting such credit, the University will be governed by the recommendations of the Credentials Committee of the State Teachers College from which the student was graduated.

Entrance Conditions

Students may be admitted to those divisions requiring two years of college work for entrance conditioned in a small amount of the credit required. No deficiency in hours' credit is permitted for admission to the Schools of Medicine and Law.

Entrance conditions must be removed within two semesters, from the date of entrance.

Sources of Acceptable Credits

The credits required for admission to the undergraduate divisions, as detailed above, may be allowed: (a) by certificate from an accredited high school or academy, (b) by examination, (c) by transfer of credits from another university or college of recognized standing.

(a) Admission by Certificate.

The University will not accept a certificate of graduation unless the high school course of the student has been four years in length and unless all the work has been done in the regular session of the school, with the exception that credit will be allowed without examination from approved secondary summer schools.

The diploma will not be accepted as a credential. The student must present the proper form of certificate, signed by the principal or superintendent of the accredited school, recommending his admission to the University. *The University recommends that accredited schools issue these certificates only to those students who have been graduated.*

Students wishing to enter the University by certificate from an accredited high school or academy may obtain the necessary blanks from the Registrar. Certificates of credit should be submitted early. (See Directions for New Students, page 62).

(b) Admission by Examination.

All persons who desire to take the entrance examinations should first write to the Registrar, stating the name of the division which they desire to enter. Those who are eligible will be notified.

Entrance examinations are regularly held at the University at the beginning of the school year in September. (See calendar for date.) Entrance examinations may also be held at the beginning of the second semester and at the opening of the summer session when the demand warrants.

Extra examinations for entrance will be ordered only for good cause and only upon satisfactory evidence that the candidate could not attend the regular examination. By order of the Board of Curators, any person entering any extra or repeated entrance examination must pay a fee of $1 to the Secretary of the University.

Further information concerning entrance examinations may be obtained by addressing the Registrar, University of Missouri, Columbia.

(c) ADMISSION BY TRANSFER OF CREDITS FROM OTHER COLLEGES OR UNIVERSITIES.

A student who has been regularly admitted to another college or university of recognized standing will be admitted to this University upon presenting a certificate of honorable dismissal and an official transcript of record, provided his scholastic record in such college or university has been satisfactory. The transcript should include a statement of the subjects which were accepted for admission.

Credit in the form of advanced standing may be allowed for work satisfactorily completed in another college or university of recognized standing in so far as such work satisfies the particular requirements of the division of the University in which the student registers. (Advanced standing for the work of the senior year will not be granted.) Claims for advanced standing, in order to receive recognition, must be made by the student within one semester after entrance. If a student files with the Registrar complete official credentials at least six weeks before the opening of the semester, claims for advanced standing will be passed upon and the student notified before registration.

Admission from Accredited Junior Colleges: Graduates of accredited junior colleges will be admitted without examination to junior standing in the College of Arts and Science of the University, provided they have satisfied the entrance requirements and have paralleled the work of the first two years of the College.

Junior college graduates will also be admitted to other divisions of the University, except the Schools of Medicine and Law and the Graduate School, and receive credit for work they have completed in accordance with the regulations of such divisions.

Subjects Accepted for Admission: The subjects in which entrance units may be offered, the maximum and minimum number of units acceptable in each subject for admission to the Colleges of Arts and Science, Agriculture, and Engineering, are presented in the following:

Group A

	Max.-Min.
English Grammar and Literature	(4—3)
Speech	(1—½)
Voice Training and Interpretative Reading	½—½
Public Speaking	½—½
Debating and Parliamentary Practice	½—½
Drama	½—½
Mathematics	(4—1)
[1]General Mathematics	1—1
Elementary Algebra	1½—1
Plane Geometry	1—1
Solid Geometry	½—½
Plane Trigonometry	½—½
Advanced Algebra	½—½
Advanced Arithmetic	½—½

Group B

	Max.-Min.
Music	(4—½)
Fundamentals of Music	1—1
Appreciation	¼—¼
Chorus	½—¼
Glee Club	1—¼
Choral Club	¾—¼
Orchestra	1—¼
Band	1—¼
Ear Training	½—½
[5]Piano	2—½
[5]Violin	2—½
[5]Violoncello	2—½
[5]Viola	1½—½
[5]Voice	1—½
Art	(4—1)

Group A—Continued.

	Max.-Min.
Social Studies	(4—1)
Citizenship Practice	1—1
[2]World History	1—1
American History	1—1
[3]American Problems	1—1
Early European History	1—1
Later European History	1—1
High School Geography	1—½
Economics	½—½
Sociology	½—½
Civics	½—½
Missouri History	½—½
Science	(4—1)
General Science	1—1
General Biology	1—1
Physics	1—1
Chemistry	1—1
Botany	1—1
Zoology	1—1
Physical Geography	1—1
Physiology	1—½
[4]General Agriculture	2—1
Psychology	(½—½)
Foreign Language	(6—1)
Latin	4—1
German	4—1
French	4—1
Spanish	4—1
Greek	4—1

Group B—Continued

	Max.-Min.
Education (Teachers-Training)	(3—2)
Industrial Subjects	(4—1)
Mechanical Drawing	3—1
Woodwork	2—1
Pattern Making	1—½
Forging	1—½
Machine Shop	2—1
Automobile Repair	1—½
Sheet Metal	1—½
Electrical Work	1—½
Printing	2—1
Commercial Studies	(4—½)
Typewriting	1—½
Shorthand	2—1
Bookkeeping	1—1
Commercial Geography	½—½
Commercial Law	½—½
Commercial Arithmetic	½—½
Commercial English	½—½
General Business Practice	½—½
Salesmanship	½—½
Vocational Agriculture	(6—2)
Vocational Home Economics	(4—2)
General Home Economics	(4—1)
Foods and Clothing	1—1
Foods and Nutrition	1—1
Home Nursing	½—½
Home Management	½—½
Textiles and Clothing	1—1
Home Planning and Furnishing	½—½
Dietetics	½—½

[1]General Mathematics may not be offered with Elementary Algebra for entrance.

[2]World History may not be offered for entrance with Early and Later European History.

[3]American Problems will not be allowed with Economics, Civics or Sociology.

[4]A maximum of 2 units may be offered for entrance in General Agriculture if not accompanied by Vocational Agriculture. Agriculture may not be offered for the unit of required science. That unit must be selected from the physical or biological group.

[5]The maximum credit accepted in applied music is 2 units, the first ½ unit of which must be preceded or accompanied by the 1 unit course "Fundamentals of Music." Credit in applied music will be allowed by examination only, except in cases where the work was pursued in a Missouri high school in accordance with the agreement between the State Department of Education, the University, and the Missouri Music Teachers Association.

Admission of Special Students and Hearers

A person over twenty-one years of age who has not had the opportunity to complete a regular high school course but who, by reason of special preparation and attainments, may be qualified to pursue certain courses, may be admitted as a special student, though not as a candidate for a degree.

No person less than twenty-one years of age will be admitted to the status of special student, but it is particularly emphasized that attainment of this age does not in itself qualify one for admission to this status. The applicant may be required to pass such examinations, or other tests, as will demonstrate his fitness to pursue with profit the courses selected. A special student is

required to take all regular examinations in course and is expected to do at least average work; failure to live up to this expectation will result in his elimination by his dean. A special student may ultimately become a candidate for a degree by completing the admission requirements of the division in which he is enrolled.

A person who is able to satisfy the requirements for admission as a regular student will not be admitted as a special student.

Blank forms on which to make application will be furnished upon request.

Special students are not admitted to the Schools of Journalism, Law, or Medicine.

With the consent of the Registrar and the instructors concerned, students may be admitted to any division as hearers. Hearers must be registered and pay fees, but are not required to take examinations and receive no credit toward a degree.

Directions for New Students

Entrance

As a first step in securing admission to the University, all prospective students, both undergraduate and graduate, should file an application with the Registrar. Blank forms for application will be furnished by the Registrar on request. It is imperative also that new students (those entering the University of Missouri for the first time) send their complete credentials to the Registrar in advance of the semester, or summer session, in which they wish to enroll. In the case of a student who has attended college elsewhere, complete credentials include an official transcript of record and a certificate of honorable dismissal from each college or university attended. In the case of one who has not attended or completed college work elsewhere, credentials consist of a high school record certified by the proper official of the school in which the credits were earned. Blank forms for such certificates are furnished by the Registrar. Frequently high school students do not present sufficient acceptable units for admission. If their credentials are certified promptly to the Registrar, after graduation, those who are deficient will be notified in order that they may make up the deficiency. Students whose certificates have been accepted will receive full information regarding registration.

Registration

The dates of registration will be found in the University calendar on page 3. Full directions for registration will be found, during the days of registration, at the information desk located in the main corridor of Jesse Hall.

Students who have not filed their credentials with the Registrar before the days of registration should present themselves with

their credentials at the north entrance of the University Auditorium, Jesse Hall, during the days of registration. (See Directions for New Students, page 62.)

Former students should file a registration blank with the Registrar at least fifteen days in advance in order that their registration forms may be prepared.

A student who enters after the regular registration period may, owing to closed courses, find difficulty in securing the subjects he desires, and moreover, he is not permitted to carry the full amount of work, but must enroll for a proportionately reduced amount of work depending on the date of entrance. No student is admitted to any division of the University for work for which he is to receive credit after the expiration of one-fourth of the time for which the courses he selects are scheduled, except in extraordinary cases, when the Registrar has power to admit him on recommendation of the dean of the division. Students entering late are examined or conditioned in the work which their classes have already done. The foregoing statements do not apply to students entering as hearers.

For information regarding fees, see page 73.

ACCREDITED SCHOOLS IN MISSOURI

Accredited Colleges and Universities

[1]Central College	Fayette.
[1]Culver-Stockton College	Canton.
[1]Drury College	Springfield.
Harris Teachers College	St. Louis.
[1]Lindenwood College	St. Charles.
Missouri State Teachers Colleges:	
Central	Warrensburg.
Northeast	Kirksville.
Northwest	Maryville.
Southeast	Cape Girardeau.
Southwest	Springfield.
[1]Missouri Valley College	Marshall.
[1]Park College	Parkville.
St. Louis University and Corporate Colleges:	
[1]St. Louis University	St. Louis.
Fontbonne College	St. Louis.
Maryville College	St. Louis.
Webster College	Webster Groves.
[1]Tarkio College	Tarkio.
[1]University of Missouri	Columbia.
[1]Washington University	St. Louis.
[1]Westminster College	Fulton.
[1]William Jewell College	Liberty.

[1]Member Missouri College Union.

Accredited Junior Colleges

(List Corrected to January 1, 1939.)

Christian College	Columbia.
Cottey College	Nevada.
Flat River Junior College	Flat River.
Hannibal-LaGrange College	Hannibal.
Joplin Junior College	Joplin.
Junior College of Jefferson City	Jefferson City.
Junior College of Kansas City	Kansas City.
Kemper Military School	Boonville.
Moberly Junior College	Moberly.
Rockhurst College	Kansas City.
Southwest Baptist College	Bolivar.
St. Joseph Junior College	St. Joseph.
St. Teresa College	Kansas City.
Stephens College	Columbia.
Trenton Junior College	Trenton.
Wentworth Military Academy	Lexington.
William Woods College	Fulton.

Secondary Schools Fully Accredited with the University of Missouri

(List Corrected to January 1, 1939.)

Note—The University of Missouri will accept the certificate from any school accredited by the North Central Association of Colleges and Secondary Schools or by the Association of Colleges and Secondary Schools of the Southern States. Schools on this list marked with a star (*) are on the North Central Association list.

Abesville
Adrian
Advance
Affton:
  High School
  Bayless
Agency
Alba
Albany
Aldrich
Alma
Altamont
Alton
Amity
Amoret
Amsterdam
Anderson
Annapolis
Anniston
Appleton City
Arbyrd
Arcadia:
  *Ursuline Academy
Archie
Arcola
Armstrong
Ash Grove
Ashland
Atlanta
Augusta
*Aurora
Auxvasse
Ava
Avalon

Bakersfield
Baring
Barnard
Bates City
Belgrade
Bell City
Belle

Bellflower
Belton
Benton
Bernie
*Bethany
Bethel
Bevier
Bible Grove
Billings
Birch Tree
Bismarck
Blackburn
Blackwater
Blairstown
Bland
Blodgett
Bloodland
Bloomfield
Bloomsdale
Blue Eye
Blue Springs
Blythedale
Bogard
Bois D'Arc
Bolckow
Bolivar
*Bonne Terre
Bonnots Mill
Boomer:
  Forker
Boonville:
  *Laura Speed Elliott
  *Kemper Military School
  SS. Peter and Paul High School
Bosworth
Bourbon
Bowling Green
Bragg City
Braggadocio
Branson
Brashear
*Braymer
Breckenridge
Bronaugh
Brookfield
Broseley
Browning
Brumley
Brunswick
Bucklin
Buckner
Buffalo
Bunceton
Bunker
Burlington Junction
Butler:
  *High School
  Ballard
Butterfield
Bynumville

Cabool
Cainsville
Cairo
Caledonia
Calhoun
California
Callao
Camden
Camden Point
Camdenton
*Cameron
Campbell
Canalou
*Canton
Cape Girardeau:
  *Central High School
  St. Mary's High School
  St. Vincent's College Academy
  *Training School S. E. M. S. T. C.
*Cardwell
Carl Junction
*Carrollton
Carterville
*Carthage
*Caruthersville
Cassville
Center
Centertown
Centerview
Centerville
Centralia
Chadwick
Chaffee
Chamois
Charleston
Chilhowee
Chillicothe:
  *High School
  Hyde
  St. Joseph's Academy
Chula
Clarence
Clark

Clarksburg
Clarksdale
Clarksville
Clarkton
Clayton:
*High School
*Academy of Chaminade College
*John Burroughs
*Villa Duchesne
Clearmont
Cleveland
Clever
Clifton Hill
Climax Springs
Clinton
Clyde:
St. Benedicts'
Coffey
Cole Camp
Collins
Columbia:
*David H. Hickman
*University High School
Competition
Conception:
High School
*Academy of Conception College
Conception Junction
Concordia:
High School
St. Paul's College Academy
Conway
Cooter
Corder
Corning
Couch
Cowgill
Craig
Crane
Creighton
Crocker
Cross Timbers
*Crystal City
Cuba
Curryville

Dadeville
Darlington
Dawn
Dearborn
Deepwater
Deering
DeKalb
Delta
Des Arc
Desloge
*De Soto
De Witt
Dexter
Diamond
Diehlstadt
Dillard
Dixon
Doe Run
Doniphan
Dora
Dover
Downing
Drexel
Duenweg
Duncan's Bridge
Dunnegan
Durham

Eagleville
East Lynne
Easton
East Prairie
Edgerton
Edina:
High School
St. Joseph's High School
*Eldon
Eldorado Springs
Elkland
Ellington
Ellsinore
Elmer
Elmo
Elsberry
*Elvins
Eminence
Eolia
Essex
Esther
Ethel
Eugene
Eureka
Everton
Ewing
*Excelsior Springs
Exeter

Fairfax:
  High School
  Daleview
  Irish Grove
Fair Grove
Fair Play
Fairview
Farber
Farmington
Faucett
*Fayette
*Ferguson
Festus
Fillmore
Fisk
*Flat River
Flemington
Fordland
Forest City
Fornfelt
Forsyth
Fortescue
Frankclay
Frankford
Fredericktown
Freeburg
Freeman
Fremont
Fruitland
*Fulton

Gainsville
Galena
*Gallatin
Galt
Garden City
Gideon
Gilliam
Gilman City
Glasgow
Glencoe:
  *LaSalle Institute
Glenwood
Golden City
Goodman
Gorin
Gower
Graham
Grain Valley
Granby
Grand Pass
Grandview (Jackson County)
Granger
Grant City
Grayson
Green Castle
Green City
Greenfield
Green Ridge
Greentop
Greenville
Greenwood
Guilford

Hale
Halfway
Hallsville
Halltown
Hamburg:
  Francis Howell
Hamilton:
  High School
  N. Y. Township
Hannibal:
  *High School
  Immaculate Conception
Hardin:
  High School
  Central
Harris
Harrisburg
*Harrisonville
Hartville
Harwood
Hatfield
Hayti
Helena
Henrietta
Herculaneum
Hermann
Hermitage
Hickman Mills:
  Ruskin
Higbee:
  High School
  Myers
Higginsville
Highlandville
Holcomb
Holden
Holland
Holliday

Hollister:
  High School
  *School of the Ozarks (P. O. Point Lookout)
Holt
Hopkins
Hornersville
Houston
Houstonia
Hughesville
Humansville
Hume
Humphrey
Hunnewell
*Huntsville
Hurdland
Hurley

Ilasco
Illmo
Independence:
  *William Chrisman
Irondale
Ironton

*Jackson
Jameson
Jamesport
Jamestown
Jasper
Jefferson City
  *Ernst Simonsen
  *St. Peter's
Jennings
Jerico Springs
Jonesburg
Joplin:
  *High School
  St. Peter's

Kahoka
Kansas City:
  *Academy of St. Teresa Junior College
  *Barstow School
  *Center
  *Central
  De La Salle Academy
  *East
  *Institute of Notre Dame de Sion
  *Loretto Academy
  *Manual Training
  *Northeast
  *Paseo
  *Pembroke Country Day School
  *Redemptorist
  *Rockhurst College Academy
  Ruhl-Hartman
  *Southwest
  *St. Agnes Academy
  *St. Aloysius Academy
  *St. Vincent's Academy
  *Sunset Hill School
  *Westport
Kearney
*Kennett
Kewanee
Keytesville
Kidder
King City
Kingston
Kingsville
Kirksville:
  *High School
  Training School N. E. M. S. T. C.
Kirkwood:
  *High School
  *Ursuline Academy
Knobnoster
Knox City
Koshkonong

LaBelle
Laclede
Laddonia
La Grange
Lake Ozark:
  School of the Osage
Lamar
Lamonte
Lancaster
La Plata
Laredo
Latham
Lathrop
Latour
Lawson
Leadwood
*Lebanon
Lees Summit
Leeton
Lemay:
  Mehlville
Lemons

Leonard
Lesterville
Lewistown
Lexington:
*High School
*Wentworth Military Academy
Liberal
*Liberty
Licking
Lilbourn
Lincoln
Linn
Linn Creek
Linneus
Livonia
Lock Springs
Lockwood
Lonejack
Longwood
Louisburg
Louisiana
Lowry City
Lucerne
Ludlow
Luray
Lutesville

McFall:
High School
Grandview
Macks Creek
Macon
Madison:
High School
Middle Grove
Maitland
Malden
Malta Bend
Mansfield
*Maplewood
Marceline:
High School
St. Bonaventure
Marionville
Marquand
Marshall:
*High School
Mercy Academy
*Marshfield
Marston
Marthasville
Martinsburg
Martinsville
Maryville:
*High School
*Training School N. W. M. S. T. C.
Matthews
Maysville
Mayview
Maywood:
Emerson
Meadville
*Memphis
Mendon
Mercer
Merwin
Metz
Mexico:
*McMillan
*Missouri Military Academy
St. Brendan
Miami
Middletown
Milan
Miller
Millville
Mindenmines
Mine La Motte
Mirabile
Missouri City
*Moberly
Mokane
*Monett
Monroe City
*High School
Holy Rosary Academy
Montgomery City
Monticello
Montrose:
High School
Johnstown
Mooresville
Morehouse
Morley
Morrisville
Mound City:
*High School
Bellevue
Mountain Grove
Mountain View
Mt. Moriah
Mt. Vernon

Napton
Naylor
Neelyville
Nelson
Neosho
*Nevada
Newark
New Bloomfield
Newburg
New Cambria
New Florence
New Franklin
New Hampton
New Haven
New London
*New Madrid
New Point
Newtonia:
  Midway
Newtown
Niangua
Nishnabotna
Nixa
Noel
Norborne
Normandy:
  *High School
  *Incarnate Word
  Passionist Preparatory Seminary
*North Kansas City
Norwood
Novelty
Novinger
Nuroad:
  Berkeley

Oak Grove
Oak Ridge
Odessa
O'Fallon:
  Assumption High School
  St. Mary's High School
Olean
Oran
Oregon
Orrick
Osborne
Osceola
Otterville
Owensville
Overland:
  *Ritenour
Ozark

Pacific
*Palmyra
*Paris
Parkville
Parma
Parnell:
  High School
  Gaynor
Patterson
Patton
Pattonsburg:
  High School
  Civil Bend
Pattonville
Paynesville
Peculiar
Perry
Perryville:
  High School
  *St. Vincent's
Philadelphia
Phillipsburg
Pickering
Piedmont
Pierce City
Pilot Grove
Pineville
Platte City
Plattsburg
Pleasant Hill
Pleasant Hope
Pollock
Polo
Poplar Bluff
Portageville
Potosi
Powersville
Prairie Hill
Prairie Home
Preston
Princeton
Purdin
Purdy
Puxico

Queen City
Quitman
Qulin

Randles
Ravanna

Ravenwood:
  Harmony
  High School
Raymore
Raytown
Reeds Spring
Rensselaer
Republic
Revere
Richards
Rich Hill
Richland
*Richmond
Ridgeway
Risco
Riverview Gardens
Roanoke
Rockport
Rockville
Rocky Comfort
Rogersville
*Rolla
Roscoe
Rosendale
Rothville
Rushville
Russellville
Rutledge

St. Charles
  *High School
  *Academy of Sacred Heart
  St. Peter's
St. Clair
Ste. Genevieve:
  High School
  Valle High School
St. James
St. Joseph:
  *Benton
  *Central
  *Christian Brothers
  *Convent of Sacred Heart
  *Lafayette
  Oak Grove
  Pickett
St. Louis:
  *Academy of Sacred Heart
  *Academy of the Visitation
  *Beaumont
  *Blewitt
  *Central
  *Christian Brothers
  Fairview
  *Grover Cleveland
  Hancock, 9427 S. Broadway
  *Loretto Academy
  *William Cullen McBride
  *McKinley
  *Notre Dame High School
  *The Principia
  *Roosevelt
  *Rosati-Kain
  St. Alphonsus
  St. Anthony's Academy
  *St. Elizabeth's Academy
  St. Francis Xavier High School
  St. John's
  *St. Joseph's Academy
  *St. Louis University
  *St. Mark's
  *Soldan
  *South Side Catholic High School
  Southwest
  Y. M. C. A. Evening High School
St. Mary's
St. Patrick:
  St. Patrick's High School
Salem
Salisbury:
  High School
  St. Joseph's
Sarcoxie
*Savannah
Schell City
Sedalia:
  *Smith-Cotton
Seligman
Senath
Seneca
Seymour
*Shelbina
Shelby
Shelbyville
Sheldon
Sheridan
Sikeston
Silex
Skidmore
Slater
Smithton
*Smithville
Southwest City
Sparta

Spickard
Spokane
Springfield:
*Greenwood
*High School
St. de Chantal Academy
*Stanberry
Steele
Steelville
Steffensville
Stella
Stet
Stewartsville
Stockton
Stotesbury
Stoutland
Stover
Strafford
Strasburg
Sturgeon
Sullivan
Summersville
Sumner
Swedeborg
*Sweet Springs
Syracuse

*Tarkio
Thayer
Thomas Hill
Thomasville
Thornfield
Tilden
Tina
Tipton
*Trenton
Triplett
*Troy
Tunas
Turney
Tuscumbia
Union
Union Star
*Unionville
*University City
Urbana
Urich
Utica

Valley Park
Van Buren
Vandalia
Vanduser
Verona
Versailles
Vienna

Wakenda
Walker
Walnut Grove
Wardell
Warrensburg:
High School
Farmers
*Training School C. M. S. T. C.
Warrenton
Warsaw
Washburn
*Washington
Watson
Waverly
Wayland
Waynesville
Weatherby
Weaubleau
*Webb City
Webster Groves:
*High School
*Brentwood
Nerinx Hall
Wellington
*Wellston
Wellsville
Westboro
Weston
Westphalia
*West Plains
Wheatland
Wheaton
Wheeling
Willard
Williamstown
Williamsville
Willow Springs
Windsor
Windyville
Winfield
Winona
Winston
Worth
Wright City
Wyaconda

Yates

Zalma

EXPENSES

Tuition and Fees

Fees: All statements as to fees contained in this catalog are by way of announcement only for the school year covered by this catalog, and are not to be regarded as offers to contract on the basis of those statements, inasmuch as the University expressly reserves the right to change any and all fees and other charges at any time, without any notice being given in advance of such a change.

Time of Payment of Fees: All University fees must be paid in full at the time of registration at the opening of each semester or term as a condition of admission to classes. Registration is not complete until all fees are paid.

Personal Checks: Personal checks in payment of fees or other obligations to the University will be accepted only when the check does not exceed the amount due from the student.

Reinstatement Fee: A student who presents a check to the University which for any reason is not honored by the bank upon which it is drawn will automatically be suspended from the University and will be reinstated only upon payment of the check and a reinstatement fee of $5.00.

Tuition: Tuition is free in all divisions of the University to students who are residents of the State of Missouri.

Non-Resident Fee: Students who are non-residents of the State excepting those admitted only to the Graduate School for a majority of their work are each required to pay a tuition fee of $40.00 a semester.

The burden of registering under the proper residence is placed upon the student and it is the duty of each student at registration, if there is any possible question of his right to legal residence in Missouri, under the rules of the Curators, to raise the question with the Secretary of the University previous to registration.

No person shall be considered eligible to register in the University as a resident of the State of Missouri unless he is a citizen of the United States who has been a bona fide resident of the State of Missouri for at least one year immediately preceding the date of his original or subsequent enrollment. Where one having originally registered as a non-resident of Missouri claims thereafter to have established a residence in the State exempting the in-

dividual from payment of non-resident fees, evidence of the good faith of such change of residence, verified by oath, and of a character satisfactory to University authorities, must be produced. Where one at time of registration is a resident of Missouri and shall thereafter lose residence in this State, it shall be the duty of such student to advise the Secretary of such change at the next period of registration and make payment of fees as such non-resident.

The residence of students shall follow that of the legal guardian regardless of emancipation; but in case a resident of Missouri is appointed guardian of a non-resident minor, the legal residence of such minor for the purpose of this rule shall not be considered to be established in the State of Missouri until the expiration of at least one year after such appointment.

The residence of wives shall follow that of husbands.

Aliens who have taken out their first citizenship papers and who have been bona fide residents of the State of Missouri for at least one year immediately preceding the date of their original or subsequent enrollment in the University shall be regarded as eligible for registration as residents of Missouri.

Students who have not been bona fide residents of the State of Missouri for at least one year immediately preceding the date of their original or subsequent enrollment in the University, and who claim to own property in Missouri, and whose parents do not live in Missouri shall not be exempt from the non-resident fee.

Students who claim they have no permanent residence, but who have not been bona fide residents of the State of Missouri for at least one year immediately preceding the date of their original or subsequent enrollment in the University may not claim exemption from the non-resident fee.

Students who claim to be supported wholly or in part by relatives (not parents or guardians) residing in Missouri, but who themselves have not been bona fide residents of the State of Missouri for at least one year immediately preceding the date of their original or subsequent enrollment in the University may not claim exemption from the non-resident fee.

Students living in the states bordering on Missouri but who receive mail at a Missouri postoffice may not claim exemption from the non-resident fee.

No student shall be considered to have gained or lost residence while he is a student at this institution. Where it can be definitely determined that the parents of the student in question have taken up permanent residence in this state the student may then change his residence to follow that of his parents.

LIBRARY, HOSPITAL AND INCIDENTAL FEE: All students in the University, except those especially exempt by rules of the Curators (see page 88), are required to pay a library, hospital and incidental fee as follows:

For one semester of 18 weeks.....	$30.00
For summer session of eight weeks....	20.00

Students who are permitted to carry work leading to not more than eight credit hours, or less than four, during a semester will be admitted upon the payment of an incidental fee of $15.00 a semester. Students in the summer session who are permitted to carry work leading to four hours credit or less will be admitted upon the payment of an incidental fee of $10.00. Students enrolling in the regular session for less than four credit hours will be admitted upon payment of an incidental fee of $3.50 per credit hour. For the purpose of this rule, courses taken as a hearer and courses taken for reduced credit will be counted at their normal credit value in making up the eight hours, or the four hours.

Candidates for an advanced degree who have completed in a previous semester or term all requirements but the final examination and the submission to the Graduate faculty of a thesis (if required), and who are not regularly enrolled in the Graduate School, must enroll in the Graduate School before the examination may be given or the thesis read. Such students must enroll for "Examination" for no hours credit and pay an incidental fee of $5.00. Students who enroll under this rule are not entitled to the in-patient hospital service.

MEDICAL ATTENTION

Students paying the full library, hospital and incidental fee shall be entitled to free medical attention and hospital care insofar as the facilities of the University Hospitals are available for such care. During epidemics which necessitate the hospitalization of large numbers of students so that the normal or expanded facilities of the University Hospitals are over-taxed, the University, although it cannot under such circumstances assure hospital care to all students, will attempt to provide such temporary arrangements for the care of students as, in the judgment of the Student Health Service, are deemed to be most satisfactory for the care of the affected students.

Students carrying from four to eight hours inclusive and therefore paying less than the full library, hospital, and incidental fee shall be entitled to free consultations with the staff of the Student Health Service but not to other hospital privileges without payment of the regular hospital charges.

Students carrying less than four hours during the regular session shall not be entitled to any health facilities without payment of the regular charges.

University Concerts

Students paying the full library, hospital and incidental fee in the regular session shall be entitled to general admission to the University concert series.

Students carrying from four to eight hours, inclusive, and, therefore, paying less than the full library, hospital and incidental fee in the regular sessions shall be entitled to a slight reduction in the regular admission fee charged for all University concerts which they attend.

Supplementary Law Library Fee: A supplementary law library fee of $10.00 per semester shall be paid by each student registered in the School of Law and by each student registered in other schools who takes one or more courses in the School of Law.

Supplementary Medical School Fee: Each student registered in the School of Medicine and each student registered in other schools or colleges taking more than six hours work in the School of Medicine, shall pay a supplementary medical school fee of $20.00 per semester in addition to the library, hospital and incidental fee and laboratory fees. (For the purpose of administering this regulation the courses entitled "Preventive Medicine" and "Elements of Physiology" shall not be considered as courses in the School of Medicine.)

Laboratory Fees: A fixed charge is made for the individual courses which include laboratory work, and for other courses in which material or equipment is required. This fixed charge or fee is made for materials used and depreciation of equipment as ascertained by experience in each particular laboratory and course.

The laboratory charges for each semester vary from $1.00 to $16.00 in accordance with the course chosen.

Extra charges for breakage, etc., may be made in case the loss to the University is not covered by the regular charge.

Military Deposit: Military equipment, including a uniform, is furnished to each student taking a course in military, for which a deposit of $5.00 is required for the session (or semester). This deposit will be returned to the student when the uniform and equipment are returned in satisfactory condition. All students enrolled in either basic or advanced courses are required to sign an agreement to reimburse the University for any loss or damage in excess of the deposit. This requirement also applies to members of the University Band.

MUSIC FEES: In addition to the library, hospital and incidental fee there is a charge of $30.00 for each subject in Applied Music.

NON-COURSE FEES: There are special charges for equitation, swimming, golf, tennis, etc.

FEE FOR LATE REGISTRATION: Every student who files his study card after the close of the last day of registration must pay a fee of $5.00 for late registration in addition to fees already provided for. This rule applies to all except "hearers".

FEE FOR CHANGE IN COURSE: A fee of $1.00 must be paid for each petition or change in course after the 10th calendar day following the last day of registration.

TRANSCRIPT FEE: A fee of $1.00 is charged for duplicate transcript of credits.

FEE FOR DIPLOMA AND CERTIFICATE: A diploma fee of $5.00 must be paid for each degree taken in the University, and a fee of $2.00 for each certificate. Those receiving Ph. D. degrees are furnished hoods, the fee for which is $15.00.

REFUND OF FEES: Students leaving school or dropping courses for which they have paid fees, prior to the close of the first eight weeks after their registration, will receive a refund of the fees paid in accordance with the following schedule:

Length of Residence.	*Amount of fee to be refunded.*
First two weeks	80%
Between two and four weeks	60%
Between four and six weeks	40%
Between six and eight weeks	20%
After eight weeks	No refund

Exceptions to this rule are: Library fines, reinstatement fees, transcript fees, duplicate student card charges, petition fees, and those cases where excess laboratory materials or hospital services have been used by the student.

Each member of the University Cadet Band who completes the course will have a part of his library, hospital and incidental fee refunded at the close of the session upon a report from the director of the band and the commandant of cadets showing that his work has been satisfactory and provided he has turned in and properly accounted for his uniform and other equipment issued him.

Student Expenses

Students are advised to live simply and to avoid needless expense. Parents should not permit excessive expenditures for any purpose. The attempt to maintain one's self on a semi-luxurious scale of living is not only unnecessary but detrimental to good scholarship, conduct and health. The amount of money spent during one semester by a student of limited means at the present time need not exceed $200.00, although the expenses of the average student will probably be slightly in excess of that amount. A number of students earn a part of their expenses while attending the University by means of clerical and stenographic work, housework, and many different forms of manual labor. Before coming to Columbia the prospective student should attempt to provide himself with sufficient funds to cover at least one semester at the University so that it will not be necessary for him to work until he has become adjusted to his new environment. Former students should not attempt to reenter the University unless thay have at least $100.00 on hand or available during the semester and the prospect of securing sufficient part-time employment or assistance through some other source to cover their expenses for a semester. The following table gives an estimate of the expenses for one semester, which is eighteen weeks in length:

Estimated Average Expense for One Semester

Fees	$38
Board	90
Room	45
Laundry and cleaning	17
Books and supplies	15
Miscellaneous	20
Total	$225

This estimate shows the expenses of the *average* male student. Expenses for a woman will usually be somewhat greater than the estimate average. Non-resident students are required to pay an additional non-resident tuition fee of $40.00 a semester. Miscellaneous expenses listed above cover amusements, organization dues, etc. Some saving may be made in them. The item for books and stationery may vary with the college or school in which work is taken. No provision is made in the estimates for clothing and travel expenses.

Room and Board

The majority of students enrolled in the University are accommodated in private rooming and boarding houses.

The monthly rate paid for rent of rooms varies according to location and quarters. The price varies from $5 to $12 monthly per person. A few students pay more than this for special quarters. A satisfactory room may be secured from $8.00 to $10.00 per person per month (two in a room). The rate for table board varies from $4.25 to $6.50 a week.

The University compiles an approved list of rooming houses which may be secured upon application to the Secretary of the University.

Regulations for rooming houses may be secured from the proper University authorities.

Dormitory for Men

The University does not maintain a dormitory for men.

Knights of Columbus Dormitory for Men: The Knights of Columbus Student Home has rooms for seventy-two students. Applications should be addressed to the Secretary, The Knights of Columbus Student Home, Columbia, Missouri.

Dormitories for Women

University Dormitory for Women: It is planned to begin construction of a dormitory for women. This dormitory will be completed as soon as possible.

Hendrix Hall for Women: This dormitory erected by the Methodists, is located one-half block from each campus. It is a brick-and-stone building, modern in every respect. It has rooms for eighty-seven young women, dining room for one hundred twenty-five, parlors, playroom, fudge kitchen, and laundry.

The rent of rooms varies according to location and size. Applications for room, which include applications for board, should be made to the Director of Hendrix Hall, Columbia, Missouri. The Director will be glad to supply information concerning the dormitory as well as a schedule of charges made for rent of rooms and for table board.

The Hall is supervised by a capable woman and is governed by the regulations for all University women, made by the Women's Self-Government Association.

SOURCES OF AID TO STUDENTS

Financial aid to University of Missouri students enrolled in residence at Columbia is offered in the form of fellowships, scholarships, assistantships, prizes and awards, student loan funds, and employment. In extending financial aid, the University, through its officials and committees, attempts to select as recipients of such financial aid, those students who, by virtue of their need, character, and ability, can qualify for such assistance. It is the policy of the University to extend aid to those students who require such aid to furnish them with the actual necessities of life during the time they are enrolled in the University and not for items in addition thereto. Even with this restricted policy it is not possible to provide assistance for all students who need it and who are willing to make sacrifices to continue their education.

In assigning students to employment, wherever possible the student's vocational aptitudes are taken into consideration and he is assigned to a job which is in keeping with his special interests and training. However, it is frequently necessary to assign the student to work of a non-technical nature.

EMPLOYMENT BUREAUS: Employment bureaus are maintained by the University for the purpose of obtaining work for those students who find it necessary to earn a part of their expenses. These bureaus guarantee no one a position but try to help all those who apply. Men desiring information regarding employment should write to the Secretary of the Employment Bureau, Lowry Hall, Columbia, Missouri. Women should write to the Director of Student Affairs for Women, Jesse Hall, Columbia, Missouri.

STUDENT LOAN FUNDS: There are several trust funds, administered for or by the Board of Curators, the income from which is available for loans to students enrolled in the University of Missouri who need financial assistance. Financial aid is not usually extended to students during the first semester of their first year and only in exceptional cases are loans made during the first year. Real financial need, economy of expenditures, and good scholarship and conduct are necessary to secure consideration for a loan. Applications from students whose expenses exceed the average minimum will not be considered. All applications for loans must be filed at least two weeks in advance of the time the assistance is desired. Inquiries for further information should be addressed to the Secretary of the University. A brief description of these funds follows:

THE ANTHONY W. ROLLINS EDUCATIONAL AID FUND: In 1845 a fund of $10,000 for the purpose of providing financial assistance to residents of Boone County was established by Anthony W. Rollins, M. D. Three-fourths of the annual interest on the fund is devoted to the education of youths of Boone County, and the remaining one-fourth is added to the principal. The permanent fund now amounts to about $60,000. Part of the annual income is available to University students resident in Boone County, preference being given to such as evince an inclination to prepare to preach the gospel. A blank form on which application for aid from this fund may be made will be furnished by the Secretary of the University upon request.

THE ANTHONY W. ROLLINS LOAN FUND: This fund amounting to approximately $19,000 which accumulated from the income on the principal of the fund established by Anthony W. Rollins, M. D., is invested and the income therefrom is available for loans to students, preference being given to "such poor and indigent youths of Boone County, both male and female, as are unable to educate themselves" and to "such as evince an inclination to preach the gospel". Applications for loans from this fund should be made to the Secretary of the University.

THE WILLIAM ALEXANDER GREGORY EDUCATIONAL FUND: By the terms of the will of the late Charles R. Gregory of St. Louis, the residue of his estate, amounting to approximately $300,000, after providing for numerous bequests to charitable institutions, was left to the University of Missouri to create the above fund, named in honor of his brother. The will directs that the principal shall be invested by the Board of Curators in a safe and prudent manner, and that the income "shall be used in assisting white students of either sex in obtaining an education in any of the courses of said institution." The income is administered by a committee appointed by the President of the University.

A part of the income is used for the establishment of the Gregory Fellowships and Scholarships, awards being made only to persons whose scholarship is satisfactory and whose need of financial assistance has been proved to the committee.

A further part of the income is set aside as a loan fund to be used for making loans to students who have made clear their intellectual ability, their integrity, and their need of such assistance. Applicants for loans from this fund must see personally the secretary of the committee before their applications will be considered by the committee. Inquiries for further information should be addressed to the Secretary of the University.

THE YEATER-WATSON LOAN FUND: This fund consists of moneys collected under the provisions of the Act of April 1, 1895,

providing for the endowment of the University and for the establishment and endowment of free scholarships of merit.

It is named in honor of Charles E. Yeater of Sedalia, who conceived the idea, and Drake Watson of New London, who introduced the bill in the legislature.

The amount of the principal is approximately $26,000. The income is loaned to students who are worthy of such assistance. Applications for loans should be made to the Secretary of the University.

THE ST. LOUIS REPUBLIC LOAN FUND: This fund was established by the St. Louis Republic, a former newspaper of St. Louis, through the efforts of the editor, Paul Brown. The fund amounts to approximately $3,000 and is loaned to worthy students in the College of Agriculture. Applications for loans from this fund should be made to the Secretary of the University.

THE JOHN D. PERRY FUND: This fund was established by the late Mary E. Perry of St. Louis, and is named in memory of her father, John D. Perry, of St. Louis. The fund is "for the financial assistance of such students in attendance at the University of Missouri, as shall appear from time to time to need and deserve such assistance while pursuing their studies." Full information regarding the possibility of securing aid from this fund will be supplied by the Secretary of the University.

THE JAMES C. REID LOAN FUND: This fund was established by the late James C. Reid of Columbia, Boone County, Missouri, the income of which is to be used "to educate poor, industrious and worthy young men and women of Boone County, Missouri, in the State University ..... each applicant for any of said money to have the written recommendation of three reputable persons to the effect that said applicant is a Christian person and of good standing in the community.....if there are more applicants any one year than money to supply them, preference, other things being equal, to be shown to young women." Applications for loans from this fund should be made to the Secretary of the University.

LOAN FUND OF THE CLASSES OF 1908, 1909, 1910: Established by the classes of 1908, 1909 and 1910 for the purpose of extending financial assistance to needy and deserving students. This fund was formerly administered by a committee selected for that purpose, but was turned over to the Curators of the University of Missouri on April 2, 1927, to be administered on the same conditions as the William Alexander Gregory Educational Fund. Applications for loans from this fund should be made to the Secretary of the University.

LOAN FUND OF THE CLASS OF 1912: Established by the Class of 1912 for the purpose of extending financial assistance to needy and deserving students. Applications for loans from this fund should be made to the Secretary of the University.

KAPPA BETA STUDENT LOAN FUND: Established by the Delta Chapter of the Kappa Beta Sorority on May 6, 1929, to be loaned primarily to freshmen and sophomore women students in the University of Missouri.

ALPHA EPSILON PHI LOAN AND SCHOLARSHIP FUND: Established at the University of Missouri on July 5, 1930, by the Alpha Epsilon Phi Sorority. The loans from this fund are to be made under conditions similar to those governing the William Alexander Gregory Educational Fund.

ROBERT JEROME CLARK FUND: This fund was left in trust to the Curators of the University of Missouri to be used by them in any manner they may deem best for the University.

JOHN HOMER BOTHWELL FUND: The sum of $5,000 has been left by John H. Bothwell of Sedalia, Missouri, as a trust fund to the Curators of the University of Missouri. The trust fund now consists of five $1,000.00 5% direct obligation Bollinger County, Missouri, road bonds, a bank certificate of deposit for $288.12 bearing 1% annual interest, and a cash balance of $156.39. The income account consists of notes receivable amounting to $1,017.76 and a cash balance of $174.92. Three-fourths of the income from this fund is available for loans to students in the University of Missouri. In accordance with the terms of the will preference will be given to students from Pettis County, Missouri.

J. WARREN WHIFFIN FUND: Established by James Warren Whiffin of Kansas City, Missouri, the income from which is to be used in assisting worthy young men and women to attend the University of Missouri who are financially unable to attend it without such assistance. The principal now consists of property in Kansas City, Missouri, the income from which, according to court order, must be used to pay certain annuities. This income will not be available for student loans for some time.

CHARLES KIEPE FUND: This fund was established by Charles Kiepe of Cape Girardeau, Missouri. The income from the principal is to be used to assist students in the University to secure an education. Preference shall be given to those enrolled in the College of Agriculture.

HARRY J. DIFFENBAUGH FUND FOR DESERVING STUDENTS: The will of Harry J. Diffenbaugh of Kansas City, Missouri, provides for a trust fund of $50,000 under the trusteeship of the Board of Curators which shall be invested and the income therefrom loaned to worthy, deserving and needy students attending the University of Missouri.

UNIVERSITY OF MISSOURI FORTNIGHTLY CLUB LOAN FUND: Established by the Fortnightly Club, Columbia, Missouri, to be used as a loan fund for "girls who are applicants for a degree in the University of Missouri and who are graduates of one of the high schools of the state, and who shall be judged by their integrity, intellectual ability, and need for such assistance." Applications for loans from this fund are to be made to the Secretary of the University.

ROTARY CLUB LOAN FUND: This fund has been established by the Rotary Club of Columbia, Missouri, the principal and income to be used as a loan fund to worthy and needy students of the University. Loans from this fund are to be made under conditions similar to those governing the William Alexander Gregory Educational Fund.

WILLIAM S. BAKER EDUCATIONAL LOAN FUND: Established by William S. Baker of Sedalia, Pettis County, Missouri, with the provision that three-fourths of the income shall be loaned to needy students of Pettis County, Missouri. The income according to the will must be used to pay an annuity. This fund will not be available for student loans for some time.

MISSOURI ALUMNAE LOAN FUND: Established by the University of Missouri Alumnae Association of St. Louis to extend financial assistance to women residents of Missouri, with preference to be given to women from St. Louis and St. Louis County, needing money to continue their education at the University. The applicant must have completed at least one semester of college work with a satisfactory record. Students receiving help from this fund are required to give a promissory note or notes for the amount loaned to them and to make payments under conditions which will be made known upon application to the Secretary of the University.

A. J. MEYER MEMORIAL FUND: Established by the Missouri County Agricultural Agents Association in memory of A. J. Meyer, formerly Director of agricultural extension work in Missouri. The principal and interest of this fund is to be used for loans to junior and senior students in the College of Agriculture, "whose preparation, character and ability would in general qualify them for efficient service in the Agricultural Extension Service." Applications and requests for further information should be made to the Secretary of the University.

FOUNDATION OF THE COLLEGE OF ENGINEERING LOAN FUND: A loan fund established by members of the Foundation of the College of Engineering to assist worthy and deserving students enrolled in the College of Engineering. Loans from this fund will be made upon the recommendation of the Student Loan Fund

Committee with the approval of a Committee selected by the Foundation. Applications should be made to the Secretary of the University.

ST. LOUIS PAN-HELLENIC ALUMNAE ASSOCIATION LOAN FUND: Established at the University of Missouri on June 2, 1936, by the St. Louis Pan-Hellenic Alumnae Association, primarily for junior and senior women students enrolled in the University of Missouri. Only needy and deserving students of approved character and ability may receive assistance from this fund.

FARM BUREAU FRESHMAN LOAN FUND: Established by the Missouri Farm Bureau Federation to constitute a loan fund for needy freshmen in the College of Agriculture whose parents are members of the Missouri Farm Bureau and who are endorsed by the county farm bureau president, the county home and community chairman, and the local home demonstration or agricultural extension agent.

WOMEN'S EXTENSION CLUB LOAN FUND: Established by the Women's Extension Club, Columbia, Missouri, to be loaned to seniors in the College of Agriculture on the basis of financial need, scholastic ability, and character.

MISSOURI HOMEMAKERS' ASSOCIATION LOAN FUND: Provided by contributions from the rural women's clubs of Missouri as a loan fund for rural freshmen entering or enrolling in any school or college in the University who are unable to secure financial help from other sources. Preference will be given to earnest and industrious students desirous of obtaining an education and coming from families affiliated with agricultural extension clubs.

DELTA SIGMA PI LOAN FUND: A loan fund established in 1938 by the Alpha Beta chapter of Delta Sigma Pi, international commerce fraternity, primarily for the benefit of students in the School of Business and Public Administration.

PETER POTTER LOAN FUND: A fund provided by Dr. Peter Potter for students enrolled in the School of Medicine who need financial assistance and who meet the requirements.

UNIVERSITY OF MISSOURI MEDICAL SCHOOL FOUNDATION FUND: Loans from this fund are available to graduates of the University of Missouri who need financial assistance for the completion of the last two years of the medical curriculum in another school of medicine. For further information write to Dr. C. W. Greene, Secretary of the Foundation.

KNIGHTS TEMPLAR EDUCATIONAL FOUNDATION: A student loan fund is made available by the Knights Templar of Missouri to assist worthy students during the junior and senior years of their college course. Loans are not advanced to graduates of

junior colleges until they have satisfactorily finished one semester in a senior college. Satisfactory personal security is required by the Foundation. Part of this fund is available to University of Missouri students. For further information write Miss Elizabeth Daniel, Assistant Secretary, Box 333, Warrensburg, Missouri or apply in person to Mr. B. C. Hunt, Columbia Savings Bank, Columbia.

OTHER LOAN FUNDS: There are other loan funds, the donors of some of which do not desire their names mentioned, which are available to students. Information regarding loans from these funds may be secured upon application to the Secretary of the University.

FELLOWSHIPS, SCHOLARSHIPS, PRIZES

University Fellowships and Scholarships

The University offers annually a limited number of University Fellowships, yielding each a stipend of $600 a year. These fellowships will be awarded, according as the applicants, irrespective of department, have successfully completed at least one year of graduate study and have demonstrated their ability to render service in the form of research. The University offers also a limited number of scholarships bearing stipends of $300 annually, open to graduate students of high promise in scholarship, irrespective of the lines of work they may desire to pursue. It is expected that scholars will be well qualified to do graduate work in the subjects they elect and that they will devote themselves mainly to work in these subjects.

University fellows and scholars are allowed to engage in outside work only with the consent of the Dean of the Graduate Faculty and the professor of the subject that they elect as major. The Executive Board, upon the recommendation of the dean and the professor, may deprive any student of his fellowship or scholarship, whenever it may appear that he is not devoting himself as he should to his work as fellow or scholar.

Applications must be filed not later than March 1, in order to receive consideration in the award for the following academic year. Applications received after this date and not later than June 1, will be considered in filling any vacancies that may occur in the fellowships or scholarships. Application blanks may be obtained from the Registrar of the University, and when filled out should be sent to the Dean of the Graduate Faculty, Columbia, Missouri.

Peabody Scholarship in Education: In June, 1912, the trustees of the Peabody Education Fund gave the University the sum of $6,000 on condition that it be held and used as the endowment of the Peabody Graduate Scholarship in Education. The annual income from this fund will be paid to the holder of the scholarship. The award will be made in the same manner as the University Scholarships.

Volker Scholarship in Social Service: William Volker of Kansas City has established in the department of sociology, in order to encourage training in social welfare work, a graduate

scholarship of the annual value of $400. The scholarship will be awarded upon the same conditions as apply to University Scholarships.

EDWARD K. LOVE FELLOWSHIPS: In December, 1938, the Board of Governors of the Edward K. Love Foundation for Wildlife Conservation, established two fellowships amounting to $500 each. One fellow is to pursue the study of some phase of aquatic biology, and the other is to study some problem relating to the fur-bearing mammals. Preference will be given to graduates of accredited Missouri colleges, and a fellowship may be continued for two years.

TEACHING FELLOWSHIPS AND GRADUATE ASSISTANTSHIPS: A limited number of Teaching Fellowships and Graduate Assistships, which entitle the holder to a stipend up to six hundred dollars for the two semesters according to the service rendered, are available in the several departments, including agricultural economics, agricultural engineering, anatomy, animal husbandry, astronomy, botany, chemistry, dairy husbandry, geology, history, home economics, horticulture, mathematics, physics, soils, zoology, etc. Assistantships in comparative physiology in connection with the Laboratory for Interior Fisheries Investigation of the Bureau of Fisheries are also available. Teaching Fellows and Graduate Assistants may complete a full year of residence by registering for three-fourths of a full program during the two semesters and devoting their entire time to graduate study during the summer session.

Applications for Teaching Fellowships or Graduate Assistantships may be filed with the Dean of the Graduate Faculty or sent directly to the chairman of the department concerned.

CURATORS SUMMER SESSION SCHOLARSHIPS FOR MEMBERS OF FACULTIES OF MISSOURI COLLEGES: In an endeavor to encourage members of the faculties of colleges in Missouri to take advantage of the resources of the University for graduate instruction, the Board of Curators has authorized the award of the Curators Scholarship for the Summer Session to five members of each faculty of accredited Junior Colleges in Missouri, State Teachers Colleges, the Kansas City Teachers College and St. Louis Teachers College, and the institutions which are members of the Missouri College Union. This scholarship carries exemption from the library, hospital and incidental fee. Application forms for these scholarships may be secured from the president of each institution eligible.

CURATORS GRADUATE SCHOOL SCHOLARSHIPS: The Board of Curators offers annually a scholarship to that student attaining the highest scholastic rank in the graduating class of each State Teachers

College, and of each of the Colleges comprising the Missouri College Union. This scholarship amounts to exemption from the library, hospital and incidental fee for such portion (not more than two semesters) of the school year (beginning in September and ending the following August) immediately following the graduation of the student from college. Certification of the student's attainment is to be made by the proper official of the institution to the Secretary of the Board of Curators on forms furnished by the latter.

SCHOLARSHIP IN AMERICAN CITIZENSHIP: A scholarship is offered in American Citizenship of the annual value of $250. This scholarship was established in 1908 by the Missouri Society of Colonial Dames of America. Candidates may be of either sex must be natives of and resident in Missouri, and must satisfy all entrance requirements to the University.

Each candidate must present to the Committee on the Scholarship in American Citizenship, a formal application, together with letters or other evidence of the fulfillment of the general requirements outlined above, and must pass a qualifying examination. Blank forms for application may be obtained from the Registrar. The qualifying examination will include the following subjects described in the University catalog under "Subjects Accepted for Admission": Three units in English, one unit in Medieval and Modern, or in World History, one unit in American History, and one unit in American Problems or in Economics and Government. The final selection will be made by the Missouri Society of the Colonial Dames of America from the candidates passing the qualifying examination.

The scholar will be required to select his courses at the University subject to the approval of the University committee on the Scholarship in American Citizenship. He must select at least one course in history each year. His total courses in history must include at least two courses in American History and one course in American Government. The scholar may be required to present each semester a paper prepared in connection with the prescribed course in history. These papers, together with a special report on the work of the scholar, shall be sent each year to the Missouri Society of the Colonial Dames of America.

The payment under this scholarship shall be made in ten monthly installments. The scholarship will be awarded for four years, but may be withdrawn at any time if the work of the scholar is of unsatisfactory character. The next regular award will be made in 1942. All communications regarding the scholarship should be addressed to the Committee on the Scholarship in American Citizenship, University of Missouri, Columbia, Missouri.

FRANK P. BLAIR SCHOLARSHIP: A scholarship of the value of $250 a year was established in 1911 by Mrs. B. B. Graham of St. Louis in memory of her father, the late Frank P. Blair. It is awarded on the same general terms as the Scholarship in American Citizenship, except that the candidate need not be a native of Missouri. The next regular award of this scholarship will be made in 1939.

RHODES CLAY SCHOLARSHIP: This scholarship was established by Green Clay of Mexico, Missouri, in memory of his son, Rhodes Clay, with the following conditions:

1. A principal sum was given in trust to the Board of Curators for the establishment of a freshman scholarship to be called the Rhodes Clay Scholarship, and to be so denominated perpetually in the official catalog of the University.
2. The annual interest on the principal is to be paid to that member of the freshman class in the College of Arts and Science who, on the score of scholarship, deportment and general worthiness, shall be judged entitled thereto by a committee hereafter to be mentioned. The Board of Curators however, may, for weighty reasons, upon the recommendation of the President of the University, extend competition to one or more of the other divisions at Columbia.
3. In making the award, scholarship and literary attainments alone are not considered, but the moral character, physical constitution and general worthiness of the various candidates will be duly considered.
4. A committee of award is appointed each year by the President of the University, and the award is announced at the opening convocation in the fall.
5. The student to whom the scholarship is awarded for any year must spend the following year pursuing work in the University.
6. In case the student to whom the award is made is unable for any reason to meet the requirements set forth under No. 5, the committee of awards will make another selection.
7. The amount of the scholarship will be paid by the Secretary of the University in ten equal installments to that student to whom it has been awarded, the first payment to be made October 1, and the other payments the first of each following month until the entire amount has been paid.

FRANCIS SCHOLARSHIPS: Two scholarships, both of which are administered at present as loan funds, have been established by Governor David R. Francis, as follows:

A. *The Francis Scholarship in Public Affairs for Men:* An award of the annual value of one-half the annual income on $10,000 will be made to a student who has successfuly completed three

years of college work, and who has had fundamental training in those subjects which, in the opinion of the committee, best qualify him for service through business and public affairs. The award will be for two years, and is at present a loan. During the first year of the award, the recipient must be enrolled in his senior year of the undergraduate course in the University of Missouri, and during the second year of the award he must be enrolled for graduate study in the Graduate School, or in the School of Law of the University of Missouri. The intent of the scholarship is to encourage the student to pursue graduate study along the lines of government, politics or international relations or diplomacy. But it is hoped that after having secured this training he will apply the knowledge and experience thus gained through a successful career in business. It is the desire of his sons, the executors of his will, to create in Governor Francis' memory the opportunity for others for a career which will enable them, as he did, to add to the material success of a business life, public service through leadership in public affairs. It is preferred that the recipient not take up diplomacy or politics as his life work but in addition to his business activities, will also take an active part in public affairs. This award is made on the basis of ability, scholastic attainment, merit and actual need.

B. *The Francis Scholarship in Creative Literature for Women:* An award of the annual value of one-half the annual income on $10,000, will be made to a woman student who has successfully completed three years of college work, and who is primarily interested in creative literature. She must have shown special ability in the languages, the social sciences or journalism. The award will be for two years, and is at present a loan. During the first year of the award, the recipient must be enrolled in her senior year of the undergraduate course in the University of Missouri, and during the second year of the award, she must be enrolled for graduate study in the Graduate School of the University of Missouri.

The selections of the scholars are to be made by a Committee consisting of the Deans of the Graduate Faculty and the Faculties of Arts and Science, Law, Business and Public Administration, and Journalism, which committee shall have the power, for just cause, to cancel the award to a student at any time.

Inquiry for further information regarding the awards should be addressed to the Secretary of the University.

JOHN AND MARY LOCKWOOD EDUCATIONAL FUND: The children of John and Mary Lockwood have contributed $1,000 as a nucleus for the establishment of this fund to be held in trust for investment and reinvestment until January, 1959. At that time the income is to be made available for an endowed chair, scholar-

ships, research or such other purposes as the Curators in their discretion may decide. This fund may be added to from time to time by contributions from the original donor, from other children of John and Mary Lockwood, or from other sources.

LA VERNE NOYES SCHOLARSHIPS: Created under the will of La Verne Noyes of Chicago, Illinois, to be used in payment of fees in part or in full of deserving students needing financial assistance to enable them to procure a university education. The scholarships are available to students who served in the army or navy of the United States of America in the World War and who were honorably discharged from such service, and to their descendants. Application should be made to the Secretary of the University.

EUGENE FIELD SCHOLARSHIP: Open to all students in the School of Journalism, and awarded annually to one who has shown himself well equipped in professional ideals and in general newspaper-making ability. Established in 1913, largely through the efforts of the late J. West Goodwin, of Sedalia, Pettis County, Missouri, the scholarship consists of the income from $1,500, made up of contributions given as a memorial to Eugene Field, a former student of the University of Missouri.

JAY L. TORREY SCHOLARSHIP: Awarded annually to the woman student in the School of Journalism considered the best equipped to do the work of a journalist. The scholarship consists of the income from $2,000, a gift from the late Colonel Jay L. Torrey, of Fruitville, Howell County, Missouri.

JOHN W. JEWELL SCHOLARSHIPS: Awarded annually to students in the School of Journalism considered deserving upon the basis of scholarship and general merit. Established by Mr. H. S. Jewell and Mrs. John W. Jewell, of Springfield, Greene County, Missouri, in memory of John W. Jewell, a former student in the School of Journalism, killed at Camp Funston in 1918. These scholarships amounting to $50 each, are paid from the income on a gift of $5,000. No awards in 1939-1940.

JOURNALISM ALUMNI SCHOLARSHIP: Open to all students in the School of Journalism and awarded annually to one chosen on a basis of meritorious class work. This scholarship was given by alumni of the School of Journalism and consists of the interest on $1,500.

JOURNALISM STUDENTS ASSOCIATION SCHOLARSHIP: Fifty dollars awarded annually to a student in the School of Journalism chosen on a basis of industry, character, mental alertness, capacity for leadership and harmonious work with others, as evidenced by activities other than class work. Grades must average M or better. Funds for this scholarship are supplied each year from the proceeds of the annual Journalism Show.

SIGMA DELTA CHI SCHOLARSHIP: Open to all men students in the School of Journalism and awarded annually to one chosen on the basis of meritorious class work and harmonious working with others. Funds for this $50 scholarship are supplied by the Missouri Chapter of Sigma Delta Chi, national journalistic fraternity.

THETA SIGMA PHI SCHOLARSHIP: Open to all women students in the School of Journalism and awarded annually to one chosen on a basis of character, scholarship, and general merit. Funds for this $50 scholarship are supplied by the Missouri Chapter of Theta Sigma Phi, national journalistic sorority.

HELEN M. MALLOCH SCHOLARSHIP: One hundred dollars awarded by the National Federation of Press Women, through the Missouri Women's Press Club, at the close of her junior year, to a woman student in the School of Journalism. She must have a high scholastic record and the outstanding qualities of a successful journalist, and she must be in need of financial assistance to continue in the University.

S. H. FORD SCHOLARSHIP: This scholarship was founded without specification as to how it should be awarded. The Board of Curators has assigned it to the School of Education, with the provision that it shall be awarded in June of each year to some student in the graduating class who, upon the basis of scholarship and probable service in the field of education, is deemed most worthy to receive the scholarship, and the public announcement of the award be made by the President of the University on commencement day. The scholarship consists of the income on the principal of the fund.

JAMES S. ROLLINS SCHOLARSHIPS: In 1889 James S. Rollins left $6,000 to endow six scholarships in the University—"the interest" on this $6,000 "to be forever used" under the direction of the Board of Curators of the University for founding scholarships to be awarded by the President and Faculty of the University as a recognition of merit and character. The scholarships are awarded as follows:

In the College of Arts and Science, to two members of its junior class, $50 each.

In the College of Agriculture, to a member of the junior class, $50.

In the School of Law, to a second-year student, $50.

In the College of Engineering, to a fourth-year student, $50.

In the School of Medicine, to a first-year student, $50.

These scholarships are payable immediately after commencement each year.

HARRY TIDD SCHOLARSHIP: This scholarship represents the annual income on $5,000 established by Harry Tidd of Hutchinson, Kansas, to be awarded to the most outstanding student enrolled in

the University of Missouri, regardless of his years of attendance. The award is to be based on 50% scholarship, 25% general activities, and 25% athletics.

MISSOURI ENGINEERS OF CHICAGO SCHOLARSHIP: This scholarship was established by the Missouri Engineers of Chicago Alumni Association in 1925 and is maintained by a trust fund subscribed by the members of the Association. The scholarship is awarded to engineering students of high scholastic standing and creditable participation in student activities. The amount of the stipend is at present $100 annually.

PHI MU ALPHA SCHOLARSHIP IN MUSIC: Established by Zeta chapter of Phi Mu Alpha Musical Fraternity and awarded annually to the student majoring in music who has made the highest scholastic record in the work of the junior year. The award consists of a medal, a diploma, and such stipend for the senior year as may be available. The recipient of the scholarship is expected to spend the senior year in resident study in the department. Full information regarding the scholarship may be secured by applying to the chairman of the music department.

APPLIED MUSIC SCHOLARSHIPS: Six scholarships are offered annually in Applied Music with a stipend of exemption from the Applied Music Fee of $30 a semester to be awarded to students on the basis of ability and need.

JONAS VILES, JR., SCHOLARSHIP: A scholarship of the annual value of $100, founded by Mr. and Mrs. Jonas Viles in memory of their son, Jonas Viles, Jr., at his suggestion and in part from his earnings. It may be awarded annually by the department of zoology to an advanced student in zoology, as an aid for study at the Marine Biological Laboratory or some similar institution.

WINTERTON CONWAY CURTIS SCHOLARSHIP IN ZOOLOGY: A scholarship of the annual value of $100, founded in 1931 by the students, colleagues, and friends of Winterton Conway Curtis in honor of his completion of thirty years of service in the department of zoology, in the University of Missouri. The scholarship is awarded annually by the department of zoology to a graduate student in zoology for use at a Marine Biological Laboratory during the summer.

THE FRANK R. MCDERMAND FUND: This fund was established by the late Frank R. McDermand of Kansas City, Missouri. The amount of the principal is $25,000. The annual income is to be used for the aid of needy and worthy boys in acquiring an education at the University of Missouri. Application for assistance from this fund should be made to the Secretary of the University.

DEBATING SCHOLARSHIP: At a meeting of teachers of accredited schools at the University in May, 1914, arrangements were made for the organization of a Missouri High School Debat-

ing League. Any public or private high school in the State, which is accredited by the University, may become a member of this League by paying the annual dues of $3.50 on or before October 31 of each year. These dues should be paid to the district director.

Series of debating contests are held among the various schools composing the League and a final contest determining the winning team for the State is held in Columbia. A scholarship of the value of $75 in the University is given to the best individual debater. This scholarship will be paid in monthly installments during the student's first two semesters in the University. It must be completely used within one year (beginning in September and ending the following August) immediately following the graduation of the student from high school. The subject for debate by the League in 1938-39 is: Resolved That the United States Should Form an Alliance with Great Britian.

The rules governing the League, and further information may be obtained from the Director of the University Extension Division, Columbia, Missouri.

SEARS, ROEBUCK AGRICULTURAL FOUNDATION SCHOLARSHIPS: Twenty-five scholarships of $135 each are provided by Sears, Roebuck and Co. for freshmen entering the College of Agriculture in September, 1939. Students with advanced standing from other colleges or universities are not eligible. There are three requirements: (1) need for financial help, (2) a definite and sincere interest in agriculture, and (3) scholastic record in high school. Application should be sent to the Dean's Office, College of Agriculture, University of Missouri, Columbia, Missouri.

W. T. KEMPER SCHOLARSHIP: A scholarship of the annual value of $200. established by the late W. T. Kemper of Kansas City, Missouri, to be awarded to a member of the sophomore class in the University, the award to be on the basis of one-third for scholastic ability, one-third for athletic ability and one-third for campus activities.

EDWARD K. LOVE SCHOLARSHIPS: In December 1938, the Board of Governors of the Edward K. Love Foundation for Wildlife Conservation, established three scholarships to be available for the freshman year only. Two are to be awarded by a special committee, to the highest ranking boy or girl in the wildlife conservation program of the 4-H Clubs of Missouri. The third is to be awarded by a special committee to the highest ranking boy in the wildlife conservation program of the Missouri Chapters of the Future Farmers of America.

ISAAC HINTON BROWN SCHOLARSHIP: A scholarship of the value of $100 a semester offered by Mrs. Edith Brown Smith in memory of her father, Isaac Hinton Brown, may be awarded to a young woman for the session 1939-40.

Prizes and Medals

Alpha Zeta Scholarship Trophy: The Missouri Chapter of Alpha Zeta, honorary undergraduate scholastic fraternity for men in Agriculture, has presented a plaque to the College of Agriculture. On this plaque each year is engraved on a silver plate the name of the sophomore man student in the College of Agriculture who during the preceding year attained the highest scholastic record among the freshmen in the College of Agriculture.

Gamma Sigma Delta: The honorary fraternity, Gamma Sigma Delta, offers an annual award to the highest ranking sophomore in the College of Agriculture. The name of the winner of this award is engraved on a tablet which is displayed in the Trophy Room of the institution.

Henry and Mary Cornelia Crumbaugh Medal: This medal was provided by the will of Mrs. Robert Lee C. Hearne in memory of her father and mother, former residents of Columbia. Mrs. Hearne gave to the Curators of the University, a principal sum the income of which is to provide a medal, to be awarded annually as a scholarship medal for excellence in chemistry. The medal will be awarded for excellence in household chemistry or chemistry of nutrition.

Pi Mu Epsilon Prizes: The Missouri Chapter of the National Mathematics Fraternity of Pi Mu Epsilon offers prizes to be awarded annually to sophomores and juniors, who have not completed any work in mathematics beyond differential calculus. The awards are based on a comprehensive examination covering trigonometry and algebra, analytic geometry and differential calculus, and will be made only for papers considered worthy of recognition.

Phi Beta Kappa Trophy: The Missouri Chapter of Phi Beta Kappa offers a trophy for the high school whose graduates show the highest scholarship in the freshmen year at the University of Missouri. Only those high schools having three or more representatives in the freshman class will be considered and the award will be made at the close of the summer session 1939, based on scholarship statistics of freshmen in the preceding two semesters. The trophy will be in the form of a cup, to be held for one year by the winning school, but it becomes the permanent possession of the school who wins it three times, not necessarily in successive years.

Paulina Kuntze Music Award: This award was established by Harriet C. Hulick to perpetuate the memory of her friend, Paulina Kuntze. The income from the sum of $200 is to be used for the purchase of books, parchment, or cash to be awarded in equal amounts to the two students, a man and a woman, candi-

dates for degrees in music, who during the year have done work of exceptional merit in the field of original musical composition, to be judged on the basis of content rather then technique.

WILLIAM B. ITTNER FINE ARTS PRIZE: This prize was established by William B. Ittner, Fellow of the American Institute of Architects, of St. Louis, for the purpose of recognizing meritorious work in the Fine Arts. The income from the sum of $500 is to be awarded to the student who does the most meritorious work in the field of his major—music or art. The winner of the prize and the form in which it is to be awarded (cash or in books or otherwise) is to be determined by a committee appointed by the President of the University, including faculty representatives from the departments of music and art.

PRIZES AND MEDALS OFFERED BY THE DEPARTMENT OF ENGLISH: Through the George A. Mahan Fund of $10,000 established in 1930 by the gift of George A. Mahan of Hannibal, Missouri, in memory of his wife, Ida B. Mahan, the Department of English is enabled to offer a group of five literary prizes which are known collectively as the Mahan Prizes. The number of prizes awarded each year will depend upon the income received from the principal sum. The Ellis Fund, established in 1934 by the gift of J. Breckenridge Ellis of Plattsburg, Missouri, is used for the publication from time to time of worthy creative writing submitted by students in any of our literary contests. Two medals are also offered by the department. Detailed conditions under which each contest is held, and its exact closing date, will be announced by the department early in the session.

Mahan Story Prizes: A first prize of $100 and a second prize of $25 are offered for the best original short stories written and submitted by any resident student at the University of Missouri in Columbia, Missouri. Omitted in 1939-40.

Mahan University Essay Prizes: A first prize of $50 and a second prize of $15 are offered for the best original essays written and submitted by any resident student at the University of Missouri in Columbia, Missouri.

Mahan Freshman Prose Prize: Each semester a prize of $25 is offered for the best English paper, of whatever character, submitted as a regular assignment during that semester by any student enrolled in the freshman course in composition and rhetoric.

Mahan High School Essay Prize: A prize of $25 is offered for the best essay submitted by any student of an approved Missouri high school in the contest conducted at the annual Interscholastic Meet held in May at the University of Missouri.

Mahan Poetry Prizes: A first prize of $100 and a second prize of $25 are offered for the best original poems written and submitted by any resident student at the University of Missouri in Columbia, Missouri.

Stephens Medal: Established by a gift of James L. Stephens of Columbia, the Stephens Medal is awarded annually for the best oration by any student of the University who has not received the bachelor's degree. The winner receives a gold medal.

McAnally Medal: Established by a gift of David R. McAnally, Jr. The McAnally Medal is awarded annually for the best semester essay submitted as a regular assignment during either semester by any resident student enrolled in an upperclassman course in English.

LAWS ASTRONOMICAL MEDAL: The S. S. Laws Astronomical Medal is offered annually at commencement to the student who stands highest in astronomy, and has at the same time attained a high average of general scholarship. An original thesis written on some astronomical subject, and showing capacity for scientific investigation is required.

THE BAIRD CLASSICAL AWARD: Through the generosity of Mr. Charles Baird of Kansas City, Missouri, formerly Chairman of the Board of Visitors of the University, two prizes of $50 each are awarded annually, one to a freshman enrolled in Latin, and one to a freshman enrolled in Greek. Each award is made to that freshman who by his record in such classes has given the best promise of achievement in Latin and Greek respectively in his sophomore year. The winners are determined by the department of classical languages and archaeology and announced on April 1; payment of the prize is made about November 1 of the winner's sophomore year, provided he continues his work in Latin or Greek respectively.

CHI OMEGA SOCIAL BETTERMENT PRIZE: The Rho Alpha Chapter of the Chi Omega Sorority has established a prize of $25 to be known as the Chi Omega Social Betterment Prize. The basis of the award will be the comparative achievements of the competitors with respect to the following points:

1. Grade of work done as shown in class average and examinations.
2. Amount of work taken in the department of sociology.
3. General interest manifested in social service.
4. To a limited extent, the character of work done in other departments of the University, especially in the departments of history and economics.

The prize is open to upperclass women students only and is awarded at commencement each year.

DELTA SIGMA PI PRIZE: The International Commerce Fraternity of Delta Sigma Pi offers a gold key to be awarded annually to that male member of the graduating class who has made the best scholastic record in one of the commerce curricula in the School of Business and Public Administration.

PHI CHI THETA PRIZE: The Omicron Chapter of Phi Chi Theta, National Commerce Sorority, offers a key to be awarded annually to that woman student of the graduating class who has made the best scholastic record in any one of the curricula in the School of Business and Public Administration.

ALPHA KAPPA PSI MEDAL: The Upsilon Chapter of Alpha Kappa Psi, National Commerce Fraternity, awards annually the Alpha Kappa Psi Scholarship Medallion to that male student of the junior class in the School of Business and Public Administration who has the highest scholastic average of those members of the class who have had three full years of work in the University of Missouri.

PI LAMBDA THETA PRIZE: The Alpha Chapter of Pi Lambda Theta, national honorary educational fraternity for women, offers a prize of the value of $50 annually to a woman student in the junior class of the School of Education. This award is based upon scholarship and probable service in the field of education.

ALPHA DELTA SIGMA PRIZE: An annual prize of $10, given by the Missouri Chapter of Alpha Delta Sigma, national professional advertising fraternity, to an outstanding man student majoring in advertising.

GAMMA ALPHA CHI PRIZE: An annual prize of $10, given by the Missouri Chapter of Gamma Alpha Chi, national professional advertising sorority, to an outstanding woman student majoring in advertising.

THETA SIGMA PHI PRIZE: An annual prize of $10, given by the Missouri Chapter of Theta Sigma Phi, national journalistic sorority, for the best feature article written by a woman student in the School of Journalism.

WALTER WILLIAMS AWARD IN JOURNALISM: A plaque given annually during Journalism Week, in May, by the Missouri Writers Guild to the student in the School of Journalism who has shown the most ability in writing for the year.

OLIVER N. GINGRICH MERIT AWARD: Given annually by Oliver N. Gingrich a former student in the School of Journalism, to a man student majoring in advertising. The award, a key, is made on a basis of scholarship, general capability, aggressiveness, seriousness, and general conduct in his chosen profession.

SIGMA DELTA CHI HONOR AWARDS: The national chapter of Sigma Delta Chi, national journalistic fraternity, gives each year, certificates of award to the highest ten per cent of the senior class in the the School of Journalism, based entirely on scholastic records.

AGRICULTURAL JOURNALISM AWARD: Each year the name of the student in the School of Journalism doing the most outstanding work in Agricultural Journalism is engraved upon a mahogany and silver shield, presented to the School of Journalism by the *Missouri Ruralist*, a farm paper published by the Capper Publications, Topeka, Kansas.

A. C. BAYLESS AWARD: A prize of $100 is awarded annually to the student majoring in advertising in the School of Journalism who has shown the most outstanding all-around development while a student. Funds for this award are given each year by A. C. (Tex.) Bayless of Houston, Harris County, Texas, former student in the School of Journalism.

WILLIAM MACK PRIZE: William Mack of New York City, a graduate of the School of Law, provides this School annually with a set of the "Corpus Juris-Cyc.," which is awarded to that member of the graduating class who, in the judgment of the faculty, has made the best progress during his Law School career. Four semesters residence as a student in the School is required of candidates for this prize.

JUDGE SHEPARD BARCLAY PRIZE: As a memorial to the Honorable Shepard Barclay, former Judge of the Supreme Court of the State of Missouri, the Missouri Bar Association has given the sum of $500 in trust. This sum was originally bequeathed by Judge Barclay to the Association. Pursuant to the terms of Judge Barclay's bequest and the gift of the Association, this money is to be invested by the Trustees, and the annual income therefrom is to be given as a prize to that student who, in the opinion of the Trustees, has attained the highest and best grade and scholarship and who has exerted the highest and best influence in moral leadership in the School. The award will be made annually.

ALEXANDER MARTIN PRIZE: As a memorial to the Honorable Alexander Martin, formerly Dean of the School of Law, a prize of $25 in law books, to be selected by the Faculty of the School of Law, is offered by the University of Missouri Law School Foundation to the student, regularly enrolled in the second year class, who shall do the best work in some second year course, such course to be designated at the beginning of each academic year by the faculty.

JOHN D. LAWSON PRIZE: As a memorial to the Honorable John D. Lawson, formerly Dean of the School of Law, the University of Missouri Law School Foundation offers a prize of $25 in law books, to be selected by the Faculty of the School of Law, to the

student regularly enrolled in the first year class who shall do the best work in the course in Contracts.

THE UNIVERSITY OF MISSOURI LAW SCHOOL FOUNDATION PRIZE: An award of $100 to that member of the Senior Class, who graduates, who maintains the highest scholastic standing throughout his senior year, provided, however, that no student shall be eligible for this prize who carries less than 12 hours of classroom work in each term of his senior year.

ALUMNAE ASSOCIATION OF THE SCHOOL OF NURSING PRIZE: The Alumnae Association of the School of Nursing offers an annual prize of $10 to that member of the graduating class who attains the highest scholastic standing.

BOARD OF CURATORS CUP: One silver cup to be awarded each year to the best drilled Battery of Field Artillery.

BOARD OF CURATORS MEDALS: Two Marksmanship Medals, one for the best rifle shot and one for the best pistol shot each year.

MILITARY DEPARTMENT MEDALS: Two medals to the most efficient advanced course students of Infantry and of Field Artillery at R. O. T. C. camps.

MISSOURI VALLEY INTERCOLLEGIATE CONFERENCE MEDAL: An award of an honor medal by the Conference to one student in the graduating class of each member school for outstanding achievements in athletics and scholarship.

"M" MEN'S SCHOLARSHIP TROPHY: An annual award of a silver plate to the senior athlete having the best scholastic record during his entire period in the University. This yearly award was established by James A. Gibson in 1916, and maintained by him until 1926. The "M" men of Missouri have now taken it over and will maintain it as a permanent yearly award.

HENRY F. SCHULTE AWARD: An award of $50 subject to the annual income on $1,000, the gift of Earl Nelson of St. Louis, in honor of Henry F. Schulte, former football coach at the University of Missouri. This award is to be made to a first-year man on the football squad, who by his observance of the football rules of training and the instructions of the coaching staff, by his exemplification of a spirit of cooperation with his teammates, and by his manifestation of Missouri spirit, has, in the opinion of the Coaching Staff, during the year contributed most to the development of the team as a team.

GWINN HENRY AWARD: An award of $50 subject to the annual income on $1,000, the gift of Earl Nelson of St. Louis, in honor of Gwinn Henry, former football coach at the University of

Missouri. This award is to be made to a second-year man on the football squad under the same conditions covering the Henry F. Schulte Award.

COLUMBIA BRANCH A. A. U. W. AWARD FOR JUNIOR WOMEN: The Columbia Branch of the American Association of University Women offers annually a prize of $60, known as the Columbia Branch A. A. U. W. Award for Junior Women. It is given to a junior girl in the University who is a graduate of a Boone County high school, and whose scholarship and character are outstanding.

MORTAR BOARD AWARD: Mortar Board and the Women's Student Government Association award a prize of $25 each year to the sophomore woman who has attained the highest standing in scholarship, activities, service, personality, and who is financially worthy. This award was established by Mortar Board and W. S. G. A. in 1937 and will be continued annually.

GIFTS AND BEQUESTS

One purpose of a state university is to serve its commonwealth by offering to its youth educational opportunities which will enable them to become useful citizens and to contribute to the welfare of society. Research also constitutes a major activity of a state university which virtually becomes the research laboratory of the State. Numerous proper and meritorious investigations and activities may be carried on in a well organized institution and every possible encouragement should be given to such efforts.

A university pays for itself many times in the contributions it is able to make to society. Lack of funds, however, seriously handicaps the pursuance of research projects and other useful investigations. No more effective disposition of accumulated wealth can be made than to assist, through gifts and contributions, in promoting the worthwhile enterprises in which a university is engaged. Since the University of Missouri is established by the Constitution of the State of Missouri and supported by State and Federal governments, its permanency is assured. The University is empowered to act as Trustee in cases where property is left by will for the benefit of the University or of students thereof. Donors to the University therefore have the assurance that bequests made to the University will be carried forward permanently. Gifts and bequests of any amount will be worthily bestowed.

A number of individuals and organizations have made gifts of apparatus, libraries, pieces of art, live stock, in fact almost every kind of article. All of these gifts, the money value of which amounts to thousands of dollars, have increased the value and efficiency of the University. All bequests are administered with the utmost diligence and with careful attention to the desires and intentions of the donors.

The following forms are set forth, by way of suggestion only, for use by those wishing to devise or bequeath property to the University. If the forms do not cover the situation desired by anyone wishing to bestow funds upon the University by way of a trust, the University will be very glad to render whatever assistance may be necessary to insure the fulfillment of the donor's desires. The University cannot prepare wills for donors but will be glad to consult either with donors or their attorneys for the purpose of giving information necessary to the preparation of such instruments.

GENERAL BEQUEST

I give, devise and bequeath to the Curators of the University of Missouri the sum of.....dollars.

SPECIAL BEQUESTS

1. Endowment of Research

I give, devise and bequeath to the Curators of the University of Missouri the sum of..... dollars, in trust, to be held, managed, controlled, invested and reinvested by the Curators of the University of Missouri. The fund hereby established shall be known as "The.....Research Fund." The Curators of the University of Missouri shall collect the income from said fund and shall pay out of the income all charges of every kind and nature against or in connection with said fund.

After making all the payments hereinbefore mentioned, the Curators of the University of Missouri shall annually disburse the balance of said income for the purpose of carrying on and fostering research in the Department (or School) of..... at the University of Missouri, at Columbia, in such manner as the Curators of the University of Missouri, in its sole discretion, shall deem proper.

2. Scholarship

a. Gift

I give, devise and bequeath to the Curators of the University of Missouri the sum of..... dollars, in trust, to be held, managed, controlled, invested and reinvested by the Curators of the University of Missouri. The fund hereby established shall be known as "The.....Scholarship Fund." The Curators of the University of Missouri shall collect the income from said fund and shall pay out of the income all charges of every kind and nature against or in connection with said fund.

After making all of the payments hereinbefore mentioned, the Curators of the University of Missouri shall use the balance of said income for the establishment, support, and maintenance of scholarships in aid of education in the University of Missouri, at Columbia, in such numbers and amounts thereof as shall be determined by the Curators of the University of Missouri in its sole

discretion. Each scholarship so established shall be filled, from time to time, by a student in the Department of.....at the University of Missouri, at Columbia, who shall be selected by the Curators of the University of Missouri and who shall hold and fill said scholarship under and upon such terms and conditions and for such times as the Curators of the University of Missouri in its sole discretion, may prescribe; provided, however, that the sum or sums so paid to the student or students so selected shall be by way of a gift to the student or students so selected.

b. Loan

I give, devise and bequeath to the Curators of the University of Missouri, the sum of..... dollars, in trust, to be held, managed, controlled, invested and reinvested by the Curators of the University of Missouri. The fund hereby established shall be known as "The.....Loan Fund." The Curators of the University of Missouri shall collect the income from said fund and shall pay out of the income all charges of every kind and nature against or in connection with said fund.

After making all of the payments hereinbefore mentioned, the Curators of the University of Missouri shall use the balance of said income, or such portion thereof as it, in its sole discretion, shall deem necessary, in making loans to such needy and deserving students enrolled in and seeking an education at the University of Missouri, at Columbia, as shall be selected by the Curators of the University of Missouri, in such numbers and amounts, and upon such terms and conditions as the Curators of the University of Missouri, in its sole discretion, may prescribe. All loans so made are to be repaid to the Curators of the University of Missouri upon such terms, at such rates of interest and upon such security as the Curators of the University of Missouri may prescribe, provided, however, that the Curators of the University of Missouri need not, if it does not so desire, require security of any student to whom money may be loaned hereunder. The moneys repaid to the Curators of the University of Missouri by the recipients of loans made as above provided, shall be by the Curators of the University of Missouri, in its sole discretion, either again loaned as herein provided, or added to, and

become a part of the principal sum of the scholarship endowment hereby established.

3. For Erection of Building

I give, devise and bequeath to the Curators of the University of Missouri the sum of..... dollars, in trust, which shall be used by the Curators of the University of Missouri for the establishment, erection, and equipment of a building on the campus of the University of Missouri, at Columbia, to be known as .....Hall and to be used as .....The Curators of the University of Missouri shall expend the entire sum hereby given, or such portion thereof as in its uncontrolled discretion it shall deem proper, in accomplishing the purpose hereinbefore set forth. Any portion of the sum hereinbefore granted, which remains unexpended after the establishment, erection, and equipment of said building, may be used or, in the sole discretion of the Curators of the University of Missouri may be invested and reinvested and the income thereof used by the Curators of the University of Missouri, in its uncontrolled discretion, either for the maintenance of said building or for such educational purposes in the field of .....at the University of Missouri as the Curators of the University of Missouri in its uncontrolled discretion deems proper.

4. Bequest to Foundation

I give, devise and bequeath to the..... Foundation the sum of.....dollars.
(At the present time there are in existence at the University of Missouri the following foundations:

Agriculture—University of Missouri College of Agriculture Foundation.

Engineering—University of Missouri College of Engineering Foundation.

Journalism—

1. Walter Williams Memorial Journalism Foundation.
2. The University of Missouri School of Journalism Foundation.

Law—The University of Missouri Law School Foundation.

Medicine—The University of Missouri Medical School Foundation, Inc.)

STUDENT ACTIVITIES

Government

REGULATIONS GOVERNING STUDENT ACTIVITIES: All organizations of students in the University, except those which are under the control of a special board or faculty committee, are under the supervision of the committee on student activities. The complete rules of this committee are issued each fall in "The Student Handbook," but some of the more important rules are given here.

No student organization which in any way represents the University before the public, or which holds itself to be a University organization or an organization of University students, may use the name of the University in connection with its own name, or in connection with its members as students, without consent of the proper faculty or administrative committee.

An auditing committee consisting of two faculty members and one student member supervises all financial operations of public performances given by or under the management of student organizations. All student publications are supervised in the same manner.

Students whose class work is not satisfactory are not permitted to take any part in any public, dramatic or musical performance. Organizations having both men and women members are not permitted to give out-of-town performances.

STUDENT GOVERNMENT: Under a constitution adopted in 1938, the student body is governed by a Senate, whose members are chosen by popular vote; and by elective executive officers; and a Student Court of the five highest Law students. These government bodies and officers mediate between faculty and students, and exercise general control over student affairs.

DISCIPLINE: In the government of the University, the President and faculty rely chiefly upon the sense of duty of the students. The student is expected to pursue his studies with diligence, to attend classes regularly, to live morally, and maintain good behavior. The removal of those who fail to meet these requirements is in the interest of the University.

Societies

FRATERNITIES AND SORORITIES: There are at the University of Missouri chapters of many of the leading fraternities and sororities. These are all subject to certain rules and regulations of the

faculty committee on student activities. The fraternities have formed the Pan-Hellenic Council and the sororities the Pan-Hellenic Association, both of which are strong organizations and both are exerting a good influence for better scholarship. The committee on student activities as far as possible deals with the Pan-Hellenic Council and the Pan-Hellenic Association on matters affecting the chapters which are members of these organizations.

INDEPENDENT WOMEN'S ORGANIZATION: The women students who are not members of sororities are eligible to become members of the Independent Women's organization. The purpose of this organization is to further the interests of the non-sorority women on the campus by providing a meeting place, by arranging for regular meetings, planning a social program, and by aiding the non-sorority girl in orientating herself on the campus.

INDEPENDENT MEN'S ORGANIZATION: The purpose of the organization is to provide to non-fraternity men some of the benefits of fraternal life at college at a nominal expense.

LITERARY AND SCIENTIFIC SOCIETIES: Many literary and scientific societies are maintained in the University, with practically each department and each special field of interest represented. Some of these are conducted by members of the faculty and are open to advance students. Others are conducted by students, in some cases with the participation of members of the faculty.

HONORARY SOCIETIES: There are several honorary societies in the University, organized to raise scholastic and cultural standards in their respective lines. Phi Eta Sigma is a Freshman Honor Society which recognizes high scholastic attainment by first year men. In addition to the general literary society, Phi Beta Kappa; the scientific society, Sigma XI; the social science society, Alpha Pi Zeta; and general honor societies, there are similar organizations in the School of Law, Engineering, Medicine, Journalism, Education, Business and Public Administration, the Graduate School, and the College of Agriculture, and in several of the departments.

RELIGIOUS INFLUENCES

CHURCHES: Columbia has nine churches near the University. Members of these churches are interested in the students and endeavor to make them feel at home in the Sunday services, at the midweek meetings, and at the young people's societies.

THE STUDENTS' RELIGIOUS COUNCIL: The Students' Religious Council is a council, made up of representatives from eleven student religious organizations of the university community. Its purpose is to correlate and to make more effective the total program of religious activities of the campus. Its member organizations represent six Protestant denominations, three non-denominational religious or-

ganizations, the Jewish Student Organization, and the Organization of Christian Science students. In addition to relating students to its member organizations, the S. R. C. holds union meetings, and cooperates in other campus activities.

THE YOUNG MEN'S CHRISTIAN ASSOCIATION: The University of Missouri Young Men's Christian Association is a fellowship of men students and faculty members that has had a continuous record of service on the campus since 1890. Its purpose is the development of Christian personality. Through the Employment Bureau it seeks to serve all men students needing part-time employment. Other phases of its program are organized around fellowship groups and service projects. Former Hi-Y members and members of the Y. M. C. A. from other cities and universities will find groups in which to continue their activities. Other students not formerly related to the Y. M. C. A. are also invited to participate in the activities of the Y. M. C. A. The office in the Bible College is open throughout the year. Young men who expect to enter the University are invited to call at the office or to write.

Y. W. C. A. OF THE UNIVERSITY OF MISSOURI: The Young Women's Christian Association is an activity open to all University girls and to other young women who may be interested. Its purposes are service, religious growth, friendship. The program is a varied one which gives each member the opportunity to work and grow along the lines she chooses. There are small interest and discussion groups dealing with personality development, current events, race, peace, religion; and there is an active group for those interested in social service. All of these activities are based upon the belief that the Christian religion is valid in every human relationship and that today people must become alert to the significance of Christ's teachings for all phases of life.

KNIGHTS OF COLUMBUS STUDENT HOME: The Knights of Columbus of Missouri have established a student home a few blocks from the University campus. This home has rooms for seventy-two men students; meals are served, and a parlor, a billard room, and an auditorium are provided for rest and recreation, the auditorium, in particular, being obtainable for student gatherings.

THE UNIVERSITY ASSEMBLY

The students and faculty assemble in the University Auditorium from time to time to hear addresses by well-known educators and representative men in other fields. The purpose is to broaden the intellectual, social and religious life of the University. The

assembly serves also to bring together students of all divisions, and to conserve University spirit. There are no fixed dates, but assemblies are arranged whenever possible.

The Alumni Association

The University of Missouri Alumni Association is composed of approximately 60,000 men and women, graduates and former students, who have been enrolled in the institution. This figure also includes those who have at one time or another attended short courses or summer sessions. Every man and woman who ever attended the University is automatically a member of the Alumni Association.

Alumni in every prominent city in the United States have their own organizations, the activities of which are coordinated by the Director of Alumni Activities, R. L. Hill, in Columbia. Each county in the State of Missouri has its alumni organization. For the sake of expediency the State is sub-divided into 28 alumni districts, each with a chairman who is charged with the responsibility of supervising alumni work in the respective counties of his district.

Noteworthy among the various activities of the Alumni Association is its Public Relations Program sponsored on behalf of the University.

The Association publishes a monthly magazine, *The Missouri Alumnus*, which is issued twelve times a year, something unusual in the field of alumni publications. Its primary purpose is to keep graduates and former students in close contact with the University and with one another.

The officers of the University of Missouri Alumni Association are: President, Byron Spencer, A. B. '15, Kansas City, Missouri; First Vice-President, Allen L. Oliver, A. B. '08, LL.B '09, Cape Girardeau, Missouri; Second Vice-President, Sam T. Utz, B. S. in Agr. '24, St. Joseph, Missouri; Third Vice-President, Arthur W. Allen, former Law student in 1913-15, Springfield, Missouri; Treasurer, Hartley G. Banks, A.B. '26, Columbia; Secretary, R. L. Hill, B. S. in Agr. '12, M. S. '13, Columbia.

REGULATIONS, GRADES, DEGREES

Regulation of Studies

Course Numbers: Courses for underclassmen are designated by numbers below 100; courses for upperclassmen and graduates, by numbers 100-199; courses primarily for graduates, by numbers 200-299.

The letter following the number of a course indicates the semester in which it is offered; thus, course 100f is offered during the first semester, 100w during the second semester. The number of hours' credit given for a course is indicated by the Arabic numeral in parentheses following the statement of the course. A capital letter preceding the number of a course indicates one of the special classes of courses into which the work of a large department is divided, as in the case of Education A102f and Education D150w.

Changes in Courses: The curricula in any and all divisions of the University may be changed without advance notice. Courses described in this catalog may be changed, omitted or be taught by instructors other than those herein mentioned, at any time, without further notice. The number of hours credit stated herein to be given for the completion of any course may be changed without any further or advance notice thereof.

Schedules of Courses: The schedule of days, hours, and rooms for the session of 1939-40 will be issued as a separate bulletin.

Definition of Hours: The hour, which is the unit of credit given in the University, is the equivalent of a subject pursued one period a week for one semester. Thus a course meeting five periods a week for a semester is a five-hour course. Three five-hour courses, or the equivalent, constitute a normal semester's work.

Number of Hours: No undergraduate student is permitted to carry courses aggregating less than twelve credit hours, exclusive of the required work in military science and physical education, without the special permission of his dean; or more than sixteen hours, exclusive of the required work in military science and physical education, except in the Colleges of Agriculture and Engineering, and in the School of Medicine.

Studies in Other Divisions: Students registered in one division may, with the consent of their dean, take work in other divisions if, in the judgment of the professors concerned, they are prepared for such work. Students taking work in a division other

than that in which they are registered are subject, as respects this work, to the rules of the division in which the work is given.

Undergraduates who at the beginning of their last semester have a graduation requirement for the bachelor's degree of fifteen hours or less may be permitted, with the approval of the appropriate deans, to register simultaneously in the Graduate School for courses sufficient to make up a full program.

Qualified undergraduates who do not avail themselves of the opportunity of dual registration will not receive credit in the Graduate School for credits earned in the undergraduate schools above graduation requirements.

EXTENSION DIVISION: Courses may be taken by correspondence or in extension centers. The maximum extra-mural work allowed is twenty normal credit hours for one calendar year.

REQUIRED WORK IN MILITARY SCIENCE AND TACTICS AND IN PHYSICAL EDUCATION: All men students in the University are required to take four semesters of military science and tactics and four semesters of physical education during their freshman and sophomore years.

All women students are required to take four semesters of physical education two hours a week during their freshman and sophomore years.

A committee appointed by the Executive Board may, for satisfactory cause, excuse students from compliance with these regulations. All applications for excuse from these requirements should be filed with the Registrar not later than two weeks after the beginning of a semester. Excuses because of physical disability will be granted only as a result of physical examination.

RESIDENCE REQUIREMENT

The last year of work in any college or school must be done in residence, subject to such allowances and modifications as are indicated in the regulations of the separate colleges and schools.

EXAMINATIONS AND CREDITS

EXAMINATIONS: Examinations at the end of each semester close the studies pursued to that point.

GRADING: The system of grading and credits at the University makes uniform the grading of the different departments and divisions, and gives credit to students corresponding to the quality of their work.

The grades M, S, E, I, F are given. These are defined as follows: The grade of M means that the student ranks among the medium students. The grade of S gives the student rank among those who are superior. The grade of E means that the individual is one of the few most excellent students. Below the grade of M, the grade of I means that a student is somewhat below the average.

The grade of F means that the student has not accomplished the minimum necessary for passing the subject and has failed.

This system tends to promote uniformity of grading in the different departments, since the meaning of each grade is not left to the discretion of the individual teacher, but is defined objectively.

CREDIT: In the College of Arts and Science, and in the Schools of Business and Public Administration, Education, and Journalism, extra credit in semester hours is given for S and E grades, thus enabling the most able and industrious students to be graduated in less than normal time. It is also recognized that the inferior student is entitled to some credit in hours. Credit is therefore granted in these divisions in accordance with the following schedule:

1.20 hours credit will be given for each hour of E
1.10 hours credit will be given for each hour of S
1.00 hours credit will be given for each hour of M
.90 hours credit will be given for each hour of I

QUALITATIVE REQUIREMENTS: In addition to the total amount of credit required for graduation, all schools and colleges of the University have a qualitative standard which must be met. This standard is usually expressed in terms of points required for graduation. See the sections devoted to the respective divisions of the University.

REPORTS: Written reports of grades for undergraduate students are sent by the Registrar to parents or guardians at the close of each semester.

ELIMINATION OF DELINQUENT STUDENTS: The faculty will eliminate those individuals who cannot or will not measure up to the high standard of scholarship maintained by the University of Missouri. Delinquent students may become subject to either of two regulations. The first eliminates a student who does not pass in a certain proportion of his work in any semester. The second is cumulative, and eliminates any student who habitually falls behind in his work, even though his proportion of failure in any one semester may not make him subject to elimination under the first rule.

Subject to the rules of the faculty, a student who has been eliminated from any division of the University will not be admitted to the University unless and until he is eligible for re-admission to the division from which he has been eliminated.

DEGREES AND CERTIFICATES

DEGREES: The following degrees are now conferred by the University:

In the College of Arts and Science, Bachelor of Arts (A. B.).

In the College of Agriculture, Bachelor of Science in Agriculture (B. S. in Agr.), and Bachelor of Science in Home Economics (B. S. in Home Ec.).

In the School of Education, Bachelor of Science in Education (B. S. in Ed.).

In the School of Law, Bachelor of Laws (LL. B.).

In the College of Engineering, Bachelor of Science in Agricultural Engineering (B. S. in Agri. E.), in Chemical Engineering, in Civil Engineering, in Electrical Engineering, and in Mechanical Engineering.

In the School of Mines and Metallurgy at Rolla, Bachelor of Science (B. S.) in Mining Engineering, in Metallurgical Engineering, in Chemical Engineering, in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, in Ceramic Engineering, and in Science. The graduate degrees of Master of Science, Master of Science in Mining Engineering, in Metallurgy, in Chemical Engineering, in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, in Ceramic Engineering. The professional degrees of Engineer of Mines (E. M.), Metallurgical Engineer (Met. E.), Chemical Engineer (Chem. E.), Civil Engineer (C. E.), Electrical Engineer (E. E.), Mechanical Engineer (M. E.), Ceramic Engineer (Cer. E.) are also given.

In the School of Journalism, Bachelor of Journalism (B. J.).

In the School of Business and Public Administration, Bachelor of Science in Business Administration (B. S. in Bus. Admin.) and Bachelor of Science in Public Administration (B. S. in Pub. Admin.).

In the School of Medicine, Bachelor of Science in Medicine (B. S. in Med.), and Graduate Nurse (G. N.).

In the Graduate School, Master of Arts (A. M.), Master of Science (M. S.) with designation in Engineering, Master of Education (M. Ed.), Doctor of Philosophy (Ph. D.), and Doctor of Education (Ed. D.).

Any faculty may decline to recommend a student for a degree because of lack of moral qualifications even though the student has completed all the technical requirements for the degree.

Two degrees will not be granted to a student until he has earned a minimum of twenty-four hours' credit in addition to the requirements for one of the degrees.

Except those of Doctor of Laws and Doctor of Engineering, no degrees are conferred *honoris causa.*

CERTIFICATES: Certificates are given, on completion of prescribed courses, in the School of Education, the College of Agriculture, and in the department of military science and tactics.

For further information, see the announcements of the respective divisions in Section II of this catalog.

COMMENCEMENT EXERCISES

Commencement exercises are held at the close of the second semester and at the end of the Summer Session. For specific days, see University calendar, page 3.

SECTION II

THE SCHOOLS AND COLLEGES

COLLEGE OF ARTS AND SCIENCE*

The College of Arts and Science has four clearly defined purposes:

(1) It offers to students who have the requisite ability and energy such a liberal education in the arts and sciences as will assure a severe intellectual discipline, provide an intelligent familiarity with modern civilization, prepare for wide service in the world, and enlarge and enrich the individual life. Through the pursuit of the natural sciences, the social sciences, and literary and philosophical studies, it aims at liberty of thought, breadth of views, and personal integrity and worth.

(2) It prepares for graduate work in the various fields of research. Students who wish ultimately to become trained investigators or to teach their specialities in colleges and universities should secure the A. B. degree as a preparation for graduate work.

(3) It teaches the basic subjects required for admission to the professional schools of Law, Medicine, Education, Journalism, Business and Public Administration.

(4) It furnishes information to the public on matters of scientific, literary, and social interests.

REQUIREMENTS FOR ADMISSION: For information in regard to requirements for admission, see page 54.

FEES: For information in regard to fees, scholarships, etc., see sections under *General Information.*

ELECTIVE SYSTEM: Work in the College of Arts and Science is largely elective—that is, the student makes such choice and combinations of studies offered in the college as suits his individual objective, subject to certain restrictions explained under the *Requirements for Graduation.*

A student may not take more than 16 hours nor less than 12 hours a week, not counting the required work in physical training and military science. Permission to add work without credit in the College of Art and Science above the limit of 16 hours shall be at the discretion of the dean.

*See General Information, p. 44; Fees, p. 73; Changes in Courses, p. 111.

Requirements for Graduation

Degrees: The College of Arts and Science confers only one degree, that of Bachelor of Arts (A. B.). In order to receive the degree of Bachelor of Arts the candidate must meet the following requirements:

1. He must have been regularly admitted to the College.

2. He must have completed a total of at least 120 hours, exclusive of the credit earned in the required courses in physical education and military science. At least 30 hours must be in courses numbered 100 or above. No more than 40 hours may be taken in a single department.

3. He must have completed a total of 120 points. Each hour of credit is valued in points, as follows: E, 3 points; S, 2 points; M, 1 point. Passed grades are treated as of M grade. No points are given for I and F grades. Points will be allowed for credits earned in other institutions commensurate with the quality of work done, except that in no case may the number of points awarded exceed the number of hours.

4. He must complete during the freshman year: Six hours of English Composition and Rhetoric. Students entering with three or four units of Latin, or with two or three units of Latin and two or three units of Greek, may substitute for the requirement of six hours of English (English 1 and 2), six hours of Latin (Latin 100 five hours or 101 five hours and 104 one hour) or six hours of Greek (Greek 3 three hours and three additional hours). These courses in Latin or Greek may be applied also upon the requirement in foreign languages.

5. He must complete during the first two years:

(a) Fifteen hours in one foreign language (Latin, Greek, French, German, Spanish, Italian). If the student presents for admission two units in a single foreign language and continues with that language in college, he will be excused from the first five hours of this requirement. If he presents for admission three units in one foreign language and continues with that language in college, or has done two units so well that he can take the third five-hour course in French, Spanish, or German, or the course in Virgil, he will be excused from the first ten hours of the requirement. If he presents for admission four units in one foreign language and can pass an achievement test on the work of course three (or Virgil), he will be excused from the entire requirement.

(b) Three hours of Mathematics or Logic unless three units of Mathematics have been presented for admission.

(c) Five hours of physical science (Astronomy, Chemistry, Geology, Physics) unless two units of these have been presented for admission.

(d) Five hours of a biological science (Botany, Zoology) unless two units of these have been presented for admission.

and preferably during the first three years:

(e) Ten hours in at least two of the social studies (Economics, Geography, History, Political Science, Sociology).

(f) Eight hours in at least two of the humanistic studies (Literature, Philosophy, the Fine Arts).

No course may be used in satisfaction of more than one of the requirements in Section 5.

Any exemptions provided in this section do not excuse him from the requirements of total hours as stated in 2.

The Dean may waive the above requirements for a student not a candidate for the A. B. degree when the student is preparing for admission to a division which has established a definite program of Arts and Science subjects for the first two years.

By "hour" is meant one period a week for one semester.

The ordinary program of a student in his first year should include English Composition and Rhetoric, military and physical education, and two of the following: a foreign language, a science, Mathematics. In the case of language it is highly desirable that the student continue the same language he has studied in high school. He may, in the second year, complete the freshman-sophomore requirements and take work preparatory to the major and minor. Students who are partly self-supporting should not attempt a full program.

Sixty credit hours and 60 quality points are required for admission to junior standing. After these hours and points have been gained and junior standing established, an additional 60 hours and an additional 60 points are required for graduation.

Students preparing to be teachers of Public School Music should take during the Freshman year, Music 3 and 4, Harmony; Music 5 and 6, Ear Training; and Applied Music; in the sophomore year, Music 101 and 102, Advanced Harmony; Music 7 and 8, Keyboard Harmony; Orchestral Instruments; and Applied Music. He should also take Preventive Medicine, General Psychology, and Educational Psychology.

Students preparing to be teachers of Public School Art should take twenty hours of art in the freshman and sophomore years. Selections should be made from these courses: Introduction to Art, Art Appreciation, Art Fundamentals, Artcraft I, Theory of Drawing, Composition I, Design I, Artcraft II, History of Art.

6. He must complete either (a) a major and minor or (b) a group major.

Major-Minor

A major consists of at least 24 hours comprising a sequence of closely correlated studies chosen from the courses for students in the College of Arts and Science and containing at least 12 hours from courses offered for upperclassmen or for graduates. (The major need not be confined to a single department, but the courses must present a closely related sequence); a minor of at least 18 hours, of which at least 5 hours must be from courses for upperclassmen or graduates. A student is not permitted to elect toward his minor courses from the department in which he has done the chief work for his major, or vice versa, but the major and minor must together constitute a unified plan of study.

Work done to meet the requirements in 4 and 5 cannot be included in counting up hours for a major and a minor except that where a student presents ten hours in one foreign language in fulfillment of his requirments, the second five hours in such language can be counted toward the major or minor.

The fulfillment of the specific requirements of the first two years and of the requirements of majors and minors is considered on the basis of the number of hours for which the student is registered in a course without reference to the regulation regarding excess and diminished credit. He must, however, receive the grade of M or better in at least 12 hours of upperclassman work in his major.

The student must, before the close of his sophomore year, notify the dean in writing of his selection of his major and minor. The courses making up his major and minor must be approved by an adviser from the department in which the student does his chief work, and must consist of courses regularly accepted for credit toward the A. B. degree.

The Group Major

Students who desire a broader and more carefully planned program of study than is prescribed by the major-minor plan or who have a well defined objective which is not well served by that plan may elect a group major or course of study. The group major or course of study must be a program directed toward a definite objective definitely formulated, and must contain at least sixty hours, comprising a sequence of closely correlated studies chosen from the courses offered for students in the College of Arts and Science, and containing at least thirty hours from courses numbered 100 or above.

A student who wishes to elect a group major *should notify the dean of his intention before the end of the freshman year and be assigned to a particular adviser.* He will then plan his course of study in detail with his adviser, who will continue as his adviser during the sophomore, junior, and senior years.

Each major must have a definite objective definitely formulated, but the objective need not be vocational or professional; it may be general and cultural. Indeed, the primary object of the group major is to coordinate and systematize programs of liberal study. Any student with a well defined objective may secure a group major suited to his individual needs, but the course of study as a whole must be unified and coordinated. The following are considered satisfactory objectives:

1. Literary Criticism and Creative Writing.
2. Hispanic-American Civilization and Affairs.
3. Criticism of Music, Drama, and the Plastic Arts.
4. Social Reconstruction.
5. The Development of American Culture.
6. Home and Community Life.
7. A Philosophical View of Modern Life.
8. Modern European Civilization with special reference to France and Germany.
9. A knowledge of the methods, practices, and achievements of the Physical Sciences.
10. A knowledge of the methods, practices, and achievements of the Biological Sciences.
11. An understanding of the principles of wildlife conservation and management and preparation for graduate or professional work in this field.

REQUIREMENTS IN ENGLISH: All students must in their junior year pass a test of their proficiency in English. No student will be recommended for graduation until his English is satisfactory.

Courses regularly offered toward the A. B. degree and, therefore, acceptable for majors and minors or group majors, are offered in the following departments:

Accounting and Statistics, 17, 107, 225.
Art (except public school art).
Astronomy.....entire
Botany.....entire
Chemistry.....entire
Citizenship.....entire
Classical Languages and Archaeology.....entire
Economics and Finance 1, 104, 106, 110, 115, 118, 122, 129, 130, 150, 160, 190, 199, 205, 209, 211, 221, 230, 231.
Education, A102, B125, B190, B271.
English.
French and Italian.....entire
Geology and Geography.....entire
Germanic Languages.....entire
History.....entire
Mathematics.....entire
Military (advanced).....8 hours
Music (except public school music).
Pathology, Bacteriology and Preventive Medicine, 5.
Philosophy.....entire
Physics.....entire
Physiology, 100.
Political Science and Public Law.entire
Psychology.....entire
Sociology.....entire
Spanish.....entire
Zoology.....entire

A minor may be permitted in Home Economics.

GROUP MAJORS

The following are typical examples of the many possible group majors. *They are not fixed curricula, but are to be considered as merely suggestive.* Each student makes his own curriculum with the advice and approval of his faculty adviser.

LITERARY CRITICISM AND CREATIVE WRITING

Courses designated by an asterisk (*) are required unless substitutes are approved by the adviser and the Dean.

Freshman Year

Freshman-Sophomore Requirements

Suggested Electives: History, 3 to 6 hours; English Masterpieces, 2 or 4 hours; Preventive Medicine, 2 hours; Geography, 3 hours; Art, 3 to 6 hours; Music, 3 to 6 hours.

Sophomore Year

First Semester		*Second Semester*	
First Language	3	First Language	3
English Life and Literature	3	English Life and Literature	3
Narration and Description	3	Exposition	3
Elective	6 or 7	Elective	6 or 7

Suggested Electives: Second foreign language, 10 hours; Evolution, 2 hours; Social Studies, 5 or 10 hours; Ornithology, 2 hours; Natural Science, 3 or 5 hours; History of Art, 2 or 4 hours; History, 3 to 6 hours.

Junior Year

Foreign Language	3	Foreign Language	3
*English Literature	3	*English Literature	3
*Short Story or Advanced Writing	3	*Advanced Writing or Short Story	3
Elective	6 or 7	Appreciation of Literature	3
		Elective	3 or 4

Suggested Electives: Foreign Language, 3 to 6 hours; Geography, 3 to 6 hours; History, 3 to 6 hours; History of Art, 2 to 6 hours; Social Studies, 3 to 10 hours; Psychology, 3 to 6 hours.

Senior Year

*Foreign Language	3	*Foreign Language	3
*English Literature	3	*English Literature	3
Ethics	3	*Aesthetics	3
Elective	6 or 7	Elective	6 or 7

Suggested Electives: Foreign Language, 3 to 6 hours; History, 3 to 6 hours; Art, 2 to 6 hours; Social Studies, 3 to 10 hours; Psychology, 3 to 6 hours.

A PHILOSOPHICAL VIEW OF MODERN LIFE

Courses designated by an asterisk (*) are required unless substitutes are approved by the adviser and the Dean.

Freshman Year

First Semester		*Second Semester*	
English Composition & Rhetoric.	3	English Composition & Rhetoric.	3
Foreign Language	5	Foreign Language	5
Science	5	Science	5
Elective	3	Logic	3

Suggested Electives: Literature, 3 hours; History, 3 hours.

Sophomore Year

American History	5	Introduction to Philosophy	3
American Government	5	*Contemporary Europe	3
General Sociology	3	Economics	5
Elective	2 or 3	Theory of Evolution	2
		Elective	2 or 3

Suggested Electives: English (Life and Literature), 3 hours; Foreign Language, 3 to 6 hours; History of Art, 2 to 5 hours; Bible, 2 to 5 hours; Music, 3 hours; Psychology, 3 hours; Geography, 3 hours.

Junior Year

*Ethical Theory	3	*Modern Philosophy	3
General Psychology	3	*Aesthetics	3
Recent United States History	3	The British Empire	3
*General Anthropology	3	*Comparative Religion	2
Elective	3 or 4	Elective	5

Suggested Electives: Foreign Language, 3 hours; Art, 2 or 3 hours; Bible, 2 or 3 hours; Psychology, 3 hours; History, 3 hours; American Government, 5 hours; Astronomy, 5 hours; Geology, 5 hours; Cultural Anthropology, 3 hours; Early European Philosophy, 3 hours; History and Principles of Journalism since 1850, 5 hours.

Senior Year

*Present Philosophical Tendencies	3	*Philosophy and Modern Science	3
English-Shakespeare	3	*American Ideals	3
Elective	9 or 10	*Philosophy of Religion	3
		Elective	6 or 7

Suggested Electives: Philosophy of the State, 3 hours; Foreign Language, 3 hours; History, 3 hours; Psychology, 3 hours; Economics, 3 hours; Political Science, 3 hours.

HISPANIC-AMERICAN CIVILIZATION AND AFFAIRS

Courses designated by an asterisk (*) are required unless substitutes are approved by the adviser and the Dean.

Freshman Year

First Semester		*Second Semester*	
English Composition and Rhetoric	3	English Composition and Rhetoric	3
Science	5	Science	5
Spanish 1	5	Spanish 2	5
Citizenship	2	Mathematics or Logic	3

Sophomore Year

Spanish 3	5	*Spanish Composition and Conversation	3
Economics	5	Money, Credit and Banking	5
American Government	5	*International Relations	3
		Elective	4 or 5

Suggested Electives: Psychology; History; Literature; Art.

Junior Year

*Spanish, Latin-American Life, Literature, and Affairs	2	*Commercial Spanish	2
*Spanish, Advanced Composition and Conversation	2	*Geography of South America	3
*Economic Geography	3	*Economics, Business Law	3
Economics, Investments	3	Elective	7 or 8
Elective	5 or 6		

Suggested Electives: Recent United States History; Diplomatic History of Europe; General Anthropology; Ethnography; courses in Accounting and Statistics.

Senior Year

*Spanish, Nineteenth Century Spanish Novel or Contemporary Spanish Novel	3	*Spanish, Mexican Literature	3
Economics, Banking Systems	3	*Political Science, Administration of American Foreign Relations	2
Economics, Economic Control	3	Economics, Corporation Finance	3
Elective	6 or 7	Elective	7 or 8

Suggested Electives: Geography of Caribbean America; courses in Statistics, Sociology, Art, Astronomy, Philosophy.

HOME AND COMMUNITY LIFE

Courses designated by an asterisk (*) are required unless substitutes are approved by the adviser and the Dean.

Freshman Year

First Semester		*Second Semester*	
Composition and Rhetoric	3	Composition and Rhetoric	3
Foreign Language	5	Foreign Language	5
Biological Science	5	Chemistry	5
Elective	2 or 3	Mathematics or Logic	3

Suggested Electives: Music or Art, 3 hours; Citizenship, 2 hours; Preventive Medicine, 2 hours.

Sophomore Year

First Semester		*Second Semester*	
Foreign Language	3 or 5	*Foreign Language	3
English Life and Literature	3	English Life and Literature	3
Selection and Preparation of Foods	5	Textiles	3
General Sociology	3	American Government or American History or Economics	5
Elective	2	Elective	2

Suggested Electives: Home Problems, 2 hours; Home Nursing, 2 hours; Foods in Relation to Health, 2 hours; History of Art, 2 hours; Applied Art, 2 hours; Music, 2 hours; Evolution, 2 hours; Ornithology, 2 hours; Classical Mythology, 2 hours; Bible, 2 hours.

Junior Year

Psychology	3	*Recent United States History	3
*English or Foreign Literature	3	*The Family	3
Introduction to Art or Music	3	*English or Foreign Literature	3
Elective	6 or 7	Art or Music	2 to 4
		Elective	3 to 5

Suggested Electives: History of Art, 3 hours; Taxonomy, 3 or 5 hours; Political Science, 3 to 6 hours; Economics, 5 hours; Astronomy, 5 hours.

Senior Year

*History of Art or Music	3	*History of Art or Music	3
*Ethical Theory	3	*Aesthetics	3
*Child Welfare	3	Elective	10
Elective	6 or 7		

Suggested Electives: Literature, 3 hours; Bible, 2 to 4 hours; Landscape Gardening, 3 hours; Economics, 3 hours; Political Science, 3 hours; American Ideals, 3 hours; History, 3 hours; Sociology, 3 hours.

PRINCIPLES OF WILDLIFE CONSERVATION

Courses designated by an asterisk (*) are required unless substitutes are approved by the adviser and the Dean.

Freshman Year

Freshman-Sophomore requirements, including either Chemistry 1 (5 hours) or Geology 1 (5 hours), and either Zoology 1 (5 hours) or Botany 1 (5 hours).

Sophomore Year

First Semester		*Second Semester*	
Geology 1 or Chemistry 1	5	*Taxonomy and Ecology	5
Botany 1 or Zoology 1	5	Ornithology	2
		Economics 1	5

Junior Year

Advanced General Zoology	3	Theory of Evolution	2
Principles of Wildlife Conservation	3	Dendrology	3
*General Bacteriology	3	*Plant Physiology	5

Senior Year

*Embryology of Vertebrates	3	*Parasitology	3
*Soil Conservation and Utilization	3	*Animal Ecology	3
*Special Problems (Zoology) (Mammalogy; Field Methods)	3	Silviculture	4
		*Land Economics	2

MAJOR SEQUENCES

The following major sequences are suggested:

Art, History of

General Subject	No. of Course	Special Title	Credit Hours
Art, History of	11f	Ancient and Mediaeval Art	2
Art, History of	12w	Renaissance and Modern Art	2
Art, History of	112f	Italian Renaissance Painting	3
Art, History of	113w	Northern Renaissance	3
Art, History of	116w	Italian Renaissance Sculpture	2
Art, History of	119f	Mediaeval Sculpture	2
Art, Theory & Practice of	2f	Introduction to Art	3
Art, Theory & Practice of	77w	Painting I	3
Classical Archaeology	60f	Classical Mythology	2
Classical Archaeology	136w	Greek Art	3

Supporting minors are recommended in Education, English, Foreign Languages, History, or Home Economics.

Art, Theory and Practice of

The major in Art will be varied to meet the needs of students who may desire utlimately to concentrate in the various fields of art. The minimum requirement for a major is 24 hours, but students who expect to continue in a professional school or in the Graduate School should elect additional courses. The maximum permitted is 40 hours. The additional courses may be chosen, on the advice of the department, to meet special needs in the field of concentration. Those recommended are Design, Painting, and Illustration. Courses in Applied Art may be substituted for courses in Theory and Practice of Art, on the list below, to a maximum of 12 hours. The supporting minor may be advantageously selected from the following: English, Modern Language, History, Philosophy, Sociology, and Psychology.

Art, Theory and Practice of

General Subject	No. of Course	Special Title	Credit Hours
Art, Theory & Practice of	2f & w	Introduction to Art	3
Art, Theory & Practice of	3f & w	Appreciation of Art	2
Art, Theory & Practice of	5f & w	Theory of Drawing	2
Art, Theory & Practice of	19f & w	Composition I	2
Art, Theory & Practice of	70f & w	Design I	
	or	or	
	77f & w	Painting I	3
History of Art	11f	Introduction to Ancient and Medieval Art	2
History of Art	12w	Introduction to Renaissance and Modern Art	2
Art, Theory & Practice of	168f & w	Drawing I	3
and not less than 5 hours from the following:			
Art, Theory & Practice of	159f & w	Composition II	2
Art, Theory & Practice of	160f & w	Design II	3
Art, Theory & Practice of	177f & w	Painting II	3
Art, Theory & Practice of	178f & w	Drawing II	3

Bacteriology

General Subject	No. of Course	Special Title	Credit Hours
Chemistry	2f & w	General Inorganic	3
Chemistry	15f & w	Organic Chemistry	3 or 5
	or 110f & w	Organic Chemistry	
Botany	3f & w	General Bacteriology	3
Botany	100w	Plant Physiology	5
or Physiology	100w	Elementary Physiology	
Medical Bact	101f	Medical Bacteriology	6
			20 or 22

Elective to make 24 hours or more from

Botany	107w	Mycology	3
Botany	100w	Plant Physiology	5
Physiology	100w	Elementary Physiology	5

Soil Bacteriology or Dairy Bacteriology are also recommended.

Botany

General Subject	No. of Course	Special Title	Credit Hours
Botany	1f & w	General Botany	5
Botany	3f & w	General Bacteriology	3
Botany	101w	Taxonomy & Ecology	3 or 5
Botany	125f	Heredity and Genetics	5
Botany	100w	Plant Physiology	5

At least five (5) hours from following:

Botany	102f	Plant Pathology	3
Botany	104w	Plant Histology	3
Botany	105f	Morphology	5
Botany	107f	Mycology	3
Botany	111f & 112w	Special Problems	1 or more

For prospective teachers Zoology 1f or w and Botany 102f or 105f are required. Minors are recommended in Zoology, Chemistry, Physics, Geology, Mathematics, Education, or Languages.

For a Botany-Zoology major preparatory to Medicine, see under Zoology major.

Chemistry

General Subject	No. of Course	Special Title	Credit Hours
Chemistry	1f & w	General Inorganic Chemistry	5
Chemistry	2f & w	General Inorganic Chemistry	3
Chemistry	27f & w	Qualitative Analysis	3
Chemistry	110f & w	Organic Chemistry	5
Chemistry	112f & w	Organic Chemistry	3
Chemistry	121f & w	Quantitative Chemical Analysis	5
Chemistry	131f & 130w	Physical Chemistry	5 or 3

Three-hour course in Physical Chemistry 130 will be accepted toward a major for students minoring in Biology or other

departments in which Calculus is not required as a part of the student's plan of study. Greek for Students of Science, a study of the derivation and meaning of scientific terms, is recommended to students of Chemistry.

Medical Sciences

General Subject	No. of Course	Special Title	Credit Hours
Chemistry	1f & w	General Inorganic Chemistry	5
Chemistry	2f & w	General Inorganic Chemistry	3
Chemistry	25f & w	Analytical Chemistry	5
Chemistry	110f & w	Organic Chemistry	5
Chemistry	112f & w	Organic Chemistry	3
Chemistry	130w	Physical Chemistry	3
Biochemistry	106w	Physiological Chemistry	6

Economics and Finance

A major in this department consists of the course in general economics (Economics 1, 5 hours) and additional courses selected by the student, with the advice and consent of the departmental adviser, from the following:

General Subject	No. of Course	Special Title	Credit Hours
Economics	104f & w	Principles of Marketing	3
Economics	106w	Transportation and Public Utilities	3
Economics	110f	Labor Problems	5
Economics	115w	Public Revenues	3
Economics	118f & w	Corporation Finance	3
Economics	122f & w	Investment	3
Economics	129f & w	Money, Credit and Banking	5
Economics	130w	Banking Systems	3
Economics	160w	Economic Control	3
Economics	190w	Economic Reorganization	2
Economics	205w	Industrial Relations	2
Economics	209w	Theory of Imperfect Competition	(2-4)
Economics	211f	Advanced Economic Theory	5
Economics	221f	International Finance	2
Economics	227w	Classical Economics	(3-5)
Economics	230f	Advanced Money and Banking	3
Economics	231w	Current Monetary Problems	(2-3)

The minor to support this major may be selected, with the approval of the major adviser, from the courses of one, or of two or more, of the following departments: Geography, History, Philosophy, Political Science and Public Law, Psychology, and Sociology.

English

Students making their major in English will take at least three hours in each of the following groups of courses. Upon the basis of the twelve hours thus required, majors will be built up, under the direction of the adviser for the department, to meet the needs of different types of students.

I. Composition

General Subject	No. of Course	Special Title	Credit Hours
English	50f & w	Narration	3
English	60f & w	Exposition	3
English	100w	The Short Story	3
English	101f	Advanced Writing	3
English	104w	The Appreciation of Literature.	3
English	105f	Argumentation	3
English	115f	Principles of Rhetoric	3

II. Language

General Subject	No. of Course	Special Title	Credit Hours
English	119f	The English Language	3
English	120w	The English Language	3
English	125f	Chaucer and His Time	2½–3

III. Later Literature

General Subject	No. of Course	Special Title	Credit Hours
English	155f	The Age of Reason	3
English	156w	Johnson and His Time	3
English	165f	The Romantic Period	3
English	166w	The Victorian Period	3

IV. Earlier Literature

General Subject	No. of Course	Special Title	Credit Hours
English	125f	Chaucer and His Time	2½–3
English	135f	Shakespeare	3
English	136w	Shakespeare	3
English	145f	Milton	3

Students electing course 125 to meet the requirement in the second group will take also one of the other courses in the fourth group.

Major With Emphasis in Speech

The following courses are required for the major with emphasis in speech: 30 and 40, *English Life and Literature;* 74, *Oral Interpretation;* 75, *Public Speaking;* 118, *Applied Phonetics* or 122, *Speech Correction;* and 119, *The English Language.* Students with

inadequate voice and articulation should take 73, *Voice and Articulation.* Course 15, *Reading and Speaking,* is recommended, but not required, for prospective majors who wish a speech course in the freshman year. In addition, students will take one course in each of the following groups:

I. Speaking Before an Audience

General Subject	No. of Course	Special Title	Credit Hours
English	105f	Argumentation	3
English	106w	Group Discussion and Debate	3
English	107f	Dramatic Interpretation	3
English	108w	Characterization and Acting	3
English	112f	Introduction to the Theatre	3

II. Later Literature

General Subject	No. of Course	Special Title	Credit Hours
English	155f	The Age of Reason	3
English	156w	Johnson and His Time	3
English	165f	The Romantic Period	3
English	166w	The Victorian Period	3
English	175f	American Literature	3
English	176w	American Literature	3
English	195f	Modern Drama	3

III. Earlier Literature

General Subject	No. of Course	Special Title	Credit Hours
English	125f	Chaucer and His Time	3
English	135f	Shakespeare	3
English	136w	Shakespeare	3
English	145w	Milton	3

IV. Advanced Speech Courses

General Subject	No. of Course	Special Title	Credit Hours
English	109w	Stagecraft	3
English	110f	Principles of Stage Direction	3
English	111w	Play Production	3
English	114w	Public Address	3
English	115f	Principles of Rhetoric	3
English	116w	British Oratory	3

The supporting minor may be chosen from one of the following fields: Classical Languages and Literature, Modern Languages and Literature, Philosophy, Psychology, History, Political Science and Public Law, Economics, Sociology, the Fine Arts.

French and Italian

French

General Subject	No. of Course	Special Title	Credit Hours
French and Italian	1f or w	Elementary French	5
French and Italian	2f or w	Intermediate French	5
French and Italian	3f or w	Advanced French	5

The rest of the major may be elected from upperclassmen courses of the department and should be chosen in consultation with the department adviser before the close of the sophomore year. Prospective teachers should elect courses in composition.

Geology and Geography

I. Geology

Five hours from the following list of courses:

General Subject	No. of Course	Special Title	Credit Hours
Geology	1f & w	Principles of Geology	5
Chemistry	1f & w	General Inorganic Chemistry	5
Physics	1f & w or 2f & w	Elementary College Physics	5
Mathematics	1f & w	Introductory Course	3
Astronomy	1f & w	Descriptive Astronomy	5
Greek	13w	Greek for Students of the Sciences	1

Seven hours from the following list of courses:

General Subject	No. of Course	Special Title	Credit Hours
Geology	14w	Common Rocks and Minerals	3
Geology	15f	Advanced General Geology	4
Geology	50f & w	Life of the Geologic Past	2
Geology	45f	Minerals and Rocks Useful to Man	2

Twelve hours from the following list of courses:

General Subject	No. of Course	Special Title	Credit Hours
Geology	105s	Field Course	4 or 5
Geology	107w	Mineralogy	5
Geology	120f	Historical Geology	3
Geology	121w	Introduction to Paleontology	3

II. Geography

General Subject	No. of Course	Special Title	Credit Hours
Geography	6f & w	Introductory Geography	3
Geography	7f & w	Geography Laboratory	1
Geology	45f	Minerals and Rocks Useful to Man	2
Geography	110f	Geography of North America	3
Geography	112w or 114w	Geography of Europe, or Asia	3
Geography	125f & w	Economic Geography	3

General Subject	No. of Course	Special Title	Credit Hours
Geography	130f & w	Geography of Trade	2
Geography	140w	Climate and Weather	2
Geography	160w	Geography of South America	3
Geography	170f	Geography of Caribbean America	3

III. Geology and Geography

General Subject	No. of Course	Special Title	Credit Hours
Geology	1f & w	Principles of Geology	5
Geography	6f & w	Introductory Geography	3
Geography	7f & w	Geography Laboratory	1
Geology	15f	Advanced General Geology	4
Geology	45f	Minerals and Rocks Useful to Man	2
Geology	120f	Historical Geology	3
Geography	110f, or 112w, or 114w	Geography of North America, or Europe, or Asia	3
Geography	140w	Climate and Weather	2
Geography	160w or 170f	Geography of South America, or Caribbean America	3

Germanic Languages

General Subject	No. of Course	Special Title	Credit Hours
German	1f & w	Beginning Course in German	5
German	2f & w	German Reading, Syntax and Composition	5
German	3f & w	Advanced Reading Course	5
German	104f & w	Masterpieces of Modern German Drama and Lyrics and Novel	3

The remaining hours may be elected from courses above 100 under the direction of the adviser of the department.

History

The upperclass work in the major will be selected as follows:

I. One starred course from each of the following groups.
II. The remaining courses must all be chosen in one group or deal with one topic.

1. Ancient and Medieval History

General Subject	No. of Course	Special Title	Credit Hours
History	*124f	Greek History	3
History	*125w	Roman History	3
History	128w	The Hellenistic Age	2

General Subject	No. of Course	Special Title	Credit Hours
History	132f	The Eastern Roman Empire	2
History	139w	History of Islam	2
History	150f	Intellectual History	3
History	*152f	The Early Middle Ages	3
History	*153	The Middle Ages	3
History	157f	Medieval France	2
History	158w	The Medieval Church	2
History	159f	The Beginnings of Capitalism	2

2. Modern European History

General Subject	No. of Course	Special Title	Credit Hours
History	*106f and w	Contemporary Europe	3
History	*146w	British Empire	3
History	151w	Intellectual History	3
History	165w	Modern France	3
History	166f	Modern Germany	3
History	167w	Economic History of Europe	3
History	168f	Diplomatic History of Europe	3
History	170f	English Constitutional History	3
History	171f	Tudor and Stuart England	3
History	172w	Modern England	3

3. American History

General Subject	No. of Course	Special Title	Credit Hours
History	*110f and w	Recent U. S. History	3
History	180f	Social Forces in American History	3
History	181w	Colonial History	3
History	182f	History of the West	3
History	184f	History of the South	3
History	185f	Economic History of the United States	2
History	188w	Foundations of 20th Century America	3
History	*189w	American Constitutional History	3
History	*190f	American Diplomatic History	3

In addition to one of the other social sciences, or a combination of them with special emphasis on one, and to Geography, minors will be accepted in the Philosophy, Literature or Art of the country or period covered by the major, and in Education.

Latin

The following major in Latin is intended for students who enter the University with three or four entrance units in Latin. For students who enter with less than three units the requirement

for the major will be somewhat different, and the chairman of the department should be consulted for information concerning it.

Ten hours chosen from:

General Subject	No. of Course	Special Title	Credit Hours
Classical Languages	100	Vergil's Aeneid	5
Classical Languages	101	Cicero's Essays	5
Classical Languages	102	Pliny	2
Classical Languages	103	Ovid	3
Classical Languages	104	Prose Composition	1
followed by			
Classical Languages	110	Horace	3
followed by eleven hours chosen from the following:			
Classical Languages	106	Prose Composition	1
Classical Languages	114	Cicero's Letters	3
Classical Languages	115	Rapid Reading	2
Classical Languages	116	Rapid Reading	2
Classical Languages	117	Catullus	3
Classical Languages	119	Vergil's Aeneid : VI-XII	3
Classical Languages	120	Latin Comedy	3
Classical Languages	121	Juvenal's Satires	3
Classical Languages	150	Tacitus	3

Mathematics

General Subject	No. of Course	Special Title	Credit Hours
Mathematics	2f or w	Trigonometry and Algebra	5
Mathematics	4f or w	Analytic Geometry	5
Mathematics	5f or w	Differential Calculus	5
Mathematics	100f or w	Integral Calculus	5

and either 104 and 105 (Advanced Algebra) or 110 and 111 (Advanced Calculus) or 115 and 116 (Advanced Geometry).

It is recommended that the supporting minor be in Astronomy, Physics or Education, although it may be taken in any of the mathematical physical sciences, and in French and German. In case the last minor is elected it must be such as to provide a reading knowledge in both languages.

Music

While the major in music is planned primarily to meet the needs of those students who hope ultimately to become professional musicians, but who wish a thorough general education as a foundation and background, along with reasonable preparation in music for professional work in distinctly professional schools or in the Graduate School of the University of Missouri, it also affords excellent opportunities for those who are interested in music as a recreation and cultural resource to develop their gifts in that

art in a well-proportioned manner. The major may, therefore, be varied to meet the needs of such as may desire ultimately to concentrate in the various fields of music. Most students desiring to major in music will normally have completed the essential features of Courses 1 and 2, Introduction to Music, during their high school years, and may under such conditions be excused from that requirement by the department.

The minimum required for a major in music is 24 hours, but all students who expect to continue in a professional school, or in the Graduate School, should elect additional courses. The maximum permitted is 40 hours. The respective fields of concentration recommended are (a) History, Criticism, Aesthetics and Musicology; (b) Theory and Composition; (c) Applied Music. The maximum credit in Applied Music is 12 hours.

All music majors will include the following courses:

Theory

General Subject	No. of Course	Special Title	Credit Hours
Music	1f and 2w	*Introduction to Music	6
Music	3f and 4w	Elementary Harmony and Counterpoint	4
Music	101f and 102w	Advanced Harmony	4

*Unless excused, having had essentials of this course during high school years.

History of Music

General Subject	No. of Course	Special Title	Credit Hours
Music	121f	The Pre-classic Period	2
Music	122w	The Classic and Romantic Period	2
Music	123f	Modern Music	2

A minimum of four hours in applied music will also be required except that students concentrating in either field of Historical or Theoretical Music, and sufficiently proficient in applied music to use it as a tool for such work, may with the approval of their adviser substitute work in other fields of music.

The additional work elected to meet the special needs of the field of concentration will be selected with the approval of the adviser from other upperclass courses offered in the department of music.

The supporting minor may be advantageously selected from the following fields: English, History, Modern Language, Philosophy, Sociology, Psychology.

PHILOSOPHY

General Subject	No. of Course	Special Title	Credit Hours
Philosophy	103f	Ethical Theory	3
Philosophy	104f	Early European Philosophy	3
Philosophy	105w	Modern Philosophy	3
Philosophy	112w	American Ideals	3
Philosophy	120w	Philosophy and Modern Science	3
Philosophy	121f	Present Philosophical Tendencies	3

Other courses selected by the adviser to complete the 24 hours.

A supporting minor may be advantageously taken in the following subjects: Psychology, Political Science, Sociology, History, English, Education.

PHYSICS

General Subject	No. of Course	Special Title	Credit Hours
Physics	3	General Physics	5
Physics	4	General Physics	5
Physics	104w	Electrical Measurements	3

with additional hours selected from the following:

Physics	112f	Heat	3
Physics	106f	Ionization of Gases	2
Physics	110f	Electricity and Magnetism	3
Physics	113w	Light	3
Physics	114w	Mechanics	3

By special persmission courses in Mathematics or Chemistry may be substituted. Mathematics or Chemistry is recommended for the supporting minor.

PHYSIOLOGY

General Subject	No. of Course	Special Title	Credit Hours
Zoology	1f or w	General Zoology	5
Zoology	4w	Comparative Anatomy of Vertebrates	5
Physiology	100f or w	Elements of Physiology	5

Together with either of the two courses in General Physiology.

Physiology	102w	General Physiology	5
Physiology	103f	Advanced General Physiology	5

and necessary additional hours to make the required 24 from the following:

Anatomy	101f	Elementary Anatomy	3
Biochemistry	101w	Elementary Physiological Chemistry	3
Biochemistry	106f	Physiological Chemistry	6
Zoology	120f	Embryology of Vertebrates	3

Students looking forward to this major should take General Inorganic Chemistry for the freshman-sophomore requirement.

Students preparing for advanced work in Physiology are advised to take at least one course in Biochemistry.

Political Science and Public Law

General Subject	No. of Course	Special Title	Credit Hours
Political Science	1f or w	American Government	5
Political Science	5w	International Relations	3
Political Science	100w	European Governments	5

Eleven hours of additional work in Political Science are required. These are to be selected in consultation with the adviser.

Psychology

General Subject	No. of Course	Special Title	Credit Hours
Psychology	1f or w	General Psychology	3
Psychology	196w	Systematic Psychology	3

At least 12 hours of work must be selected from the following list of courses that stress experiment and measurement in Psychology:

Psychology	187f	Psychology of the Individual	3
Psychology	189f	Psychology of Sensation and Perception	3
Psychology	190w	Psychology of Action and Emotion	3
Psychology	191f	Psychology of Learning I	2
Psychology	192w	Psychology of Learning II	3
Psychology	193f or 194w	Special Problems in Psychology	2–5

The remainder of the 24 hours required for the major may be taken in the experimental courses listed above, or from the following list:

Psychology	50f and w	Applied Psychology	3
Psychology	98w	Mental Development	3
Psychology	122f and w	Abnormal Psychology	3
Psychology	125f	Social Psychology	3
Psychology	197f and 198w	Distinction is Psychology	6

The courses to be taken must be selected in consultation with the adviser. Students preparing for advanced work in Psychology are advised to take all the courses listed in the second group (experimental). The supporting minor should be chosen in consultation with the departmental adviser.

Sociology

Social Science

General Subject	No. of Course	Special Title	Credit Hours
Sociology	1f or w	General Sociology	3
Economics or	1fw or	General Economics or	
Political Science	1fw	American Government	5
Sociology	110fw or	Social Pathology or	
	111fw	Criminology	3
Sociology	125f	General Anthropology	3
Sociology	126w	Cultural Anthropology	3
Sociology	112f	Child Welfare	3
Sociology	114w	The Family	3
Sociology	113w or	Constructive Social Policies or	
	127f	Immigration and American Society	2

Social Service

General Subject	No. of Course	Special Title	Credit Hours
Sociology	1f or w	General Sociology	3
Sociology	110w	Social Pathology	3
Sociology	111w	Criminology	3
Sociology	112f	Child Welfare	3
Sociology	113w	Constructive Social Policies	2
Sociology	153f or w	Social Case Work I	3
Sociology	159w	Community Problems	3
Sociology	150f	Field of Social Work	3
Sociology	114w	The Family	3

Spanish

General Subject	No. of Course	Special Title	Credit Hours
Spanish	1f or w	Elementary Course	5
Spanish	2f or w	Intermediate Course	5
Spanish	3f or w	Advanced Course	5

The rest of the major may be selected from upperclassman courses of the department and should be chosen in consultation with the department adviser before the end of the sophomore year. Prospective teachers should include among their electives as much work in composition and conversation as possible.

Zoology

Preparatory to Research

General Subject	No. of Course	Special Title	Credit Hours
Zoology	1f or w	General Zoology	5
Zoology	2w	Theory of Evolution	2
Zoology	3f or 6w	Advanced General Zoology or Principles of Wildlife Conservation	3

General Subject	No. of Course	Special Title	Credit Hours
Zoology	4w	Comparative Anatomy of Vertebrates	5
Zoology	120f	Embryology of Vertebrates	3
Zoology	105f or 135w	Comparative Histology or Cytology	3–5
Zoology	110w or 116w	Parasitology or Cellular Physiology	3–5
Zoology	100w or 130f or 150f	Animal Ecology, or Protozoology, or Special Problems	3
Zoology	125f	Genetics	5
Zoology	200f and w	Seminar	1–2

Preparatory to Medicine

A total of twenty-four hours to be selected, preferably from the following list:

General Subject	No. of Course	Special Title	Credit Hours
Zoology	1f or w	General Zoology	5
Zoology	2w or 5w	Theory of Evolution or Ornithology	2
Zoology	4w	Comparative Anatomy of Vertebrates	5
Zoology	120f	Embryology of Vertebrates	3
Zoology	105f	Comparative Histology	3
Zoology	110w or 116w	Parasitology or Cellular Physiology	3–5
Zoology	130f	Protozoology	3
Zoology	125f	Genetics	5
Zoology	135w or 150f or w	Cytology, or Special Problems	5 3

Zoology—Medical Sciences

The course in General Zoology 1f or w must be used as the underclass requirement in biological sciences if this major combining Zoology and Medical Sciences is selected.

The student will then select a total of at least 18 hours preferably from the following courses:

General Subject	No. of Course	Special Title	Credit Hours
Zoology	2w or 5w	Theory of Evolution or Ornithology	2
Zoology	4w	Comparative Anatomy of Vertebrates	5
Zoology	105f	Comparative Histology	3
Zoology	110w	Parasitology	3
Zoology	125f	Genetics	5
Zoology	116w	Cellular Physiology	3–5
Zoology	120f	Embryology of Vertebrates	3
Zoology	130f	Protozoology	3
Zoology	135w	Cytology	3–5

This major is then completed by taking six hours in first-year medical courses.

Prospective medical students may also select a major that combines courses in Botany and Zoology, choosing the adviser from either department, as follows: Botany 1, 3, 100, and 102 or 104 or 107; Zoology 1 and 4, and 105 or 110 or 116 or 120 or 125, to make a total of 24 hours in addition to the underclass requirement.

Preparatory to High School Teaching

General Subject	No. of Course	Special Title	Credit Hours
Zoology	1f or w	General Zoology	5
Zoology	2w	Theory of Evolution	2
Zoology	3f	Advanced General Zoology	3
Zoology	4w or 100w	Comparative Anatomy of Vertebrates or Animal Ecology	3–5
Zoology	5w	Ornithology	2–3
Zoology	6w	Principles of Wildlife Conservation	3
Zoology	105f	Comparative Histology	3
Zoology	120f	Embryology of Vertebrates	3

This major is then completed by taking six additional hours in any of the remaining upperclass courses.

Prospective high school teachers may select a major which combines courses in Botany and Zoology, with a minor in Education, choosing the adviser in either department, as follows: Botany 1, 3, 100, and 101 or 102 or 104; Zoology 1 and 3 or 4 or 2 and 5, and 105 or 110 or 116 or 120 or 125.

Students interested in or preparing to enter the field of wildlife conservation and management may select a group major (see page 118) which combines courses in Zoology, Botany, Forestry, and related fields of science, land use, and the social studies. Some of the scientific courses ordinarily included in such a group major are the following: Zoology 1, 2, 3, 5, 6, 100, 110, and 120; Botany 1, 3, 101, and 100 or 105; Forestry 51, 151; Civil Engineering 60; Soils 2, 108.

Course 1 cannot be included in any of the foregoing majors if it is used to meet the freshmen-sophomore requirement in biological science. Supporting minors may be arranged in Botany, Geology, Chemistry, Physics, Medical Sciences, Social Sciences, and the like. Seniors taking the course in General Zoology will receive only four hours' credit. Course Greek 13, Greek for Students of the Sciences, and Physics 150, Theory of the Microscope, are recommended to students of Zoology.

Electives from Other Divisions

Courses in other divisions are open as electives to students in the College of Arts and Science, and, with the consent of the Dean, the candidate may present them to an amount not exceeding 9 hours in all, as a part of the 120 hours required for graduation. Students who pursue a combined course in the College of Arts and Science and Medicine, or Law, or Engineering, may elect 30 hours in the School of Medicine or the first year in Law, or 20 hours in Engineering. Students preparing to enter the field of wildlife conservation and management may elect not more than 15 hours in other Divisions. The student who pursues a combined course may not elect courses from any division except the College of Arts and Science and the division chosen in taking the combined course.

He must also satisfy the specific requirements of the College.

Home Economics. With the approval of the major adviser, the chairman of the department of Home Economics, and the Dean, candidates for the A. B. degree may elect a special sequence of courses (not to exceed 18 hours) in Foods and Nutrition, or in Household Equipment, or in Textiles, and may count the sequence as a minor. Students taking one of these sequences are not eligible to any further privilege of election under the nine-hour rule.

Combined Courses

Arts and Science and Law. Seniors who have taken the Junior year in the College of Arts and Science of the University of Missouri and become candidates for both the degree in Arts and Science and the degree in Law may count toward the A. B. degree work from the first year in Law to an amount not exceeding 30 hours.

Arts and Science and Medicine. Seniors who have taken the Junior year in the College of Arts and Science of the University of Missouri and who become candidates for both the degree in Arts and Science and the degree in Medicine may count toward the A. B. degree 30 hours from the following courses in the medical curriculum: Anatomy (15), Embryology (3), Histology (6), Neuro-Anatomy (4), Biochemistry (9), Physiology (10), Pharmacology (5), and Advanced Physiological Chemistry (3-4).

Credit From the Extension Division: Credit will be given for work done in the Extension Division, but such credit may not exceed 20 normal credit hours for one calendar year. The last 24 hours of work for the degree must be done in residence.

Credit for Other Courses: Credit of 2 hours a semester will be given in Military Science and Tactics for the last two years of the curriculum of the Reserve Officers' Training Corps.

Credit of 1 hour a semester is given for work in the University chorus and in the University orchestra, but the maximum in either or both subjects shall not exceed 4 hours.

The following courses in the Missouri Bible College are open as electives to students regularly enrolled in the College of Arts and Science:

(1) Fundamental Moral and Religious Values, maximum 2 hours;
(2) Life and Literature of the Old Testament, maximum 2 hours;
(3) Life and Literature of the New Testament, maximum 2 hours;
(4) New Testament Greek, maximum 5 hours. Prerequisite, at least two semesters in classical Greek;
(5) Hebrew Language, maximum 11 hours;
(6) Post-Biblical Hebrew, maximum 4 hours;
(7) Elementary Syriac, maximum 4 hours;
(8) Elementary Arabic, maximum 4 hours;
(9) Assyrian for beginners, maximum 4 hours;
(10) Introduction to Egyptian, maximum 4 hours;
(11) Comparative Religion, maximum 2 hours;
(12) Ethics of World Religions, maximum 2 hours;
(13) The Ancient Orient, maximum 3 hours;
(14) The Early History of Israel, maximum 3 hours;
(15) Religion of the Ancient Hebrews, maximum 2 hours;
(16) Post-exilic Religion of the Jews, maximum 2 hours;
(17) Origins of the Christian Church, maximum 2 hours;
(18) History of the Christian Church, maximum 3 hours;
(19) History of Religion in America, maximum 2 hours;
(20) Psychology of Religion, maximum 3 hours;
(21) Philosophy of Religion, maximum 3 hours.

Registration for such courses must meet with the approval of the Dean of the College of Arts and Science and of the department to which the course is most closely related.[1] Elections must also be subject to the usual restrictions as to the total number of hours' credit registered for in any semester; and the total credit for such courses shall not exceed 14 hours.

COURSES WITHOUT CREDIT FROM OTHER DIVISIONS: Students may, with the consent of the Dean of the college, elect certain courses from other divisions for which credit is not given in the College of Arts and Science.

CONCERTS AND RECITALS: Concerts and recitals by visiting artists and musical organizations are given from time to time. The admission is kept as low as possible in order that such opportunities of hearing good music may be within the reach of all. Every student who pays the full library, hospital, and incidental

[1]It is understood that the subjects most closely related to the above courses are (1) the Bible as literature, English; (2) history of the Jews, and Church history, History; (3) comparative religions; (4) Christian ethics; (7) fundamental moral and religious values, Philosophy; (5) Hebrew language and literature, and New Testament Greek, Greek.

fee in the regular session is given a ticket admitting him to all the concerts of the regular University Concert Series.

During the Session of 1938-39 the Series included concerts by Nino Martini, The Cincinnati Symphony Orchestra, The St. Louis Symphony Orchestra, Robert Casadesus and Kirsten Flagstad.

Recitals, public and private, are given at frequent intervals by members of the Department of Music and by advanced students. Students are required to take part in such recitals whenever called upon to do so by their instructors.

MUSICAL ORGANIZATIONS: The University Chorus rehearses once each week, and prepares several large choral works for presentation with soloists and orchestra from time to time during the year. Faculty, students, and singers from the community are admitted to membership after conference with the director of the chorus. All students of voice in the department, subject to the approval of their teacher and the Dean, are expected to sing in the University Chorus. All members of the Men's Glee Club and the Women's Glee Club, subject to the approval of the director of the chorus and the leaders of the glee clubs, are expected to sing in the University Chorus. In recent years the University Chorus has given performances of the following choral masterpieces: Elijah, Mendelssohn; Manzoni Reguiem, Verdi; Messiah (three times) Handel; Faust, Gounod; A Tale of Old Japan, Coleridge-Taylor; The Swan and the Skylark, Goring-Thomas; Hora Novissima, Parker; Carmen, Bizet; a German Requiem, Brahms; Martha, Flotow; La Vita Nuova, Wolf-Ferrari; and Samson and Delilah, Saint-Saens. Credit, two hours at the end of the second term.

The University Orchestra rehearses once each week. Concerts are given from time to time. Faculty, students, and players of orchestral instruments from the community are admitted to membership after conference with the director of the orchestra. All students of Violin, Violoncello, or other orchestral instruments are required to play in the University Orchestra. Credit, two hours at the end of the second term.

The University Band. See page 285 of this catalog.

The Men's Glee Club and the Women's Glee Club are student organizations. They give local and out-of-town concerts, and are open to any regularly enrolled student in the University who can meet their vocal requirements. Members of both these organizations are expected to sing in the University Chorus, subject to the approval of the director of that organization and the leaders of the glee clubs.

ART COLLECTIONS AND EXHIBITIONS: Besides a number of well lighted and suitably equipped studios and lecture rooms the University has a collection of plaster casts of famous statues and

relief, and a large number of lantern-slides and photographs to illustrate the world's art.

Exhibitions of original paintings, etchings, crafts, architectural drawings, etc., are held from time to time which art students are required to study. These represent modern as well as older practice.

HONOR-RANK LIST: At the end of each year "An Honor-Rank List" will be published containing the names of students in the college who have maintained an average of "M" plus or better in the year's work. The names of seniors who graduate with distinction will also be included. Students high on the Honor-Rank List may be relieved by the Dean from the operation of certain rules governing absences.

Special honors will be awarded in rare cases upon recommendation of a committee, by vote of the faculty, to students who by some specific piece of work show unusual scholarly aspirations and attainments. In such cases an appropriate diploma or testimonial will be furnished.

GRADUATION WITH DISTINCTION

Students may receive the degree of Bachelor of Arts with Distinction in the subject in which their major lies, under conditions that vary somewhat in different departments. In most departments the candidate must pass with distinction a special Comprehensive Examination on the entire field of his specialization (major and minor) at the close of his senior year. The object of the examination is to test the candidate's grasp of the subject as a whole. Readings or other assignments are prescribed and the departments advise the candidates either individually or as a group. For work done in preparation for his examination outside his regular courses the candidate may be allowed not to exceed three hours of credit in each semester of his senior year. Those who enter for Distinction but fail to achieve it will be given such grade upon the number of hours for which they have enrolled in the special work as their showing in the special examination justifies.

In the department of mathematics the requirements for Graduation with Distinction do not include a Comprehensive Examination. The candidate has the privilege of enrolling in the departmental seminary and in the Mathematics Club, and must present two acceptable papers before this club in the course of his senior year.

Students wishing to work for Distinction in any subject should consult their adviser when they make out their major and minor schedule. They may apply for candidacy at the beginning of their junior year; and their candidacy must be approved by the department not later than the third week of their senior year.

RESIDENCE: Students are expected to spend normally eight semesters in residence, and no student shall be recommended for the degree who has not spent the equivalent of six semesters in the college. Credit will be given, however, for time spent in other institutions of college rank and for work done in the Extension Division. The last twenty-four (24) hours taken by a student in fulfillment of the requirements for graduation, however, must be done in residence.

For further information regarding the College of Arts and Science, address F. M. TISDEL, DEAN, FACULTY OF ARTS AND SCIENCE, UNIVERSITY OF MISSOURI, COLUMBIA, MISSOURI.

COLLEGE OF AGRICULTURE*

The College of Agriculture was established by acts of Congress and by laws enacted by the Missouri General Assembly. The character of the instruction to be given in this College is to some extent specified in the legal enactments providing for its establishment.

The object of this instruction is to train men and women for success in the vocation of agriculture. The College aims to educate farmers, farm managers, fruit growers, grain growers, dairymen, poultrymen, and stockmen. It prepares men for responsible positions as teachers in agricultural colleges, investigators in experiment stations, for extension work in agriculture and home economics, as teachers of vocational agriculture, for service in the United States Department of Agriculture, and for business related to commerce in agricultural commodities.

Endowment of the College

1. *First Morrill Act:* The proceeds from the sale of 275,000 acres of land granted to Missouri by the Act of Congress of July 2, 1862. A part of this land has been sold and the sum invested in State Certificates of Indebtedness yielding 5 per cent interest, and in municipal and drainage district bonds. The sum received annually from this source now amounts to approximately $20,000. The Missouri Legislature has by law provided that one-fourth of this amount shall go to the School of Mines and Metallurgy at Rolla.

2. *Second Morrill Act:* An annual appropriation of $25,000 by Act of Congress, approved August 30, 1890. One-sixteenth of this amount is by law appropriated to the Lincoln University at Jefferson City for the education of negro children in agriculture and mechanic arts. One-fourth of the remainder is by law apportioned to the School of Mines and Metallurgy at Rolla.

3. *Nelson Amendment:* An appropriation of $25,000 annually by Act of Congress, approved March 4, 1907. A part of this money may be used for the special preparation of instructors for teaching the elements of agriculture and mechanic arts. This fund is apportioned in the same manner as that of the Second Morrill Act.

4. *Hatch Act:* An act of Congress, approved March 2, 1887, appropriating $15,000 annually to the Agricultural Experiment Station for investigation in agriculture.

*See General Information, p. 44, Fees, p. 73; Changes in Courses, p. 111.

5. *Adams Act:* An Act of Congress, approved March 16, 1906, appropriating $15,000 annually to the Agricultural Experiment Station for fundamental research in agriculture and the related sciences.

6. *Smith-Lever Act:* An Act of Congress, approved May 8, 1914, appropriating $157,798.17 for the year ending June 30, 1939 to Missouri for agricultural extension teaching and demonstration of improved agricultural and home economics practices.

7. *Purnell Act:* An Act of Congress, approved February 24, 1925, appropriating $60,000 to the Agricultural Experiment Station for the year ending June 30, 1939.

8. *Capper-Ketcham Act:* An Act of Congress, approved May 22, 1928, appropriating $36,381.63 annually to Missouri for agricultural extension work under the same general conditions as the Smith-Lever act.

9. *Bankhead-Jones Act:* An Act of Congress approved June 29, 1935, appropriating for the year ending June 30, 1939, $45,270.36 for teaching, $67,346.97 for the Agricultural Experiment Station, and $384,859.99 for co-operative agricultural extension work.

Buildings

Mumford Hall: This building contains approximately 60,000 square feet of floor space, housing in addition to several large classrooms, the agricultural library, the offices of the Dean and Director, the Agricultural Editor, the University Photographer, and the Departments of Animal Husbandry, Soils, Agricultural Economics, and Rural Sociology.

Waters Hall: A two-story stone building housing the Departments of Field Crops, Poultry Husbandry, Agricultural Education, and the Agricultural Extension Service.

Whitten Hall: A two-story stone building containing classrooms, laboratories, offices, and preparation rooms for horticulture and entomology.

Eckles Hall: A new two-story stone building, tile interior finish, with modern laboratories, classrooms and offices for teaching and research in farm dairying, market milk, manufactured dairy products, dairy bacteriology, milk inspection, dairy chemistry, nutrition, breeding, and milk secretion.

Schweitzer Hall: A two-story stone building for agricultural chemistry containing the offices and general chemical laboratories of the Agricultural Experiment Station, several large student laboratories, and classrooms. The basement contains storerooms, coolers, and demonstration rooms.

Lefevre Hall: A modern biological laboratory building in which students enrolled in the College of Agriculture receive fundamental training in botany and zoology.

Veterinary Building: The Department of Veterinary Science is housed in a three-story stone building devoted exclusively to investigation and instruction. The building contains laboratories for physiology, pathology, investigations in contagious and infectious diseases, and operating rooms for clinics.

Gwynn Hall: A two-story building with well lighted basement. The building contains classrooms, reading rooms, and laboratories for work in clothing, foods, textiles, applied art and nutrition and also special laboratories equipped for research in various phases of Home Economics.

Poultry Building: Several buildings are available for instruction in poultry husbandry. Among them is a student laboratory building. There are also a fifteen-pen laying and breeding house, a large number of portable colony houses, a feed house, and houses for experimental work. A large number of fowls representing the popular varieties, are available for instructional and experimental purposes.

Agricultural Engineering Buildings: A two-story stone building contains offices, classrooms, drafting room, and field machinery and home equipment laboratory; and a one-story stone building contains the metal and woodworking shops, gas engine and tractor laboratories.

Live Stock Judging Pavilion: This building is 90 by 160 feet, with an arena 50 by 120 feet, and has a seating capacity of 1,500. This structure is well lighted and heated and is provided with locker room and shower baths.

Barns and Shelters: The Department of Animal Husbandry is equipped with a modern horse barn, with a capacity of thirty horses. The first story is of stone work, concrete floors, well lighted and ventilated. The second story furnishes space for feed room and hay storage. A 250-ton stone silo and a steel silo are a part of the equipment of this department. There are two cattle sheds, one 300 feet in length and divided into 15 lots, and the other 100 feet in length with lots for experimental and investigational work. The equipment also includes a modern hog barn with concrete floors and iron pen divisions, a dipping tank, suitable equipment of individual hog shelters, and a sheep barn. A beef cattle barn that houses 100 head of cattle and feed enough to carry them through the winter is available.

The Department of Dairy Husbandry maintains (1) A modern dairy barn with accommodations for 65 milking cows, and a milk room meeting U. S. Public Health Grade A requirements; (2) A

calf, young stock, and maternity barn for 60 head; (3) a bull shed with accommodations for 10 herd sires; and (4) several smaller sheds for experimental animals.

Laboratories

Agricultural Engineering: The agricultural engineering laboratory contains a large assortment of the best modern machinery, including one or more of the principal field and power machines. For instruction in gas engines and tractors, the laboratory is equipped with twenty stationary and portable gasoline and oil engines, and eight to ten of the latest types of tractors with suitable equipment for testing same. Lighting units are provided for work on farm-lighting systems. Drafting tables are provided to accommodate the men designing farm buildings. The equipment for concrete work includes a complete set of concreting tools, molds for building blocks, forms for fence posts, water troughs and tanks, and tile machines, with small apparatus for testing cement and aggregates. A level and transit with complete set of tools are provided for tile drainage work. Complete sets of small hand tools, both for metal working and woodworking, are available for work in farm shop practice. Other farm shop equipment includes forges, anvils, a power drill, a power grinder, and a power saw.

Agricultural Chemistry: The student laboratories and the laboratories of the Agricultural Experiment Station, located in Schweitzer Hall, provide facilities for instruction, for research in animal nutrition, and for the analysis of fertilizers, foods, and feeding stuffs. Opportunity is offered for a study of the provisional and official methods of the Association of Official Agricultural Chemists.

Animal Husbandry: Animal Husbandry laboratories are maintained where research is conducted in live-stock nutrition and the physiology of reproduction of farm animals. Facilities for slaughtering and cutting and curing meats also are provided.

Botany: Laboratories for general, physiological, pathological, and structural botany, and culture rooms for physiological, mycological, and bacteriological work are in Lefevre Hall. They are equipped with compound and dissecting microscopes, microtomes, steam and steam-pressure sterilizers, incubators, balances, precision apparatus, and glassware. The herbarium amply illustrates the local flora.

Dairy Husbandry: Facilities for instruction and research include a herd of dairy cattle consisting of 150 head representing three leading dairy breeds, 300 acres of farm land, laboratories for farm dairying, milk production, milk secretion, dairy cattle breeding, nutrition, metabolism, dairy bacteriology and milk control,

dairy chemistry, and the processing, manufacture, and storage of dairy products. Completely new laboratories will be available in the new building which now is being completed. These laboratories will include equipment for creamery work, the handling of market milk, and the manufacture of butter, ice cream, and cheese. The laboratories will be among the most modern in the country.

Entomology: The laboratories located in Whitten Hall and insectary are supplied with microscopes, dissecting instruments, microtomes, breeding cages, aquaria, spraying machines, insecticides and reagents. The museum contains collections of several thousand species of the more injurious and beneficial insects, arranged to illustrate their habits of work and life history.

Horticulture: The horticultural laboratories include about 12,000 square feet of greenhouse space, a laboratory for the propagation of plants and storage space for cuttings, bulbs, stock and scions, a special spray laboratory for the study of spray machinery and materials, a packing shed and fruit packing laboratory. There are three analytical laboratories for the study of special problems in the fertilization and physiology of horticultural crops. The out-of-door collection on the horticultural grounds comprises about 1,000 varieties of fruits, ornamental shrubs and trees for a study of varieties and types, planting, pruning, training and spraying.

Field Crops: The Field Crops laboratories include a large practice room for the study of grains, seeds, and other crop materials by students; a laboratory for the official analysis of commercial seeds; and several smaller laboratories for research in plant genetics and in the physiological relations of crop plants.

Soils: Laboratories for instruction and investigation in soil physics, soil colloids, soil biology, and soil fertility are maintained. These are equipped for both graduate and undergraduate instruction and for comprehensive investigation in these fields.

LAND: The College of Agriculture owns and operates approximately fourteen hundred acres of land, all of which is utilized for instructional and investigational purposes. Each of the Departments of Animal Husbandry, Dairy Husbandry, Field Crops, Horticulture, Poultry, Soils and Veterinary Science maintains a considerable area of land as a part of its equipment. The Department of Veterinary Science operates a 90-acre research farm three miles from the College. The Department of Horticulture has developed an 80-acre fruit farm at Turner Station, six miles from Columbia and the Midway orchards of 160 acres, seven miles west of Columbia.

LIVE STOCK EQUIPMENT: The leading breeds of live stock of all classes are maintained. All the live stock is used for instructional or experimental purposes and students have the advantage

of knowing how the live stock is bred, how it is cared for and the results that are obtained from it.

A. *Beef Cattle:* A herd of about 25 Herefords, 25 Shorthorns, 25 Aberdeen-Angus, ninety per cent of which have been bred by the University of Missouri, is maintained.

B. *Horses:* A stud of 20 head of Percheron horses is maintained. A few American saddle mares and colts are kept. Several pairs of mules, together with the draft horses, perform most of the farm work on the University Farm. Ninety per cent of this equipment has been bred on the University Farm.

C. *Hogs:* The Poland-China herd consists of about 15 brood sows with their offspring. Duroc-Jersey and Hampshire herds are similar in size and quality. Specimens of other breeds are maintained from time to time. A good-sized herd of Chester Whites is maintained in a special swine nutrition experiment.

D. *Sheep:* A flock of 100 high-class sheep, including Shropshires, Hampshires, Southdowns, Dorsets, and Rambouillets is maintained.

E. *Dairy Herd:* The Dairy Department maintains a herd of about 150 head of the Jersey, Holstein, and Guernsey breeds. Complete milk and butter records are kept on each cow. The student is given instruction in the breeding, feeding, care and management of dairy cattle. Several cows in this herd hold milk and butterfat records which rank them among the best specimens of dairy cattle in America. Some of the outstanding sires of the Jersey and Holstein breeds have been developed in this herd.

LIBRARIES: The agricultural library has commodious quarters in Mumford Hall—an attractive reading room, a seminar room and stack room. The library has a collection of 21,986 volumes. In addition to these, there are 5,000 volumes on agricultural subjects in the general library.

PRACTICAL EXCURSIONS: Visits to successful farms, breeding establishments and to agricultural fairs and expositions are made under the guidance of instructors for the study of special phases of agriculture. The principles taught in the classroom are observed in their application to practical agricultural operations.

ADMISSION

Information concerning the requirements for admission is given on page 54. The requirements for admission to graduate instruction will be found on page 58.

New students generally register at the beginning of the first semester, but may enter the College of Agriculture at the beginning of either semester or the Summer Session.

Curricula in the College of Agriculture*

Detailed description, pages 152 to 160.

In the description of these curricula, a year is understood to mean two semesters.

A. Four-year curriculum in agriculture leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.).

B. Four-year curriculum for the training of teachers of vocational agriculture, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.).

C. Four-year curriculum in Home Economics, leading to the degree of Bachelor of Science in Home Economics (B. S. in H. Ec.).

D. Four-year curriculum in Agricultural Journalism, leading to the degree of Bachelor of Science in Agriculture (in Agricultural Journalism) [B. S. in Agr. (in Agr. Jour.)].

E. Two-year Forestry curriculum.

F. Short courses in Agriculture.

Summer Session: Many of the prescribed subjects and electives indicated in the following curricula are repeated during the Summer Session for the convenience of those students who desire to take them.

Regulations, Grades and Credits: The general regulations governing grades and credits (see page 111) apply to all courses in this College. Students of exceptional ability may shorten the period of residence by superior scholarship. Students who in any term fall behind in more than 38 per cent of the hours in which they are registered at the end of that term, or who fall more than 8 hours behind the total number of hours for which they have been registered up to that time, are subject to elimination from the College. The cumulative (8-hour) rule does not apply to work taken during the first term of the freshman year, but the application of the 38 per cent rule in the case of such students shall be at the discretion of the Dean. All students who have been dropped under these rules are permitted to return after one semester.

Point System: Candidates for degrees must complete the same number of points as the number of hours required for the respective degrees. The basis for evaluating points for residence work is as follows: Three points for each hour of E grade; two points for S grade; one point for M grade and no points for I or F grades. Advanced standing shall be valued as of M grade except that no points will be given for advanced standing of lower than M grade.

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*See General Information, p. 44; Fees, p. 73; Changes in Courses, p. 111.

Requirements for the Degree of Bachelor of Science in Agriculture

The degree of Bachelor of Science in Agriculture will be awarded to candidates who have satisfactorily completed the required subjects and total number of hours in the respective curricula.

A. Four-Year Curriculum in Agriculture

This course of study requires four years for completion and leads to the degree Bachelor of Science in Agriculture. It offers training for those students who are planning to enter the business of farming in any of its varied forms. Those who are planning to enter any of the various phases of business more or less directly connected with agriculture will find this course of study adapted to their needs. It also provides the basic training necessary for county agricultural agent and extension work and for agricultural experimental work and college teaching. Ample opportunity is given for specialization to meet the needs of individual students.

Curriculum A

Requirements for the Degree, Bachelor of Science in Agriculture:

1. A total of 128 hours is required.
2. A total of 60 hours in agricultural subjects is required.

Agricultural subjects include all courses numbered below 200 now offered in the departments of Agricultural Economics, Agricultural Engineering, Agricultural Chemistry, Animal Husbandry, Dairy Husbandry, Entomology (excepting courses 104, 116, and 117), Field Crops, Horticulture (including also Forestry 100), Poultry Husbandry, Rural Sociology, Soils, and Veterinary Science. In addition, Botany 100 will be accepted.

Special Training: Students who desire a more specialized training in pure or applied science will be permitted to substitute such subjects for agricultural courses, other than required courses, when both the teacher in charge of a major subject of specialization and the Dean have approved the substitution.

3. A minimum of 60 hours in residence (exclusive of the required courses in Military Science and Physical Education) is required. These 60 hours in residence must include a minimum of three hours in residence in each of the following agricultural departments: Agricultural Economics, Agricultural Engineering, Agricultural Chemistry, Animal Husbandry, Dairy Husbandry, Entomology, Field Crops, Horticulture, Poultry Husbandry, Rural Sociology, Soils, and Veterinary Science.

4. There are specific courses required for the degree in agriculture. These are listed below by years; freshmen, sophomore, junior, and senior. A year is understood to mean the work of two semesters. The normal enrollment in any one semester may not exceed 16 hours, excluding Military Science and Physical Education, except in the case of superior students, when an increased enrollment may be permitted upon recommendation of the adviser and approval of the Dean. The faculty reserves the right to maintain a proper balance of enrollment in the various courses.

Freshman

English 1 must precede English 2. All freshman subjects are offered both semesters.

	Hours
English 1, Composition and Rhetoric	3
English 2, Composition and Rhetoric	3
Agricultural Economics 1f or w, Principles of Agricultural Economics	3
Agricultural Engineering, 1f or w, Farm Power and Machinery I	3
Animal Husbandry, 1f or w, Animal Husbandry	3
Dairy 1f or w, Elements of Dairying	3
Entomology 1f or w, Applied Entomology	3
Field Crops 1f or w, Field Crops	3
Horticulture 1f or w, General Horticulture	3
Poultry 1f or w, Elementary Poultry Raising	3
Military Science 1	1
Physical Education 1	1
Military Science 2	1
Physical Education 2	1
	34

Sophomore

Chemistry 1, or Botany 1, or Zoology 1 may be exchanged with an equivalent number of hours in agricultural subjects listed in the freshman year, providing, however, that Botany 1 is completed before enrollment in Zoology 1.

	Hours
Botany 1f or w, General Botany	3
Chemistry 1f or w, General Inorganic Chemistry	5
Chemistry 15f or w, Elementary Organic Chemistry	3
Geology 2f or w, Physical Geology	3
Rural Sociology 115f or w, Rural Sociology	3
Soils 1f or w, Soils	5
Veterinary Science 1f or w, General Veterinary Science	3
Zoology 1f, General Zoology	3
Military Science 3	1
Physical Education 3	1
Military Science 4	1
Physical Education 4	1
	32

Junior

	Hours
Agricultural Chemistry 101f, Agricultural Chemistry	5
Animal Husbandry 100f, Animal Nutrition	3
Animal Husbandry 101w, Animal Breeding or Horticulture 115w, Improvement of Horticultural Plants or Field Crops 101w, Field Crop Improvement	3
Field Crops 100w, Field Crop Management	2
Botany 3f or w, Bacteriology	3
Physics 1f or w, Elementary College Physics or Mathematics 8f or w, General Mathematics	5
Elective	11
	32

Senior

30 hours, all elective.

WOMEN STUDENTS: In the above curriculum women students do not enroll for Military Science and Tactics, and may make the following substitutions: Home Economics 121 for Animal Husbandry 100, Physiology 100 for Veterinary Science 1. Any Home Economics course may be substituted for a part of the required 60 hours of agricultural courses.

B. FOUR-YEAR CURRICULUM FOR TRAINING TEACHERS OF VOCATIONAL AGRICULTURE

The College of Agriculture in cooperation with the School of Education has been designated as the approved institution in Missouri to prepare teachers of vocational agriculture for the secondary schools of this State. It is the purpose of this course to give a thoroughly practical training in agriculture and in education, including methods of teaching and practice teaching. The curriculum offered by this institution has the approval of the State Board for Vocational Education and complies with the provisions of the Federal Vocational Education Acts.

CURRICULUM B

A special course of study has been provided for training teachers of vocational agriculture. It requires four years and leads to the degree Bachelor of Science in Agriculture.

The requirements in this course of study are as follows:

All requirements listed under Curriculum A and in addition the following:

	Hours
Agricultural Engineering 10, Farm Shop Work	3
Agricultural Engineering Elective	3
Agricultural Economics 110, General Farm Management	3
Education A102, Educational Psychology	3
Education D140, H. S. Administration for Teachers	2
Agricultural Education F100, Foundations of Vocational Agriculture	3
Agricultural Education F105, Special Methods in Teaching Vocational Agriculture	3
Agricultural Education F107, Supervised Farm Practice in Vocational Agriculture	2
Agricultural Education F120, Community Educational Activities	2
Agricultural Education F156, Student Teaching in Vocational Agriculture	3

In order to teach vocational agriculture in high schools under the Smith-Hughs Act, two years of practical experience on a farm, after reaching the age of fourteen, are necessary.

C. Four-year Curriculum in Home Economics

The curriculum as outlined below is designed to meet the needs of groups of students who wish to apply their knowledge of home economics to problems in home-making, extension work, social service, dietetics, or in the various fields of industry. Completion of the four-year curriculum leads to the degree of Bachelor of Science in Home Economics.

Courses Required of All Home Economics Students

Freshman and Sophomore Years

		Hours
Home Economics 1	Selection and Preparation of Foods	5
Home Economics 10	Home Problems	2
Home Economics 15	Design	2
Home Economics 16	Design	2
Home Economics 50	Textiles and Clothing	3
Home Economics 160	Home Care and Training of Children	3
English 1	Composition and Rhetoric	3
English 2	Composition and Rhetoric	3
Botany 1 (3-5)	General Botany	3 or 5
or		
Zoology 1 (5)	General Zoology	
Botany 3	General Bacteriology	3
Chemistry 1	General Inorganic	5
Economics 1	General Economics	5
Sociology 1	General Sociology	3
Psychology or Educational Psychology		3
Physiology 100	Elements of Physiology	5
Chemistry 15	Elementary Organic	3
Physical Education		4

Junior and Senior Years

		Hours
Home Economics 110	Home Furnishing I	3
Home Economics 117	Economic Problems of the Family	3
Home Economics 120	Food Buying	2
Home Economics 125	Meal Planning and Table Service	2
Home Economics 121	Nutrition	3
Home Economics 122	Dietetics	4
Home Economics 150	Buying of Textiles and Clothing	3
Home Economics 115	Home Management	4
Sociology	(elective course)	3
English	(elective course)	2 or 3

General Home Economics

A course in General Home Economics is designed to meet the needs of students who desire a general education which will fit them for homemaking and community activities, but who do not wish to prepare for a specific vocation.

In addition to the courses required, electives are chosen in accord with the special interests of the student and with the approval of the adviser. These electives, together with the required courses, must provide a minimum of 18 hours in any one of the following groups:

Foods, Nutrition and Dietetics: 123, 124, 170 (2 hours required).
Textiles and Clothing: 51, 145, 146, 152, 155 (12 hours required).
Design: 111, 145, 146, 156, 162 (11 hours required).
Home and Family: 20, 118, 161 (5 hours required).

A minimum of 25 hours must be completed in at least one field other than Home Economics. The required courses may be included in the 25 hours. The electives should be selected from one of the following groups:

Social Science
Physical Science
Biological Science
English and Foreign Language
English and Journalism
Economics, and Business and Public Administration
English Art, and History
Agriculture

Free electives to provide a minimum of 124 hours to be selected with the help of the adviser.

Foods, Nutrition and Dietetics

A course in Foods is designed for students who wish to prepare for positions in food preparation in commercial food laboratories.

A course in Nutrition and Dietetics is designed to prepare students for positions as nutritionists in social welfare or extension work and as dietitians in hospitals, schools, colleges, hotels and other institutions.

Students specializing in Foods, Nutrition and Dietetics, must include in addition to the general requirements the following courses:

		Hours
Physics 1	Elementary College Physics	5
Home Economics 123	Advanced Dietetics	3
Home Economics 124	Field Dietetics	3
Home Econonics 170	Experimental Cookery	2
Education	Methods	3
Chemistry 25	Analytical Chemistry	5
Biochemistry 101 (3)	Elementary Physiological Chemistry	3 or 6
	or	
Biochemistry 106 (6)	Physiological Chemistry	
Free electives		16 or 20

Electives may be selected from courses in Accounting and Statistics, Journalism, Physiology, Chemistry, Sociology, and Economics.

Home Economics Extension

The course for Extension Workers in Home Economics is designed to prepare students for positions as Home Demonstration Agents. Further work and experience are required of specialists in any particular field.

In addition to the requirments for all Home Economics students the following courses must be included:

		Hours
Home Economics 51	Textiles and Clothing	3
Home Economics 145	Costume Design	2
Education F175	Organization of Vocational Home Economics.	3
Education F110	Methods of Teaching Vocational Home Economics	2
Free electives		30

Electives (to be selected with the help of the adviser) from Home Economics, Agriculture, Journalism, Rural Sociology, Public Speaking, Physics, Education, and Methods in Extension.

Textiles and Clothing

Two courses are offered to provide fundamental information and training in textiles and clothing for those who, with additional specialization may be interested in entering some commercial field as textile merchandising, buying, testing, costume designing or fashion illustrating.

1. Textiles and Costume Design

Students specializing in Textiles and Costume Design, in addition to the general requirements, must include courses from the following groups:

	Hours
Home Economics	12
To be selected from courses: 51, Textiles and Clothing (3); 145, Costume Design (2); 146, History of Costume (2); 152, Costume Design and Construction (3); 155, Advanced Textiles (3); 111, Home Furnishing II (2); 156, History of Decorative Textiles (2).	
Art and History of Art	15
(At least 3 hours must be in Life drawing).	
French	10
Free electives	14

Electives (to be selected with the approval of the adviser) from Journalism, Business and Public Administration, English, Psychology, and History.

Botany 3, Home Economics 120 and 125 are not required. Home Economics 130 may be substituted for Home Economics 121 and 122.

2. Textile Testing

In addition to the requirments for all Home Economics students the following courses must be included:

		Hours
Home Economics 145	Costume Design	2
Home Economics 118	Consumer-Buyer and the Market	3
Home Economics 155	Advanced Textiles	3
Chemistry 25	Analytical Chemistry	5
Accounting 107	Elementary Statistics	3
Physics 1	Elementary College Physics	5
Free electives		17

Electives (to be selected with the approval of the adviser) from Chemistry, Accounting and Statistics, and Journalism.

D. Four-Year Curriculum in Agricultural Journalism

The College of Agriculture, co-operating with the School of Journalism, offers a four-year course in agricultural journalism. The purpose of this course is to train men and women for successful service in the field of agricultural journalism. An effort is made to give the student a broad foundation in the subject of agriculture, and a knowledge of the principles and practices of journalism, with particular emphasis on agricultural journalism.

The degree of Bachelor of Science in Agriculture (in Agricultural Journalism) will be given to students registered in the College of Agriculture who complete all of the requirements in the curriculum and electives to make a total of 128 hours.

The University of Missouri offers exceptional facilities for such training because of the high standards of instruction in its School of Journalism and the excellent facilities for agricultural training in the College of Agriculture.

The School of Journalism offers a similar course leading to the degree of Bachelor of Journalism. See Announcement, School of Journalism.

Curriculum D

Four-Year Curriculum in Agricultural Journalism

Freshmen and Sophomores

Freshmen and sophomores take the courses shown in the Curriculum A on page 153, excepting that Journalism 100 and 101 must be substituted for 6 hours in the sophomore year; the subjects so replaced must be taken later.

Juniors and Seniors

Junior and senior requirements are as follows: Animal Husbandry 100; Chemistry 15; Field Crops 100; Animal Husbandry 101, Field Crops 101, or Horticulture 115; Journalism 102, 103, 110, 111, 120, 123, 171, 172 and 173. Elective agricultural subjects to make a total of 60 hours in Agriculture.

Curriculum E

Two-Year Forestry Curriculum

The following curriculum in forestry is offered for those who wish to secure preliminary training in forestry. Elective courses in forestry are available for those not interested in professional work.

Freshman Year

Fall		*Winter*	
Forestry, 50f	3	Forestry, 51w	3
English 1	3	Botany, 101w	3
Botany, 1f	3	English, 2	3
Mathematics, 8f	5	Zoology, 1	3
Mil. & P. E., 1	2	Civil Engineering, 60w	3
		Mil. & P. E., 2	2
	16		17

Sophomore Year

Fall		*Winter*	
Forestry, 52f	2	Forestry, 53w	5
Chemistry, 1f	5	Chemistry, 15w	3
General Economics, 1f	5	Zoology, 6w	3
Engineering Drawing, 1f	3	Soils, 2w	3
Mil. & P. E., 3	2	Mil. & P. E., 4	2
	17		16

Short Courses in Agriculture

Each year a number of Short Courses are offered by the College of Agriculture in response to demands for instruction in certain phases of agriculture. Special announcements are published for these courses.

Farmers' Week Short Course

Each year the College of Agriculture offers a one-week short course for the farmers of the State.

Additional Information

Further information regarding any of the curricula offered by the College of Agriculture may be secured by writing the Dean's Office, College of Agriculture, University of Missouri, Columbia, Missouri.

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*In cooperative service with the U. S. Department of Agriculture.
**On leave of absence.

GENERAL STATEMENT

This Station was established by the Act of Congress of 1887, and by the acts of the General Assembly of Missouri accepting its provisions. By an order of the Board of Curators of the University it was made a division of the College of Agriculture.

The special function of the Agricultural Experiment Station is to conduct original research in the various branches of agriculture. At this time investigations are in progress relating to the maintenance of soil fertility, the renovation of wornout soil, rotation of crops, the adaptability of new plants to Missouri's soil and climate; the most economical methods of beef and pork production; dairying; animal diseases, their prevention or cure; animal and plant breeding; the propagation, selection, breeding and improvement of fruits and vegetables; tests of varieties of orchard and small fruits; insect pests and fungous diseases. In addition to these experiments conducted on the College grounds the Station is making soil and crop tests on the principal soil types of the State. Preliminary to these tests and fundamental to all permanent improvements in the system of cropping and soil management, the Agricultural Experiment Station has made a systematic survey of the soils of the State, outlining and studying each type in detail. A reconnaissance survey of the entire State has been completed as well as a detailed and final survey of 58 individual counties.

The results of all these investigations are published in the form of bulletins and annual reports, which are distributed free to all who make a request for them. Requests for Experiment Station publications should be made to M. F. MILLER, DIRECTOR OF THE AGRICULTURAL EXPERIMENT STATION, COLUMBIA, MISSOURI.

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DAN E. MILLER, B. S. in Agr., M. S.
ALVA L. MIX, B. S. in Agr.
EUGENE B. MOORE, B. S. in Agr.
J. U. MORRIS, B. S. in Agr.
GLENN MUTTI, B. S. in Agr.
JAMIE NAGGS, B. S. in Agr.
C. E. NEFF, B. S. in Agr., M. A.
CLOIN PENNER, B. S. in Agr. (Three counties).
C. R. PITNEY, B. S. in Agr.
GLENN C. PITTENGER, B. S. in Agr.
SMITH T. POWELL, B. S. in Agr.
LLOYD REDD, B. S. in Agr.
WM. A. RHEA, JR., B. S. in Agr., M. S.
R. C. RUBOTTOM, B. S. in Agr.
JOHN RUSH, B. S. in Agr.
WAYNE M. SANDAGE, B. S.
VIRGIL SAPP, B. S. in Agr.
L. A. SAUNDERS
O. V. SINGLETON, B. S. in Agr.
HAROLD SLUSHER, B. S. in Agr.
GEO. P. SMITH, JR., A. B., B. S. in Agr.
DONALD K. SPALDING, B. S. in Agr.
EARL T. STEELE, B. S. in Agr.
H. B. STEELE, B. S. in Agr.
C. R. TALBERT, B. S. in Agr.
PAUL H. TEAL, B. S.
IRA THORNTON, B. S. in Agr.
RAYMOND R. VADNAIS, B. S. in Agr.
MERLE E. VAUGHAN, B. S. in Agr., M. A.
FRANK B. VEATCH, B. S. in Agr.
LEONARD A. VOSS, B. S. in Agr.
F. P. WARD, B. S. in Agr.
E. M. WOODS, B. S. in Agr.
JOHN J. WOODWARD, B. S.
L. J. WORMINGTON, B. S. in Agr.
WILLIAM YATES, B. S. in Agr.
FOWLER A. YOUNG, B. S. in Agr.

2. *Assistant County Agents*

ARTHUR C. AUSHERMAN, B. S. in Agr.
MELTON H. BROWN, B. S. in Agr.
WM. CLYDE BROWN, B. S. in Agr.
CHAS. M. CHRISTY, B. S. in Agr.
MORREL N. COWSER, B. S. in Agr.
EDWARD DICKERSON, B. S. in Agr.
CHARLES H. DUNN, B. S. in Agr.
WEBB EMBREY, B. S. in Agr.
WM. E. FISHER, B. S. in Agr.
V. M. GRAY, B. S. in Agr.
B. W. HARRISON, B. S. in Agr.
JOHN E. HERLINGER, B. S. in Agr.
EARL B. HOPE, B. S. in Agr.
ROBT. B. KAYE, B. S. in Agr.
CHAS. R. KYD, B. S. in Agr.
LEON M. LANE, B. S. in Agr.
T. ROY LENTZ, B. S. in Agr.
JOHN W. MCCLURE, III, B. S. in Agr.
WM. R. MCCREERY, B. S. in Agr.
JAMES D. MEYERS, B. S. in Agr.
J. M. RAGSDALE, B. S. in Agr.
WM. C. ROBERSON, B. S. in Agr.
JOHN W. ROGERS, B. S. in Agr.
STEPHEN S. RUSSELL, B. S. in Agr.
LELAN S. RYAN, B. S. in Agr.
DELMAR WM. SCHOOLER, B. S. in Agr.
WAYNE D. SHIER, B. S. in Agr.
GAROLD O. SIGARS, B. S. in Agr.
RAYMOND F. SMITH, B. S. in Agr.
CHAS. W. TALBOT, A. B., B. S. in Agr.
E. GLENN THACKER, B. S. in Agr.
ELBERT WAIDE, B. S. in Agr.
ELMER B. WINNER, B. S. in Agr.
G. WINTON YOUNG, B. S. in Agr., M. S. in Agr.
JOHN S. MATTHEWS, B. S. in Agr., A. M.

3. *County Home Economics Agents*

KATIE MARIE ADKINS, B. S. in Ed., M. A.
JOYCE BEARD, B. S.
FLORENCE CARVIN, B. S., A. B., M. A.
ONEIDA BLASER, B. S. in Agr.
BLANCHE WATERS CLINTON, B. S. in Ed.
ORRINE ZOE CONARD, B. S., M. A.
NELLE MCGHEE CROUCH, B. S.
ANITA DICKSON, B. S.
LORENE DRYDEN, B. S. in Ed.
INEZ M. ECKBLAD, B. S.
HELEN M. EDMONDSON, B. S. in Ed.
ELLA J. FIKUART, B. S. in Ed., B. S. in Home Ec.
THELMA M. FERRELL, B. S.
BELLE FORNEY, B. S.
MAY HARLAND, B. S.
CARMEN HENSEL, B. S.
GENEVA I. HEWITT, A. B., M. S.
MARYLEE HOLMES, B. S. in Agr.
JUANITA HOPPER, B. S. in Ed.
MARY JANE ISBELL, B. S.
ELSIE JARRELL, B. S.
MARIAN ELIZABETH JOHNSTON, B. S. (Two counties).
LETHA O. KNIGHT, B. S. in Ed., B. S. in H. E.
RUBY KNUDSON, B. S., M. S.
ANNALU LAWSON, B. S.
MARY ESTHER LOUGHEAD, B. S., M. A.
MATTIE E. MCCAMPBELL, B. S.
MARGUERITE MCCLELLAN, B. S.
MABEL MCMAHON, B. S. in Agr.
JESSALEE MALLALIEU, B. S. in Ed.
PAULINE UMBERGER, B. S.
CECILE MANIKOWSKE, B. S. in Agr., M. S.
WILMA N. MARSH, B. S. in Home Ec.
IOLA SILVA MEIER, B. S. in H. E.
CLAIRE L. MONTGOMERY, B. S. in H. E.
LOUISA S. MOYER, B. S. in H. E.
RUTH MUHLEMAN, B. S. in H. E.
ETHEL NELSON, B. S.
MARGARET NELSON
CLETA C. NULL, B. S. in H. E.
ELNA J. OLSON, B. S.
ROMAH RUTH PERSELLS, B. S. in H. E.
HELEN M. PETERSEN, A. B.
AUDRA ROBERTSON, B. S. in Ed., B. S. in H. E.
RUTH SANDERS, B. S. in Ed.
ANNE SILLERS, B. S.
LORENE SMITH, B. S. in H. E.
MARY L. SUMMERS, B. S. in H. E.
BERNICE SUTTON, B. S. in Ed.
FRANCES M. TODD, A. B.
THELMA TUTTLE, B. S.
MARGARET VAN ORSDOL, B. S.
VIOLA WACHAL, B. S.
FLORENCE WALKER, B. S. in H. E., M. S.
KATHERINE WELKER, B. S. in H. E.
ELIZABETH WIERICHS, B. S.
MARY E. WILKINSON, B. S.
CLARA AGNES WILSON, B. S., M. S.
BERNICE WOOD, B. S. in H. E.
LOUISE WOODRUFF, B. S. in Ed., M. A.
NELLIE HALL WRIGHT, B. S., M. A.
WINEFRED YANCEY, B. S.
MAY YOUNG, B. S. in H. E.
LOUISE J. MORRISSEY (Colored), B. S. in Ed.

GENERAL STATEMENT

The Agricultural Extension Service was established by the Board of Curators of the University, June 8, 1914. Approximately one-half of its support comes from Federal funds allotted to the State under the terms of the Smith-Lever Act of Congress, approved May 8, 1914, and later supplementary acts of Congress. The balance of the financial support accruing to this Service is derived from State and county appropriations supplemented by funds contributed by various organizations, principally the County Farm Bureaus of the State.

The Agricultural Extension Service is a teaching branch of the University. It is organized and administered for the specific purpose of giving information in subjects relating to agriculture and home economics to persons who are not resident at the University. It teaches both adults and young people—the latter through the agency of the Boys' and Girls' 4-H clubs.

Instruction is given mainly by the use of demonstrations established on farms and in farm homes. Local organizations and local leadership are utilized to the fullest extent possible to the end that people may be taught in groups corresponding in a way to classes on the campus. Large use is made of printed circulars.

All lines of instruction are organized on a project basis. Extension instruction is based mainly upon county and community programs of work. These programs, in turn, are based upon the conscious needs of counties and communities for instruction in agriculture and home economics of immediate local significance.

The regular extension projects of the College of Agriculture include:

1. *Boys' and Girls' 4-H Club Work.*—The 4-H Club Work is an Extension activity conducted by the U. S. Department of Agriculture and the Missouri College of Agriculture in cooperation with organized counties, local communities and schools of the State. Its chief purpose is the improvement of farm, home and community practices. These ends are secured by using actual life situations on the farm, in the home, school or community, of which the club members are a definite part, to make learning more interesting and vital to them now. These experiences bring them in touch with the best in rural life, and as a result they make of themselves more efficient, more public-spirited and more useful citizens.

The club, itself, is largely an outgrowth of community effort. It is sponsored locally by a community organization or committee of some kind. A club may be formed by one or more groups of at least five boys and girls, 10 to 21 years of age, who are carrying on project work and club group activities. The club adopts its own constitution and by-laws, elects its own officers, helps to plan its own program and meets regularly under the guidance of a community club leader and project club leaders whom the members help select. The county extension agents and home demonstration agents are in charge of the club work in their respective counties, working in turn under the guidance of the state club agents and extension specialists of the Missouri College of Agriculture, who prepare the necessary literature of instruction, records and report blanks, which are furnished free of cost to the leaders and members of standard community clubs, and aid the counties in developing efficient method of conducting 4-H club work.

In addition, the members have an opportunity to attend 4-H club camps, make educational tours, conduct community activities and take part in achievement club programs.

2. *County Agent Work.*—Under this project provision is made for the placing of extension representatives of the College of Agriculture in single counties or in groups of counties. Plans for the financing and supervision of county and district agents are outlined in the project.

3. *County Home Demonstration Work.*—This project is similar to the preceding. It provides for the placing of home economics representatives of the College in counties where satisfactory working arrangements can be made.

4. *Extension Work in Clothing.*—Provides for the giving of instruction in the selection, construction and renovation of wearing apparel.

5. *Home Management.*—Provides instruction in matters that have to do with the efficient household, with considerable attention to making homes more restful, livable and attractive, both inside and out.

6. *Nutrition.*—Provides instruction in all phases of human nutrition for both adults and children.

7. *Agricultural Economics.*—Provides instruction in various phases of agricultural economics with special emphasis on the marketing of farm products and the financing of farm enterprises. The farm management phase of this project provides instruction in farm organization, farm accounting and the application of business practices to the operation of the farm as a unit.

8. *Agricultural Engineering.*—Provides the means of giving instruction on practical and efficient methods and practice in problems relating to engineering phases of farming.

9. *Extension Work in Soils and Field Crops.*—Provides for the giving of instruction in the wide range of problems relating to soil maintanance and improvement as well as the production of field crops common to Missouri.

10. *Extension Work in Animal Husbandry.* Provides instruction in the breeding, feeding and management of cattle, horses, sheep and swine.

11. *Extension Work in Dairy Husbandry.*—Provides for the giving of instruction in the specialized dairy field. This project deals with all phases of dairy production and gives considerable attention to dairy manufactures.

12. *Extension Work in Poultry Husbandry.*—Provides instruction in the breeding, feeding and management of the poultry flock and the care of poultry products.

13. *Extension in Horticulture.*—Provides for the giving of instruction in all lines of orcharding, small-fruit production, and truck farming.

14. *Soil Conservation.*—Provides instruction on all the phases of soil conservation and organization of these methods into a soil-conservation system on the individual farm.

15. *Farmers' Week.*—Under this project an annual short course of three days' duration for farmers is held at the University.

16. *State 4-H Club Roundup.*—As a means of developing leadership in connection with the conduct of Boys' and Girls' 4-H Club work an annual gathering of club leaders and outstanding club members is held at the College. The meeting lasts four days. It is known as State 4-H Club Roundup.

17. *Publications.*—The College of Agriculture issues extension circulars, leaflets, and posters dealing with all phases of agriculture and home economics. These publications are furnished without cost to residents of Missouri making personal request for them.

18. *Administration.*—Provides the administrative organization necessary to the conduct of the extension activities of the College.

19. *Animal Disease Control.*—Provides instruction and methods of controlling diseases of all classes of animals on the farm with special attention to sanitary and preventive measures.

20. *Rural Sociology.*—This project provides assistance for rural groups interested in solving community problems, cooperates with church, school and other community leaders, aids in training recreation leaders, and promotes the consideration of public problems by the discussion group method.

For information concerning any of the foregoing projects of the Extension Service of the College of Agriculture, write to J. W. BURCH, DIRECTOR, AGRICULTURAL EXTENSION SERVICE, COLUMBIA, MISSOURI.

SCHOOL OF BUSINESS AND PUBLIC ADMINISTRATION*

A division of the University to be known as the School of Commerce was established by the Board of Curators in January, 1914. Three years later the school was enlarged in scope and its title was changed to that of Business and Public Administration.

It is the aim of this school to equip students with a thorough knowledge of the general principles of business and public administration and to provide training in special fields of business and public service.

The offices of the School of Business and Public Administration are located in the Business and Public Administration Building on the east side of Francis Quadrangle. The laboratories are well equipped with modern business machinery including the following: Burroughs and Dalton adding machines; two Monroe-Gardner listing machines; nine Monroe calculators, four of which have automatic division; and 80-column International Business Machines punching, sorting, and tabulating equipment.

Requirements for Admission

The requirements for admission as a regular student to the School of Business and Public Administration are the satisfactory completion of (1) a four-year high school course or its equivalent, and (2) 60 hours of credit in Arts and Science subjects (exclusive of required work in physical training and military science) in the University of Missouri or in any college or university of recognized standing. Students may be admitted also upon the satisfactory completion of four semesters in the College of Engineering.

Students who are unable to present 60 credit hours for entrance may be admitted with a condition of as much as 6 hours. All students admitted to the schoool with credit of from 54 to 84 hours are given junior standing; those with 84 hours or more are given senior standing.

Under certain circumstances a student who is not eligible for admission as a regular student and who is more than 21 years of age may be permitted to enroll as a special student and to take courses for which he is adequately prepared, but in order to become a candidate for a degree the student must qualify for admission as indicated above.

*See General Information, p. 44; Fees, p. 73; Changes in Courses, p. 111.

All communications regarding entrance credits should be addressed to the Registrar, University of Missouri, Columbia, Missouri. Inquiries regarding other matters may be addressed to the Dean of this school.

Preparation for Admission

Certain subjects ordinarily offered in the sophomore year are required in the curricula of the School of Business and Public Administration. Thus, all students are expected to take General Economics and American Government and should present credit to the amount of five hours in each. Since courses in these subjects are prerequisite to much of the work of the junior and senior years, students are advised to take such courses before entering this school. Those who have not done so will include the required subjects in the work of the junior year. Other requirements to be completed if possible by the end of the sophomore year are mentioned in the statements of the several curricula. (See Page 174.)

Students who have taken the specified prerequisites may complete in the sophomore year certain courses that are designated as junior-senior subjects in the description of curricular requirements below. The courses in Elementary Accounting, International Relations, and others may be taken thus in the sophomore year.

Advanced Standing

The student who has gained more than 60 hours of credit in this university or in some other university or college of recognized standing before entering the School of Business and Public Administration may be given credit for such courses in excess of the 60 hours required for admission as are acceptable in the curriculum in which the student is enrolled.

Degrees

The degree of Bachelor of Science in Business Administration is conferred upon those students who have completed the requirements of one of the three curricula in business administration. The degree of Bachelor of Science in Public Administration is conferred upon those who have completed the requirements of the curriculum in government service.

Requirements for Graduation

In order to receive a degree the student must have completed the 60 hours of college credit required for admission and 60 hours of credit in subjects required or included in one of the several curricula of the School of Business and Public Administration.

The student may not register for more than 16 hours per semester; and may not carry less than 12 hours without the special permission of the Dean.

Extra credit in semester hours is given for work of superior or exceptional quality. Thus, while only one hour of credit is allowed for each scheduled hour of work of ordinary quality (grade M), 1.1 hours are given for each hour in which a grade of S is earned and 1.2 hours for each hour of E grade. For inferior work (grade I) the credit allowed is .9 per scheduled hour. No extra credit in hours is given and no deductions in hours in courses of passing grade are made in this school in connection with credits transferred to this University from other colleges and universities.

A second requirement for graduation is the completion of 120 "points" in the four years of college work. Sixty of these points are to be earned in the required and optional courses and professional electives of the student's curriculum. Points are awarded upon the following basis: For each hour of E grade, 3 points; S grade, 2 points; M grade, 1 point. No points are given for I and equivalent grades. Students whose grades at the time of entrance to the School of Business and Public Administration are below an M average, whether their credits have been earned at the University of Missouri or elsewhere, are required to make up the deficiency in points during the junior and senior years.

Only courses in which the student has been given the grade of F or I may be repeated. In the latter case the special permission of the instructor and the Dean is required. Double credit is not allowed for courses repeated, and except in the courses in General Economics, Elementary Accounting, and Elementary Statistics, the points assigned are: For each hour of E grade, 2 points; S grade, 1 point; M and I grades, no points.

Points commensurate with the quality of work done are allowed for credits earned in other institutions except that the total number of points awarded may not exceed the number of hours accepted. This limitation does not apply to courses approved in advance by the Dean for students who have been registered in this school and who take a limited number of supplementary courses in another university.

A list of the students of this school whose grades are distinctly above average is published annually as an Honor-Rank List.

Residence Requirement

The degrees awarded by this school are based upon the completion of four years of study following graduation from high school. The student is ordinarily to be enrolled for two of these years in the School of Business and Public Administration, and

enrollment for two years is required of those in special curricula. In no case is a student to receive a degree who has not been registered in this school throughout his senior year. One who enters this school at the beginning of the senior year or who has received a bachelor's degree in Arts and Science must expect to fulfill the requirement of 60 hours of professional courses.

Courses of Instruction

Instruction is offered in the fields of accounting, economics, finance, government, business law, management, marketing, public administration, business statistics, transportation, and others. The courses are described principally under the titles of Accounting and Statistics, Economics and Finance, and Political Science and Public Law in Section III of this catalog.

It is possible to gain credit to the extent of 20 hours in one year by correspondence courses taken through the Extension Division of this University. Only a limited number of courses are offered by the departments of this school: General Economics, 5 hours; American Government, 2½ to 5 hours; Elementary Accounting, 3 to 5 hours; Money, Credit, and Banking, 3 to 5 hours. Correspondence courses in related subjects are offered by other departments. Correspondence courses may not be counted in place of the one year required in residence and may not be taken in the senior year or in final completion of the requirements for graduation except upon approval in advance by the Dean.

Students who have been enrolled in this school for two years and for good cause have not completed their course of study may be permitted to complete the requirements for a degree by correspondence courses in this university or by courses approved in advance in residence in another university to the extent of 3 hours to gain credit or to the extent of 6 hours to gain grade points.

Curricula

Four curricula are offered for the purpose of guiding students in their preparation for special fields of business and public administration. In order to meet the needs and purposes of the individual student, provision is made for special curricula also, and modification of any of the curricula may be made with the approval of the student's adviser and the Dean.

It is assumed that students who enter any of the curricula have completed college courses in General Economics and American Government with credit of not less than 5 hours in each. Those who have not done so will take these courses in place of some of the electives as part of the 60 hours required in the junior and senior years. Other requirements to be completed in the freshman-sophomore years are stated below.

The electives permitted in the curricula are intended to be part of the student's professional preparation and are to be chosen in the fields of business and public administration. Most of the available subjects in these fields are offered by the departments of this school but others are to be selected from the courses of other departments and divisions of the university with the consent of the student's adviser.

Students who have taken part of their curricular requirements in the sophomore year may have time for non-professional electives in the junior and senior years. Such electives are to be chosen only for good reasons and for definite purposes and only with the approval of the student's adviser and the Dean. Advanced Military Science is available as an elective under these conditions.

I. General Business Curriculum

For students who desire a general course in business administration.

Preliminary Requirements: General Economics (5 hours) and American Government (5 hours).

Required Courses—17 hours.

Department	No. of Course	Title	Credit Hours
Accounting and Statistics	17f or w	Elementary Accounting	5
Economics and Finance	102f or w	Principles of Business Management	3
Economics and Finance	104f or w	Principles of Marketing	3
Economics and Finance	118f or w	Corporation Finance	3
Economics and Finance	150f or w	Business Law A	3

Options—To be selected from the list below, at least 28 hours:

Department	No. of Course	Title	Credit Hours
Economics and Finance	106f or w	Transportation and Public Utilities	3
Economics and Finance	110f	Labor Problems	5
Economics and Finance	112f	Sales Management	4
Economics and Finance	114w	Retailing	3
Economics and Finance	116w	Credits	2
Economics and Finance	125w	Foreign Trade	2
Economics and Finance	129f or w	Money, Credit, and Banking	5
Economics and Finance	136f	Personnel Management	3
Economics and Finance	151f	Business Law B	2
Economics and Finance	156w	Advanced Management	2
Economics and Finance	170f	Commercial Research	3
Geography	125f or w	Economic Geography	3
Geography	130f or w	The Geography of Trade	2
Political Science	110f	Principles of Public Administration	3
Political Science	111f	Administrative Regulation of Business and Industry	3

Department	No. of Course	Title	Credit Hours
Accounting and Statistics	107f or w	Elementary Statistics	4
Accounting and Statistics	117f or w	Intermediate Accounting	4
Accounting and Statistics	121f	Industrial Accounting	2
Accounting and Statistics	128f	Managerial Accounts and Statistics	3

Electives (professional courses)—15 hours.

II. Banking and Finance

For students expecting to do administrative or research work in commercial or investment banks, brokerage houses, investment trusts, or the financial divisions of the government.

Preliminary Requirements: General Economics (5 hours), American Government (5 hours), and College Mathematics (3 hours).

Required Courses—44 hours:

Department	No. of Course	Title	Credit Hours
Mathematics	55f or w	Mathematics of Finance	3
Accounting and Statistics	17f or w	Elementary Accounting	5
Accounting and Statistics	107f or w	Elementary Statistics	4
Accounting and Statistics	108f	Business Statistics	3
Accounting and Statistics	117f or w	Intermediate Accounting	4
Economics and Finance	115w	Public Revenues	3
Economics and Finance	118f or w	Corporation Finance	3
Economics and Finance	122f or w	Investment	3
Economics and Finance	129f or w	Money, Credit, and Banking	5
Economics and Finance	130w	Banking Systems	3
Economics and Finance	150f or w	Business Law A	3
Economics and Finance	151f	Business Law B	2
Economics and Finance	160w	Economic Control	3

Electives (professional courses)—16 hours.

III. Accounting and Statistics

For students preparing for the public practice of accounting or for the various types of accounting and statistical work connected with business enterprises.

Preliminary Requirements: General Economics (5 hours), American Government (5 hours), and College Mathematics (3 hours).

Required Courses—32 hours:

Department	No. of Course	Title	Credit Hours
Accounting and Statistics	17f or w	Elementary Accounting	5
Accounting and Statistics	107f or w	Elementary Statistics	4
Accounting and Statistics	108f	Business Statistics	3
Accounting and Statistics	117f or w	Intermediate Accounting	4
Accounting and Statistics	121f	Industrial Accounting	2
Accounting and Statistics	128f	Managerial Accounts and Statistics	3
Economics and Finance	118f or w	Corporation Finance	3
Economics and Finance	122f or w	Investment	3
Economics and Finance	129f or w	Money, Credit, and Banking	5

Options—To be selected from the list below, at least 15 hours:

Department	No. of Course	Title	Credit Hours
Accounting and Statistics	109w	Correlation	3
Accounting and Statistics	120w	Problems in Accounting Practice	3
Accounting and Statistics	123w	Consolidated Statements	2
Accounting and Statistics	127f	Advanced Statistics	3
Accounting and Statistics	134f	Auditing	3
Accounting and Statistics	193f	Controversial Accounting Problems	2
Economics and Finance	104f or w	Principles of Marketing	3
Economics and Finance	116w	Credits	2
Economics and Finance	150f or w	Business Law A	3
Economics and Finance	151f	Business Law B	2
Economics and Finance	160w	Economic Control	3
Mathematics	4f or w	Analytic Geometry	5
Mathematics	5f or w	Differential Calculus	5
Mathematics	55f or w	Mathematics of Finance	3
Mathematics	100f or w	Integral Calculus	5

Electives (professional courses)—13 hours.

IV. Government Service

For students who wish to qualify for positions with national, state, or municipal governmental departments, governmental research agencies, and private firms engaged in governmental work.

Preliminary Requirements: American Government (5 hours) and General Economics (5 hours). General Sociology (3 hours) and General Psychology (3 hours) are recommended.

Required Courses—43 hours:

Department	No. of Course	Title	Credit Hours
Political Science	100w	European Governments	5
Political Science	101f	Local Rural Government	3
Political Science	106f	Municipal Government and Administration	5
Political Science	110f	Principles of Public Administration	3
Political Science	111w	Administrative Regulation of Business and Industry	3
Political Science	120f	The American Constitution	3
Accounting and Statistics	17f or w	Elementary Accounting	5
Accounting and Statistics	107f or w	Elementary Statistics	4
Economics and Finance	106f or w	Transportation and Public Utilities	3
Economics and Finance	115w	Public Revenues	3
Economics and Finance	150f or w	Business Law A	3
Economics and Finance	160w	Economic Control	3

Electives (professional courses)—17 hours.

Special Curricula

To combine business and other technical training: Curricula may be arranged to combine essential training in business administration with specialization in other technical fields such as chemistry and geology. If such an arrangement is to meet the approval of the faculty it is important that plans be made before the student enrolls in the work of the sophomore year. The courses of that year should include General Economics, American Government, Elementary Accounting, and elementary courses in the special field chosen. The 60 hours of freshman and sophomore work are to be taken in a college of Arts and Science. The student must transfer to the School of Business and Public Administration at the beginning of the junior year. During the junior and senior years, 40 hours ordinarily are to be given to business administration and 20 hours to advanced courses in the technical speciality.

Teaching of Commercial Subjects: The School of Education of this University offers a curriculum for the training of teachers of commercial subjects in high schools. See statement of the School of Education.

Graduate Study

Graduate instruction in accounting, economics, government, and statistics is under the supervision of the Graduate School of the University. The courses of instruction available to graduate students are given in Section III of the catalog. For further information address the Dean of the Graduate School or the chairman of one of the departments.

Placement Service

The School of Business and Public Administration undertakes to assist its graduates in finding suitable positions and offers this service to recent graduates and older alumni alike in so far as its facilities permit. Business establishments and governmental agencies cooperate in the development of the service.

For further information address The Dean, School of Business and Public Administration, University of Missouri, Columbia, Missouri.

SCHOOL OF EDUCATION*

The School of Education exists for the purpose of giving professional training to men and women who expect to make teaching, school supervision or school administration a career. Its purposes are based on the belief that teaching, helping teachers through supervision and providing the administrative organization under which teachers and supervisors may work most effectively, are fields requiring expert technical service. It is the object of the School of Education to furnish the training for this sort of service.

Among the types of positions now being held by students graduating from the School of Education since 1905 are the following: Elementary School teachers, Junior High School teachers, Senior High School teachers, College teachers, County Superintendents of Schools, Junior High School principals, Senior High School principals, Elementary School principals, City School superintendents, Directors of Bureaus of Research, College Deans, School Psychologists, teachers of Special Classes, State Superintendents of Public Schools and College Presidents.

The growth of the School of Education at this, as at other universities, is the result of a demand on the part of the school authorities for teachers who, in addition to being thoroughly equipped with knowledge, know how to utilize this knowledge in the training which the schools must give. To make this utilization of knowledge in the training of children, the teacher, supervisor or superintendent must have at least three things besides a knowledge of subject matter:

1. Knowledge and appreciation of the part that education has played and must in the future play in the survival and progress of mankind.
2. Thorough acquaintance with the known facts about human mentality, how it develops, and the conditions which are conducive to its greatest efficiency.
3. Knowledge of and training in the use of those techniques in the various fields of school work, which scientific study and the best experience have found to be the most effective.

Preparation for teaching, supervision, or school administration embodying these three lines of work, represents one of the highest types of professional training and offers to those whose abilities and interests lead them to undertake it, opportunities for a career that will challenge the best thay have to give to the world.

*See General Information, p. 44; Fees, p. 73; Changes in Courses, p. 111.

FACILITIES—During the year 1936 a building for housing the University Laboratory Schools was constructed. The building is thoroughly modern in all of its appointments, and of a type that communities in Missouri can use as a pattern. It is built to house an educational program suitable to communities supporting high schools of 300 or fewer students.

The Laboratory Schools of the University consist of an elementary school, a junior high school and a senior high school. Plans are being perfected to bring these into very close relation, eliminating many of the sharper distinctions which usually exist and uniting the whole into a continuous system of education.

Special features are included in the new building, making it especially serviceable as a teacher-training institution.

Besides these facilities, the School of Education profits greatly by being one of the nine major divisions of the University. The classrooms, laboratories, libraries of the entire University are made available to its students. Specialists in many fields give instruction in all the subject-matter departments leading to teaching majors in those fields in which elementary and high school teachers work.

PLACEMENT OF GRADUATES OF THE SCHOOL OF EDUCATION—The Committee on Recommendations was established a number of years ago to systematize and facilitate the work of aiding teachers in securing positions. This service is available not only to recent graduates of the University but also to all former students who have attended the University as much as one summer session and to former graduates who desire assistance in securing promotions.

Teachers desiring the assistance of the Committee on Recommendations may address their letters to 23 Jesse Hall. A registration blank will be sent which should be filled out and returned together with seven or eight small photographs and the $2.00 fee for one year's service. Every effort will be made to find suitable locations for the people enrolled and also to help these people in securing consideration for vacancies which they have discovered.

The latest report of the Committee on Recommendations brings out the fact that there has been a steady increase in the number of placements since 1933. The number of placements during the season of 1938 was greater than during any previous year in the history of the committee. The salary statistics compiled by the committee also indicate that the average salary of the teachers who were placed has steadily increased from 1933 on. The average salary of those placed in 1938 showed a substantial increase over the average salary of those placed in 1937. The indications are that the placement of teachers can proceed normally and effectively from now on and that teachers' salaries will gradually improve.

All correspondence with regard to the placement of teachers should be addressed to: COMMITTEE ON RECOMMENDATIONS, UNIVERSITY OF MISSOURI, COLUMBIA, MISSOURI.

SCHOLARSHIPS IN EDUCATION: In addition to the regular University fellowships, scholarships and prizes described, two special scholarships are available to students in the School of Education: the S. H. Ford Scholarship and the Peabody Scholarship in Education, described elsewhere.

ADMISSION TO THE SCHOOL OF EDUCATION

The requirements for admission to the School of Education are the satisfactory completion of (1) a four-year high school course or its equivalent, and (2) 60 semester hours of credit (exclusive of the required work in physical training and military science) which may be accepted toward the degree of B. S. in Education.

Students in their freshman and sophomore years should study the various programs of specialization carefully in planning their work, so that upon entering the School of Education in the Junior year they may not encounter difficulties in planning their work so as to be ready for graduation at the end of the second year in the School of Education.

DEGREES AND CERTIFICATES

The School of Education confers only one degree, Bachelor of Science in Education (B. S. in Ed.).

The School of Education is authorized by the Legislature of Missouri to issue certificates, valid for life, or for two years, according to the preparation of the candidates, to persons who, in the judgment of the faculty, are considered qualified to teach in the public schools of the state. For requirements, see below.

REQUIREMENTS FOR GRADUATION WITH THE DEGREE OF BACHELOR OF SCIENCE: In order to secure the degree of Bachelor of Science in Education (B. S. in Ed.), the candidate must fulfill the following requirements:

1. He must be regularly admitted to the School of Education.
2. He must complete the professional courses in education listed in the various curricula and also complete other work approved by the adviser in conformity with the corresponding suggested curriculum.
3. He must in his junior year pass a test of proficiency in English, excepting that a student whose English is found to be unsatisfactory will be given a further test at the beginning of his senior year. No student will be recommended for graduation until his English is satisfactory.
4. He must complete a total of sixty hours in the School of Education.

5. He must complete a total of 120 points of college work, including the 60 hours of work required for admission to the School of Education and the 60 hours of work required in the School of Education. Each hour of credit is valued in point as follows: E, 3 points; S, 2 points; M, 1 point. No points are given for the I and F grades. "Passed" grades and advanced standing are treated as of M grades.

6. He must be recommended by the faculty of the School of Education.

REQUIREMENTS FOR A LIFE CERTIFICATE TO TEACH: Students granted the degree of B. S. in Education will be granted a life certificate to teach in the public schools of Missouri. The requirements for the certificate and degree are identical.

REQUIREMENTS FOR A TWO-YEAR CERTIFICATE TO TEACH: Upon the completion of not less than 30 hours of work, including 3 hours of educational psychology, 3 hours of technique of teaching, 6 hours of elective work in education, and three-fourths of the minimum requirement in one of the subjects of specialization for a life certificate to teach, a certificate valid for two years may be granted to candidates regularly enrolled in the School of Education. This certificate will not be renewed. The 30 hours in the School of Education and the 60 hours in the College of Arts and Science, which are necessary for entrance to the School of Education, make a total of 90 hours of college work necessary for the two-year certificate to teach. Students entering with advanced standing are not eligible to this certificate if they have not completed at least 20 hours of work in the University of Missouri.

RESIDENCE REQUIREMENTS: A student must spend his senior year in the University of Missouri in order to obtain the degree of B. S. in Education. Students entering with advanced standing must take at least three courses in education to fulfill the requirements for the degree, and must take at least one course with not less than three hours of credit in the subject of specialization. Work done in the summer sessions of the University will be counted as work in residence.

GRADUATE DEGREES: The following graduate degrees with a major in Education may be earned through the Graduate School: Master of Arts, Doctor of Philosophy, Master of Education, Doctor of Education. Further description of these degrees is given in another section of this bulletin.

PROGRAMS OF STUDY

Students are permitted to carry not more than 16 hours each semester or 8 hours during a summer session. The program for each semester should be worked out carefully with the help of

the major and minor advisers, as well as with assistance which may be provided by the office of the Dean of the School of Education.

While the program of training of a student may be materially strengthened by taking certain elective courses, such election should be made only with the consent of the proper advisers. Students will not be permitted to elect studies at random.

In choosing high school teachers, principals and superintendents are always anxious to find candidates who are able to handle extra-curricular activities or who have developed some particular ability which will contribute to the life of the high school. From the point of view of getting a position and becoming indispensable after one has been secured, such specialized abilities as those which enable teachers to direct glee clubs, coach athletic teams, coach debating teams, manage student publications, and sponsor high school clubs of various kinds are extremely important. There are many opportunities at the University for securing training and experience in these fields. It is strongly recommended that prospective high school teachers take advantage of them.

Choosing Majors and Minors

Students preparing for high school teaching are required to have an academic major and also a minor. Exception in the case of the minor is made for students enrolling in specialized curricula such as physical education, vocational home economics, music, art, etc.

Other things being equal, it would seem to be reasonable that students should major and minor in those subjects which make the strongest appeal to their interests. There are, however, certain modifications of this principle which should be very seriously considered by the student who is beginning his professional preparation for high school teaching. The matter of personal likes and dislikes of various subjects should be considered in the light of the extent to which any given subject is studied in the high schools of Missouri and the subjects that commonly go together in the programs of Missouri high school teachers. In Missouri what subject is most frequently taught in combination with English? What subject is most frequently taught in combination with Latin mathematics, science, etc.? The following table compiled by our Committee on Recommendations reveals the great variety of teaching combinations which occur in the high schools of the state and indicates the combinations which are most frequently reported.

TEACHING COMBINATIONS IN MISSOURI HIGH SCHOOLS

Major Subject	*First in Frequency*	*Second in Frequency*	*Third in Frequency*
English	Music	Social Studies	Latin
Social Studies	English	Music	Physical Ed.
Mathematics	Science	Social Studies	Latin
Science	Mathematics	Physical Ed.	Social Studies
Physical Ed.	Social Studies	Science	Mathematics
Agriculture	Mathematics	Social Studies	Science
Latin	English	Mathematics	Social Studies
Home Economics	General Science	Biology	Social Studies
Commercial	English	Social Studies	Mathematics
Music	English	Social Studies	Art
Manual Training	Mathematics	Physical Ed.	
French	English	Social Studies	
Spanish	English	Social Studies	

To assist superintendents and high school principals to secure the best teaching combinations, the following are suggested as most feasible, especially in small high schools:

1. English and languages.
2. Social studies.
3. Mathematics and science.

TYPES OF UNDERGRADUATE TRAINING

While there are certain fundamental lines of training that all teachers and educational workers should have, the complexity of school work and the many types of training offered make it necessary to have groups of courses designed to train people for definite kinds of educational work. These groups of courses are shown on page 185 together with the name of the adviser for each curriculum.

Students should consult the advisers listed on page 185. These advisers will assist the student in making out a subject of specialization card which, when approved by the Dean, will constitute the work required for the degree and life certificate. This card may be secured at the Dean's office. In all cases the required professional education courses listed under the field of specialization must be taken.

MAJOR AND MINOR REQUIREMENTS FOR TEACHERS

Field	*Minimum requirement for Major*	*Minimum requirement for Minor*	*Adviser*	*Room No. of Adviser*
I. Elementary School Teachers (Including teachers of all elementary grades and the kindergarten)	(a)		Mr. Phillips	209 Education
II. High School Teachers:				
Agriculture	(a)	25	Mr. Dickinson	122 Waters
Art	40	20	Miss Wulfekammer	4 Lathrop
Biology	24	15	Mr. Curtis	110 Lefevre
Chemistry	24	15	Mr. French	210 Old Chemistry
Commercial Subjects	(a)		Miss Williams	314 Education
English and Speech	35	24	Mr. Moffett	209 Jesse
French	24	(a)	Mr. Jesse	205 Jesse
General Science	40	30	Mr. Watkins	111 Switzler
Geography	24	15	Mr. Bratton	102 Swallow
German	24	(a)	Mr. Almstedt	309 Jesse
Home Economics	(a)	22	Miss Irons	107 Gwynn
Industrial Arts	(a)		Mr. Selvidge	111a Engineering
Latin	24	15	Mr. Gwatkin	211 Jesse
Mathematics	24	15	Mr. Wahlin	201 Engineering
Music	(a)	20	Mr. Normann	211 Lathrop
Physical Education (Men)	(a)	20	Mr. Hindman	Rothwell Gym.
Physical Education (Women)	(a)	20	Miss McKee	Women's Gym.
Physics	24	15	Mr. Stewart	104 Physics
Physiology and Hygiene	24	15	Mr. Max Ellis	210 McAlester
Social Studies	40	30	Mr. Elmer Ellis	318 Jesse
Spanish	30	18	Mr. Warshaw	312 Jesse
Vocational Agriculture	(a)		Mr. Dickinson	122 Waters
Vocational Home Economics	(a)		Miss Irons	107 Gwynn
Trade and Industries (Vocational Education)	(a)		Mr. Selvidge	111a Engineering

(a) For requirements, see special curriculum.

UNDERGRADUATE CURRICULA IN EDUCATION

On the following pages are found suggested programs of study leading to the degree Bachelor of Science in Education.

The curricula have been worked out for the guidance of students who wish to prepare for definite lines of work. The curriculum in vocational home economics is a required one but the others are headed "suggested" with only the professional education courses definitely fixed. All students planning to specialize in the fields for which curricula are suggested, are required, on entering the School of Education to work out with their respective advisers a complete list of all courses to be taken for the degree. This list must be filed with the Dean of the School of Education.

Elementary School Teachers

Elementary School Teachers: A total of 25 hours in education including 3 hours of educational psychology, 3 hours of elementary school organization and management, 2 hours of preventive medicine, 6 hours as assistant teacher in the University Elementary School, 2 hours of elementary school music methods, 3 hours of history of education, 3 hours of diagnostic testing and remedial teaching, and 3 hours of technique of teaching in elementary schools.

Suggested Curriculum for Teachers in Elementary Schools, Including the Kindergarten

Junior Year

First Semester	*Hours*	*Second Semester*	*Hours*
[1]Educational Psychology, A102	3	[1]Technique of Teaching in Elementary Schools, E121	3
[1]Elementary School Organization and Management, E120	3	[1]Preventive Medicine	2
Art Activities in the Kindergarten and Primary Grades, E118	3	Art Activities in the Intermediate Grades, E119	3
Music I, Introduction to Music	3	Sociology	3
Elective	4	Elective	5
	16		16

Senior Year

First Semester	*Hours*	*Second Semester*	*Hours*
[1]History of American Education, B125	3	[1]Assistant in Elementary School, E151	3
[1]Diagnostic Testing and Remedial Teaching, A140	3	Plays and Games	2
[1]Assistant in Elementary School, E151	3	Elective (Science and History)	6
Elective (Literature)	3	[1]Elementary School Music, E129	2
Elective	4	Elective	3
	16		16

[1]Required education courses.

For those students who desire to specialize in Kindergarten the following electives are appropriate:

E122	Child Study
E123	Kindergarten Methods and Management
E125	Primary Materials and Methods in Reading
E129	Technique of Handling the Problem Child
E166	Problems of Teaching Literature in the Grades
20	Home Nursing and Health
3f or w	Art Appreciation (2)
5f or w	Theory of Drawing (2)
55f	Art Fundamentals (2)

Students completing the Elementary and Kindergarten curriculum will be required to have a minor of at least 15 semester hours.

Teachers of Art in the Elementary School: The required education courses for special teachers of art in the elementary schools are the same as those required for other elementary school teachers, except that in addition the following courses must be taken:

Art Activities in the Kindergarten and Primary Grades, E118	3 hours
Teaching of Art, D115	3 hours
Supervision of Art Activities, E140	2 hours

Recommended Music Courses for Elementary School Teachers

Elementary school teachers usually find it desirable to have an acquaintance with public school music, and it is therefore recommended that they take the following courses, in addition to the required course, El29:

Song Literature for Children, E127	1 hour
Introduction to Music, Music I	3-6 hours

ELEMENTARY SCHOOL SPEECH CLINICIANS

The student who wishes to qualify as an elementary school speech clinician should take, in his freshman and sophomore years, nine hours of work in beginning speech courses, including courses in voice and articulation, oral interpretation, and public speaking. To complete the training, the following courses should be taken:

English 115	Principles of Rhetoric	3 hours
English 118	Applied Phonetics	3 hours
English 119	The English Language	3 hours
English 122	Speech Correction	3 hours
English 123	Clinical Techniques in Speech Correction	3 hours
Psychology 98	Mental Development	3 hours
Psychology 122	Abnormal Psychology	3 hours
Psychology 187	Psychology of the Individual	3 hours
Psychology 192	Psychology of Learning II	3 hours
Education D113	Teaching of Speech	2 hours

Minor in Geography

For Elementary School Teachers

Teachers completing the Elementary Curriculum may complete a minor in Geography by taking the following courses:

Geography 6	Introductory Geography	3 hours
Geography 110	Geography of North America	3 hours
Geography 112	Geography of Europe	3 hours
or		
Geography 114	Geography of Asia	3 hours
	Elective Geography courses	4 hours
Education E107	Teaching of Geography in Elementary School	2 hours

HIGH SCHOOL TEACHERS

High School Teachers: A total of at least 20 hours in education, including 3 hours of educational psychology, 3 hours of history of education, 3 hours of technique of teaching in high school, 2 hours of high school administration for teachers, 2 hours of preventive medicine, 2 hours in the teaching of the subject of specialization, and 5 hours of student teaching.

He must have in at least one of the subjects of specialization given not less than the minimum requirement of University credit as specified. If he enters with advanced standing he must complete at least one course with not less than 3 hours of credit in his subject of specialization under the advice of the adviser in that subject.

He must demonstrate to the satisfaction of the faculty his ability to teach successfully by student teaching in the high school maintained for this purpose, excepting that a student who furnishes satisfactory evidence of successful experience as a teacher may have such experience accepted in partial or total fulfillment of this requirement. No advanced standing, however, is given for teaching experience gained as a teacher receiving a salary.

Sequence of Courses in Education

The sequence of courses in Education in general should be as indicated in the order of the listing below. In all cases, Student Teaching must be preceded by the course in Technique of Teaching, and the course Technique of Teaching must be preceded by the course in Educational Psychology.

1. *Educational Psychology* (Education A102) should be taken during the first semester of the first year in the School of Education. With the consent of the instructor, students in other schools and colleges may be admitted to this course during the last semester of the sophomore year.

2. *History of American Education* (Education B125) should be taken during either semester of the first year.

3. *Technique of Teaching in High School* (Education D110) should be taken during either semester of the first year, provided the student has had course A102 Educational Psychology.

4. *The course in the methods of teaching the subject in which the student specializes for the life certificate* should be taken during the first semester of the second year. Prerequisite A102.

5. *Student Teaching* should be taken either semester of the second year.

6. *High School Administration for Teachers* (Education D140) should be taken during either semester of the second year. Prerequisite A102.

Preventive Medicine (preventive medicine course 5), required at present in place of school hygiene, may be taken at any convenient time.

Teachers of Agriculture
(Vocational Agriculture)

The curriculum for training of teachers of vocational agriculture is listed as Curriculum B in the College of Agriculture.

Minor in Agriculture

High school teachers who are completing a major in an academic field may complete a minor in Agriculture. The following courses make up this minor:

		Hours
Agriculture 1	Soils	5
Agriculture 1	Field Crops	3
Agriculture 1	Poultry Production	3
Agriculture 1	Animal Husbandry	3
Agriculture 1	Elements of Dairying	3
Horticulture, Landscape Gardening and Forestry 1	General Horticulture	3
Agricultural Education	Teaching of High School Agriculture	2

Electives may be chosen from the following courses. At least one course is necessary, making a total of 25 hours.

		Hours
Agricultural Engineering 1	Farm Power and Machinery I	3
Sociology 115	Rural Sociology	3
Agriculture 1	Applied Entomology	3
Animal Husbandry 103	Live Stock Production	5
Animal Husbandry 100	Principles of Animal Nutrition	3
Field Crops 104	Grain Crops Production	3
Veterinary Science 1	General Veterinary Science	3

Students presenting courses in Agriculture from other colleges or universities must have substitution for above requirements approved by the adviser.

Teachers and Supervisors of Art

The student applying for admission to this curriculum should present a minimum of 20 hours, or the equivalent, selected from the following list. All of the courses in this group are required in an art major. Artcrafts 55, 75, 150; History of Art, 11, 12; Theory and Practice of Art 2, 3, 5, 19, 70, 168.

In addition to the Freshman and Sophomore requirements in art, selection from the following art courses making a total of 40 hours in art should be made by those majoring in the field of art education. Artcrafts 103, 105, 109, 120, 121, 130, 131, 175; History of Art 114, 116; Theory and Practice of Art 159, 179, 189, 199, 178, 188, 198, 160, 170, 180, 77, 177, 187, 197.

It is usually desirable for the teacher of art to have prepared sufficiently in some other academic field to meet the requirements for teaching that subject. A minor in English, modern languages, or social studies is suggested.

The required education courses for teachers of art in high schools are as follows:

Junior Year

Course	*Hours*
Educational Psychology, A102	3
History of American Education, B125	3
Preventive Medicine, 5	2
Technique of High School Teaching, D110	3
Art Activities in the Intermediate Grades, E119	3

Senior Year

Course	*Hours*
High School Administration for Teachers, D140	2
Teaching of Art, D115	3
Supervision of Art Activities, E140	2
Student Teaching, D150	5

Teachers of Biology

Students completing a major in Biology should follow these suggestions:

It is very desirable that students preparing to teach biological science be adequately trained in both zoology and botany, and in related fields if possible. If a substantial part of this work is not taken in the freshman and sophomore years, it may be very difficult to complete even the minimum requirements for a major. In the freshman year the student should take General Botany and General

Zoology and perhaps an additional course such as Ornithology or General Bacteriology. By the end of the sophomore year the student should have completed twelve to fifteen hours of the twenty-four hours required for the major as listed below. It will then be easy to complete the required hours in the junior and senior years and to take supplementary work if desired. The following courses are the most important ones for prospective teachers of Biology.

		Hours
1fw	General Zoology	5
1fw	General Botany	5
100w	Elements of Psychology	5
3fw	General Bacteriology	3
3f	Advanced General Zoology	3
101w	Taxonomy and Ecology	3–5
5w	Ornithology	2–3
6w	Principles of Wildlife Conservation	3
2w	Theory of Evolution	2

Selections from the following courses are very desirable in addition to the total for the major, if the student can take further work.

		Hours
100w	Animal Ecology	3
4w	Comparative Anatomy	5
100w	Plant Physiology	5
110w	Parasitology	3
105f	Plant Morphology	3
105f	Comparative Histology	3
125f	Genetics	5
120f	Embryology of Vertebrates	3

Teachers of Chemistry

Students interested in majoring in Chemistry should complete the following courses:

		Hours
Chemistry 1 and 2	General Inorganic	8
Chemistry 27	Qualitative Analysis	3
Chemistry 121	Quantitative Chemical Analysis	3
Chemistry 110 and 112	Organic Chemistry	8
Chemistry 130	Elementary Physical Chemistry	3*

For a minor in Chemistry the student should complete courses 1, 2, 27, 121, 110, and 112.

*This course has a prerequisite of Elementary College Physics, 1 and 2.

The above group of courses does not fully prepare a student for graduate work in Chemistry leading to an advanced degree. Such preparation should include Chemistry 131, Physical Chemistry 5 hours, instead of Chemistry 130, Physical Chemistry, 3 hours. Chemistry 131 has a prerequisite of Integral Calculus and Physics 3 and 4 instead of Physics 1 and 2. German and French are recommended for students in Chemistry.

Teachers of Commercial Subjects

The School of Education now offers a curriculum for training teachers who intend to teach commercial subjects in the high schools of Missouri. The approximate requirements for this degree are here outlined.

Course Requirements for Teachers of Commercial Subjects

			Hours	
I.	Professional Courses in Education			
	A102	Educational Psychology	3	
	B125	History of American Education	3	
	D110	Technique of Teaching in High School	3	
	D120	Teaching of Commercial Subjects	2	
	D140	High School Administration for Teachers	2	
	D150	Student Teaching	5	
	5	Preventive Medicine	2	
		Total		20
II.	Courses for Direct Training in the Commercial Field			
		English	12	
		Mathematics	5	
	1	American Government	5	
	1	General Economics	5	
	D132, D133, D134, D135	Typewriting	8	
	D136, D137, D138, D139	Stenography	10	
	D141	Accounting for Teachers	3	
	17	Elementary Accounting	5	
	150, 151	Business Law	5	
		Geography (One course must be 125 Economic Geography)	6	
		Total		64
III.	A Teaching-Minor in some accepted field			15–30
IV.	Free Electives (in either Group II or Group III or part in both groups)			6–21
		Grand Total		120

GENERAL REQUIREMENTS

1. All general requirements for the degree B. S. in Education, such as residence, credit points, et al., apply in this curriculum.

2. A minor in the commercial field is not offered.

3. Credit in typewriting, stenography, and accounting for teachers shall count only toward the degree B. S. in Education for students taking the curriculum for teaching of commercial subjects in high school.

4. The work of typewriting shall continue through four semesters, 2 semester hours credit being given for each semester's work. The work in stenography shall continue through four semesters, the first two semesters being credited with 3 semester hours each and the last two with 2 semester hours each.

5. In addition to the 8 semester hours of work in typewriting and 10 in stenography, each student must pass a proficiency test in these fields. A student, in general, is considered eligible to take this test only after completing the work of three semesters in these fields. If he does not meet the standards set in the tests after having completed the four semesters of prescribed work, he must do additional work in these subjects without credit.

6. Expertness in typewriting and stenography, acquired under conditions not permitting college credit, as in high school or other institutions of non-college standing, and determined by test, shall be allowed to reduce the 8 and the 10 semester hour requirement in each of these subjects respectively. In no such case shall the student do less than one semester (2 semester hours credit) of work in each of these subjects in the University. Expertness shall in no case exempt a student from the proficiency tests explained above. The exemptions referred to above shall in no case reduce the total amount of work required for the degree (120 semester hours).

7. Pupils transferring from junior colleges or other institutions of collegiate rank, may have their credits in commerce transferred to count toward the degree B. S. in Education in accordance with approval granted for such work by the Committee on Accredited Schools and Colleges of the University. In no case shall more credit in typewriting, stenography, and accounting be transferred to count toward the degree than can be earned in these subjects in the University. No student transferring credit shall be exempted from the proficiency tests described above.

8. Since most teachers of commercial subjects in high schools are required to do some teaching in departments other than commerce, candidates following this curriculum are required to carry enough work in some other field to meet the standards for approv-

ing such teachers as set up by the State Department of Education. The fields usually combined with the commercial field in Missouri high schools, listed in the order of frequency of combination, are social studies, mathematics, English.

A Suggested Program of Studies

Students enroll in the School of Education as juniors, after they have completed 60 semester hours of acceptable college work. Freshman and Sophomore students intending to enter the School of Education as candidates for the degree B. S. in Education with a major in the field of commercial subjects enroll in the College of Arts and Science. During their freshman and sophomore years they should make sure to observe the following:

Freshman and Sophomore Years

During the first two years, while the student is still enrolled in the College of Arts and Science, he should be careful to complete (1) at least 12 semester hours of credit in English inclusive of Freshman English. (2) He should also complete 5 hours of mathematics, provided, however, that this requirement may be waived for those students presenting 3 units of high school mathematics for admission to the University, and provided further that it may be reduced to two or three hours for those presenting two units of high school mathematics. (3) The course in American Government for 5 semester hours of credit should also be completed during the first two years of work. (4) General Economics, a five-hour course, should probably be taken during the last semester of the second year. (5) Preventive Medicine should be taken before the student reaches the junior year. (6) One three-hour course in Geography may be taken in the sophomore year. (7) A good beginning should be made on meeting the requirements for a teaching-major in some field other than commercial subjects. (8) With the consent of the instructor, Educational Psychology (A102) and History of American Education (B125) may be taken during the second semester of the sophomore year.

Junior and Senior Years

The following program is suggested for the last two years, that is, the junior and senior years in the School of Education.

Junior Year

	First Semester	*Hours*		*Second Semester*	*Hours*
D132	Typewriting	2	D133	Typewriting	2
D136	Stenography	3	D137	Stenography	3
D141	Accounting for Teachers	3	17	Elementary Accounting	5
A102	Educational Psychology	3	D110	Technique of Teaching in High School	3
150	Business Law	3			
	Elective	2	B125	History of American Education	3
		16			16

Senior Year

	First Semester	*Hours*		*Second Semester*	*Hours*
D134	Typewriting	2	D135	Typewriting	2
D138	Stenography	2	D139	Stenography	2
D120	Teaching of Commercial Subjects	2	D150	Student Teaching	5
			125	Economic Geography	3
D140	High School Administration for Teachers	2		Elective	4
	Geography	3			
151	Business Law	2			
	Elective	3			
		16			16

Note: These semester programs may be altered somewhat. The sequence of the professional courses as here indicated should be maintained.

Teachers of English and Speech

Students wishing to make their major in English are advised to take in their freshman year, besides the required composition courses (English 1 and 2), the course in Masterpieces (English 5 or 6).

In the sophomore year they should take English 30 and 40 (English Life and Literature), prerequisite to upperclass courses in English literature, the course in Public Speaking (75f or 75w), and the course in Oral Interpretation of Literature (74f or 74w).

The major in English is thirty-five hours, inclusive of English 1 and 2, and must include both semesters of the course in English Life and Literature (30 and 40), at least one course in advanced composition (50 or 60), the course in oral interpretation (74), the course in public speaking (75), one course in the English language (119 or 120), one course in English literature before the eighteenth century, and one course in later literature (after 1660). Upon the basis of these requirements majors will be built up under the direc-

tion of the adviser for the department to meet the needs of different students. At least twelve of the hours must be made up of upperclass courses. With the required courses here specified there will be six hours of free electives.

A minor in English requires, besides the course in English Life and Literature (30 and 40), or its equivalent, and the course in oral interpretation (74), the four basic courses of the major (in advanced composition, the English language, and the earlier and later literature).

Requirements for High School Teachers of Speech

Curriculum I (Speech) is designed for those who wish to acquire some acquaintance with all aspects of the field of speech; Curriculum II (Public Speaking), Curriculum III (Dramatics), and Curriculum IV (Speech Correction) afford an opportunity for some degree of specialization. Each curriculum is set up with a view to (1) training the student to handle adequately the problems confronting the high school teacher of speech, (2) to meet the standards set by the State Department of Public Schools and more recently by the North Central Association of Colleges and Secondary Schools, and (3) to give the student sufficient background for later graduate study.

The student is advised to take as many as possible of the underclass courses during his freshman and sophomore years. If he can not take English 15, *Reading and Speaking*, during his first year, he should substitute an upperclass course in speech to fulfill this requirement.

I. Speech

English		*Hours*
15	Reading and Speaking	2
30	English Life and Literature	3
40	English Life and Literature	3
60	Exposition; or 50 Narration	3
73	Voice and Articulation	2
74	Oral Interpretation	2
75	Public Speaking	3
106	Group Discussion and Debate	3
107	Dramatic Interpretation	3
110	Principles of Stage Direction, or 111 Play Production	3
115	Principles of Rhetoric	3
118	Applied Phonetics; or 122 Speech Correction	3
119	The English Language	3
135 or 136	Shakespeare	3
175 or 176	American Literature	3
		42

Education		*Hours*
D113	Teaching of Speech	2

II. Public Speaking

English		*Hours*
16	Elementary Discussion and Debate	2
30	English Life and Literature	3
40	English Life and Literature	3
60	Exposition	3
73	Voice and Articulation	2
74	Oral Interpretation	2
75	Public Speaking	3
105	Argumentation	3
106	Group Discussion and Debate	3
114	Public Address	3
115	Principles of Rhetoric	3
116	British Oratory	3
119	The English Language	3
145	Milton	3
175 or 176	American Literature	3
		42

Education		*Hours*
D113	Teaching of Speech	2

III. Dramatics

English		*Hours*
30	English Life and Literature	3
40	English Life and Literature	3
50	Narration	3
74	Oral Interpretation	2
75	Public Speaking	3
107	Dramatic Interpretation	3
108	Characterization and Acting	3
109	Stagecraft	3
110	Principles of Stage Direction	3
111	Play Production	3
112	Introduction to the Theatre	3
118	Applied Phonetics	3
119	The English Language	3
195	Modern Drama	3
135 or 136	Shakespeare	3
		44

Education		*Hours*
D113	Teaching of Speech	2

IV. Speech Correction

English		*Hours*
15	Reading and Speaking	2
30	English Life and Literature	3
40	English Life and Literature	3
60	Exposition	3
73	Voice and Articulation	2
74	Oral Interpretation	2
75	Public Speaking	3
115	Principles of Rhetoric	3
118	Applied Phonetics	3
122	Speech Correction	3
123	Clinical Techniques in Speech Correction	3
119	The English Language	3
135 or 136	Shakespeare	3
175 or 176	American Literature	3

and one course from the following group:

105	Argumentation; 106 Group Discussion and Debate; 108 Characterization and Acting; 114 Public Address	3
		42

Education		*Hours*
D113	Teaching of Speech	2

Teachers of French

Students interested in completing a major in French in preparation for teaching that language should plan early in their university training to enroll in courses in that language. A minimum of twenty-four semester hours in French will be required. Additional training in advanced courses should be taken.

A student presenting fewer than two units of French from high school for admission to the University should complete the work of the following courses:

French		*Hours*
1	Elementary French	5
2	Intermediate French	5
3	Advanced French	5
103	Composition	5
104	Advanced Composition	3
108	Masterpieces of French Literature to 1700	3

If a student presents two units of French from high school, he should complete the work of the following courses:

French		*Hours*
2	Intermediate French	5
3	Advanced French	5
103	Composition	5
104	Advanced Composition	3
	or	
108	Masterpieces of French Literature to 1700	3

The remaining courses for all students should be selected in conference with the adviser from the following:

French		*Hours*
101	Phonetics	1
108	Masterpieces of French Literature from 1700 Until Today	3
102	French Civilization	2
116	History of French Language	3
112	French Novel	3
114 or 115	Lyric Poetry	3
130	Special Readings	1–3

Majors and Minors in General Science

Students wishing to make a major in general science should take ten hours in physics, ten hours in chemistry, and ten hours in biological science, preferably distributed between botany and zoology or human physiology. In addition, students should add a minimum of at least five hours to each of two of these fields. Such students will be qualified to teach, under present regulations, general science and the two other sciences in which a minimum of fifteen hours has been attained.

Students wishing to make a minor in general science should take fifteen hours in biological sciences, ten hours in physics and five hours in chemistry. Such students, under present regulations, will be qualified to teach general science and biology. An additional five hours in physics will qualify these students to teach general science, biology, and physics.

There are almost no positions for teachers of single sciences in Missouri high schools. Teachers of science must be qualified to teach all of the natural sciences commonly offered in the high schools. The large majority of Missouri high schools offer general science. The other sciences commonly offered are general biology, physics, and chemistry. Physiology and hygiene are frequently offered. These courses are sometimes taught by science teachers and sometimes by physical education teachers.

At the present time high school teachers of science must have five hours of biology, five hours of physics, and five hours of chemistry, and a minimum of fifteen hours in each special science taught.

Teachers approved for small first-class high schools should be qualified to teach both science and mathematics.

Teachers of Geography

Students qualifying to teach Geography should follow the suggested courses:

		Hours
Geography 6	Introductory Geography	3
Geography 7	Geography Laboratory	1
Geology 2	Physical Geology	3
Geology 90	Economic Geology	2
Geography 125	Economic Geography	3
Geography 140	Climate and Weather	2
Geography 130	Geography of Trade	2
Geography 180	Relations of Geography and History	3
Geology 15	Advanced General Geology (for teachers of Physical Geography)	4
	Elective Geography courses	1–5

Teachers of German

Students interested in becoming teachers of German must complete a minimum of 24 semester hours. The following courses are recommended:

German		*Hours*
1	Beginning Course in German	5
2	German Reading, Syntax, and Composition	5
3	Advanced Reading	5
104	Masterpieces in German Drama, Lyrics, and Novel	3

To fulfill the teaching major the remainder of the courses should be selected from the following:

German		*Hours*
106	Advanced Composition and Conversation	2
107	Lessing	3
108 and 109	Schiller	3
110 and 111	Goethe	3
112	German Dramatists of the 19th Century	3
113	The Modern German Novel	3
114	Outline Course in German Literature	3
115	Outline Course in the German Language	3
199	Special Readings	1–3

Courses 106, 110 or 111, and 114 are especially recommended.

Students presenting two units of German from high school should usually begin with Course 2, Reading, Syntax, and Composition, and continue the training suggested above. If, however, they have done the two units of high school work so well that they are prepared for Advanced Reading, they may begin with Course 3.

A student minoring in German, in order to teach the subject, must complete at least twenty-four hours of German, except that if the student has completed two units of German in high school, ten hours of this requirement may be waived.

Teachers of Home Economics

For a major in Home Economics see the suggested curriculum for teachers of Vocational Home Economics.

High school teachers who are completing a major in an academic subject may take a minor in Home Economics. The following courses will be required work for such students:

		Hours
Home Economics 1	Selection and Preparation of Foods	5
Home Economics 10	Home Problems	2
Home Economics 15 and 16	Design	4
Home Economics 20	Home Nursing and Health	2
Home Economics 50 and 51	Textiles and Clothing	6
Home Economics 160	Home Care and Training of Children	3

Students completing this minor are not qualified to teach Vocational Home Economics. To strengthen this minor, electives from the following courses are recommended:

		Hours
Home Economics 110	Home Furnishing	3
Home Economics 117	Economic Problems of the Family	3
Home Economics 120	Food Buying	2
Home Economics 125	Meal Planning and Table Service	2
Home Economics 130	Food in Relation to Health	3
Home Economics 150	Buying of Clothing and Textiles	3

(All of the above courses except Home Economics 130 have prerequisites. Consult Statement of Courses).

Students completing a minor in Home Economics should also complete work in the biological and physical sciences, English, sociology, and economics.

Teachers of Industrial Arts

Students who contemplate majoring in the field of industrial arts should consult with the adviser in this field when arranging their freshman and sophomore programs.

In general, in order to maintain a proper sequence of courses, it is desirable to take the following subjects during the first two years:

1f . . . . . Mechanical Drawing
2w . . . . . Descriptive Geometry
75f . . . . . Artcraft I
150f . . . . . Artcraft II
F10f . . . . . General Wood Work
F12w . . . . . General Metal Work

SUGGESTED CURRICULUM FOR TEACHERS OF INDUSTRIAL ARTS

Junior Year

First Semester	*Hours*	*Second Semester*	*Hours*
[1]Educational Psychology, A102f	3	[1]Principles of Trade and Industrial Teaching, F194w	3
[1]History of American Education, B125f	3	[1]Technique of High School Teaching, D110w	3
Tools and Materials, F15f	2	Organization of Subject Matter, F190w	2
General Electricity, F14f	3	Principles and Operation of Machines, F20w	2
*Electives	5	*Electives	6
	16		16

Senior Year

First Semester	*Hours*	*Second Semester*	*Hours*
[1]Administration of Industrial Education, F196f	2	[1]High School Administration for Teachers, D140w	2
[1]Student Teaching, D150f	6	[1]Educational Guidance, G195w	3
[1]Preventive Medicine, 5f	2	Furniture Design and Construction, F106w	3
Art Metal Work, F25f	3	General Shop, F102w	3
*Electives	3	*Electives	5
	16		16

TEACHERS OF LATIN

Students interested in completing a major or minor in Latin should follow the suggested outline of courses given below, depending upon the number of units of high school Latin presented upon admission.

[1]Required education courses.
*Electives should be chosen so as to give a teaching minor in some subject.

I. If a student presents three or four units he should complete for a major: Ten or more hours chosen from:

General Subject	*No. of Course*	*Special Title*	*Credit Hours*
Classical Languages	100	Vergil's Aeneid	5
Classical Languages	101	Cicero's Essays	5
Classical Languages	102	Pliny	2
Classical Languages	103	Ovid	3
Classical Languages	104	Prose Composition	1
followed by			
Classical Languages	110	Horace	3
followed by eleven hours chosen from the following:			
Classical Languages	106	Prose Composition	1
Classical Languages	114	Cicero's Letters	3
Classical Languages	115	Rapid Reading	2
Classical Languages	116	Rapid Reading	2
Classical Languages	117	Catullus	3
Classical Languages	119	Vergil's Aeneid : VI-XII	3
Classical Languages	120	Latin Comedy	3
Classical Languages	121	Juvenal's Satires	3
Classical Languages	150	Tacitus	3

II. If a student presents three or four units he should complete for a minor:

Ten or more hours chosen from:

General Subject	*No. of Course*	*Special Title*	*Credit Hours*
Classical Languages	100	Vergil's Aeneid	5
Classical Languages	101	Cicero's Essays	5
Classical Languages	102	Pliny	2
Classical Languages	103	Ovid	3
Classical Languages	104	Prose Composition	1
followed by			
Classical Languages	110	Horace	3
followed by two or more hours chosen from the following:			
Classical Languages	106	Prose Composition	1
Classical Languages	114	Cicero's Letters	3
Classical Languages	115	Rapid Reading	2
Classical Languages	116	Rapid Reading	2
Classical Languages	117	Catullus	3
Classical Languages	119	Vergil's Aeneid : VI-XII	3
Classical Languages	120	Latin Comedy	3
Classical Languages	121	Juvenal's Satires	3
Classical Languages	150	Tacitus	3

III. Students who present no high school units in Latin should take course 1, Beginning Latin. Students presenting two units should take courses 4, Grammar, and 10, Cicero's Orations, simultaneously. The suggested courses for the major should then be followed.

IV. Prospective teachers of Latin are also urged to elect at least one, and as many as possible, of the following courses:

General Subject	*No. of Course*	*Special Title*	*Credit Hours*
Classical Archaeology	60	Classical Mythology	2
Classical Archaeology	140	Roman Life	2
History	125	Roman History	2

Students not completing an official major or minor in Latin in the School of Education but wishing to complete a sufficient number of hours in the field to fulfill the State requirement in Missouri for teaching Latin should consult the official recommendations issued by the State Department of Education. For sequence of courses for those students the above suggested lists should be followed.

Teachers of Mathematics

Students interested in completing a major in Mathematics should take the following courses:

Mathematics		*Hours*
2	Trigonometry and Algebra	5
4	Analytic Geometry	5
5	Differential Calculus	5
100	Integral Calculus	5
104	Advanced Algebra	3
	or	
110	Advanced Calculus	3
	or	
115	Advanced Geometry	3
	and	
55	The Mathematics of Finance	3

If a student desires he may take either 104 and 105 or 110 and 111 or 115 and 116 in place of the 55.

For a minor in Mathematics, courses 2, 4, and 5 are required.

Teachers and Supervisors of Music

Suggested Curriculum in Music Education for Music Teachers, General Supervisors and Instrumental Supervisors

Freshman and Sophomore students planning to specialize in public school music enroll in the College of Arts and Science but plan their work with the professor of music education. In general, the work in the Freshman and Sophomore years should follow the outline given below.

Freshman Year	*Hours*
Music 3, 4, Theory	4
Applied Music	4
English, 1f, 2w	6
Speech, 73f-w	2
Music 5, 6, Ear Training	2
Arts and Science Electives	14
	32

Sophomore Year	*Hours*
Music 101, 102, Adv. Harmony	4
Applied Music	4
Orchestral Instruments	2
Music 7, 8, Keyboard Harmony	2
[1]Preventive Medicine, 5	2
General Psychology, 1	3
[1]Educational Psychology, A102	3
Arts and Science Electives	12
	32

FOR MUSIC TEACHERS AND GENERAL SUPERVISORS

Junior Year	*Hours*
Applied Music	4
Music 41, 42, University Chorus	2
Music 121, 122, or 123, History	4
[1]History of American Education, B125	3
[1]*Technique of High School Teaching, D110	3
Teaching Music in the Elementary School, E131	3
[1]Teaching of High School Music, D130	3
Orchestral Instruments	2
Elective	8
	32

Senior Year	*Hours*
Applied Music	4
Music 148, 149, Conducting	2
[1]High School Administration for Teachers, D140	2
[1]Student Teaching, D150	6
Ensemble	2
Problems in School Music, D181	2
Elective	14
	32

[1]Required education courses.
*If A102 Educational Psychology was taken in Sophomore year.

SPECIAL REQUIREMENTS FOR SUPERVISORS OF MUSIC

Supervisors will be examined before graduation in piano and voice.

Minimum requirements in piano are the ability to harmonize melodies, to transpose simple songs, to sight-read hymn tunes, and to play in musicianly style a solo of medium difficulty.

Minimum requirements in voice are the ability to sight-read fifth grade music and to sing with correct vocal habits songs of the difficulty of an easy Franz song.

FOR INSTRUMENTAL SUPERVISORS

Freshman and sophomore years the same as for Music Teachers and General Supervisors.

Junior Year	*Hours*
Applied Music	4
Music 121, 122, or 123, History	4
[1]History of American Education, B125	3
[1]*Technique of High School Teaching, D110	3
Teaching of Instrumental Music, D131	2
[1]Teaching Music in the Elementary School, E131	3
Orchestral Instruments	4
Music 107, 108, Orchestration	4
Instrumental Ensemble	2
Elective	3
	32

Senior Year	*Hours*
Applied Music	4
Music 148, 149, Conducting	2
[1]High School Administration for Teachers, D140	2
[1]Student Teaching, D150	6
Orchestral Instruments	2
Instrumental Ensemble	2
Problems in School Music, D181	2
Elective	12
	32

*If A102 Educational Psychology was taken in Sophomore year.
[1]Required education courses.

MEN TEACHERS OF PHYSICAL EDUCATION

Men Teachers of Physical Education: A total of 20 hours in education, including 3 hours of educational psychology, 3 hours of history of education, 3 hours of technique of teaching in high school, 2 hours of preventive medicine, 2 hours of high school administration for teachers, or elementary school organization and management, 2 hours of the teaching of physical education, and 5 hours of practice teaching.

SUGGESTED CURRICULUM FOR TEACHERS OF PHYSICAL EDUCATION—MEN

Men who select physical education as their major subject should elect Zoology in the freshman year, as it is a prerequisite to Anatomy. During the first two years they should take physical education 41f, 42w, 43f, and 44w, in addition to the required courses 1f, 2w, 5f, and 6w. They must also take, during the first two years, Anatomy 101f, Physiology 100w, and Preventive Medicine 5f or w.

In the junior and senior years such students must enroll in the School of Education and complete the following program of studies:

Junior Year

First Semester	*Hours*	*Second Semester*	*Hours*
[1]Educational Psychology, A102f	3	[1]Technique of High School Teaching, D110w	3
[1]History of American Education, B125f	3	[1]Teaching of Physical Education, H119w	2
Informal Activities for Boys and Men, 55f	2	Body Mechanics, 180w	5
*Elective	8	Minor Games, 56w	2
		Elective	4
	16		16

Senior Year

First Semester	*Hours*	*Second Semester*	*Hours*
[1]Student Teaching, D150f	2	[1]Student Teaching, D150w	3
History and Principles of Physical Education, H152f	3	[1]High School Administration for Teachers, D140w	2
Major Sports, 106f	3	Administration of Physical Education, H190w	3
Community Recreation, 151f	3	Major Sports, 107w	3
Elective	5	Elective	5
	16		16

[1]Required education courses.

*Electives must be chosen so as to complete a teaching major or minor in some one teaching field other than physical education.

Women Teachers of Physical Education

Women Teachers of Physical Education: A total of 20 hours in education, including 3 hours of educational psychology, 3 hours of history of education, 3 hours of technique of teaching in high school, 2 hours of preventive medicine, 2 hours of high school administration for teachers, or elementary school organization and management, 2 hours of teaching of physical education, and 5 hours of practice teaching.

Suggested Curriculum for Teachers of Physical Education—Women

Women who wish to major in Physical Education are advised to take in the freshman year, besides the required Arts and Science work, the following courses: 3f, 4w, 41f, 42w, 27f, and 28w. Zoology must be elected in the freshman year as a prerequisite to Anatomy 101f. In the sophomore year, students should take Anatomy 101f, Physiology 100w, and Physical Education courses 7f, 8w, 43f, 44w, and 54f or w.

Junior Year

First Semester	*Hours*	*Second Semester*	*Hours*
[1]Educational Psychology, A102f	3	[1]Technique of High School Teaching, D110w	3
[1]History of American Education, B125f	3	[1]Teaching of Physical Education, H119w	2
Junior Major Gymnastics and Athletics, 115f	2	Junior Major Gymnastics and Athletics, 116w	2
Elementary Folk Dancing, 125f	2	Body Mechanics, 180w	5
Community Recreation, 151f	3	Elective	4
Elective	3		
	16		16

Senior Year

First Semester	*Hours*	*Second Semester*	*Hours*
[1]Student Teaching, D150f	2	[1]High School Administration for Teachers, D140w	2
Senior Major Gymnastics and Athletics, 117f	2	[1]Student Teaching, D150w	3
Theory of the Modern Dance, 128f	2	Senior Major Gymnastics and Athletics, 118w	2
Technique of Field Hockey and Basketball for Women, 129f	2	Technique of Baseball and Tennis, 149w	2
Technique of Swimming, 134f	2	Administration of Physical Education, H190w	3
History and Principles of Physical Education, H152f	3	Elective	4
Elective	3		
	16		16

[1]Required education courses.
Preventive Medicine is also required for graduation.

Electives for Majors in Physical Education

Physical Education courses 140w, 160f and 162w.

Minor in Physical Education

The Director of Physical Education must be consulted before the election of any course in physical education. The minor is intended to meet the needs of students who wish to combine the teaching of their major subject with physical education.

Men and women students must complete a total of 20 hours in physical education. Physiology 100w and Anatomy 101f are required as prerequisites to satisfy requirements of the State Department.

The following courses are suggested for the minor for women: 54f or w, 115f, 116w, 117f, 118w, H119w, 125f, and H190w, and the technique courses in the division in which the student is interested.

The following courses are suggested for the minor for men: 41f, 42w, 43f, 44w, 55f, 56w, 106f, 107w, H152f, H190w.

Teachers of Physics

Students who choose a major in Physics should complete at least ten hours of Mathematics in the freshman and sophomore years and continue training in Mathematics through Calculus during their junior and senior years. It is highly desirable also that students majoring in Physics complete sometime during their university training a five-hour course in Chemistry.

A major of at least 24 hours in Physics should include:

		Hours
Physics 3 and 4	General Physics	10
Physics 112	Heat	3
Physics 110	Electricity and Magnetism	3
Physics 113	Light	3
Physics 114	Mechanics	3
and one of the following courses:		
Physics 106	Ionization of Gases	2
Physics 107	Electricity	1–2
Physics 108	Light Laboratory	2
Physics 117	Sound	3
Physics 130	Modern Physics	3

For a minor in Physics, courses 3, 4, 112, 110, and 113 should be completed.

Teachers of Physiology and Hygiene

Students who wish to become teachers of physiology and hygiene should follow this suggested list of courses:

		Hours
Zoology 1	General Zoology	5
Physiology 100	Elements of Physiology	5
or		
Physiology 103	Advanced General Physiology	5
Pathology, Bacteriology and Preventive Medicine 108	General Hygiene	2
Botany 3	General Bacteriology	3
Anatomy 101	Elementary Anatomy	3
To complete this major, courses may be selected from the following:		
Zoology 120	Embryology of Vertebrates	5
Biochemistry 101	Elementary Physiological Chemistry	3
Botany 100	Plant Physiology	3
Zoology 4	Comparative Anatomy of Vertebrates	5
Physiology 102	General Physiology	5
Physiology 103	Advanced General Physiology	5

It is also essential that students majoring in physiology and hygiene take General Inorganic Chemistry and it is also desirable to complete at least one course in Organic Chemistry. It is understood that students complete the course in Preventive Medicine or its equivalent.

The minor in Physiology should include courses in Zoology, Physiology, Hygiene, and Anatomy. The minor could well be strengthened with courses in Chemistry, Botany, and Biochemistry.

Teachers of Social Studies

Suggested Curriculum for Majors in Social Studies

Because of the breadth of training required by teachers of social studies, it is essential that the students preparing to teach this field should start their preparation early. The following is suggested as the best plan to fit the normal student who intends to major in this field. In the freshman year the student should take history 1 and 2; in the sophomore year the student should take American History, course 8; American Government, course 1; Preventive Medicine, course 5; and four hours in his minor subject.

Junior Year

First Semester	*Hours*	*Second Semester*	*Hours*
General Economics, 1f	5	General Sociology, 1w	3
[1]Educational Psychology, A102f	3	[1]Technique of High School Teaching, D110w	3
[1]History of American Education, B125f	3	Recent United States History 110w	3
Contemporary Europe	3	Minor Subject	5
Minor Subject	2	Elective	2
	16		16

Senior Year

First Semester	*Hours*	*Second Semester*	*Hours*
[1]Teaching Social Studies in High School, D121f	2	[1]High School Administration for Teachers, D140	2
[1]Student Teaching, D150f*	5	Social Studies Electives**	5
Social Studies Elective**	3	Minor Subject	4
Minor Subject	4	Elective	5
Elective	2		
	16		16

[1]Required education courses.

*Student Teaching may be postponed until the second semester. If this is desired, the social studies electives in the second semester should be carried in the first semester.

**All social studies electives must be selected with the help of the adviser.

If Preventive Medicine was not taken during the sophomore year it must be completed during the junior or senior year.

For a minor in social studies a student must take history courses 1 and 2, or their equivalent, American History, Contemporary Europe, Recent United States History, American Government, General Economics, and five hours of Sociology. He is advised to elect Education D121.

Teachers of Spanish

Students interested in completing a major in Spanish should begin early in their college work to train in this field. A minimum of 24 hours will be required for a major in Spanish for those students who present two units of Spanish from high school. Thirty semester hours will be required for those who present no Spanish from high school.

For a minor in Spanish, 18 hours will be required if a student presents two high school units. Twenty-four hours must be taken for a minor if no Spanish was taken in high school. The courses recommended for teachers for a major in Spanish are:

Spanish		*Hours*
1	Elementary Spanish	5
2	Intermediate Spanish	5
3	Advanced Spanish	5
105	Composition and Conversation	3
111	Advanced Composition and Conversation	2

To complete the major or minor, the student should select with the help of the adviser courses from the following list:

Spanish		*Hours*
120	Masterpieces of Spanish Literature	3
122	Commercial Spanish	2
101	Latin-American Life, Literature, and Affairs	2
112	Special Readings	1–3
107	Modern Spanish Drama	3
113	Nineteenth Century Spanish Novel	3

Teachers of Vocational Agriculture

The curriculum for training of teachers of vocational agriculture is listed as Curriculum B in the College of Agriculture.

Teachers of Vocational Home Economics

Curriculum for Teachers of Vocational Home Economics

Freshman and Sophomore Years

Courses required of all home economics majors which should be taken during the freshman and sophomore years:

		Hours
Eng. 1	Composition and Rhetoric	3
Eng. 2	Composition and Rhetoric	3
Chem. 1	Inorganic Chemistry	5
Chem. 15	Organic Chemistry	3
Botany 1	General Botany	3
Botany 3	General Bacteriology	3
Physiology 100	Elementary Physiology	5
Soc. 1	General Sociology	3
Econ. 1	General Economics	5
Educ. A102	Educational Psychology	3
H. E. 1	Selection and Preparation of Foods	5
H. E. 10	Survey in Home Economics	2
H. E. 15	Design	2
H. E. 16	Design	2
H. E. 50	Textiles and Clothing	3
H. E. 160	Home Care and Training of Children	3
	Physical Education	4

Other courses required for Vocational Home Economics major:

		Hours
H. E. 51	Textiles and Clothing	3
H. E. 20	Home Nursing	2

Junior and Senior Years

Courses required of all Home Economics majors:

		Hours
H. E. 110	Home Furnishing I	3
H. E. 117	Economic Problems of the Household	3
H. E. 120	Food Buying	2
H. E. 150	Buying of Textiles and Clothing	3
H. E. 125	Meal Planning and Table Service	2
H. E. 115	Home Management	4
Soc. 114	The Family	3

Other courses required for Vocational Home Economics majors:

		Hours
Physics 1	Elementary College Physics	5
H. E. 121	Nutrition	3
H. E. 122	Dietetics	4
H. E. 145	Costume Design	2

Education in addition to the courses taken in the Sophomore year:

		Hours
B125	History of American Education	3
D110	Technique of High School Teaching	3
D140	High School Administration for Teachers	2
D150	Student Teaching	5
F175	Organization and Administration of Vocational Home Economics	3
F110	Teaching of Home Economics	2
F116	Teaching of Related Subjects	2
	Free Electives	8

For the first two years students register in the College of Agriculture or the College of Arts and Science. In order to avoid conflicts in the junior and senior years, it is highly important that all the required freshman and sophomore courses be included in the work of the first two years.

Teachers of Trades and Industries

Since training in this field is of a highly specialized nature, the program has to be adjusted to the individual needs of each candidate. It is therefore desirable that each candidate work out his program personally with the major adviser.

Graduate Work in Education

The graduate work in Education is organized to lead to the following graduate degrees: Master of Arts and Doctor of Philosophy; Master of Education and Doctor of Education.

General Information

Prerequisites:

To be admitted to candidacy for the degree Master of Arts with a major in Education, students must have completed at least fifteen semester hours of professional education courses including courses in educational psychology, history or principles of education, school administration, organization and management, and techniques of teaching.

To be admitted to candidacy for the degree Master of Education, students must have completed not less than fifteen semester hours of work in undergraduate courses in education in an approved institution.

Choice of Major Adviser

Graduate students in education should decide first of all as to the particular area of school work for which they wish to prepare. They should then consult the faculty adviser in the field of their major interest and in consultation with him make out a complete program of studies for the desired degree. Some of the fields of specialization, along with the names of the appropriate advisers in the department of education, are listed below:

Graduate Specialty	*Faculty Adviser*	*Room No.*
Educational Psychology	Mr. Irion	212 Education
	Mr. Saupe	111 Switzler
History and Philosophy of Education		
City, County, and State School Administration	Mr. Capps	104 Jesse
	Mr. Carpenter	304 Jesse
Educational Tests and Measurements	Mr. Capps	104 Jesse
Secondary Education	Mr. Rufi	323 Jesse
	Mr. Townsend	215 Education
	Mr. Watkins	111 Switzler
Teaching of English	Mr. Moffett	209 Jesse
Teaching of Social Studies	Mr. Ellis	318 Jesse
Music Education	Mr. Normann	212 Lathrop
Elementary Education	Mr. Phillips	209 Education
Agricultural Education	Mr. Dickinson	122 Waters
	Mr. Dippold	122 Waters
Home Economics Education	Miss Irons	107 Gwynn
Industrial Education	Mr. Selvidge	111A Engineering
Guidance and Counseling	Mr. Germane	7 Jesse
Physical Education	Mr. Hindman	102 Rothwell Gym.

Courses Recommended for All Graduate Students In Education

For many lines of graduate work in education, advisers insist on students having during the first semester the following courses unless similar courses have been taken as undergraduate work:

C170 Educational Statistics
C201 Methods of Educational Research
D207 Tests and Measurements for Secondary Schools
or
E205 Tests and Measurements for Elementary Schools

General background courses commonly recommended for all graduate students in education who have not had the equivalent as undergraduate work are:

A205 Psychology of Education
B271 Philosophy of Education
C209 State and National School Administration

Dissertation Optional for the Degree Master of Arts and Not Required for the Degree Master of Education

A dissertation is optional for students majoring in education for the degree of Master of Arts. A student may offer, subject to the approval of his major adviser, an acceptable dissertation counting from four to eight hours of credit in the total thirty-two hours required for this degree.

A thesis is not required for the degree of Master of Education.

Because of the fact that the tendency the country over is in the direction of establishing a standard of at least one year of graduate study for supervisors and administrators, the undergraduate curricula in those fields have been eliminated. It will still be possible for undergraduates looking forward to administrative and supervisory work to take certain courses in those fields as undergraduates. The major portion of the training, however, should be confined to postgraduate study.

Program for the Degree Master of Education

The requirements for the degree Master of Education are described in the part of this bulletin devoted to the Graduate School.

Besides carrying the courses recommended for all graduate students in Education, the candidate should work out a definite program of studies with the adviser whom he selects from the published list of advisers. This program should be worked out in conference between the candidate and the major adviser. In general, an attempt is made to plan a program which will fit the individual needs of the candidate and for that reason courses other than those recommended for all students are not listed in a definite program of studies.

Program for the Degree Doctor of Education

The requirements for the degree Doctor of Education are published in another part of this bulletin under the topic describing the general regulations governing advanced graduate degrees.

A candidate for the degree Doctor of Education should select an adviser in accordance with the published list of advisers and should have a consulting committee appointed by the Dean of the Graduate School through his major adviser. The major adviser will confer with the candidate relative to his program and will then with the assistance of the consulting committee work out a program of studies leading toward the degree. The degree Doctor of Education is especially intended to meet the professional needs of the candidate. The program of studies will be worked out with this objective in view.

Suggested Graduate Programs of Study for the Degree Master of Arts

Thirty-two semester hours of work are required for the degree Master of Arts. At least half of this must be in courses numbered 200 and above. While the advisers take into consideration the individual needs and desires of the students as well as the previous training which the student has had, it may be suggestive to list certain sample graduate programs for students majoring in Education:

Suggested Graduate Program for Students Majoring in Educational Psychology*

First Year of Graduate Work

A176	Psychology of Elementary School Subjects	3 hours
A202	Intelligence Testing	3 hours
A205	Psychology of Education	3 hours
B271	Philosophy of Education	3 hours
C170	Educational Statistics	3 hours
C210	City School Administration	3 hours
E205	Tests and Measurements in Elementary Schools	3 hours
	Elect, with consent of adviser, from field of General Psychology	6 hours
	Elect with consent of adviser	5 hours
		32 hours

*Since most candidates specializing in Educational Psychology find it profitable to do so only if they carry on the work to the completion of the requirements for the degree Doctor of Philosophy, a full three-year program has been outlined. The first year marks the program for the degree Master of Arts.

Second Graduate Year

A208	Psychology of High School Subjects	3 hours
A200	Seminar in Educational Psychology	4 hours
A250	Special Investigations in Educational Psychology	6 hours
C201	Methods of Educational Research	2 hours
G206	Mental Hygiene	3 hours
	Elect, with consent of adviser, from field of General Psychology	6 hours
	Elect with consent of adviser	8 hours
		32 hours

Third Graduate Year

A200	Seminar in Educational Psychology	4 hours
A207	Differential Psychology	3 hours
A290	Research in Educational Psychology	8 hours
	Elect, with consent of adviser, from field of General Psychology	6 hours
	Elect with consent of adviser	4 hours
		25 hours

Suggested Program of Studies for the Degree of Master of Arts with a Major in School Administration

All students are required to complete the following courses:

C200	Seminar in Educational Administration	1–3 hours
C209	State and National School Administration	2½–3 hours
C210	City School Administration	2½–3 hours

In consultation with his major adviser a student will usually select three of the following courses:

C170	Educational Statistics	2½–3 hours
C211	Administration of Pupil Personnel	2½–3 hours
C212	School Building Problems	2½–3 hours
C240	School Finance	2½–3 hours

In consultation with his adviser a student usually selects at least one course from each of the following fields:

Philosophy and Psychology of Education
Elementary Education—supervision, curriculum, or measurement courses
Secondary Education—administration, supervision, curriculum, or measurement courses.

Other requirements:

1. The general prerequisite for graduate work with a major in education, namely, that the student must present at least fifteen hours of acceptable undergraduate work in education, applies to all majors in School Administration.

2. A student should present at least one undergraduate major in a subject-matter field. Furthermore, it is very desirable that he carry course work in some subject-matter field on the graduate level during his work for the degree Master of Arts.

3. Courses in education other than those listed above, or in subject-matter fields, may be selected by the student in consultation with his adviser.

SUGGESTED GRADUATE PROGRAM FOR HIGH SCHOOL PRINCIPALS LEADING TO THE DEGREE MASTER OF ARTS

(Starred courses are required)

*A205	Psychology of Education	2½–3 hours
*B271	Philosophy of Education	2½–3 hours
*C209	State and National School Administration	2½–3 hours
*D201	Extra-Curricular Activities	2½–3 hours
*D206	High School Administration	2½–3 hours
*D215	High School Supervision	2½–3 hours
*D230	The Junior High School	2 hours
*D245	The High School Curriculum	2½–3 hours
		19½–23 hours

Additional courses to make up the requirement of thirty-two hours are to be selected from the courses listed below:

A208	Psychology of High School Subjects	2½–3 hours
B275	College Teaching Methods	2½–3 hours
C170	Educational Statistics	2½–3 hours
C210	City School Administration	3 hours
C211	Administration of Pupil Personnel	3 hours
C212	School Building Problems	3 hours
C240	School Finance	3 hours
C273	Junior College Administration	3 hours
D200	Seminar in Secondary Education	Arr.
D207	Tests and Measurements for Secondary Schools	3 hours
D240	Improvement of High School Teaching	2 hours
D246	Curriculum Construction for Secondary Schools	2½–3 hours
G195	Educational Guidance	2½–3 hours
G196	Guidance in Character Education	3 hours

Students who have carried considerable undergraduate work in Education are not only permitted to include from eight to twelve hours of graduate work in subject-matter fields in their programs for the Master of Arts degree but are encouraged to do so.

SUGGESTED GRADUATE PROGRAM FOR STUDENTS MAJORING IN EDUCATION, DIVISION OF HIGH SCHOOL TEACHING, LEADING TO THE DEGREE MASTER OF ARTS

A205	Psychology of Education	3 hours
A208	Psychology of High School Subjects	2½–3 hours
B271	Philosophy of Education	2½–3 hours
D207	Tests and Measurements for Secondary Schools	3 hours
D240	Improvement of High School Teaching	2 hours
D245	High School Curriculum	2½–3 hours
D250	Special Investigations in Secondary Education	1–3 hours
		17½–20 hours

Additional courses which may be accepted or substituted for one of the above with the consent of the adviser to make a total of thirty-two hours:

A207	Differential Psychology	3 hours
B190	Comparative Education	2 hours
C170	Educational Statistics	2½–3 hours
C201	Methods of Educational Research	2 hours
D181	Problems in High School Music Teaching	2 hours
D201	Extra-Curricular Activities	2½–3 hours
D210	English Methods	2–3 hours
D212	Problems in the Teaching of General Science	2 hours
D215	High School Supervision	3 hours
D220	Problems in the Teaching of Social Studies	3 hours
D230	Junior High School	2 hours
D246	Curriculum Construction for Secondary Schools	2½–3 hours
G195	Educational Guidance	2½–3 hours

GRADUATE COURSES OTHER THAN EDUCATION

Each candidate for a degree with a major in Education who expects to do high school teaching or high school supervision should carry from twelve to fourteen hours of graduate work in the subject-matter field of major interest. Graduate advisers in these subject-matter fields should be consulted concerning such courses.

Students desiring a major in Education for high school teaching must have had at least twenty hours of undergraduate work in Education from an acceptable institution. They must have had sufficient undergraduate training in some subject-matter field to be acceptable candidates for graduate courses in that field. Such subject-matter training must meet with the approval of the department in which the work is taken.

Suggested Graduate Program for Elementary School Principals Leading to the Degree Master of Arts

A176	Psychology of Elementary School Subjects	2–3 hours
A202	Intelligence Testing	1–3 hours
A205	The Psychology of Education	3 hours
C170	Educational Statistics	2½–3 hours
C210	City School Administration	2½–3 hours
E200	Seminar in Elementary Education	2 hours
E204	Elementary School Supervision	3 hours
E205	Tests and Measurements for Elementary Schools	3 hours
E206	Curriculum Construction	3 hours
E208	The Work of the Elementary School Principal	2 hours
E250	Special Investigations in Elementary Education	3 hours
	Electives	1–5 hours
		32 hours

Suggested Graduate Program for Supervisors in Elementary Schools Leading to the Degree Master of Arts

A176	Psychology of Elementary School Subjects	2–3 hours
A202	Intelligence Testing	1–3 hours
A205	The Psychology of Education	3 hours
C170	Educational Statistics	2½–3 hours
C209	State and National School Administration	2½–3 hours
E200	Seminar in Elementary Education	2 hours
E204	Elementary School Supervision	3 hours
E205	Tests and Measurements for Elementary Schools	3 hours
E206	Curriculum Construction	3 hours
E250	Special Investigations in Elementary Education	3 hours
	Electives	3–7 hours
		32 hours

Suggested Electives

B271	Philosophy of Education	2½–3 hours
D171	Problems in Visual Education	2 hours
E125	Primary Materials and Methods in Reading	3 hours
E139	The Technique of Handling the Problem Child	3 hours
E165	Problems in the Teaching of Reading	3 hours
E166	Problems of Teaching Literature in the Grades	3 hours
E167	Problems in Teaching of Arithmetic	2 hours
E168	Problems of Teaching the Social Studies in the Elementary School	2 hours
G206	Mental Hygiene	2½–3 hours

Suggested Graduate Program for Educational Guidance Leading to the Degree Master of Arts

This program is recommended for all those who plan to do work in student advisement and educational guidance or to specialize as counselors in secondary schools.

(Starred courses are required.)

*A205	Psychology of Education	2½–3 hours
*A202	Intelligence Testing	2–3 hours
*C170	Educational Statistics	2½–3 hours
*D201	Extra-Curricular Activities	2½–3 hours
*F210	Philosophy of Industrial and Vocational Education	2 hours
*G195	Educational Guidance	2½–3 hours
*G206	Mental Hygiene	2½–3 hours
*G207	Methods and Techniques of Counseling	2½–3 hours
*122	Abnormal Psychology	2½–3 hours
*210	Psychiatric Information	2½–3 hours
		24–29 hours

Suggested elective courses to make up the requirement of thirty-two hours:

B271	Philosophy of Education	2½–3 hours
C209	State and National School Administration	2½–3 hours
D206	High School Administration	2½–3 hours
D207	Tests and Measurements for Secondary Schools	3 hours
D220	Problems in the Teaching of Social Studies	3 hours
D240	Improvement of High School Teaching	2 hours
F221	Vocational Guidance	2 hours
G196	Guidance in Character Education	2–3 hours
G208	Problems in Student Counseling	2½–3 hours
G222	Clinical Procedures in Student Personnel	2½–3 hours
G250	Special Investigations in Guidance and Counseling	1–3 hours

Students who have considerable undergraduate credit in education are urged to minor in psychology, selecting those courses the content of which bears directly upon the problems of personnel work.

Suggested Courses for College Teachers

Advanced graduate students planning to take up college teaching and desiring professional training courses as part of their preparation are advised to consider the following courses:

B275 College Teaching
C273 Junior College Administration

Other courses which may be of special value and which may be taken provided the student meets the prerequisites are:

A205 Psychology of Education
B271 Philosophy of Education

Students planning to teach Education courses in junior colleges should have special preparation in Education with an emphasis on Elementary Education.

For further information concerning the School of Education, address Theo. W. H. Irion, Dean, Faculty of Education, University of Missouri, Columbia, Missouri.

COLLEGE OF ENGINEERING*

Organization and Purposes

In 1859 the "School of Civil Engineering" was authorized as one of the three divisions of the University. At the present time the "College of Engineering" consists of five major professional engineering departments:

Agricultural Engineering
Chemical Engineering
Civil Engineering
Electrical Engineering
Mechanical Engineering

The *undergraduate program* of each of these professional departments is designed to make it the proper foundation for:

(a) Advanced scientific and technical graduate study leading to research and development work.
(b) Professional practice in a chosen field of engineering.
(c) Or, the wide business and management opportunities in connection with all manner of manufacturing, with sales, with the construction of public works or with public utilities.

Besides the highly cultural values to be obtained from the peculiar exactions of scientific studies inherent in engineering, each undergraduate program recognizes the liberal opportunities provided in a great university to gain that breadth of view so essential to the greatest success in professional service and the largest measure of enjoyment of leisure.

The *graduate program* of the College recognizes the needs of pure science and industry and advanced engineering practice for men skilled in analysis and scientific research. The special library and laboratory facilities provided and the privilege of association with those on the staff who have records of accomplishment, offer full opportunity in this direction.

The *Engineering Experiment Station* was established July 1, 1909, with the Dean of the College of Engineering as Director. The purpose is to organize those members of the engineering faculty particularly interested in research as a staff to investigate problems requiring engineering technique and whose solution might prove of special service to the people of Missouri. From time to time the results of such investigations are published in bulletin form.

*See General Information, p. 44; Fees, p. 73; Changes in Courses, p. 111.

Buildings, Laboratories, Libraries

As one of the earliest divisions of the University, the College of Engineering is housed in a group of buildings fronting the west side of the historic "Red Campus." For sentimental reasons the exterior of these buildings has been preserved but the interior modernized to provide adequate facilities. Just west of and connected to the old engineering group lies the new Engineering Laboratories Building. This modern fireproof structure not only provides large general laboratories for the Departments of Chemical Engineering, Electrical Engineering, Mechanical Engineering and Materials Testing and Hydraulic Laboratories for Civil Engineering, but also makes available over sixty rooms—all provided with compressed air, gas, water and electricity and any of which can be used for research or special investigation. Beside ample space facilities, recent important additions to laboratory equipment bring the provisions for demonstration and experiment so necessary for effective instruction to a high level of excellence.

As the oldest state university west of the Mississippi River, the University of Missouri has accumulated one of the largest general libraries. Beside this great library, an up-to-date professional engineering library with full-time librarian is maintained in fireproof quarters centrally located in the engineering group of buildings. This engineering library contains 11,587 volumes.

Admission

The requirements for admission to the College of Engineering are fifteen units, the equivalent of the four-year high school course. The following entrance units are required: three in English; three in Mathematics; one of Science with laboratory; and two in History and Government.

Students with superior high school records who have the required units in English and Mathematics, but are short not to exceed one unit of the others required may be admitted by special permission.

With regard to the requirement in Mathematics, the following rules apply:

(a) Students who offer one unit in Algebra and one unit in Plane Geometry will be admitted conditionally. For such students the University provides additional preparatory courses, Math. 1—Introductory Course (3 hrs.) and Math. 3—Solid Geometry (2 hrs.). Credit for completion of these courses will not be counted toward graduation.

(b) Students who offer one unit in Algebra, one in Plane Geometry and a half unit in either Advanced Algebra or Trigonometry, will be admitted conditionally. Such students must enroll in Math. 3—Solid Geometry (2 hrs.). Credit earned in this course will not be counted toward graduation.

(c) Students who offer one unit in Algebra, one in Plane Geometry and a half unit in Solid Geometry will be admitted conditionally and must complete Math. 1—Introductory Course (3 hrs.) for which credit will not be counted toward graduation.

Fees—Expenses

For the schedule of fees and estimate of living expenses, see pages 73, 78.

Curricula—Degrees

The degree of Bachelor of Science with designation is given for the satisfactory completion of the outlined four-year curriculum in any of the five professional departments of the College. Each of these requires a total credit of 138 hours, exclusive of the basic course in military science and of the required course in physical education. For graduation from any curriculum the candidate must have a scholarship average equivalent to the grade "M" or above.

Graduates in Engineering with acceptable records from this or other approved colleges of engineering may register in the Graduate School of the University as candidates for the degree of Master of Science in Engineering with designation under the provisions to be found in the announcement of the Graduate School.

Rules Governing Enrollment

Any increase in enrollment above that indicated in the scheduled curricula is subject to the approval of the Dean.

In general students employed in outside work for self-support should not attempt to carry a full schedule and risk either health or a good record.

Any student making an unsatisfactory scholastic record one semester will usually be required to carry a less number of credit hours the next.

Students who do not maintain a satisfactory scholastic record may be eliminated from the University under the provisions of either of two regulations. The first eliminates a student who does not pass in a certain proportion of his work in any semester. The second is cumulative and eliminates the student who habitually falls behind, even though his proportion of failure in any one semester may not make him subject to elimination under the first rule.

Requirements Without Credit

First Year Lectures

All freshmen and some transfer students are required to attend First Year Lectures once a week throughout the year. These orientation lectures will be given by the Dean, the Chairmen of the professional departments and especially invited speakers.

Senior Conferences

Seniors are required to attend a scheduled series of conferences throughout the year. The Dean of the College presides at these conferences at which the peculiar problems of young men about to graduate from college are considered.

Inspection Trips

All seniors are expected to make a trip under the guidance of faculty men to inspect engineering works and industries.

Department of Agricultural Engineering

(Administered jointly by the Dean of the Faculty of Agriculture and the Dean of the Faculty of Engineering).

The curriculum in agricultural engineering is planned to prepare the student for experimental design or sales work with farm machinery, equipment or building concerns; superintendency of farms where machinery, irrigation, drainage, erosion control, or buildings play an important part in their management; teaching or extension work with the various agricultural colleges; or engineering work with large land holding or management companies or with the government on soil conservation projects. The curriculum emphasizes the fundamentals of engineering and includes sufficient work in agriculture to furnish a basis for engineering work in this field.

Laboratories:

The agricultural engineering laboratory contains a large assortment of the best modern machinery, including one or more of the principal field and power machines. For instruction in gas engine and tractors, the laboratory is equipped with twenty stationary and portable gasoline and oil engines and eight to ten of the latest types of tractors with suitable equipment for testing them. Lighting units are provided for work on farm-lighting systems. Drafting tables are provided to accommodate the men designing farm buildings. The equipment for concrete work includes a complete set of concreting tools, molds for building blocks, forms for fence posts, water troughs and tanks and tile, with laboratory apparatus for testing cement and aggregates. Surveying equipment, terracing and ditching machines are avilable for use in classes in drainage and erosion control. Complete sets of small hand tools, both for metal working and woodworking, are available for work in farm shop practice. Other farm shop equipment includes forges, anvils, power drills, power grinders, and power saws.

Curriculum in Agriculture Engineering

Freshman Year

		First Semester	*Hours*			*Second Semester*	*Hours*
Math.	2	Trig. and Algebra	5	Math.	4	Anal. Geometry	5
Chem.	1	Gen. Inorganic Chem.	5	Chem.	15	Organic Chem	3
Engl.	1	Comp. and Rhetoric	3	Engl.	2	Comp. and Rhetoric	3
M. E.	1	Engr. Drawing	3	M. E.	2	Descript. Geometry	3
M. S.	1	Military Science	R	A. E.	10	Farm Shop Work	3
P. E.	1	Physical Ed	R	M. S.	2	Military Science	R
		First Year Conference.	R	P. E.	2	Physical Ed	R
						First Year Conference.	R
			16				17

Sophomore Year

		First Semester	*Hours*			*Second Semester*	*Hours*
Math.	5	Calculus	5	Math.	100	Calculus	5
Phys.	3	Gen. Physics	5	Phys.	4	Gen. Physics	5
Engl.	75	Public Speaking	3	A. E.	1	Farm Power and Machinery I	3
A. Ec.	1	Agr. Economics	3				
F. C.	1	Field Crops	3	M. E.	99	Heat Engineering	3
M. S.	3	Military Science	R	A. Ec.	10	Agr. Economics	2
P. E.	3	Physical Ed	R	M. S.	4	Military Science	R
				P. E.	4	Physical Ed	R
			19				18

Junior Year

		First Semester	*Hours*			*Second Semester*	*Hours*
M. E.	116	Anal. Mechanics	4	Soils	1	Soils	5
E. E.	99	Fund. of Elec. Mach.	3	A. E.	103	Farm Buildings	3
Geol.	2	Physical Geology	3	A. E.	112	Farm Power and Machinery II	3
F. C.	100	Field Crops Management	2	C. E.	140	Hydraulics	3
A. Ec.	125	Agr. Statistics	3	Engl.	103	Gen. Literature	3
C. E.	60	Engineering Surveys	3				
			18				17

Senior Year

		First Semester	*Hours*			*Second Semester*	*Hours*
C. E.	101	Mech. of Materials	4	A. E.	104	Farm Building Design.	3
A. E.	131	Adv. Drainage and Eros. Control	3	A. E.	122	Irrigation and Drainage	2
		Option	9	A. E.	150	Special Problems	2
		Senior Conference	R			Option	10
						Senior Conference	R
						Inspection Trip	R
			16				17

At the beginning of the senior year the student must elect an option for his major work.

Mechanical Option (Must select 12 hours)	*Electrical Option* (Must select 13 hours)	*Civil Engineering and Soil Conservation Option* (Must select all)
M. E. 100.... 3 credits	E. E. 100..... 3 credits	C. E. 120..... 3 credits
M. E. 110.... 3 credits	E. E. 101..... 3 credits	C. E. 122..... 2 credits
M. E. 119.... 3 credits	E. E. 110..... 4 credits	C. E. 133..... 2 credits
M. E. 120.... 3 credits	E. E. 160..... 4 credits	C. E. 141..... 3 credits
M. E. 141.... 2 credits	C. E. 165..... 3 credits	Soils 102..... 3 credits
C. E. 165.... 3 credits		Soils 107..... 3 credits
		Soils 108..... 3 credits

Department of Chemical Engineering

The curriculum in chemical engineering is planned to furnish the broad basic training demanded by most chemical manufacturing and process industries. Graduates in chemical engineering usually engage in one of the following divisions of industry or lines of endeavor.

The manufacture of inorganic and organic chemicals.

The process industries (such as petroleum, soap, rubber, paper, rayon, paint, plastics, etc.) in which the most important operations are chemical in nature.

Plant development, that is, the development of a laboratory process into an operation on a large scale, or the improvement of existing plant operations.

Research and experimental investigations designed to furnish information for the development or improvement of plant methods.

Administrative and sales work where training in chemical engineering is essential.

Laboratories:

The Chemical Engineering Laboratory comprises 8,700 square feet of floor space. It is divided into several large laboratories with 20 feet or more headroom, and small rooms for research, special studies and analytical control. Suitable instrument and chemical storerooms and a large well equipped shop in charge of a competent mechanic are also provided.

The laboratories are well equipped for the study of the fundamental unit operations, as well as for student project and research work. Much modern equipment designed primarily for instructional and research purposes has recently been installed.

Curriculum in Chemical Engineering

Freshman Year

	First Semester	*Hours*		*Second Semester*	*Hours*
Math. 2	Trig. and Algebra	5	Math. 4	Anal. Geometry	5
Chem. 1	Gen. Inorganic Chem.	5	Chem. 2	Gen. Inorganic Chem. (Qual. Lab.)	5
Engl. 1	Comp. and Rhetoric	3	Engl. 2	Comp. and Rhetoric	3
M. E. 1	Engr. Drawing	3	M. E. 2	Descript. Geometry	3
M. S. 1	Military Science	R	M. S. 2	Military Science	R
P. E. 1	Physical Ed	R	P. E. 2	Physical Ed	R
	First Year Conference.	R		First Year Conference.	R
		16			16

Sophomore Year

	First Semester	*Hours*		*Second Semester*	*Hours*
Math. 5	Calculus	5	Math. 100	Calculus	5
Chem. 110	Organic Chem. (Lec.)	3	Chem. 112	Organic Chem	3
Chem. 121	Quant. Analysis	3	Chem. 122	Ind. Quant. Analysis.	3
Phys. 3	Gen. Physics	5	Phys. 4	Gen. Physics	5
Econ. 10	Industrial Economics.	3	Engl. 75	Public Speaking	3
M. S. 3	Military Science	R	M. S. 4	Military Science	R
P. E. 3	Physical Ed	R	P. E. 4	Physical Ed	R
		19			19

Junior Year

	First Semester	*Hours*		*Second Semester*	*Hours*
Chem. 131	Physical Chem	5	Chem. 133	Electro-Chemistry	2
M. E. 116	Analytical Mechanics.	4	Ch. E. 104	Engr. Materials Lab.	2
Ch. E. 123	Elem. of Chem. Engr.	3	Ch. E. 124	Elem. of Chem. Engr.	3
E. E. 99	Fund. of Elec. Mach.	3	E. E. 100	Fund. of Elec. Mach.	3
Hist. 110	Recent U. S. History.	3	C. E. 101	Mech. of Materials	4
			Hist. 106	Contemporary Europe	3
		18			17

Senior Year

	First Semester	*Hours*		*Second Semester*	*Hours*
Ch. E. 135	Prin. of Chem. Engr.	3	Ch. E. 136	Prin. of Chem. Engr.	3
Ch. E. 143	Chem. Engr. Lab	2	Ch. E. 151	Chem. Engr. Project.	2
Ch. E. 161	Chem. Thermodyn.	3	Ch. E. 162	Chem. Thermodyn.	3
Ch. E. 185	Chem. Plant Design.	3	Ch. E. 186	Chem. Plant Design.	3
Engl. 102	Gen. Literature	3	Engl. 103	Gen. Literature	3
	Elective	3		Elective	2
	Senior Conference	R		Senior Conference	R
	Inspection Trip	R			
		17			16

Department of Civil Engineering

The field covered by civil engineering is wide, embracing administrative, topographical, hydraulic, structural, municipal, transportation and construction engineering. It is the aim of this department to give a broad general training which will later serve as a foundation for the development of any special line of civil engineering and to fit men for technical, administrative and commercial positions in the promotion, design, construction, operation, and management of those projects and corporations, both private and governmental, with which the civil engineer is connected. The training is largely fundamental in nature but sufficient detailed practice is included to enable the graduate to occupy immediately a productive and remunerative position. A large percentage of graduates fill administrative positions, some entirely outside of engineering.

Laboratories:

The equipment for testing materials includes a number of universal testing machines of various capacities with all the necessary accessories for a variety of tests on iron, steel, cement, concrete, brick, and other materials. The most modern types of high precision instruments are available for laboratory classes, for structural analysis and for research work.

The road materials laboratory contains machines for making complete tests upon stone for road purposes, a standard rattler for paving-brick tests, and apparatus required in investigating bituminous road materials.

The hydraulic laboratory has been equipped for the study of problems where large quantities of flowing water are needed. Two large size, direct-current electric motor-driven centrifugal pumps supply water for investigations relating to the flow of water in flumes, large pipes, and conduits; to the discharge over dams and weirs, through racks, sluices and submerged orifices; to hydroelectric power; and to other features encountered in water power and water supply developments.

The concrete laboratory is arranged to handle all routine tests of cement and aggregates and in addition is equipped with a modern laboratory type of mixer for use in the study of design and control of concrete mixes.

Equipment is available for classifying soils and for performing experiments regarding their engineering properties.

The facilities in sanitary engineering include, in addition to other civil engineering laboratories, a modern chemical laboratory

which serves for student use and as a control laboratory for research. A mobile laboratory of the trailer type is used for sanitary work throughout the state in cooperation with the State Board of Health.

A complete selection of surveying instruments includes those used in ordinary field practice, precise surveying, geodetic work, hydrographic surveying, water supply, and stream measurement.

Curriculum in Civil Engineering

Freshman Year

		First Semester	*Hours*			*Second Semester*	*Hours*
Math.	2	Trig. and Algebra	5	Math.	4	Anal. Geometry	5
Chem.	1	Gen. Inorganic Chem.	5	Chem.	2	Gen. Inorganic Chem.	3
M. E.	1	Engr. Drawing	3	M. E.	2	Descript. Geometry	3
Engl.	1	Comp. and Rhetoric	3	Engl.	2	Comp. and Rhetoric	3
M. S.	1	Military Science	R	C. E.	60	Engr. Surveys	3
P. E.	1	Physical Ed	R	M. S.	2	Military Science	R
		First Year Conference.	R	P. E.	2	Physical Ed	R
						First Year Conference.	R
			16				17

Sophomore Year

		First Semester	*Hours*			*Second Semester*	*Hours*
Math.	5	Calculus	5	Math.	10	Calculus	3
Phys.	3	Gen. Physics	5	Phys.	4	Gen. Physics	5
Engl.	75	Public Speaking	3	C. E.	50	Statics	3
Geol.	2	Physical Geology	3	C. E.	61	Higher Surveying	4
C. E.	82	Engr. Materials	2	Econ.	10	Industrial Economics.	3
M. S.	3	Military Science	R	M. S.	4	Military Science	R
P. E.	3	Physical Ed	R	P. E.	4	Physical Ed	R
			18				18

Junior Year

		First Semester	*Hours*			*Second Semester*	*Hours*
C. E.	101	Mech. of Materials	4	C. E.	121	Struct. Steel Design	2
C. E.	112	Route Surveys	4	C. E.	122	Reinforced Concrete	2
C. E.	120	Structural Stresses	3	C. E.	133	Plain Concrete	2
C. E.	140	Hydraulics	3	C. E.	141	Hydraulic Engr	3
E. E.	99	Fund. of Elec. Mach.	3	M. E.	99	Heat Engines	3
				Engl.	103	Gen. Literature	3
				M. E.	118	Dynamics	3
			17				18

Senior Year

	First Semester	*Hours*		*Second Semester*	*Hours*
C. E. 135	Highway Engr. I.....	3	C. E. 167	Constr. and Cont'ing..	3
C. E. 165	Engr. Admin.....	3	C. E. 174	Structural Design II..	4
C. E. 172	Foundations.....	2	C. E. 193	Sanitary Engineering..	3
C. E. 173	Structural Design I...	3		*Elective.....	3
C. E. 187	Transportation.....	2		Elective.....	4
C. E. 192	Water Supply.....	2		Senior Conference....	R
	Elective.....	2		Inspection Trip.....	R
	Senior Conference....	R			
		17			17

*Hist. 110 Recent United States History or Phil. 112 American Ideals.

Department of Electrical Engineering

The curriculum in electrical engineering is intended to prepare the student for entry into any one of the many branches of the electrical industry, such as manufacturing, wire and radio communication, electric power and transportation. In any of these fields the engineer may engage in the work of investigation, design, construction, administration or he may deal largely with the commercial aspects of industry.

Elective Courses. Electives parallel the professional studies in the junior and senior years. This elective provision enables the student to strengthen his professional, scientific or business training or to follow his own cultural interests.

Laboratories;

The electrical engineering laboratories are located in the north wing of the Engineering Laboratories Building. The transformer banks, motor-generator sets and control switch board for the conversion from the system supply at 2,300 volt 3 phase 60 cycle to the laboratory a-c and d-c distribution voltages of 230/115 volts are located on the main laboratory floor, as are also the instrument and stock room and the laboratory shops. A constant source of low and intermediate direct voltages is supplied by a 300 volt 30 ampere Edison storage battery.

The main laboratory floor, 109 by 65 feet, is equipped for experimental work in electrical machinery and for high voltage testing. The machinery equipment includes a wide variety of alternating and direct current generators and motors, transformers and converters. An adequate assortment of instruments is available. Provision is made to secure the maximum flexibility in the grouping of the electrical machines and auxiliary facilities for experimental study.

The high voltage laboratory is equipped with a 10 Kva 110/220 to 100,000 volt testing transformer, together with necessary controls and auxiliary equipment required for experimental study of insulators, cables, etc. Transformers of 10,000 and 25,000 volts range are available also for the study of insulating materials, oils, etc.

The communication laboratory, located on the mezzanine floor, provides facilities for the experimental study of networks and of transmission at audio frequencies. The equipment includes artificial lines, oscillators, sensitive measuring instruments and a variety of auxiliary devices.

The electronics and radio communication laboratories are also located on the mezzanine floor. The former is equipped for the experimental study of high vacuum and gas filled tubes, photo tubes and their associated circuits. The radio laboratory provides facilities for the study of operating characteristics of radio transmitting and receiving equipment and their component parts. A short wave transmitter especially designed for the testing of each component stage is available for studies in short wave transmission. A three-unit 3.2 Kw 4000 Volt direct current motor generator set is available wherever a high direct voltage source is needed.

The illumination laboratory provides facilities for photometric studies of light sources, the measurement of illumination intensities and reflection coefficients and the distribution curves of commercial luminaires.

Adequate laboratory space and facilities are available for research in the specialized fields of electrical engineering.

Numerous gifts by corporations and individuals have added materially to the equipment of the electrical engineering laboratories. One of these is the perpetual loan of communication equipment by the American Telephone and Telegraph Company and the associated Southwestern Bell Telephone Company. Another is the Ralph E. Porter Memorial, donated by Mr. and Mrs. J. F. Porter of Kansas City in memory of their son, Ralph E. Porter. of the Class of 1926.

Curriculum in Electrical Engineering

Freshman Year

		First Semester	*Hours*			*Second Semester*	*Hours*
Math.	2	Trig. and Algebra	5	Math.	4	Anal. Geometry	5
Chem.	1	Gen. Inorganic Chem.	5	Chem.	2	Gen. Inorganic Chem.	3
Engl.	1	Comp. and Rhetoric	3	Engl.	2	Comp. and Rhetoric	3
M. E.	1	Engr. Drawing	3	M. E.	2	Descript. Geometry	3
M. S.	1	Military Science	R	M. E.	60	Machine Tool Oper.	3
P. E.	1	Physical Ed	R	M. S.	2	Military Science	R
		First Year Conference.	R	P. E.	2	Physical Ed	R
						First Year Conference.	R
			16				17

Sophomore Year

	First Semester	Hours		Second Semester	Hours
Math. 5	Calculus	5	Math. 100	Calculus	5
Phys. 3	Gen. Physics	5	Phys. 4	Gen. Physics	5
C. E. 82	Engr. Materials	2	C. E. 50	Statics	3
Econ. 10	Industrial Economics	3	E. E. 50	Elec. Circ. and Mach.	5
Engl. 75	Public Speaking	3	M. S. 4	Military Science	R
M. S. 3	Military Science	R	P. E. 4	Physical Ed	R
P. E. 3	Physical Ed	R			
		18			18

Junior Year

	First Semester	Hours		Second Semester	Hours
E. E. 110	A-C Circuits	4	E. E. 149	A-C Machinery	4
M. E. 99	Heat Engines	3	M. E. 101	Engr. Thermodyn	3
M. E. 118	Dynamics	3	M. E. 119	Kinematics of Mach.	3
C. E. 101	Mech. of Materials	4	M. E. 141	Mech. Laboratory	2
Hist. 110	Recent U. S. History	3	Phys. 104	Elec. Measurements	3
				Non-Tech. Elective	3
		17			18

Senior Year

	First Semester	Hours		Second Semester	Hours
E. E. 150	A-C Machinery	4	E. E. 151	Commutat. Mach	3
E. E. 170	Wire Communication	4	E. E. 160	Power Trans. and Dist.	4
E. E. 180	Electronics—Tubes	4	Engl. 103	Gen. Literature	3
C. E. 140	Hydraulics	3		Elective	6
	Elective	3		Senior Conference	R
	Senior Conference	R		Inspection Trip	R
		18			16

Department of Mechanical Engineering

The curriculum in mechanical engineering is planned to present the basic theory and practice of the generation of power, its mechanical transmission and utilization: the design, manufacture, operation and testing of all kinds of machinery and mechanical equipment. Before the close of the Junior year, the student in collaboration with his adviser should work out a tentative schedule of his choice of electives. Due regard must be paid to prerequisite requirements.

LABORATORIES:

The mechanical engineering laboratory is equipped with machines and apparatus for instruction and experiment in power transmission, fuels and combustion, steam engineering, internal combustion engines, refrigeration, heat transmission, flow of fluids, and the heating, ventilating and air conditioning of buildings. The University power plant is also available for instructional purposes.

The machine tool laboratory is provided with machine tools and industrial equipment for experiment and instruction in manufacturing processes.

CURRICULUM IN MECHANICAL ENGINEERING

Freshman Year

		First Semester	*Hours*			*Second Semester*	*Hours*
Math.	2	Trig. and Algebra	5	Math.	4	Anal. Geometry	5
Chem.	1	Gen. Inorganic Chem.	5	Chem.	2	Gen. Inorganic Chem.	3
Engl.	1	Comp. and Rhetoric	3	Engl.	2	Comp. and Rhetoric	3
M. E.	1	Engr. Drawing	3	M. E.	2	Descript. Geometry	3
M. S.	1	Military Science	R	C. E.	60	Engr. Surveys	3
P. E.	1	Physical Ed	R	M. S.	2	Military Science	R
		First Year Conference.	R	P. E.	2	Physical Ed	R
						First Year Conference.	R
			16				17

Sophomore Year

		First Semester	*Hours*			*Second Semester*	*Hours*
Math.	5	Calculus	5	Math.	100	Calculus	5
Phys.	3	Gen. Physics	5	Phys.	4	Gen. Physics	5
Econ.	10	Industrial Economics.	3	Engl.	75	Public Speaking	3
C. E.	82	Engr. Materials	2	C. E.	50	Statics	3
M. E.	60	Machine Tool Oper.	3	M. E.	99	Heat Engines	3
M. S.	3	Military Science	R	M. S.	4	Military Science	R
P. E.	3	Physical Ed	R	P. E.	4	Physical Ed	R
			18				19

Junior Year

		First Semester	*Hours*			*Second Semester*	*Hours*
Engl.	102	Gen. Literature	3	Hist.	110	Recent U. S. History	3
E. E.	99	Fund. of Elec. Mach.	3	E. E.	100	Fund. of Elec. Mach.	3
C. E.	101	Mech. of Materials	4	M. E.	102	Engr. Thermodyn.	3
M. E.	101	Engr. Thermodyn.	3	M. E.	110	Metal Processing	3
M. E.	118	Dynamics	3	M. E.	119	Kinematics of Mach.	3
M. E.	141	Mechanical Lab.	2	M. E.	142	Mechanical Lab.	2
			18				17

Senior Year

	First Semester	*Hours*		*Second Semester*	*Hours*
C. E. 140	Hydraulics	3	Phil. 112	American Ideals	3
M. E. 103	Steam Power Plants	3	M. E. 121	Mech. Engr. Design	3
M. E. 120	Machine Design	3	M. E. 134	Industr. Management	3
M. E. 143	Mechanical Lab	2	M. E. 144	Mechanical Lab	2
	*Technical Elective	3		*Technical Elective	3
	Elective	3		Elective	2
	Senior Conference	R		Senior Conference	R
				Inspection Trip	R
		17			16

**Technical Electives*

During the senior year, 6 credit hours are required from the following technical electives:

150f and w	Special Problems in Mechanical Engineering (2-4)
151w	Internal Combustion Engines (3)
153f	Refrigeration Systems (3)
154w	Refrigeration Plants (3)
155f	Heating and Air Conditioning (3)
156w	Heating and Air Conditioning Design (3)
157f	Factory Production (3)
158w	Factory Design (2)
160w	Advanced Mechanical Design (3)
170f and w	Aeromechanics (3)

GRADUATE SCHOOL*

The University of Missouri offers graduate instruction in classical languages and archaeology, modern languages, philosophy and psychology, education, social sciences, journalism, mathematical and physical sciences, biological sciences, the fine arts, home economics, agriculture, and engineering. The Faculty of the Graduate School has charge of all graduate work in the University.

ADMISSION: Graduates of the colleges and universities comprising the Missouri College Union and of other reputable colleges and universities are admitted to the Graduate School. Graduates of Missouri State Teachers Colleges, whose first regular enrollment for college work in a teachers college was subsequent to September 1, 1916, and who have completed the 120-hour curriculum, will be admitted to the Graduate School. The list of universities and colleges approved by the Association of American Universities will be used as a guide in the case of graduates of institutions formerly not admitted.

Admission to this school, however, shall not be understood as implying admission to candidacy for advanced degrees, which is subject to the regulations indicated below.

Students are admitted to the Graduate School by the Registrar of the University, to whom applications for admission and official transcripts of records, including statement of degree or degrees, should be sent before the opening of the session.

GRADUATE SCHOLARSHIPS AND FELLOWSHIPS: For statements regarding scholarships and fellowships offered to graduate students see page 87.

REGISTRATION: Directions for registration will be placed in each students' hands by the Registrar. One day (see calendar, page 3) is set apart for registration in the fall. The student should consult his major adviser, or the representative of that department in which he wishes to major, and have his course of study outlined and ready to present to the dean.

PART-TIME REGISTRATION BY STUDENTS WITHIN REACH OF COLUMBIA BY MOTOR AND RAIL

Teachers, ministers, professional men, and others who are within easy reach of Columbia by motor or rail may register for graduate seminaries, individual conferences, and courses which are given only once or twice a week and which, if due request is made, may be scheduled at a time convenient to the members of the class. Residence credit is given for this work.

*See General Information, p. 44; Fees, p. 73; Changes in Courses, p. 111.

Regulations Governing the Degree Master of Arts

1. General Statement

The degree Master of Arts is offered to students who have spent in residence at least two semesters or four summer sessions (with the exception noted below) exclusively devoted to advanced courses of study and who have submitted an acceptable dissertation, when required by the department of the candidate's major subject, and passed a final examination.

2. Acceptance of Candidates

After admission to the Graduate School, a student wishing to become a candidate for this degree must fill out, in consultation with his major adviser (and minor adviser if a minor is offered), upon a blank form provided for the purpose, a full statement of all work he proposes to offer for the degree, and must present it to the Dean of the Graduate Faculty not later than one month after his or her registration, as indicated in the School Calendar (see page 3).

In making such application, the student must indicate his major field of work (and minor field if a minor is offered), the subject of the dissertation, when one is required, the undergraduate prerequisites completed and uncompleted for graduate work, in the special field, the course of study selected by him with the advice of his major adviser (and minor adviser if a minor is offered), secure the signature of his major adviser (and minor adviser if a minor is offered) to the blank form indicated above, before presenting it to the Graduate Office for approval. He may, however, defer submitting the subject of the dissertation for not more than two weeks after filing the application.

A student who fails to file application for his degree in due time may not be recommended for the degree at the appropriate commencement.

3. Requirements for the Degree Master of Arts

a. *Residence:* Two semesters of sixteen weeks each, or four summer sessions of eight weeks each, devoted to advanced courses of study are required for the degree Master of Arts. The minimum residence at the University is three summer terms or one semester and a summer term. Not more than a total of 8 hours toward the Master of Arts degree may be earned off the University campus, by non-resident research, by correspondence, in extension center courses or in another university having a recognized Graduate School (see next page under 4). No work shall be counted as residence unless the student is in actual attendance at the University for the number of hours per week for which such credit is given.

b. *Time limit:* The work included in a program for the degree Master of Arts must be completed within the period of eight years of the date of the final examination for the degree. Work taken previous to this time will be considered invalidated by the passage of time.

c. *Course of Study:* Over and above the prerequisites for graduate work in the special field thirty-two hours selected from courses receiving graduate credit, as listed in the announcement of the graduate school, must be completed. Not less than 16 hours must be in courses numbered 200 and above. For courses not listed in this announcement the office of the Dean of the Graduate School should be consulted. Courses numbered below 100 do not receive credit toward an advanced degree.

The course of study for the degree Master of Arts may be chosen from one or more departments provided it constitutes a unified program approved by the major adviser and the Dean of the Graduate School. A minor need not be offered in fulfillment of the requirements for the degree Master of Arts. If a minor is offered it must be not less than ten hours, must be approved by the professor of the minor subject and shall be included in the final examination.

d. *Dissertation:* The dissertation, when required, must demonstrate the student's capacity for research and independent thought and must be submitted to the Graduate Faculty on or before the final date set in the Graduate Calendar. The student should consult the chairman of the department in which he wishes to major in regard to the requirements for the dissertation and the Dean of the Graduate Faculty for information regarding the form in which the dissertation must be submitted.

Credit for the dissertation is counted in terms of hours in making up the total of 32 hours required for the degree; the number of hours credit that may be allowed for the dissertation varies with different departments.

e. *Final Examination:* Each candidate for the degree Master of Arts is required to pass a final examination evincing a mastery of the fundamental principles of the work included in the course of study offered for the degree.

4. Correspondence and Extension Center Courses

A total of eight hours or the equivalent of one summer session may be earned through the University of Missouri Extension Division, by correspondence courses and extension center courses conducted by members of the Graduate Faculty. The correspondence courses and extension center courses must have been

approved for graduate credit and must be approved also for inclusion in the course of study for the master's degree by the major professor and the Dean of the Graduate School.

Graduate work by correspondence to be applied toward a Master of Arts or Master of Education degree may be taken only after the completion of at least one summer of residence in the Graduate School of the University of Missouri.

For further information in regard to correspondence and extension center courses address the Director of University Extension, University of Missouri.

The Graduate School will not accept from any other institution credit earned through correspondence or extension.

5. Non-Resident Research

When the facilities or materials necessitate the work being done away from the University, a student, upon the recommendation of the major adviser and the approval of the Administrative Committee of the Graduate School, may regularly enroll for research work to be done away from the University. This will be known as non-resident research and must be indicated as "non-resident" on the course card and on the Registrar's records. To enroll for non-resident research a student must have been in residence in the Graduate School at least one full summer term or one semester of part time. Candidates for the Master of Arts degree may not register for non-resident research for more than 4 hours per semester. The total credit toward the Master of Arts degree for work done away from the University is limited to 8 hours. (See under Residence.) The results of non-resident research must ordinarily form part of a dissertation duly presented to the Graduate Faculty in partial fulfillment of the requirements for an advanced degree.

6. Advanced Standing for the Master of Arts Degree

(a) *From other institutions:* Not more than eight of the thirty-two hours required may be transferred from another institution. Advanced standing from institutions not members of the Association of American Universities will be granted only on recommendation as the result of examinations given by the department in whose field the subject falls. Of such credit transferred only that approved by the major adviser and the Dean of the Graduate School may be included in the program (see course of study) offered toward the degree Master of Arts. No advanced standing is granted until after at least one summer's residence in the Graduate School.

(b) *From the University of Missouri:* Seniors, who at the beginning of any semester have a graduation requirement for the bachelor's degree of fifteen hours or less, may be permitted, with the approval of the appropriate deans, to register simultaneously in the Graduate School for courses sufficient to make a full program. Students who graduated with excess undergraduate credits without registering in the Graduate School will *not* receive credit for the same.

Similar credits may be allowed a student for excess undergraduate work from another institution having a graduate school, to the extent of one-half of one semester (namely, eight hours), if such advanced standing would be granted by the graduate school of that institution. If the institution in question has not a graduate school that may be recognized as such, no advanced standing will be allowed.

The student will be held responsible in the master's examination for all credits in advanced standing presented in candidacy for the degree.

7. Requirements for the Degree in Exceptional Cases

Attention is called to the fact that graduate work cannot be subjected to rigid regulation, and the Graduate Faculty reserves the right to deal with exceptional cases on individual merit.

8. Recommendation for the Degree

With the approval of the professors concerned, such candidates as have fully met all requirements may at the close of the fall or winter terms, or any summer session, be recommended by the Graduate Faculty for the degree of Master of Arts.

Regulations Governing the Degree Master of Science in Engineering With Designation

The regulations governing the degree Master of Science in Engineering with designation of the field of specialization are the same as those governing the degree Master of Arts.

Regulations Governing the Degree Master of Education

1. General Statement

The degree Master of Education is offered to students who have pursued advanced courses of study for two semesters of sixteen weeks each or four summer sessions of eight weeks each.

2. Acceptance of Candidates

The candidate for the degree Master of Education must have completed not less than 15 hours of work in undergraduate courses in education in an approved institution. After admission to the Graduate School a student wishing to become a candidate for this degree must select a major adviser in the field of Education in which he wishes to specialize (for list of major advisers see Graduate Announcement). In consultation with his major adviser he must fill out, upon a blank form provided for the purpose, a full statement of all the work he proposes to offer for the degree and present it in quadruplicate to the Dean of the School of Education not later than one month after enrollment. A student who fails to file application for his degree in due time may not be recommended for the degree at the appropriate commencement.

3. Requirements for the Degree

a. *Residence:* Two semesters of sixteen weeks each, or four summer sessions of eight weeks each, devoted to advanced courses of study are required for the degree Master of Education. This requirement may be met in part by correspondence work, extension center work, field work under the direction of a resident University staff member, or by credit earned in the graduate school of another institution of recognized standing. A maximum total of 8 hours of work taken off the campus may be credited toward the degree. Only candidates who have completed 16 hours of work on the campus will be eligible to pursue field work. In order to provide an opportunity for a closer and less interrupted relationship between candidates and their advisers than is possible in summer sessions, it is strongly recommended that candidates for the Master's degree spend at least one full semester in residence.

b. *Time limit:* After August 1939 the work included in a program for the degree Master of Education must be completed within the period of eight years of the date of the final examination for the degree. Work taken previous to this time will be considered invalidated by the passage of time.

c. *Course of Study:* Over and above the prerequisites, a program of studies comprising at least 32 semester hours of work approved for graduate credit, sixteen of which must be in courses numbered 200 or above, must be completed. The program must include not less than 16 hours of graduate courses in education. The program may consist entirely of courses in education or may be made up in part of courses from other departments selected to fit the professional needs of the candidate.

d. *Dissertation:* A dissertation is not required but the major adviser may require written reports of field work or special investigations.

c. *Final Examinations:* A final examination, comprehensive in character and in the professional field in which the candidate takes work, is required.

Regulations Governing the Degree Doctor of Philosophy

1. General Statement

The degree Doctor of Philosophy is offered to students who have pursued advanced courses of study without serious interruption for a period of at least six semesters, who have submitted an acceptable dissertation, passed all prescribed examinations and satisfactorily met all other requirements described below.

It should be emphasized that the requirements for this degree are not computed in terms of time and courses, but that the degree is conferred only upon such students as have reached, after long study, a high attainment in some special branch of learning and have given the clearest evidence of their ability to carry on independent, original research by reason of having made an actual contribution to knowledge of a character approved by competent judges.

2. Acceptance of Candidates

In order to be accepted by the Graduate Faculty as a candidate for the degree Doctor of Philosophy, the student must give evidence that he has completed an undergraduate course of study such as is offered by colleges of good standing and that he has received a baccalaureate degree equivalent to the baccalaureate degree of the University of Missouri.

He must also declare his candidacy by filling out, not later than the beginning of his second year of graduate work,[1] a blank form provided for the purpose, secure thereto the signature of the adviser under whose direction he desires to do his research work, and present it to the Dean of the Graduate School for his approval. When such approval is given the dean shall appoint, in consultation with the adviser, an advisory committee to confer as to the future work of the candidate.

3. Requirements for the Degree

(a) *Residence:* The candidate must pursue advanced courses of study without serious interruption for a period of six semesters. If any of the years of advanced work have been passed away from

[1]With the consent of the adviser and the dean, students who have done graduate work elsewhere may be admitted to candidacy at a later stage in their study.

the University the faculty reserves the right to decide in each case whether these years may be properly regarded as spent in university studies under suitable guidance and favorable conditions. Private study or study pursued at a distance from libraries and laboratories will not be considered as equivalent to university work. In any case, the student must spend the two semesters immediately preceding his final examinations in residence at the University of Missouri unless specifically authorized by the Graduate Faculty to do otherwise.

(b) *Subject of Study:* The subjects of study may be chosen from one or more departments, as may be determined by the advisory committee; but shall constitute a definite plan of training for research or scholarly investigation in some particular field.

(c) *Dissertation:* The dissertation, embodying the results of original investigation, must be written upon a subject approved by the adviser and must be submitted in typewritten form four weeks before the commencement at which the degree is wought. It then becomes the property of the University. A brief biographical sketch of the writer must be appended to the dissertation. The student should consult the Dean of the Graduate Faculty for information regarding the form in which the dissertation must be presented.

Upon receiving the dissertation a committee is appointed whose duty it is to report upon it in writing to the Graduate Faculty.

The candidate is required to print the dissertation with such revision as the faculty may allow. Before his degree is conferred, the candidate is required to deposit 100 printed copies of his dissertation in the University Library. Or, in case the dissertation has not been printed before the conferring of the degree, the candidate may (1) deposit with the Secretary of the University a statement from a responsible publishing agency certifying to the fact that a contract has been entered into for the printing of the dissertation, and that the required number of copies will be furnished within a reasonable time; or (2) the candidate may deposit with the Secretary of the University a financial guarantee sufficient to print the required number of copies for the University. With the special permission of the Dean of the Graduate Faculty, the publication of a substantial contribution to knowledge may be accepted in lieu of the publication of the entire dissertation.

(d) *Examinations:* Upon the request of the major adviser a committee, consisting of the members of the advisory committee and such others as the dean may select, shall be appointed to take charge of all examinations and to report upon the same to the dean in writing.

At least one year before the final examination, the candidate is required to pass a preliminary examination conducted by the

examining committee. This examination may, with the consent of the dean, be met at the beginning of the last year of residence.

The final examination may be either written or oral, or both, and, if oral, may be conducted in the presence of the faculty.

(e) *Languages:* Before being admitted to the preliminary examination the candidate must give satisfactory evidence of ability to translate French and German readily at sight. In special cases, with the approval of the Administrative Committee of the Graduate School, students may be allowed to substitute other languages. In the case of a candidate for the doctorate majoring in French or German some other language, modern or ancient, shall be substituted for the language of the major.

(f) *Conferring of Degree:* Upon the satisfactory completion of all requirements, the candidate may be recommended by the Graduate Faculty for the degree Doctor of Philosophy.

4. *Advanced Standing:* See Regulations under Master of Arts.

Work for the Degree Doctor of Philosophy at Rolla

Candidates for the degree, Doctor of Philosophy in the fields of Chemistry, Metallurgy, and Geology may meet requirements for the degree by residence at the University of Missouri School of Mines and Metallurgy at Rolla. Such candidates must register with the Graduate School of the University of Missouri at Columbia and are subject to all the regulations of the Graduate School. Candidates in Chemistry and Geology, taking work at Rolla, must spend not less than one year in residence at Columbia.

Regulations Governing the Degree Doctor of Education

1. General Statement

The degree Doctor of Education is offered to students who have pursued advanced courses of study without serious interruption for a period of at least six semesters.

2. Acceptance of Candidates

Candidates for the degree Doctor of Education must have attained the degree Master of Arts with a major in education or the Master of Education, or the quantitative and qualitative equivalent of one of these degrees from a college or university of recognized standing. He must declare his candidacy by filling out, not later than one month after his registration for the second year of graduate work, a blank form provided for the purpose, secure thereto the signature of the adviser under whom he wishes to do his graduate work, and present it to the Dean of the Graduate School.

3. REQUIREMENTS FOR THE DEGREE

a. *Residence:* A minimum of eighty-two semester hours of work above the Bachelor's degree is required for the degree Doctor of Education. Two semesters of this work aggregating at least twelve semester hours each must be done in regular University sessions. With the approval of the major adviser and the Dean of the Graduate School a maximum of two years of graduate work completed in other institutions with recognized graduate schools may be accepted toward the requirement. In any event the candidate must be enrolled in residence on the campus of the University of Missouri for a minimum of one year.

It is the policy of the University of Missouri to give as much personal attention as possible to candidates for the advanced degrees. In order to do this and to assure an opportunity for a closer and less interrupted relationship between candidates and their advisers than is possible in summer session, all candidates for the degree of Doctor of Education will be required to have a minimum of two full semesters of residence, not including summer sessions, at the University of Missouri, after receiving the Bachelor's degree. The two-semester requirement will not apply to students who have satisfied the residence requirement by August 31, 1940. From September 1, 1940, to August 31, 1941, inclusive, one full semester of residence work will meet the requirement. After September 1, 1941, the two-semester requirement will be uniformly applied to all candidates.

b. *Subjects of Study:* The program of study is determined by the major adviser in cooperation with a consulting committee appointed by the Dean of the Graduate School and shall constitute a well organized plan of professional specialization in some one of the major fields of education.

c. *Dissertation:* A dissertation is required, for which not less than 8 nor more than 12 hours of credit may be granted. The dissertation shall embody the results of an investigation which may be carried on under supervision in practical school situations and may, with the consent and advice of his major adviser and consulting committee, consist of two or three lesser educational projects. The candidate must deposit not fewer than three typewritten copies of his dissertation on or before a date set by the Faculty of the School of Education. After the dissertation has been submitted it is reviewed by the consulting committee. The dissertation shall be the property of the University of Missouri. The candidate is not required to publish this dissertation.

d. *Non-Resident Research:* When the facilities or materials necessitate the work being done away from the University, a student, upon the recommendation of the major adviser and the

approval of the Administrative Committee of the Graduate School, may regularly enroll for research work to be done away from the University. This will be known as non-resident research and must be indicated as "non-resident" on the course card and on the Registrar's records. To enroll for non-resident research a student must have already completed thirty-two semester hours of acceptable graduate work. Candidates for the Doctor of Education degree may not register for more than three semester hours of work of this character during a given semester and the total amount of non-resident research counted toward the Doctor of Education degree is limited to six semester hours. The results of non-resident research should form part of a dissertation duly presented to the Graduate Faculty in partial fulfillment of the requirements for an advanced degree.

e. *Apprentice Training:* If a candidate majors in some aspects of educational administration or supervision or special field of teaching and has not had acceptable experience in this field, the major adviser may require as part of his program of studies one semester of apprentice work under proper supervision in a school system approved for such work by the Faculty of Education. The supervision of apprentice work shall be under the immediate direction of the candidate's major adviser, in which case not more than 12 hours credit (the equivalent of one semester) may be granted for such work. Only students who have completed a minimum of 12 hours beyond the A. M., M. Ed., or the equivalent thereof shall be eligible for apprentice training.

f. *Examinations:* A matriculation examination, which may be oral or written or both as determined by the major adviser, must be taken not earlier than the second year of graduate work nor later than November 1 preceding the June in which the candidate plans to complete the requirements for the degree, or the preceding December 1 if the requirements are to be completed in August. The examination is a comprehensive one including the candidate's major fields of interest for the degree and is conducted by the major adviser and consulting committee. If the results of the examination are such as to give evidence, that the candidate can pursue further graduate study profitably, he will be advised to do so.

A final oral examination on the work included in the dissertation is also required. This is conducted by the major adviser and consulting committee.

g. *Required Research Techniques:* The candidate is required to give satisfactory evidence of sufficient knowledge of statistics and educational research techniques as to enable him to understand and utilize research reports in the field of education. Acquaintance with foreign languages will not be required except as may be determined by the candidate's major adviser.

The courses of study open to graduate students may be found in Section III of this catalog.

A special bulletin of the Graduate School is issued each year. This contains a detailed announcement of all courses, entrance requirements, rules and regulations of the Graduate School, and should be consulted by persons desiring full information concerning the school. For this bulletin, or for further information concerning the work of the Graduate School, address DEAN OF THE GRADUATE FACULTY, UNIVERSITY OF MISSOURI, COLUMBIA, MISSOURI.

SCHOOL OF JOURNALISM*

The School's Teaching Plan

The School of Journalism, the oldest school of journalism in the world, is a professional school, having begun instruction leading to a degree in journalism in the fall of 1908. It is a charter member of the American Association of Schools and Departments of Journalism.

Equipment

The Journalism Unit is made up of Jay H. Neff Hall, the gift of Ward A. Neff, a graduate, in memory of his father, who was formerly a Kansas City publisher, and Walter Williams Hall, dedicated to the memory of Dean Walter Williams, founder of the Missouri School of Journalism. These buildings, connected by an archway and trophy tower, with both overhead and underground passageways, are located at the northeast corner of Francis Quadrangle. They constitute a modern and completely equipped newspaper and educational plant, well fitted for the work of reporters, copy readers, editorial, sports, and feature writers, book reviewing and editing of special pages and departments, country, and trade and technical journalism, a complete photo-engraving plant for the making of newspaper cuts, a complete typography laboratory, art tables for advertising layout work, a modern completely equipped business office for advertising space solicitors, several newspaper mat and cut services, as well as all necessary materials for the handling of national advertising problems, local circulation, classified, and newspaper management for a daily "wire-serviced" newspaper.

Instruction is also given in actual processing and daily broadcasting of both local and leased-wire-service news through the facilities of radio station KFRU, Columbia, Missouri.

All news, editorial, feature, and advertising work on *The Columbia Missourian*, a daily newspaper, except Sunday, is done by students in journalism, under direct supervision of faculty members, all of whom are men and women of newspaper and business experience. This laboratory practice is combined with work in the class rooms, which trains for a high standard of ethics and a better understanding of the moral problems that confront workers in the newspaper proessifon.

The School does not offer by correspondence, professional courses in journalism.

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*See General Information, p. 44; Fees, p. 73; Changes in Courses, p. 111.

The journalism library, in charge of a trained librarian and a staff of assistants, is open 11½ hours daily, from 8:30 in the morning until 10 o'clock at night from Monday through Friday and 8½ hours on Saturday, and contains over 4,929 volumes and receives over 300 periodicals and newspapers from all over the world.

The School is equipped with direct-line telephone service to all departments, many typewriters, a mimeograph machine, dictaphones, a motion picture machine, a slide machine, a delineascope, two printer-telegraph machines supplying a full leased wire from the United Press, four typesetting machines, a complete stock of type for daily use, a rotary newspaper press with all equipment necessary for proper operation, a dark-room, cameras, and photo engraving materials for a complete photographic laboratory and the making of newspaper cuts.

Aims of the School

The School of Journalism exists to serve the newspapers of the State. The primary aim is to equip students for work on newspapers and other periodicals. Its methods conform to the most modern standards of journalism. Regular attendance is required at all times. Graduates are working as editors, copy readers, editorial writers, feature writers, editors of special pages and departments, book reviewers, free lance writers, novelists, Sunday editors, teachers of journalism, writers for agricultural and trade and class journals, on women's pages, sports writers, illustrators, cartoonists, advertisement copy writers, advertising salesmen, for advertising agencies, classified department managers, newspaper promotion workers in the field of publicity, radio writing, play writing, motion picture work in both editorial and advertising, business and advertising managers, and press association correspondents, abroad and at home.

The School issues regularly, a directory of graduates and former students.

Admission to the School

All communications regarding entrance should be addressed to The Registrar, University of Missouri, Columbia, Missouri, who has charge of all matters relating to admission to any Division of the University.

Prospective students should not attempt to determine finally for themselves their eligibility to enter the University, or any Division thereof, from a consideration of the material contained in this catalog, which is only generally descriptive of entrance requirements, is always subject to change, without notice, and does not purport to be exhaustive. Those desiring to enter the University should correspond with the Registrar, inasmuch as an official

determination of eligibility to enter the University can be based only upon a consideration of official credentials.

Admission to the School of Journalism is by application only. A prospective student must get from and file with The Registrar of the University of Missouri, a form intended to supply information necessary to judge his particular qualifications for work in journalism. If action for admittance is favorable, the student is so notified by The Registrar.

No student will be admitted to the School of Journalism who does not present, in the 60 credit hours required for admission, a grade average of M. Any courses completed with grades of "I" or "F" must be balanced with courses showing grades of "S" or "E". Credit presented from an institution other than the University of Missouri must meet this same requirement in terms of grade standards of that particular institution. When this requirement is not met the Dean of Journalism may, upon special application, admit a student when it seems desirable.

The School's students are made up of the following classes:

1. Students who have completed the first four semesters work, or 60 hours credit (exclusive of the required work in physical training and military science) in the College of Arts and Science of the University of Missouri, or the equivalent. Students must include in the 60 hours credit the following specific requirements: 10 hours of one modern language; 5 hours of physical or biological science; 5 hours of American Government; 5 hours of General Economics; 3 hours of either Mathematics or Logic (unless, on entrance, 3 units of high school mathematics have been presented); 6 hours of courses in English Literature (this must be in addition to the 6 hours of "Composition and Rhetoric," required of all freshmen). Although not required for entrance, these courses are urgently advised: General Psychology, 3 hours; and General Sociology, 3 hours. Students in Agricultural Journalism should include 5 hours of Chemistry. These students may enter as regular students and complete the requirements for the Bachelor of Journalism degree in two years. Students who have more than two years of college credit may reduce the length of their stay, but the sequence of courses make it necessary for every student to spread his professional courses over at least three semesters, or two semesters and a Summer Session, or an Intersession. The student who combines his studies in the School of Journalism with studies in the College of Arts and Science may obtain a degree from both in five years.

2. Students from other Divisions in the University, to whom certain courses in Journalism are open.

3. Graduate students in Journalism. Most of such students hold bachelor's degrees in journalism. They enroll in the Graduate

School of the University of Missouri, but take their principal work in the School of Journalism.

It is suggested that the student have a working knowledge of typewriting before entering the School of Journalism.

Prospective students should consult the yearly School of Journalism Announcement as early as possible in their college careers. In this will be found suggestions as to preliminary work before entering the School.

Requirements for Graduation

The School of Journalism confers one undergraduate degree, Bachelor of Journalism (B.J.). A student specializing in agricultural journalism will have the notation (*in Agricultural Journalism*) made upon his diploma.

To obtain the degree of Bachelor of Journalism the student must fulfill the following conditions:

1. He must be regularly admitted to the School.

2. He must complete at least 30 hours in Journalism including 5 hours of History and Principles of Journalism, 6 hours of The News and Reporting I, 4 hours of Copy Reading, 3 hours of Advertising Principles and Practice, and in addition, (a) 3 hours of Reporting II, and 2 hours more of Copy Reading II, or (b) 12 hours more of courses in Advertising, including Advertising Salesmanship, or (c) 6 hours of courses in Special Writing, or (d) 9 hours in courses in Country Journalism.

3. In addition to the 60 hours required for admission he must complete, after he has attained Junior Standing, at least 20 hours intended for upperclassmen (listed in the University Catalog as 100 and above) and approved by the Dean of Journalism. This must include 3 hours of United States History and at least 3 additional hours in history.

Students transferring from other institutions must present satisfactory equivalents of all required work or they must enroll in the prescribed courses after entrance to Journalism, all such courses to be classified as part of the 10 hours elective credit allowed each student (of the 6 hours required after entrance to Journalism, 30 hours must be in professional journalism, 20 hours in upperclassman courses in other Divisions, and 10 hours elective—either in Journalism or some other Division of the University).

4. He must complete a total of 120 hours.

5. He must earn 120 points, including at least 60 points while enrolled in the School of Journalism, on the following basis: Grade of E, three points for each hour of credit; Grade of S, two points for each hour; Grade of M, one point for each hour; Grade lower then M, no points. Points will be allowed for work done in other

institutions, either towards admission to or as advanced standing in the School, in accordance with the quality of work presented, except in no case will more points than hours be allowed.

No student may take more than 16 hours or less than 12 hours a term, except that the Dean of Journalism may reduce the minimum. A student's program should be about half professional and half academic subjects each term.

All regular students in Journalism must pass, at a date to be announced near the close of their first term in Journalism, a test of their proficiency in English. No student will be recommended for any degree unless his English is satisfactory.

To obtain the degree of Bachelor of Journalism (in Agricultural Journalism) the student must fulfill the following conditions:

1. He must be regularly admitted to the School.

2. He must complete at least 30 hours in Journalism, including 5 hours of History and Principles of Journalism, 6 hours of The News and Reporting I, 6 hours of Copy Reading, 3 hours of Advertising Principles and Practice, and 3 hours of The Rural Newspaper.

3. He must complete 30 hours of technical courses in agriculture.

4. He must complete a total of 120 hours.

5. He must earn 120 points, including at least 60 points while enrolled in the School of Journalism, on the following basis: Grade of E, three points for each hour of credit; Grade of S, two points for each hour; Grade of M, one point for each hour; Grade lower than M, no points. Points will be allowed for work done in other institutions, either towards admission to or as advanced standing in the School, in accordance with the quality of work presented, except in no case will more points than hours be allowed.

GRADUATE WORK: A person who holds a bachelor's degree in Journalism may in one additional year receive the degree of Master of Arts. The degree of Doctor of Philosophy is offered to students who have pursued advanced courses of study without serious interruption for at least six semesters, who pass all prescribed examinations and submit an acceptable dissertation. Information for graduate students will be found in the Graduate School Announcement.

SUMMER SESSION: The School of Journalism offers all laboratory courses during the Summer Session, and some lecture courses. A maximum of 8 hours credit may be earned during this eight-week session. Special information will be found in the Summer Session Bulletin.

INTERSESSION: Students adequately prepared may enter the Intersession of five or six weeks during August and the first part of

September. The work, giving one credit hour for each week, is in laboratory courses only and enrollment may be for the entire session or any part thereof. For this work a student is required to pay a library, hospital, and incidental fee of $10.00, plus a $2.00 Journalism laboratory fee. These courses, identified as 'ss' under 'Statement of Courses' in this catalogue are: Reporting; Copy Reading; News Broadcasting; The Editorial; Newspaper Making; News-Desk Methods; Copy-Desk Methods: Advertising-Desk Methods, Advertising Copy and Advertising Salesmanship.

SCHOLARSHIPS, PRIZES, AND AWARDS: In addition to general University scholarships, prizes, and awards, open to all students in the University, a number are offered each year exclusively for students in Journalism. These are: Scholarships; Eugene Field; Helen Malloch; Jay L. Torrey; John W. Jewell; Journalism Alumni; and Journalism Students Association. The prizes and awards are: Journalism Student Aid Fund; A. C. Bayless Award; Alpha Delta Sigma Prize; Gamma Alpha Chi Prize; Theta Sigma Phi Prize; Walter Williams Award in Journalism; Oliver N. Gingrich Merit Award; Sigma Delta Chi Honor Awards; and an Agricultural Journalism Award. The Francis Scholarship in Creative Literature is open to women showing special ability in the languages, the social sciences, or journalism. Details may be found in this catalogue under the section "Fellowships, Scholarships, Prizes."

JOURNALISM WEEK: Addresses by journalists of state, national, and international importance are arranged from time to time throughout the school year. A large number of these are given at the annual Journalism Week, held the early part of May, which has brought nation-wide attention to the School. The Missouri Press Association, the Missouri Women's Press Club, and the Missouri Writers' Guild hold their state meetings at this time. Meetings are open to the public without formality. Anyone interested may obtain information as to the program by writing a few weeks in advance to the Dean of Journalism.

BULLETINS ON JOURNALISM: The School of Journalism tries to be of the greatest possible service to the profession of journalism in general, as well as to give instruction on the campus. One of the School's activities is the publication of a series of bulletins for distribution among workers in journalism. These now number 82 and most of those still in print may be obtained free. A complete list may be found in the School of Journalism Announcement.

For the bulletins and catalogues mentioned and for further information regarding the School of Journalism, address FRANK L. MARTIN, DEAN, FACULTY OF JOURNALISM, UNIVERSITY OF MISSOURI, COLUMBIA, MISSOURI.

SCHOOL OF LAW*

The School of Law was organized in 1872. It has been a member of the Association of American Law Schools since the latter's organization, and is on the list of law schools approved by the Council of the Section on Legal Education and admission to the Bar of the American Bar Association.

EQUIPMENT

BUILDING. Lee H. Tate Hall, the School's building, a modern and completely equipped structure, is located at the southeast corner of Francis Quadrangle. It was erected in 1927 as a memorial to the late Lee H. Tate, a graduate of the School in the class of 1913. This fine and useful memorial was made possible largely through the generosity of the late Frank R. Tate and Mrs. Tate, of St. Louis, the parents of Lee H. Tate.

LIBRARY. The law library contains approximately 40,000 volumes, 33,061 accession and approximately 7,000 not cataloged, which includes both the original and the reprints of the English reports; the Irish, Scotch, and Canadian reports; several sets of the reports of the Supreme Court of the United States; the reports of all of the federal courts; all of the state reports; full sets of the National Reporter System; the necessary digests, and a valuable collection of statutes, session laws, standard treatises, legal periodicals, and encyclopedias.

AIMS OF SCHOOL

The School of Law exists to serve the state and its bar. The primary aim is to equip students for the practice of law. To this end, its methods conform to the most modern standards of legal education. Written examinations are given in all courses at the end of each course. Regular attendance is required at all class exercises.

The School of Law does not seek merely a large number of students, and the entrance requirements are such as to admit only those whose education and maturity fit them for serious study. Also, the School recognizes a duty to the state beyond the equipment and training of practitioners. Many of the University students who do not intend to practice find its courses valuable training for citizenship, for business careers, and for the service of the public on commissions and in the Legislature. The School attempts to serve the bar of the state by the publication of the Missouri

*See General Information, p. 44; Fees, p. 73; Changes in Courses, p. 111.

Law Review, hereinafter described, and by preparing annotations to the Restatement of the law by the American Law Institute, as well as in other ways.

Honors and Prizes

The Order of the Coif, a national law school honor society, maintains a chapter in this School. The members are elected each year by the chapter from the ten per cent of the members of the senior class who have the highest rank in scholarship. Membership in the Order is the highest scholastic honor that a law student can attain. Election to the Order is the equivalent of graduation with distinction.

Rollins Scholarship
William Mack Prize
Alexander Martin Prize
John D. Lawson Prize
University of Missouri Law School Foundation Prize
Judge Shepard Barclay Prize

See announcement of scholarships and prizes under general information, page 87 of general catalog.

Admission

The following persons are eligible for admission to the School of Law:

First, persons who have received a bachelor's degree from the University of Missouri or from any institution accredited therewith;

Second, persons who have not received a bachelor's degree, but who have completed at least ninety (90) semester hours (or their equivalent) of college work acceptable for a bachelor's degree granted by the University of Missouri or any institution accredited therewith, exclusive of credit earned in correspondence courses and non-theory courses in military science, hygiene, domestic arts, physical education, vocal or instrumental music, or courses without intellectual content of substantial value. All of the pre-legal work undertaken by such persons, exclusive of correspondence courses and such courses as the non-theory courses described above, must have been passed with an average grade of M[1] or better.

The School of Law may refuse admission to any person whose previous record shows work of an inferior or unsatisfactory quality.

[1]The grades given in courses at the University of Missouri are indicated by the letters E, S, M, I, and F. These respectively represent the quality of the student's work as Excellent, Superior, Medium, Inferior, and Failing. When a student offers for admission work done at another institution, the equivalent of his grade average is determined by the University of Missouri.

METHODS OF ADMISSION. Admission may be by certificate from colleges and universities composing the Missouri College Union, or from other reputable colleges and universities. (Acceptance of such certificates lies wholly with the Committee on Entrance of the University, and all correspondence regarding admission should be addressed to the Registrar.)

Persons seeking admission to the School of Law for the first time as members of the first-year class will be admitted only at the beginning of the fall semester. Persons seeking admission as members of the second- or third-year class may be admitted at the beginning of either the fall or winter semester.

ADVANCED STANDING. A maximum of one year's credit[1] may be allowed toward the degree of Bachelor of Laws for work successfully completed in another law school which at the time the credit was earned was a member of the Association of American Law Schools. The right is reserved to refuse such credit, in whole or in part, or to allow it conditionally, and such credit may be withdrawn for poor work here. A person transferring from another law school with advanced standing must show that at the time he began the study of law at the other law school he could have met the requirements then in force for admission to the University of Missouri School of Law.

Applications for advanced standing should be made to the Dean and be accompanied by certified transcripts of records showing college and law credits.

SPECIAL STUDENTS. No special students will be admitted to the School of Law.

ELIMINATION OF STUDENTS

Some students qualified for admission fail to measure up to the standards maintained in the School. Such delinquent students are eliminated in accordance with the rules stated on page 113 of this catalog.

CURRICULUM—DEGREE

THREE-YEAR CURRICULUM. The curriculum of the School of Law extends through three academic years of two terms each. Upon favorable recommendation of the Faculty of Law, the degree of Bachelor of Laws will be conferred upon those students who:

(1) Have pursued in residence the study of law for at least three academic years, or the equivalent, two[2] of which, including the last, must have

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[1]Students who have entered the University of Missouri School of Law prior to the fall term of 1939, may be allowed a maximum of two years' credit.

[2]Students enrolled in this School prior to the fall term of 1939, must complete only the last full year of work in this School. See note 1, above.

been completed in this School. In order to count resident study in satisfaction of this time requirement a student in this School must carry courses aggregating not fewer than ten credit hours per semester. A student in this School carrying courses aggregating fewer than ten credit hours per semester will receive only proportional time credit.

(2) Have passed examinations in all required courses.

(3) Have passed examinations in law courses aggregating not fewer than seventy-nine semester hours and have secured at least fifty-three points.[1] One point is given for each hour in those courses in which the student receives the grade of M; two points for each hour in those courses in which the student receives the grade of S; and three points for each hour in those courses in which the student receives the grade of E. All students are required to earn the fifty-three points necessary for graduation from the first seventy-nine hours of work taken in this School. The point requirement will be proportionately reduced for students who are allowed credit toward the degree for work successfully completed in another law school.

Students who discontinue their residence in this School for two or more consecutive years must, after their return to this School, meet the degree requirements in force at the time of their re-admission.

The work of the students will normally be distributed as follows: Thirty hours in the first year, twenty-five in the second, and twenty-four in the third. No student, except in exceptional cases with the permission of the Dean, will be permitted to carry more than fourteen hours of class work per week in any term during his second and third years.

The curriculum requiring six terms in residence for its completion is one arranged for full-time students and is prescribed by the standards of the American Bar Association issued on February 1, 1930. Those requirements provide that an approved school "shall require its students to pursue a course of three years' duration if they devote substantially all of their working time to their studies and a longer course equivalent in the number of working hours if they devote only part of their working time to their studies."

Unless, therefore, a student enrolled in the regular full-time course in this School devotes substantially all of his time to his law work, he is not meeting the requirements of the American Bar Association. Accordingly, a student who is engaged in outside work that is calculated to prevent his devoting substantially his full working time to the study of law will be required to lengthen the period of his study. The standards of the American Bar Asso-

[1] It is possible that students who enter the School in the fall term, 1939, and thereafter, may be required to earn more than the number of credit hours and points specified above.

ciation provide that a part-time course "shall cover a period of at least four years of at least 36 weeks each and shall be the equivalent of a full-time course." Students in this School who are not devoting substantially all of their working time to their studies will be required to arrange their schedule and curriculum on the basis of a part-time course.

COMBINED CURRICULUM IN ARTS AND LAW. Seniors in the College of Arts and Science may elect courses from the first year in the School of Law for a maximum credit of 30 hours. Such 30 hours of law work are acceptable to the Faculty of the College of Arts and Science towards a Bachelor of Arts degree. A combined curriculum of this character will enable the student to obtain the degrees of Bachelor of Arts and Bachelor of Laws in twelve terms.

PROPOSED CURRICULUM FOR 1939-1940[1]

First Year[2]

Subject	*Hours*	*Subject*	*Hours*
Contracts	4	Contracts	3
Torts	4	Torts	2
Property I (Personal)	2	Property I (Real)	3
Pleading I	4	Criminal Law and Proc	4
Legal Bibliography	1	Equity I	3
	15		15

Second Year[3]

Subject	*Hours*	*Subject*	*Hours*
*Equity II	2	*Pleading	3
*Evidence	3	*Evidence	2
Property II	3	Property II	2
Constitutional Law	3	Constitutional Law	3
Mortgages	3	Suretyship	2
Wills	3	Bills and Notes	3
Insurance	2	Sales	3
	19		18

[1]It is possible that there may be some changes, without notice, in the curriculum. See General Information, p. 44; Changes in Courses, p. 111.

[2]All first-year courses are required.

[3]Courses in the second and third years marked (*) are required; the others are elective. Second-year students may, with the permission of the Dean, elect third-year courses if necessary to make a program.

Third Year[1]

Subject	*Hours*	*Subject*	*Hours*
*Practice	2	*Practice	3
*The Legal Profession	2	Creditors' Rights	3
Business Organization	3	Business Organization	4
Conflicts	3	Taxation	3
Administrative Law	3	Federal Procedure	2
Trusts	3	Public Utilities	2
Future Interests	3		
	19		17

[1]Third-year students may, with the permission of the Dean, elect second-year courses if necessary to make a program.

A detailed description of the courses in law may be found on page 364 of this catalog.

Missouri Law Review

The School of Law publishes the Missouri Law Review, a publication which superseded the Law Series of the University of Missouri Bulletin. The Review is edited by the faculty and a board of student editors chosen by the faculty from the members of the second- and third-year classes. Student editors are chosen on the basis of legal scholarship. Election to the board is an honor, and a student editor has an unusual opportunity to gain experience in legal research, which better fits him for the practice of law.

Each number of the Review contains leading articles and book reviews written by teachers of law and members of the bar, and notes on recent cases and comments written by student editors under the direction of members of the faculty.

The new publication may be subscribed to for $2.50 a year, and subscriptions should be sent to the Business Manager, Missouri Law Review, Columbia, Missouri.

For further information concerning the School of Law, address The Dean, School of Law, University of Missouri, Columbia, Missouri.

SCHOOL OF MEDICINE*

HISTORICAL: The Medical department of Kemper College ("McDowell Medical College"), founded in St. Louis in 1840, was the first medical school established west of the Mississippi River. In 1845 this school became the medical department of the University of Missouri. Shortly before the Civil War it was discontinued. It was re-established in Columbia in December, 1872. The curriculum was at first only two years in length, but this was extended to three years in 1891 and to four years in 1899.

In 1910 the last two years of the medical curriculum were suspended temporarily because of the limited clinical facilities in Columbia at that time. This action was taken with the understanding that these studies would be resumed as soon as medical facilities became adequate. From 1910 to 1930, therefore, only the first two years of the medical curriculum were offered. A third-year curriculum was offered in 1931, and a small class completed the work in 1932. Due to financial conditions the University found it necessary again to discontinue the third year, effective September, 1932.

ORGANIZATION AND SUPPORT: The School of Medicine of the University of Missouri is an integral part of the University, being located on the University Campus. In addition to medical work it offers courses for arts and graduate credit to students enrolled in other divisions of the University in so far as its capacity allows. The School of Medicine is supported by funds assigned to it by the University from state appropriations and by special laboratory fees of students.

POLICY: The School of Medicine has always stood for the highest standards of medical education, and was a pioneer in introducing and developing the laboratory method. Laboratory work in anatomy, chemistry, and microscopy was required of students from the date of re-establishment in 1872. A few years later laboratory work in pathology and in physiology was added, and in 1891 the laboratories of histology and bacteriology were established. The School of Medicine of the University of Missouri was also one of the first schools to place these fundamental medical sciences in charge of specialists who are not allowed to practice medicine, but who are required to devote their time exclusively to teaching and investigation.

A thorough course of instruction with the highest standard of scholarship has been established and maintained.

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*See General Information, p. 44; Fees, p. 73; Changes in Courses, p. 111.

The aim of the School of Medicine is three-fold:

(1) To give thorough laboratory and clinical training in all medical subjects.

(2) To contribute to the advancement of medicine by original investigation in the various sciences upon which modern medicine is based.

(3) To promote the diffusion of medical knowledge among the citizens of the state.

Equipment

Medical Laboratory Building, McAlester Hall: This is a three-story stone-and-brick building, 325x48 feet, specially designed for the medical laboratories, and is well equipped to meet the needs of modern laboratory instruction and research. The following is a brief list of the various rooms and equipment in this building:

The Department of Anatomy occupies the greater part of the third floor of the medical building. For class work there are available laboratories for human dissection, topographic and applied anatomy, and microscopic anatomy, with all the necessary equipment and material for a thorough study of these subjects. A lecture room and technical preparation room, and the laboratories of the staff with adequate equipment for research are also located on this floor.

The Department of Physiology and Pharmacology occupies the following rooms: A large laboratory, with adjoining storeroom, equipped with tables, lockers, and sets of apparatus for the students in physiology and pharmacology; a blood pressure room, particularly for mammalian experiments; a research laboratory, thoroughly equipped for advanced students in physiology and pharmacology; animal room; mechanics shop; lecture room (in common with, pathology).

The Department of Biochemistry has a well equipped teaching laboratory with a capacity of 48 students, and a smaller laboratory for advanced classes, in addition to space for research, for offices, seminar, and the like. The equipment is adapted for work in general physiological chemistry, blood chemistry, urine analysis and nutrition.

The Department of Pathology, Bacteriology, and Preventive Medicine has an assignment of rooms which serve as offices, technician's preparation rooms, service and diagnostic laboratories, for research, housing of equipment and supplies, and lecture room and laboratory space adequate for the number of students admitted to the School of Medicine. Modern microscopes with oil immersion lenses are owned by the Department for assignment to students and for research. A teaching laboratory provided with necessary

incubator space is available, in addition to incubators and equipment used in other services and in research. An exacting and specialized service of the Department is to provide expert diagnosis to the patients of the University Hospitals and through this means the Department obtains excellent teaching material for Pathology, Bacteriology, and Serology.

In the animal house colonies of such animals as are needed for diagnostic and classroom work and research are maintained. Fresh autopsy and surgical specimens are used in conjunction with approximately 1800 prepared museum specimens in Kaiserling, for gross pathology. A student slide loan collection of 380 histologic sections, representing so far as possible, the various phases of the more common diseases processes are available for microscopic pathology. Balopticon projection apparatus for slides and opaque objects, a microscope projection apparatus, lantern slides, and an extensive collection of demonstration slides for microscopic projection are routinely used in class teaching and drills. Stock cultures of the common bacteria are maintained for classroom work and animal experimentation.

Facilities are provided for advanced students to carry on fundamental investigations of pathologic, bacteriologic, and immunologic problems.

On the third floor of the Medical Building the United States Bureau of Fisheries Research Laboratories occupy a suite of rooms, specially equipped for physiological and biochemical research on the lower animals and for problems of general physiology. The Bureau of Fisheries has provided a considerable amount of special apparatus for this research unit which draws its personnel from graduate students in the University.

OTHER BUILDINGS: In several other buildings on the University campus instruction is offered in many lines open to medical students as electives, and of especial service to those taking the combined curriculum in medicine and in arts and science.

MEDICAL LIBRARY: The medical library located in ample new quarters in the medical building, is open 8 hours daily, from Monday through Friday, and 7 hours Saturday. It contains 11,992 volumes and the more important current journals. The principal medical works of reference are included and 146 leading medical periodicals are received regularly and placed on file. Complete sets of most of these journals are available. The main University library also contains works of interest and value to the medical sciences.

The library has a complete card catalog of all its books and periodicals. Books may be loaned to any reputable physician in the state provided he pay transportation charges on them. The out-of-town borrower should indicate the subject on which he wants information if he is unable to give the author and title of the books.

Fees and Expenses

For information in regard to fees and expenses see the section *Expenses* under *General Information*. Textbooks and stationery costs from $25 to $50 per year. For cost of board and lodging, see page 78.

Scholarships

The Rollins scholarship in the School of Medicine is a prize of $50, which is awarded to that member of the first-year class (fourth year of combined curriculum) who has made the best record during the course.

Extension Laboratory Service

The Department of Pathology, Bacteriology and Preventive Medicine will, within the limit of its capacity, receive for examination and diagnosis such material as may be submitted by physicians of the State.

Requirements for Admission

Admission to First-Year Class: For detailed statement, see page 57. The classes are limited in membership because of the inability of the school to properly accommodate all qualified applicants for admission. Application for admission should be in the hands of the Registrar at the earliest possible time prior to the opening of the session.

New students are not enrolled in the classes at the beginning of the winter term unless they have finished satisfactorily all the courses that have been taken by the class into which admission is requested.

Advanced Standing: Every applicant for advanced standing is required to present credentials from an acceptable college showing satisfactory completion of courses equivalent to those for which he seeks credit. Moreover, the usual entrance requirements to the first-year class must be satisfied, and evidence of good moral character must be presented to the Dean of the School of Medicine.

Special students will not be admitted to the School of Medicine.

The Combined Courses in Arts and Medicine

Students may receive the degree of Bachelor of Science (B. S.) upon compliance with the following regulations:

1. Regular enrollment in the School of Medicine.
2. Completion of the required curriculum in residence in the School of Medicine, or its equivalent.

The combined course in Arts and Science and in Medicine is available only to students who have completed their junior year in residence in the University of Missouri. Such students must meet the requirements for admission to the School of Medicine (see page 57) and, in addition, complete the freshman, sophomore, and junior requirements of the College of Arts and Science (see page 140), and sufficient additional work in science so that a major and a minor will be completed by the end of the first year in Medicine. The major and minor may be chosen from the fields of chemistry, physiology, or zoology.

It is essential that students taking the combined course in Arts and Medicine have the guidance of pre-medical advisers at each enrollment period.

The degree of Bachelor of Arts will be conferred in the College of Arts and Science upon the completion of combined courses in the College of Arts and School of Medicine.

Candidates for the degree of Bachelor of Arts must have completed three years of work in the College of Arts and the curriculum of the first year in the School of Medicine.

Students who have received the degree of Bachelor of Arts in the combined course just mentioned may receive the degree of Bachelor of Science upon completion of the second-year curriculum in the School of Medicine.

All correspondence regarding admission should be addressed to the Registrar, University of Missouri, Columbia, Missouri.

The University reserves the right to cancel or change any course listed herein without further notice.

CURRICULUM

Hours exclusive of examination periods.

First Year

	Weekly Class Hours	Total Clock Hours	Credit Hours
First Semester:			
Anatomy	12	192	7
Embryology	6	96	4
Histology	4	64	2
Physiological Chemistry	11	176	6
Totals	33	528	19
Second Semester:			
Anatomy	12	192	7
Histology	6	96	4
Neuro-Anatomy	6	96	4
General Physiology	9	144	5
Totals	33	528	20

Second Year

First Semester:	Weekly Class Hours	Total Clock Hours	Credit Hours
Bacteriology	9	144	6
Materia Medica	4	64	2
Advanced General Physiology	9	144	5
General Pathology	10	160	6
Topographic and Applied Anatomy	4	64	3
Totals	36	576	22
Second Semester:			
Special Pathology	10	160	6
General Hygiene	2	32	2
Minor Surgery	3	48	2
Physical Diagnosis	5	80	3
Pharmacology	8	128	5
Electives	7	112	3–5
Totals	35	560	21–23

SCHEDULE OF HOURS FOR THE FIRST-YEAR CLASS

First Semester

	8-9	9-10	10-11	11-12	1-2	2-3	3-4
Monday	Anatomy				Embryology		
Tuesday	Histology				Physiological Chemistry		
Wednesday	Anatomy						
Thursday	Physiol. Chem.	Embryology			Physiological Chemistry		
Friday	Anatomy						
Saturday	Physiological Chemistry						

Second Semester

	8-9	9-10	10-11	11-12	1-2	2-3	3-4
Monday	Anatomy				Neuro-Anatomy		
Tuesday	Physiology				Histology		
Wednesday	Anatomy						
Thursday	Physiology	Histology					
Friday	Anatomy				Neuro-Anatomy		
Saturday	Physiology						

SCHEDULE OF HOURS FOR THE SECOND-YEAR CLASS

First Semester

	8-9	9-10	10-11	11-12	1-2	2-3	3-4
Monday	Pathology				Bacteriology		
Tuesday	Physiology				Materia Medica		
Wednesday	Pathology		Topography and App. Anatomy		Bacteriology		
Thursday	Physiology				Materia Medica		
Friday	Pathology				Bacteriology		
Saturday	Physiology	Topo. and App. Anatomy					

Second Semester

	8-9	9-10	10-11	11-12	1-2	2-3	3-4
Monday	Pharmacology				Pathology		
Tuesday	Pathology		Physical Diagnosis		Electives		
Wednesday	Pathology	Hygiene	Minor Surgery	Phys. Diag.			
Thursday	Pharmacology				Electives		
Friday	Pathology	Hygiene	Minor Surgery		Pathology		
Saturday	Electives	Physical Diagnosis					

A special bulletin of the School of Medicine is issued each year. This contains a detailed announcement of all courses, entrance requirements, schedules, a roster of students and the rules and regulations of the School of Medicine. This bulletin should be consulted by persons desiring full information concerning the School of Medicine. For information address DUDLEY S. CONLEY, DEAN, FACULTY OF MEDICINE, UNIVERSITY OF MISSOURI, COLUMBIA, MISSOURI.

UNIVERSITY HOSPITALS

Staff and Administrative Officers

DUDLEY S. CONLEY, M. D. ..... *Director of the Hospitals*
DAN G. STINE, M. D. ..... *Director of the Medical Services*
M. PINSON NEAL, M. D. ..... *Pathologist and Director of Hospital Laboratory*
WILLIAM J. STEWART, M. D. ..... *Orthopedist*
NEWELL R. ZIEGLER, M. D. ..... *Bacteriologist*
HORACE E. ALLEN, M. D. ..... *Oculist*
CLAUDE R. BRUNER, M. D. ..... *Aurist and Laryngologist*
RICHARD S. BATTERSBY, M. D. ..... *Pediatrist*
DAVID V. LEMONE, M. D. ..... *Roentgenologist*
AUGUST W. KAMPSCHMIDT, M. D. ..... *Dermatologist*
H. MCCLURE YOUNG, M. D. ..... *Urologist*
C. W. DIGGES, D. D. S. ..... *Consulting Dental Surgeon*

CHARLES A. LEECH, M. D. ..... *Assistant Physician*
KARL D. DIETRICH, M. D. ..... *Assistant Surgeon*
MAURICE E. COOPER, M. D. ..... *Instructor in Medicine*
JAMES M. BAKER, M. D. ..... *Resident Physician*
KENNETH C. COFFELT, M. D. ..... *Resident Physician*
WILLIAM GALEOTA, M. D. ..... *Resident Physician*
ALVIN C. SCHOPP, M. D. ..... *Resident Surgeon in Orthopedics*
FRANK E. DEXHEIMER, M. D. ..... *Anesthetist*
MILDRED W. BROWN, M. S. ..... *Assistant, Hospital Laboratory*
LOUISE HILLIGASS, R. N. ..... *Superintendent*
HELEN NAHM, R. N. ..... *Director of Nursing Personnel*
AMY LEGER ELKINS, R. N. ..... *Assistant Director of Nursing Personnel*
SUSAN E. TILLERY, M. A. ..... *Dietitian*
LULU MARTIN, R. N. ..... *Supervisor, Operating Rooms*
MARIBETH SAPP, R. N. ..... *Supervisor, Student Health Service*
EDITH COOPER, R. N. ..... *Supervisor, Medical and Surgical Service*
FRANCES GILBERT, R. N. ..... *Supervisor, Obstetrical Service*
GERTRUDE WELSH, R. N. ..... *Supervisor, Communicable Disease Nursing Service*
MARIE TENER, R. N. ..... *Supervisor, Orthopedic Service*
FAYE FRANKLIN, R. N. ..... *Night Supervisor*
MARIAN ASPLEY, R. N. ..... *Head Nurse, Free Clinic Service*
LOUISE BARNHARDT, B. S. ..... *Physiotherapist*

STUDENT HEALTH SERVICE

D. G. STINE, M. D. ..... *Director, Physician*
D. S. CONLEY, M. D. ..... *Surgeon*
H. E. ALLEN, M. D. ..... *Oculist*
C. R. BRUNER, M. D. ..... *Aurist and Laryngologist*
W. J. STEWART, M. D. ..... *Orthopedist*
C. A. LEECH, M. D. ..... *Assistant Physician*
A. W. KAMPSCHMIDT, M. D. ..... *Assistant Physician*
K. D. DIETRICH, M. D. ..... *Assistant Surgeon*
J. M. BAKER ..... *Resident Physician*
K. C. COFFELT ..... *Resident Physician*
WM. GALEOTA, M. D. ..... *Resident Physician*
A. C. SCHOPP, M. D. ..... *Resident Surgeon in Orthopedics*
F. E. DEXHEIMER, M. D. ..... *Anesthetist*
M. PINSON NEAL, M. D. ..... *Pathologist*
N. R. ZIEGLER, M. D. ..... *Bacteriologist*
D. V. LEMONE, M. D. ..... *Roentgenologist*
FRED MCKINNEY, Ph. D. ..... *Psychologist*
MARIBETH SAPP ..... *Supervisor*
ANITA STELZER ..... *Graduate Nurse*
DOROTHEA GOODE ..... *Graduate Nurse*
ILENE TUCKER ..... *Graduate Nurse*
LEMMA JONES ..... *Record Clerk*
ROBERTA SCHUKNECHT ..... *Personnel Records Clerk*
KATHLEEN TURNER ..... *Secretary*

Hospital Buildings

The first building of the University Hospitals was made possible by the gift of William L. Parker and was therefore named the Parker Memorial Hospital. In the words of the donor, the hospital is "for the benefit of the School of Medicine." The surgical amphitheater and operating rooms were provided by a gift of the late Adolphus Busch. In 1924 a new building connected with Parker Memorial Hospital was completed and named the Noyes Hospital after Dean Guy Lincoln Noyes. They are equipped with modern service laboratory and complete X-ray, metabolic and electrocardiographic equipment. During 1937 the new Student Health Center was completed and opened for use. In this building, in addition to the fully equipped X-ray and out-patient department for students, there is an entire floor utilized for treatment of contagious diseases among students.

Crippled Children's Service

In 1927 and under an Act of the Legislature a state service for treatment of indigent crippled children was established at the University Hospitals. This service is under the direction of an orthopedic surgeon assisted by the members of the staff of the University Hospitals. Clinics are held in various counties throughout the state and treatment is available to any indigent child who in the opinion of proper medical examiners may be benefited by orthopedic treatment. Through a bequest by Mrs. Georgia Brown Blosser there is now connected with the Crippled Children's Service the Georgia Brown Blosser Home at Marshall, Missouri. This was opened January 1, 1934. For further particulars, address Miss Louise Hilligass, Superintendent, Noyes Hospital, Columbia, Mo.

School of Nursing

Historical: The School of Nursing of the University of Missouri was organized in 1901, and was conducted in connection with the Parker Memorial Hospital. In 1920 the School of Nursing became a definite part of the University and a combined course in Nursing and Arts and Science was offered to students who met the entrance requirements of the College of Arts and Science.

The course in nursing as offered by the University of Missouri has many distinct advantages. Opportunity is given for academic and scientific preparation for nursing, plus the accumulation of university credit toward an academic degree.

There is a great need at the present time for nurses who are properly prepared for executive and teaching positions. College preparation in addition to the regular nursing course is being demanded of nurses who would qualify for these positions.

Students in the School of Nursing are entitled to all privileges given to other University women.

Student nurses are required to pay the regular University fees, except for courses given exclusively in the School of Nursing. Complete maintenance including room, board and laundry is provided to students in the School of Nursing.

Requirements for Admission

Applicants for admission to the School of Nursing must have completed at least one year of study in a recognized college or university. The course of study shall have basic courses acceptable to the School of Nursing.

The Combined Course in Nursing and Arts

The course in nursing covers a period of three full years. The first four months cover the preliminary period. At the expiration of that time, students who are considered properly qualified to be nurses, are enrolled as regular students in the School of Nursing. At the satisfactory completion of the course, the student receives the Degree of Graduate Nurse and 50 Hours credit in the College of Arts and Science, in addition to credit accumulated before admission to the School of Nursing.

Advanced Standing for Graduate Nurses

Graduate registered nurses who wish to enter the University of Missouri, will be granted credit for their nursing work, provided they are graduates of accredited Schools of Nursing which satisfy the requirements of the University of Missouri School of Nursing, and that such students are approved for admission to the College of Arts and Science.

Curriculum, School of Nursing

First Year *Fall Term*	*Credit Hours*
Composition and Rhetoric	3
Anatomy, 107f. Elementary Anatomy	3
General Inorganic Chemistry	5
Nursing, 1f. Principles and Practice of Nursing	2
Nursing, 2f. Nursing Ethics	1
Nursing, 3f. Elementary Materia Medica	1
Nursing, 4f. Personal Hygiene	1
Physical Education, 1f. Required course for freshman women	1
	17

Winter Term	*Credit Hours*
Physiology, 1w. Elementary Physiology	5
English, 2w. Composition and Rhetoric	3
Home Economics, 30f. Food in Relation to Health	3
Nursing, 6w. Materia Medica	2
Nursing, 8w. Medical Nursing I	2
Nursing, 10w. Advanced Nursing Procedures	1
Physical Education, 2w. Required course for freshman women	1
	17

Summer Term

First-year students are given supervised practice in the University Hospitals during the summer months. Lectures and practice in the writing of case studies are also given.

SECOND YEAR

Fall Term	*Credit Hours*
Botany, 3f. General Bacteriology	3
Pathology, 21f. Elementary Pathology	2
Psychology, 1f. General Psychology	3
Nursing, 7f. Surgical Nursing I	2
Nursing, 10f. Communicable Diseases	1
Nursing, 15f. Diet in Disease	1
Nursing, 16f. Orthopedics and Special Therapy	2
Nursing, 22f. Applied Nursing	2
Physical Education, 1f. Required course for sophomore women	1
	17

Winter Term	*Credit Hours*
Preventive Medicine, 5w. Preventive Medicine	2
Sociology, 1w. General Sociology	3
Psychology, 122w. Abnormal Psychology	3
Nursing, 5w. History of Nursing	2
Nursing, 11w. Surgical Nursing II	1
Nursing, 18w. Medical Nursing II	1
Nursing, 19w. Mental and Nervous Diseases	1
Nursing, 22w. Applied Nursing	3
Physical Education, 2w. Required course for sophomore women	1
	17

	Summer Term	*Credit Hours*
Nursing, 17s.	Diseases of the Eye, Ear, Nose, and Throat	1
Nursing, 22s.	Applied Nursing	5
Nursing, 20s.	Professional Problems	1
		7

THIRD YEAR

	Fall Term	*Credit Hours*
Nursing, 23f.	Applied Nursing	5

During the third year students affiliate with the University of Minnesota School of Nursing for six months, including three months in Obstetrics and three months in Pediatrics. Lectures and demonstrations are given in both subjects. They also affiliate for two months of public health nursing, with the Visiting Nurse Association of Kansas City. They are required to furnish their own maintenance during this period.

Students are advised to take the following courses during the year of college work preparatory to entering the School of Nursing:

Composition and Rhetoric	6 hours
General Zoology	5 hours
General Chemistry	5 hours
General Mathematics	3 hours
(Unless student has had three units in high school)	
General Psychology	3 hours
General Sociology	3 hours
Preventive Medicine or Hygiene	2 hours

Physical Education—Required freshmen and sophomore courses.

Students should be able to complete their work toward a Degree in one year after they graduate from the School of Nursing.

A special announcement giving detailed information concerning the School of Nursing will be sent on request. Address, Principal, School of Nursing, University Hospital, Columbia, Mo. Classes are admitted yearly, in September. Students who wish to enter should apply several months before date of entrance.

SCHOOL OF MINES AND METALLURGY
(AT ROLLA)

General Information

In 1870 the General Assembly, in accepting the donation by the federal government of lands for educational purposes, established an Agricultural College and School of Mines and Metallurgy "the leading object of these colleges" being "to teach such branches as are related to agriculture and mechanic arts and mining, including military tactics, and without excluding other scientific and classical studies, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." The Statutes fix the status of the School of Mines and Metallurgy as a division of the University of Missouri. Its affairs are under the immediate supervision of the Executive Committee, consisting of three members of the Board of Curators of the University.

Admission

Information concerning the requirements for admission is given on page 54.

Location

The School of Mines and Metallurgy is at Rolla, the county seat of Phelps County, on the St. Louis & San Francisco Railroad, approximately halfway between St. Louis and Springfield, at the intersection of United States Highways 63 and 66.

Rolla is on the crest of the Ozark uplift. It has an elevation of 1,140 feet above the sea level and enjoys an agreeable and notably healthful climate. It is within easy reach of the lead and zinc districts of the southwest, and of the lead and iron regions of the southeast, where opportunities to observe processes of mining and smelting the latter ores are at hand. The numerous and varied smelting and chemical plants in and about St. Louis likewise offer good opportunity for the study of processes.

Equipment

Grounds and Athletic Field: The campus of the School of Mines is situated in the highest part of the City of Rolla and is thirty-two acres in extent. It contains beautiful lawns and groves of native oak and maple shade trees. The Jackling Athletic Field has a baseball diamond, a football gridiron, and a four-hundred-forty-yard running track, and tennis courts. The golf links of the

school, containing approximately eighty acres, is situated just west of the city limits and within four blocks of the campus.

BUILDINGS: There are thirteen buildings on the campus: Power Plant, Chemical Hall, Rolla Building, Workshops, Director's Residence, Mechanical Hall, Norwood Hall (engineering building), Ore Dressing and Metallurgy Building, Parker Hall, Jackling Gymnasium, Mine Experiment Station Building, Garage and Warehouse. Harris Hall, in process of construction, is expected to be ready for the school year 1939-40 for the department of Civil Engineering and the department of Mechanics, and will contain the much needed hydraulics laboratories.

LIBRARY: The library contains 35,000 carefully selected volumes, not including unbound material. Works on engineering, mathematics, chemistry, physics, mining, metallurgy, geology and mineralogy afford students reading in connection with their classwork. The library also contains standard works in English and American poetry, fiction, biography, and history. It is well provided with encyclopedias and works of general reference.

LABORATORIES

BIOLOGY: The biological laboratories are well equipped for work in this field. The equipment includes microscopes, autoclaves, incubators, electro-titration apparatus, surface tension machine, microtome, centrifuge, and a rather comprehensive medical library. Specimens of the flora and fauna of the Ozarks are collected and preserved for class use.

CHEMICAL ENGINEERING: One entire building is devoted to Chemical Engineering and Chemistry. The lecture rooms are provided with adequate selected materials for exhibits and classroom demonstrations. Projectors and motion picture apparatus are also available.

Individual laboratories are maintained for general, analytical, physical, organic chemistry and chemical engineering. All of these laboratories are well equipped for research in the respective fields, as well as for the required work in the various curricula.

A comprehensive technical library is available to the students. It contains a large number of technical books, bulletins and periodicals which thoroughly cover the field of chemistry, chemical engineering and the allied subjects.

CIVIL ENGINEERING: The equipment for field practice includes 30 transits, 20 plane tables, 21 levels, and other necessary equipment. A number of transits are equipped with solar attachments and others with auxiliary telescopes for mine surveying. Apparatus is provided for laboratory work in hydraulics and structural material. A Highway Testing Laboratory is equipped

with apparatus for the testing of cement, sand, gravel, and stone, according to prescribed specifications.

GEOLOGY AND MINERALOGY: The equipment includes reference, working, and cabinet collections of minerals, ores, rocks, and fossils; a working collection of wooden and glass models and natural crystals; full sets of maps and reports, and sets of geological relief models. There is also a collection of 3,500 specimens representing the mineral wealth of Missouri. Rock-breaking and sectioning machines, instruments for geological surveys, and microscopes for petrographic work are included in the equipment.

An unusually fine collection of micro-fossils has been built up, and the laboratories are fully equipped for work in micro-paleontology.

DRAWING: Four large rooms on the third floor of Norwood Hall are used as drawing laboratories and lecture rooms. These are equipped with locker desks, large drawing boards, steel tee squares, steel protractors, and other instruments intended for precise drawing in advanced classes. A large collection of models is available for drawing exercises. A separate copy room equipped with modern Pease electric blue-printing outfit, mimeograph, and other miscellaneous copying and printing equipment is maintained.

ELECTRICAL ENGINEERING: The equipment of the electrical engineering laboratories includes instruments for the study of the methods of electrical measurements and for the testing of the magnetic properties of iron and steel; practically all types of modern electric machines and the necessary instruments for making standard tests on the machines; power control equipment and instruments and apparatus for the study of wire and radio communication, and the principles of electronics.

METALLURGY AND ORE DRESSING: The department, recognizing the distinct fields of physical and process metallurgy, has laid out its curriculum and secured its equipment with this in mind. Laboratories are provided for process metallurgy, pyrometallurgy, hydrometallurgy, metallography, spectrography, and electrometallurgy. Also for the various thermal, chemical and physical tests, as well as structure study in the physical metallurgical field. The laboratories are amply equipped and adequate facilities are provided so as to promote and enable students to carry out original research work in any of these fields. The State Experiment Station's equipment affords an opportunity for the more advanced students interested in metallurgy and ore dressing to carry out research problems in this branch of the metallurgical field.

MINING: The mining department occupies the second floor of the Experiment Station building. The space includes a large

lecture room, exhibit room and 3 offices. On display in the exhibit room are a number of models illustrating mining methods, head frames, mine timbers, reversible mine fan, rock drills in sections, safety lamps, mine-rescue apparatus, explosives, wire ropes, and various other mining appliances. The department has several hundred lantern-slides of mining scenes and mining machinery and also many mine maps and drawings. The surveying equipment, already referred to under Civil Engineering, includes a number of mining transits with auxiliary telescopes which are used for the field work in mine surveying.

In order to provide a laboratory where practical instruction in mining and mine surveying can be given, the school has equipped a small experimental mine. This mine has all equipment necessary for its operation.

PETROLEUM PRODUCTION: Petroleum production is given as an option in the Mining Department, but with separate laboratory and special equipment. The latter includes, in part: flash point testers, hydrometers, centrifuges for dehydration of crudes, Saybolt viscosimeter, porosity and permeability measuring devices, screen analyses equipment, a working model for gas lift and plunger lift, equipment for the preparation and study of drilling muds and oil well cements, apparatus for routine testing of petroleum derivatives, various types of meters for the measurement of gas and air, dead-weight tester for calibration of gauges. Equipment is also available with which to test wells in the field during the usual field trips.

PHYSICS: The department has the necessary equipment for instruction in physical measurements in mechanics, sound, heat, light, and electricity.

RESEARCH: The mining and metallurgical research laboratories are provided with the necessary equipment both for scientific study of the fundamental physical and chemical principles underlying mining and metallurgical technology and for the testing of commercial processes on an experimental or semi-commercial scale. The work is conducted in co-operation with the United States Bureau of Mines.

MECHANICAL ENGINEERING: The equipment includes steam driven A. C. and D. C. generators, water tube and fire tube boilers, turbines, separate steam engines used for tests, compressors, fans, centrifugal and reciprocating pumping machinery, condensers and auxiliaries, internal combustion engines and such pieces of laboratory apparatus as are needed in making tests on all of these.

The various shops, in which the student is given training in forging and machine tool work, are well equipped to accommodate classes. There is a six-station oxyacetylene welding outfit in connection with the shops.

CERAMIC ENGINEERING: The department of ceramic engineering is equipped with semi-commercial scale equipment for making and studying all kinds of ceramic ware, including pottery, chinaware, porcelain, building brick, sewer pipe, drain tile, firebrick, spark plugs, electric insulators, etc. The equipment includes potter's wheels, jiggers, lathes, a complete slip-house outfit, an auger machine, dry presses, gypsum moulds, wooden moulds, etc., with which the dry press, stiff mud, soft mud, throwing, turning, jiggering, and pressing methods of forming the ware may be employed.

The kilns used in firing the ware include a muffle kiln, a high temperature direct-fired kiln, pot furnaces of various kinds, and electric furnaces of the metal, gran-annular and glo-bar resistor type.

A physical testing laboratory is fully equipped for all of the standard tests on raw clay. The many articles of equipment include elutriators, tensile strength and modulus of rupture machines, volumeters of various types, apparatus for hydrogen ion determination, etc.

An X-ray laboratory for the use of various departments is housed in the Ceramic department. The equipment consists of X-ray tubes capable of emitting various X-radiations, cameras of the De bye and Laue types, also a recording photometer for measuring and evaluating intensity of X-ray lines on films.

The grinding and preparation laboratory is equipped with jaw crushers, rolls, disc pulverizers, squirrel cage disintegrators, dry pans, and riddles.

In addition, special equipment is installed for all the standard tests on ceramic materials, including a chemical laboratory for analysis, electric furnaces for P. C. E. test, and kilns for testing refractories under load at high temperature and other standard refractory testing carried on at elevated temperatures.

EXPENSES

TUITION FEE: Tuition is free to all students who are residents of Missouri. Non-residents of Missouri pay a tuition fee of $80.00 per year.

CONTINGENT DEPOSITS: A deposit of $15.00 is required from each student to cover the cost of extra supplies and damage to apparatus. This deposit must be renewed if at any time exhausted and at the end of the school year whatever sum may remain to the credit of the depositor is returned to him.

REGISTRATION, HOSPITAL, AND LIBRARY FEE: A registration, hospital, and library fee of $30.00 a semester will be charged all students.

LABORATORY FEE: A uniform charge of $10.00 per semester is made to cover the cost of materials used in the laboratories of the school.

FEE FOR REPEATING COURSE: A fee of $2.00 per credit hour will be charged for every course of study repeated by a student by reason of the student's failure to pass the subject or other reason for which the student may be held responsible.

REFUND ON FEES: The schedule of refund of the fees listed above is as follows:

Length of Residence	*Amount of Fee to be Refunded*
First two weeks	80%
Between two and four weeks	60%
Between four and six weeks	40%
Between six and eight weeks	20%
After eight weeks	No refund

STUDENT ACTIVITY FEE: A fee of $10.00 for the first semester and $5.00 for the second semester is charged for the use of the gymnasium and for admission to all athletic contests, for the use of the golf course, and subscription to the two school publications.

LECTURE COURSE FEE: A fee of $2.00 is charged to cover the cost of the lecture course given during the year. Each student is given a ticket admitting him and a friend to each number of the course.

DIPLOMA FEE: A fee of $5.00 is charged to any student for whom a diploma is prepared.

INSPECTION TRIPS: The senior inspection trips required in mining, metallurgical, civil, electrical, chemical engineering and ceramic courses cost from $40 to $100.

STUDENTS ENROLLING FOR SIX HOURS OR LESS will be charged a fee of $16.00 if their work includes no laboratory courses. This amount will be increased by a portion of the regular $10.00 laboratory fee if they enroll in laboratory courses; this portion to be approximately the fraction of $10.00 that their laboratory course is of a normal schedule.

GRADUATE

1. All regular graduate students pay the following fees each semester so long as they are registered for graduate work:

Registration, Hospital and Library Fee	$30.00
Tuition Fee, if Non-Resident	40.00

Student Activity Fee	$10.00 and $5.00
Lecture Course Fee	2.00
Incidental or Laboratory Fee	10.00
Contingent Deposit for Non-Laboratory Students	10.00
Contingent Deposit for Laboratory Students	15.00

In case the student is carrying six hours or less and has no laboratory courses, he will not be required to pay the incidental or laboratory fee of $10.00.

2. Graduate assistants and instructors pay the following fees for each semester that they are registered as graduate students:

Registration, Hospital and Library Fee	$30.00
Student Activity Fee	5.00
Lecture Course Fee	2.00

3. In the case of graduate assistants who do part of their work during the summer with the approval of the Graduate Committee, no fees are necessary for such summer work.

LIVING EXPENSES: Table board costs about $20 per month at the present time. Room rent costs from $5 to $10 per month depending on the nature of the accommodations.

PHYSICAL TRAINING

For the physical training of students, excellent opportunities are afforded by the Jackling Gymnasium and the Jackling Field. The former, completed in 1915, is a strictly modern fireproof building and is equipped with baths, dressing rooms, lockers, a swimming pool 20 feet wide and 60 feet long and various kinds of apparatus and game courts usually found in modern gymnasiums. Class work, consisting of games, setting-up exercises, developing exercises, and calisthenics, is given under the supervision of the Director of Physical Training. Instruction in swimming and wrestling is also given, the aim of this work being to develop health, strength, vitality and cohesion of movement.

Jackling field, constructed in 1909 by means of a gift from Mr. D. C. Jackling, '92, adjoins the Gymnasium and provides a football gridiron, a baseball diamond, and a quarter-mile running track for class and intercollegiate games and events. A number of tennis courts about the campus are maintained in good order. An excellent 9-hole golf links near the campus is maintained for the benefit of students.

The school encourages rational athletics and a participation in intra and intercollegiate sport, all branches of which are under the direct supervision of the instructor in charge of Physical Training and management of the Board of Control. The membership of the Board of Control consists of the instructor in charge of Physical Training, the Chairman of the Faculty Committee on Athletics,

the President and the Student Manager of the Athletic Association, and the Secretary of the Executive Committee of the Board of Curators as ex-officio treasurer.

Military Training

The War Department maintains at the Missouri School of Mines an Engineer Unit of the Reserve Officers' Training Corps.

Military Science and Tactics is required of all physically fit Freshmen and Sophomores and may be elected by Juniors and Seniors. When a student joins the R. O. T. C. the War Department furnishes his equipment and uniform for the freshman and sophomore courses and commutation of uniform, amounting to $29.00 and $7.00 for the junior and senior courses, respectively. The student who fully completes the first year of the Advanced Course satisfies completely his financial obligation and is no further financially bound, although he is under obligation to continue his uniform in service during the ensuing year if he remains a member of the R. O. T. C. After two years service the uniform becomes the exclusive property of the student. The uniform worn by the freshmen and sophomores is the R. O. T. C. uniform furnished by the War Department and that worn by juniors and seniors is the officer's uniform.

The four-year instruction is divided into the basic course and the advanced course. The basic course consists of the first two years in the department of Military Science and Tactics and corresponds to the freshman and sophomore years of the academic department. Two credit hours per semester are given toward graduation for the basic course. When a student has satisfactorily completed the basic course and is recommended for further training he may elect the advanced course for the remaining two years. The advanced course consists of theoretical work at the institution and practical work during a R. O. T. C. summer camp elsewhere described in this catalog. During the two years advanced course the student receives, in addition to his uniform, a cash remuneration amounting to about $7.50 a month. He also receives three credit hours per semester.

Rules and Regulations

The School Year: The regular school year comprises two semesters of eighteen weeks each. The curricula are based on the fall and spring semesters, and are normally completed in four years. However, an opportunity may be offered in some courses to make up deficiencies or complete prerequisites during the summer.

The Credit Hour: A credit hour is the credit obtained for satisfactorily passing a course of one hour in the classroom per week for one semester. In computing the relation between laboratory

and classroom hours, three laboratory hours are considered the equivalent of one classroom hour.

THE NORMAL SCHEDULE: The standard schedule carries not less than sixteen and not more than twenty-one credit hours. Departure from these limits requires special permission of the Faculty.

SYSTEM OF GRADING: The following system of recording grades has been adopted:

E —Excellent.....95-100%.....3 Grade Points per Credit Hour
S —Superior.....85-94%.....2 Grade Points per Credit Hour
M—Medium.....75-84%.....1 Grade Point per Credit Hour
I —Inferior.....65-74%.....0 Grade Point per Credit Hour
F —Failure.....below 65%...1 Negative Point per Credit Hour

MINIMUM REQUIREMENTS: For graduation a total of at least 150 credit hours plus the required courses in Military Science and Tactics and Physical Education, are required. At least 120 grade points, and an average of 0.75 grade points per credit hour, are also required.

A student who fails to pass at least ten (10) credit hours in a semester will be placed on scholastic probation for his next semester in school.

A student who falls under this ruling for a second time shall be dropped from school. All cases of this kind shall be reported to the Curricula Committee of the Faculty, which shall decide whether or not the student may be readmitted to school, and if so, under what conditions.

A student whose grade point average is below 0.30 at the end of his second semester shall be placed on Scholastic Probation for his next semester in school. A student whose grade point average is between 0.45 and 0.60 at the end of his third semester shall be placed on Scholastic Probation for his next semester in school.

A student whose grade point average is below 0.45 at the end of his third semester, or below 0.60 at the end of his fourth or any subsequent semester, shall be dropped from school. Such a student shall be reported to the Curricula Committee of the Faculty, which shall decide whether or not the student may be readmitted to school, and if so, under what conditions.

ABSENCES: A student shall have added to his requirements for graduation one credit hour for sixteen unexcused absences during a semester, two credit hours for twenty-four unexcused absences during a semester, or three credit hours for twenty-eight unexcused absences during a semester. A student who has unexcused absences in excess of sixteen may be placed on disciplinary probation at the discretion of the Student Adviser.

A student who has unexcused absences either on the day preceding or on the day following a regular holiday or vacation period shall have added to his requirements for graduation one or more credit hours, at the discretion of the Student Adviser.

Degrees

Bachelor's Degrees: Bachelor of Science, Bachelor of Science in Mining Engineering, Bachelor of Science in Metallurgical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Mechanical Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Chemical Engineering, and Bachelor of Science in Ceramic Engineering.

The candidate for the degree of Bachelor of Science, or Bachelor of Science in an engineering curriculum, shall complete, in residence for at least the Senior year, the prescribed course of study in the corresponding curriculum.

Combination Curricula: Combination curricula leading to two engineering degrees can be arranged for any two of the foregoing degrees. The amount of additional time will be at least forty semester hours in excess of that required for one degree, and may be more. For instance, a joint curriculum, Mechanical and Electrical Engineering, can be taken in five years. Where the curricula are more diverse, six years may be required.

Master's Degrees: Master of Science, Master of Science in Mining Engineering, Master of Science in Metallurgy, Master of Science in Civil Engineering, Master of Science in Mechanical Engineering, Master of Science in Electrical Engineering, Master of Science in Chemical Engineering, Master of Science in Ceramic Engineering.

The candidate for the degree of Master of Science shall hold the degree of Bachelor of Science, or its equivalent, from an institution of recognized standing. The candidate for the degree of Master of Science in an engineering curriculum shall hold the degree of Bachelor of Science in that curriculum from an institution of recognized standing. Candidates for either degree must complete in residence a one-year's course of graduate work, approved by the Committee on Graduate Students, and shall submit an acceptable thesis.

Engineer of Mines, Metallurgical Engineer, Civil Engineer, Mechanical Engineer, Electrical Engineer, Chemical Engineer, and Ceramic Engineer.

The candidate for an engineering degree shall hold a degree of Bachelor or Master of Science in an engineering curriculum from this institution, and shall submit an acceptable thesis covering professional investigation within the chosen field, together with a

satisfactory record of at least five years' professional experience in this field, provided that if the degree of Bachelor or Master of Science has been granted in the same Department in which the engineering degree is desired, then a satisfactory record of at least three years of professional experience shall be submitted.

An engineer holding two bachelor's degrees may obtain two engineering degrees provided that he satisfies the requirements as stated above for each of the two degrees. This means that at least three years must elapse between the granting of two engineering degrees. Applications for engineering degrees must be in the hands of the Registrar not later than April 1 of the year in which the degree is to be granted, and final copies of theses must be in the hands of the head of the department in which the degree is sought not later than May 1, of the same year.

DOCTOR OF PHILSOPHY: Candidates for the degree of Doctor of Philosophy (in Mining, Metallurgy, Chemistry and Geology) must register with the Graduate School of the University of Missouri at Columbia and be subject to all the regulations of the Graduate School. A complete statement of the rules governing the granting of the degree of Doctor of Philosophy may be found on pages 241 to 243. Work done in residence either at Rolla or at Columbia may count toward the degree. The examinations are conducted by a committee appointed by the chairman of the Committee on Graduate Students at Rolla and the Dean of the Graduate School at Columbia. The degree is conferred by the University of Missouri.

CURRICULA

CURRICULA OFFERED: The School of Mines and Metallurgy offers the following curricula. The Roman numerals identify the curricula:

I. Mining Engineering.
   b. Mining Geology.
   c. Petroleum Engineering.
II. Metallurgical Engineering.
III. Civil Engineering.
IV. Science.
V. Mechanical Engineering
VI. Electrical Engineering.
VII. Chemical Engineering.
   b. Petroleum Refining.
VIII. Ceramic Engineering.

The several courses of study are arranged to contain all the necessary fundamental sciences and language and the essential technical subjects in such order as to lead to a logical and coherent

technical education. In recognition of the demand from the mineral industry and the engineering profession for specific technical training, certain definite options are offered. The mine engineering student who does not care to take the General Mining course may specialize in (b) Mining Geology, (c) Petroleum Engineering. Students are strongly advised to take the General Course unless they have special qualifications or reasons for pursuing one of the options. The choice of the Geology or Petroleum Engineering option should be made in the Sophomore year. Preceding the work of the Junior year, the courses are largely fundamental, and all regular students are required to take full work in English, Physics, General Chemistry and Mathematics.

Two options in Chemical Engineering are offered—Chemical Engineering and Petroleum Refining.

The Science Curriculum, IV, offers opportunity to specialize in Ceramics, Chemistry, Geology, Metallurgy or Physics. The work of the last two years is largely elective under the advice of the head of the department in which the student is majoring.

CREDIT REQUIRED FOR DEGREE: In order to receive a degree it will be necessary to obtain credit in all of the required subjects listed in one of the regular curricula and sufficient additional credit in elective subjects to make a total of 150 credit hours, exclusive of the required physical education and Military Science of the freshman and sophomore years.

GRADUATE COURSES: Graduate work is offered in all departments. The work is elective under the advice of the faculty.

LABORATORY TRAINING: The School of Mines and Metallurgy maintains adequate laboratories for practical instruction. The school has been in existence for sixty years and has acquired, especially in geology and mineralogy, metallurgy, mining, and chemistry, excellent collections and equipment. The surroundings of the school lend themselves well to field work in geology. The Mining Department operates an experimental mine, located within a short distance from the school campus. Every effort is made to ground the students thoroughly in the fundamental sciences, and to make the technical instruction practical as well as scientific. The school keeps in close touch with the mining and metallurgical operations in the several mining districts of the state. All curricula are the same in the Freshman year and differ but slightly in the Sophomore year. The student thus need not make a choice of special work until after being well started in his course.

PHYSICAL TRAINING AND MILITARY SCIENCE AND TACTICS: Military Science and Tactics and Physical Training are required of all physically fit male students in the Freshman and Sophomore years. For further information on military instruction and the

Reserve Officers' Training Corps, refer to the section in the catalog on "Military Science and Tactics."

PRACTICAL WORK: Before receiving a degree in any engineering course, in addition to completing a curriculum as outlined, the student must have worked not less than eight weeks in the industry or line of work in which he is specializing. If he is not able to fulfill this requirement, he may spend not less than four weeks in observation, note-taking and sketching, at some mine, mill or other industrial plant, or on any work designated by the department concerned. A regularly supervised inspection trip may be taken in place of this prescribed work, if offered by the department.

Suitable reports and satisfactory credentials are required on all the work described above. This work should be done during the summer following the Junior year, if possible.

Students in Curricula I, II, III, VI, VII, and VIII are also required to take an inspection trip during the Senior year.

A special catalog of the School of Mines and Metallurgy is issued each year. It contains a detailed announcement of all curricula, statement of courses, entrance requirements, rules and regulations of the School of Mines and Metallurgy, and should be consulted by persons desiring full information concerning this school. For copy of this catalog, or for further information concerning the work of the School of Mines and Metallurgy, address WILLIAM R. CHEDSEY, DIRECTOR, SCHOOL OF MINES AND METALLURGY, ROLLA, MISSOURI.

THE MISSOURI STATE MILITARY SCHOOL*

Reserve Officers Training Corps

The Missouri State Military School is an integral part of the University of Missouri (Revised Statutes of Missouri) and under the provisions of the Act of Congress approved July 2, 1862, usually referred to as the Morrill Act, the University of Missouri was designated as a land grant university. The Act requires the University to maintain military training in its curriculum as its contribution toward National Defense, in return for which instructors, equipment, uniforms and funds therefore are furnished to the University by the United States.

Military Training is offered through the establishment of a unit of the Reserve Officers' Training Corps whose primary object is the instruction of University students to qualify selected ones for commissions in the Officers' Reserve Corps of the Army of the United States.

To attain this object students are taught the fundamentals of the military profession emphasizing the application of the technical instruction they receive with a view to creating an appreciation of the importance of organization, leadership, loyalty, and respect for authority.

Organizations: The R. O. T. C. at the University of Missouri consists of a senior Field Artillery unit. A member of the R. O. T. C. is not in the Army of the United States and membership in the R. O. T. C. carries no legal obligation to serve in the army or any of the armed forces, either in peace or in war.

The R. O. T. C. is administered by commissioned officers of the regular army detailed by the War Department with the approval of the University, who serve as a part of the University instructional staff.

All students taking military instruction compose the University corps of cadets. The corps of cadets is organized as a provisional brigade consisting of a band and regiments of Field Artillery. All units are commanded by Advanced Course students who have been selected for these commands on the basis of merit. Noncommissioned officers are selected from members of the basic course.

The Band: The band consists of 65 members under a band leader employed by the University. The entire band is uniformed, drilled and disciplined as a part of the R. O. T. C. Students of the Basic Course R. O. T. C. who are members of the band are

*See General Information, p. 44; Fees, p. 73; Changes in Courses, p. 111.

excused from certain military drills for their work in the band. The band is required to rehearse approximately three hours per week, and to attend such military ceremonies, formal concerts, mass and other meetings, as may be prescribed. Members of the band have a portion of their fees refunded as provided in the catalog under "Expenses and Aids."

ARRANGEMENT OF WORK: In so far as practicable, instruction is given by the applicatory method and is co-ordinated with subjects taught in other departments of the University. The course is divided into two parts, the Basic Course consisting of the first four semesters and the Advanced Course consisting of the last four semesters including one summer camp of about six weeks' duration.

The Basic Course requires three hours per week of the student's time including classroom work, practical instruction, and the time required for study. The Advanced Course similarly requires five hours of the student's time.

Instructors are detailed to the University by the War Department from the commissioned personnel of the regular army. An enlisted detachment is maintained to care for the horses and other federal property.

REQUIRED COURSES: All physically fit male freshman and sophomores are requires to pursue the course in military science and tactics, the successful completion of which when entered upon is a prerequisite for graduation.

No qualified student will be excused therefrom except for reasons of great weight presented to and approved by the Faculty Committee appointed by the Executive Board.

ELECTIVE COURSE: Selected students who have completed the basic course or its equivalent are eligible for the advance course.

The War Department pays to each advanced course student commutation of subsistence at the rate of 25 cents per day for the fiscal year 1938-39. This amount varies from year to year. The period of time for which this payment is made includes one summer vacation, less the six weeks spent in camp.

From each unauthorized absence from prescribed R. O. T. C. instruction, the student forfeits 50 cents of this commutation for each hour of such absence.

Summer Camps: During the summer, the War Department holds camps in the several corps areas for R. O. T. C. advanced course students. The purpose of these camps is to give more practical application to the theoretical work of the classroom than is given at the institutions.

These camps usually begin about June 10th, and continue for six weeks. Five cents a mile to and from camp is paid each student

to cover railroad fare and other traveling expenses. The Camp for Field Artillery training is held at Ft. Riley, Kansas.

At the camps, uniforms, quarters, bedding, medical attention and excellent food are furnished by the United States Government and in addition the student receives pay at the rate of $21.00 a month.

It is the present policy of the War Department to send advanced course students to camp after they have completed the first year of the advance course. However, special authority may be given to students to postpone attendance at camp until they have completed the four semesters of school work of the advanced course.

ACADEMIC CREDIT: Students pursuing the R. O. T. C. courses at the University of Missouri receive credits as indicated in the following table:

	Basic Course		*Advanced Course*	
Schools and Colleges	*1st yr.*	*2nd yr.*	*3rd yr.*	*4th yr.*
Arts and Science	2	2	4	4
Agriculture	2	2	4	4
Engineering	2	2	4	4
B. and P. A.			4	4
Education			4	4

(Only advance course credits may be used toward a degree. For military credit in College of Agriculture see College of Agriculture Requirement.)

MILITARY DEPOSITS: Military equipment, including a uniform, is furnished to each student taking the course for which a deposit of $5.00 is required. The deposit is refunded when the uniform and equipment are returned in satisfactory condition.

All students enrolling in either basic or advanced courses are required to sign an greement to reimburse the University for any loss or damage in excess of the deposit. This requirement also applies to members of the University band.

UNIFORMS: Under existing federal laws and regulations the War Department allots to the University of Missouri Commutation of uniform for the fiscal year 1938-39 as follows:

(a) For each basic student, $9.00 per annum.

(b) For each first-year advanced student, $29.00 per annum.

(c) For each second-year advanced student, $7.00 per annum.

These amounts vary slightly from year to year.

The basic course uniforms remain the property of the University. Advanced course students must guarantee payment for their uniforms, over and above the commutation received from

the government, these they are permitted to retain. The University authorities cannot assume responsibility of any changes in the foregoing regulations which may be necessitated by changes in federal laws and regulations.

In case a uniform becomes so worn or soiled as to be unfit for wear, the student may be held responsible to the extent determined upon by proper authority.

All cadets are required to attend formations for practical instruction in uniform, and to observe military courtesy and discipline while in uniform.

Equipment of Field Artillery

Gun Equipment: One complete 3-inch battery American material and eight French 75mm. guns; Colt's automatic pistols, caliber .45; Battery reel cart.

Motor Equipment: One one-half ton Reconnaissance Car (Chevrolet); two 1½-ton cargo trucks (Chevrolet); one 1½-ton truck (Chevrolet).

Fire Control Equipment: Ten battery commander's telescopes, model 1917; four American aiming circles; 10 French aiming circles; 30 field glasses, type EE; 5 range finders (1 meter base), and other instructional equipment.

Engineer Equipment: Plane tables and sketching outfits; alidades, compasses, etc.

Signal Equipment: Telephones, switchboards for two-way communication.

Animals: Sixty-eight horses are used in the classes in Equitation, B. C. Detail work, and Driving and Draft.

EXTENSION SERVICE*

Administrative and Supervisory Officers

FREDERICK A. MIDDLEBUSH, A. B., A. M., Ph. D., LL. D. . . . . President of the University
ROBERT L. DAVIDSON, JR., A. B., B. S. in Ed., A. M. . . . . Director of University Extension
MRS. MARGARET R. KIMES . . . . . Secretary, Correspondence Department
JOHN R. COPE, B. S. in Ed., A. M., Ph. D. . . . . Correspondence Instructor in Education
ESTHER E. BROWN, B. S. in Ed., A. M. . . . . Correspondence Instructor in English
CLARENCE NELSON ROBERTS, B. S. in Ed., A. M. . . . . Correspondence Instructor in History
LUCILLE T. KOHLER, A. B. . . . . Correspondence Instructor in Sociology
ELSIE PRESSON . . . . . Assistant in Charge of Visual Education Service

The University of Missouri wishes to bring a complete practical education within the reach of every citizen of the State. To assist in accomplishing this purpose, the Extension Division was established. By means of correspondence courses, extension center and extension class courses, a thorough course of training at the lowest possible cost is offered to all who are unable to attend established institutions.

The University means to go even further than this in its efforts to be of service to the public. It intends to interest itself in the solution of all live problems, to bring itself into closer touch with the daily life of the people, and to assist, wherever proper and legitimate, in forwarding every beneficial movement which concerns the interests of the State.

The Extension Division of the University was formally established by the Board of Curators in January, 1910, though extension lectures and extension teaching had been carried on for many years. The extension work is being administered by the following committee:

Professors W. L. Bradshaw, Theo. W. H. Irion, J. W. Rankin, W. D. A. Westfall, and Director R. L. Davidson, Jr., Chairman.

The Extension Division at the present time offers the following lines of service:

1. Correspondence Courses.
2. Extension Center Courses.
3. Extension Class Courses.
4. Visual Education Service.
5. Debating Service.

*See General Information, p. 44; Fees, p. 73; Changes in Courses, p. 111.

CORRESPONDENCE COURSES

Correspondence courses are intended to bring the work of the University into the homes of those who are unable to attend regular classes at Columbia. All college credit courses given by correspondence through the Extension Division count for regular credit in the University and for approved credit on state certificates. High school courses by correspondence count for entrance credit to the University.

GENERAL INFORMATION: For admission to courses for University credit a student must meet the regular University entrance requirements or be 21 years old and qualified for the work desired. Students less than 21 years old who are not graduates of a four-year high school, fully accredited with the University of Missouri at the time of their graduation, should communicate with the Registrar of the University, Columbia, Missouri, concerning their admission to the University before making application for correspondence courses.

Any person desiring to take courses by correspondence should write for an application blank and for a copy of the latest announcement of the Extension Division, then select such course or courses from the announcement as seem desirable, fill out the blank with all the information called for, and return it, together with the required fee, to the University Extension Division. As soon as the application is approved and the student enrolled in the course, the assignments, with instructions for study and directions for returning the prepared lessons, will be forwarded.

Courses may be begun at any time. However, students are not allowed either to begin or to continue correspondence courses while taking work in residence at the University of Missouri or at any other school, except by special permission of their dean. This permission may be obtained only when students are carrying less than the maximum amount of work in residence.

In no case shall extramural work be counted in lieu of the requirement of two semesters' work in residence. In all cases where correspondence courses are to count for credit in the senior year, the approval of the dean must be secured.

Students who have been in attendance at the University of Missouri for as much as one summer session in the Graduate School can, with the approval of the professor of their major subject and of the Dean of the Graduate School, take a maximum of eight hours' work by correspondence for graduate credit. All students who have had graduate work in residence must have included on the application for the A. M. degree filed in the office of the Dean of the Graduate School the particular course or courses they wish to take for graduate credit by correspondence.

Extension work with other institutions will not be accepted for graduate credit at the University of Missouri.

The amount of work possible by correspondence, extension center, and extension class courses is limited to ten normal hours for one calendar year, except by special permission. By special permission this amount may be increased to twenty hours. Teachers may not complete more than ten hours during the time that they are actually teaching (from September until the end of the school term).

The time allowed for the completion of a correspondence course, without the payment of an additional fee, is one year from the date of enrollment.

COURSES OFFERED: Courses are offered in the following subjects: Accounting and statistics, agriculture, Bible, chemistry, classical mythology, economics and finance, education, English French, geography, German, history, Latin, mathematics, philosophy, physical education, physics, physiology, political science, preventive medicine, psychology, rural sociology, sociology, Spanish.

A complete high school curriculum is available.

COST OF COLLEGE COURSES: The enrollment fee is $4.00 per hour; thus a course offered for three hours' credit will cost $12.00.

The tuition fees barely cover the actual expense of conducting the courses, hence they do not include textbooks. These must be secured by the student. For many of the courses the Extension Division is able to furnish collateral reading material at a very small cost to the student. The rental fee for these reference books is $1.00 except in a few subjects in which so many books are needed that a fee of $2.00 is required.

Students are expected to pay full postage both ways on all lessons.

PAYMENT OF FEES: All remittances for correspondence courses should be made payable to the order of the University of Missouri and mailed to the University Extension Division, University of Missouri, Columbia, Missouri.

Fees paid for correspondence courses will be refunded only when the student's application is not approved.

EXTENSION CENTER SERVICE

EXTENSION CENTER COURSES: Courses were offered in extension centers during 1938-39, chiefly in the subject of education.

HOW EXTENSION CENTERS ARE FORMED: Interested people in any community should write to the Extension Division stating that they wish an extension course. Information will be promptly given, advising what courses are available.

How University Credit is Obtained at Extension Centers: Students enrolled in extension centers who desire University credit for a course must, in addition to attending lectures given by the instructor, who is sent out from the University, write papers in each course and take a final examination. The tuition for extension center courses is $18.00 per student for a three-hour course, a proportionate amount being charged for courses giving different credit.

No credit received in an extension center course may be applied toward the Ph. D. degree. Eight hours' credit in extension center courses is the maximum which may be applied toward the A. M. degree. Students applying for graduate credit in extension center courses must, like correspondence students wishing graduate credit, obtain approval of the professor of their major subject and of the Dean of the Graduate School. No graduate credit will be granted for an extension center course unless the student is enrolled in the Graduate School at the time the course is taken.

EXTENSION CLASS SERVICE

Extension Class Courses: In order to serve better the needs of the State, and especially the needs of the teachers of Missouri, the Extension Division of the University has inaugurated a plan of Extension classes. Under this plan a large number of courses regularly offered at the University will be offered by local instructors in cities and towns of the State where satisfactory arrangements can be made. The teachers will be special members of the Faculty of the State University and the courses will be in every way the equivalent of the same courses offered in residence at the University.

Regulations

1. Extension class instruction may be given in co-operation or connection with other schools of the State wherever satisfactory arrangements can be made.
2. The instructors in such courses shall be chosen, appointed, and paid by the University of Missourl.
3. The minimum qualifications of instructors in such work shall be as follows:
   a. The A. M. degree.
   b. Adequate special training in the subject taught.
   c. Superior teaching ability.
4. The instructors must be approved by the chairman of the department, the dean of the school or college concerned, and the Director of University Extension.
5. Only regularly approved courses may be offered, and the instructor must follow the syllabus supplied by the chairman of the University department concerned.

6. At the close of each course a final written examination, consisting of questions supplied by the chairman of the University department concerned, shall be held, covering the entire course, and the examination papers, after having been graded by the instructor, shall be filed with the Director of University Extension.

7. In extension class courses the instructor must meet the class approximately the same number of hours which instructors in the University meet their classes carrying the same amount of credit.

8. A tuition fee of $6.00 per hour shall be paid by each student at the time the course begins. This fee must be paid before the student is entitled to take the work of the course. No tuition fees will be refunded.

9. Before any such course can be definitely approved by the University, satisfactory arrangements for the necessary reference books, laboratory equipment, and laboratory supplies must be made either by the school co-operating or by the class receiving this instruction.

10. No graduate credit is allowed for extension class courses.

ORGANIZATION OF CLASSES: Groups of teachers wishing to arrange for an extension class course should communicate with the Extension Division, stating the number of persons interested and giving information as to the qualifications of the person in the community best qualified to act as instructor. In case no such person is available in the community, the University will arrange, whenever possible, to send an instructor.

VISUAL EDUCATION SERVICE

Schools, colleges, churches, farmers' clubs, and other groups interested in education may obtain various types of visual aids from this department of the Extension Division upon the payment of a small rental fee and transportation charges. There are available several hundred reels of 16mm. silent films and a number of 16mm. sound films which are especially suitable for classroom use. The film strip library contains approximately two hundred strips on various subjects including fifty strips on the various phases of agriculture. Persons interested in using material from this department may write to the Visual Education Service, 23 Jesse Hall.

MISSOURI HIGH SCHOOL DEBATING LEAGUE

At the meeting of the Missouri high schools at the University in May, 1914, arrangements were made for the organization of a Missouri High School Debating League. Any high school or academy of Missouri which is on the accredited list of the University of Missouri may become a member of this league by pay-

ing the annual dues, which are $3.50. Debating contests are held between the various schools composing the league, and a final contest determining the winning team for the State is held at the University. A scholarship of the value of $75 is given to the best individual debater. This scholarship is not transferable. The subject for debate by the league during 1938-39 was "RESOLVED: That the United States should Establish an Alliance with Great Britain."

For information concerning University extension activities, write to UNIVERSITY EXTENSION DIVISION, UNIVERSITY OF MISSOURI, COLUMBIA, MISSOURI.

SUMMER SESSION

The Summer Session of the University of Missouri at Columbia is organized as an integral part of the University. The session is eight weeks in length. All regulations concerning entrance requirements, requirements for graduation, and rules for the government of students are in effect in the Summer Session.

Every division of the University is in operation during the summer with the exception of the School of Law. The wide range of courses offered in practically every division of the University makes possible the accommodation of students who, for any reason, may wish to continue their work for degrees in Arts and Science, Agriculture, Business and Public Administration, Education, Engineering, Journalism, and Medicine.

THE FACULTY: The members of the Summer Session faculty are drawn from the regular staff of the University and all courses are offered by thoroughly trained instructors. In some cases, teachers from other institutions are employed.

EQUIPMENT: Practically the entire equipment of the University—buildings, grounds, libraries, laboratories, shops, fields, and museums—is available for the Summer Session work.

SCOPE OF SUMMER SESSION: In addition to offering students the general educational advantages which the course of the fall and winter semesters represents, the University endeavors to provide in its Summer Session for all teachers who have special interests either practical or theoretical. City superintendents, county superintendents, high school and grade school principals, high school teachers, grade teachers, special teachers, teachers of music and art, supervisors of industrial arts, teachers of vocational subjects, teachers of physical education, teachers of subnormal pupils, graduate students in education, and college teachers of education will find courses directly related to their special interests.

GRADUATE WORK: The Summer Session places emphasis on graduate courses leading to advanced degrees.

The Summer Session for 1939 will open on Monday, June 12. Detailed announcements of the courses and other matters concerning the Summer Session are made in a special bulletin issued by the University. For copy of the bulletin, or for additional information concerning the Summer Session, address DIRECTOR OF SUMMER SESSION, UNIVERSITY OF MISSOURI, COLUMBIA, MISSOURI.

SECTION III

STATEMENT OF COURSES

For the convenience of the student in making out his schedule of studies, the subjects in the STATEMENT OF COURSES are arranged alphabetically, as follows:

Accounting and Statistics, page 297.
Agricultural Chemistry, page 299.
Agricultural Economics, page 300.
Agricultural Education, page 302.
Agricultural Engineering, page 302.
Agricultural and Home Economics Extension, page 303.
Agricultural Journalism, page 363.
Anatomy, page 303.
Animal Husbandry, page 304.
Archaeology, page 305.
Art, page 306.
Astronomy, page 309.
Bible and Religion, page 392.
Biochemistry, page 310.
Botany, page 311.
Chemistry, page 313.
Citizenship, page 316.
Classical Languages and Archaeology, page 319.
  Archaeology, page 319.
  Greek, page 319.
  Latin, page 320.
Dairy Husbandry, page 322.
Economics and Finances, page 324.
Education, page 326.
Engineering, page 342.
  Agricultural, page 302.
  Chemical, page 312.
  Civil, page 316.
  Electrical, page 339.
  Mechanical, page 369.
English, page 342.
  Composition and Rhetoric, page 342.
  Literature and Language, page 344.
  Speech and Dramatics, page 342.
Entomology, page 346.
Field Crops, page 347.
French and Italian, page 348.
Geology, page 349.
Geography, page 350.
Germanic Languages, page 351.
History, page 353.
Home Economics, page 355.
Horticulture, Landscape Gardening, and Forestry, page 357.
Journalism, page 360.
Law, page 364.
Mathematics, page 368.
Medicine, page 372.
Military Science and Tactics, page 372.
Music, page 373.
Nursing, page 377.
Pathology, Bacteriology and Preventive Medicine, page 378.
Philosophy, page 380.
Physical Education, page 381.
Physics, page 385.
Physiology and Pharmacology, page 387.
Political Science and Public Law, page 388.
Poultry Husbandry, page 390.
Psychology, page 391.
Religion, page 392.
Rural Sociology, page 395.
Sociology, page 395.
Soils, page 398.
Spanish, page 399.
Surgery, page 400.
Veterinary Science, page 401.
Vocational Education, page 334.
Zoology, page 402.

Courses for underclassmen are distinguished by numbers below 100; courses for upperclassmen and graduates by numbers 100 to 199; courses for graduates, by numbers 200 to 299. For statement of courses numbered 100-199 which receive graduate credit, see Announcement of Graduate School, published separately. A capital letter preceding the number of a course indicates one of the special classes of courses into which the work of a large department is divided, as in the case of Education A 102f and Education C 150w.

The letter following the number of the course indicates in which term the course is offered; thus, 100f is offered in the fall term; 100w, the winter term. For statement of courses offered in the Summer Session, write to the Director of the Summer Session for the special announcement of the Summer Session.

The number of hours credit for each course is given in parentheses at the end of the description of the course, just before the name of the teacher. A separate schedule of courses is issued for each term, giving the hours and places of meeting, as well as an indication of the divisions in which credit is allowed for the various courses. Students will obtain these schedules when they register.

Students are advised to consult the announcements of the schools and colleges in Section II of this catalog before making out their programs of study.

The curricula in any and all divisions of the University may be changed without advance notice. Courses described in this catalog may be changed, omitted or be taught by instructors other than those herein mentioned, at any time, without further notice. The number of hours credit stated herein to be given for the completion of any course may be changed without any further or advance notice thereof.

ACCOUNTING AND STATISTICS

The course in General Economics is prerequisite to all courses in this department except Elementary Accounting. A grade of M or better in either General Economics or Elementary Accounting is required for admission to more advanced courses in the department.

17f and w. ELEMENTARY ACCOUNTING. Prerequisite, 30 hours of college credit, exclusive of military science and physical education, and *not less than thirty points*. Fundamental principles and their application. Analysis of the balance sheet and income statement in their usual and special forms. (5) MR. BAUER.

101f. ACCOUNTING S. B. Prerequisite, 17. Problems involving the accounting requirements of various business and other enterprises operated on a small scale. Also a brief study of social security and payroll tax accounting. (2) MR. BAUER.

107f and w. ELEMENTARY STATISTICS. Principles of statistics as applied in the scientific study and interpretation of quantitative data. Students interested primarily in frequency distribution analysis, sampling, tests of homogeneity of

experimental data, and tests of reliability of computed values may register for partial credit. (4) MR. HARTKEMEIER.

108f. BUSINESS STATISTICS. Prerequisite, 107. A critical study of the success of statistical methods in the operation and management of a large number of existing business organizations. Modern methods of recording and analyzing internal and external data by the use of International Business Machines equipment are illustrated in detail. (3) MR. HARTKEMEIER.

109w. CORRELATION. Prerequisite, 107. The measurement of relationship between variables, the correlation of time series, and the relation between correlation and causation. Detailed instruction in technique and machine computation. Laboratory instruction in the use of punched card sorting and tabulating equipment. (3) MR. HARTKEMEIER.

112s. STATISTICAL COMPUTATION. Prerequisite, 107. Detailed laboratory instruction in the use of machines and tables necessary for large scale statistical work. Credit is not given to students who have previously completed two courses in statistics. (1) MR. HARTKEMEIER.

117f and w. INTERMEDIATE ACCOUNTING. Prerequisite, 17 and General Economics. An intensive study of the evaluation and treatment of assets and liabilities, including consideration of related principles of profits determination. Also a study of special problems such as depreciation, branch house accounting, statements of affairs, fiduciary accounts, and consolidated statements. (4) MR. SCOTT.

120w. PROBLEMS IN ACCOUNTING PRACTICE. Prerequisite, 117. Solution and discussion of problems taken principally from C. P. A. examinations, and a brief study covering the planning and installation of accounting systems. (3) MR. BAUER.

121f. INDUSTRIAL ACCOUNTING. Prerequisite, 117. A study of industrial accounting technique and its place in the development of accounts. (2) MR. SCOTT.

123w. CONSOLIDATED STATEMENTS. Prerequisite, 117. A study of the problems raised by the necessity of adjusting accounts to current complex forms of business organization. (2) MR. SCOTT.

127f. ADVANCED STATISTICS. Prerequisite, 107. Poisson, binomial, and normal distributions, chi-square test, curve fitting, sampling, probability, and the analysis of variance and covariance. (3) MR. HARTKEMEIER.

128f. MANAGERIAL ACCOUNTS AND STATISTICS. Prerequisite, 107 and 117. A study of the use of accounts and statistics for the purpose of the direction of business policy. (3) MR. SCOTT.

134f. AUDITING. Prerequisite, 117. Principles and procedures. A summary review of accounting principles in their relation to the work of the public accountant. (3) MR. BAUER.

173w. INCOME TAX ACCOUNTING. Prerequisite, 117. A study of the accounting principles and procedures involved in the Federal and State income taxes. (2) MR. BAUER.

193f. CONTROVERSIAL ACCOUNTING PROBLEMS. Prerequisite, 117 and consent of instructor. A study of numerous specific problems on which the views of accountants differ, noting especially conflicts that arise out of a divergence between accounting theory and rules of thumb developed directly out of practice. (Not given in 1939). (2) MR. BAUER.

195f. and w. SPECIAL PROBLEMS. (1-3).

220w. BUSINESS CYCLES, FORECASTING, AND STABILIZATION. Prerequisite, 107 and 109. The theory, history, and statistics of business cycles, the problems of their prediction and control, and their relation to speculative and investment transactions. (Given in alternate years.) (3-5). MR. HARTKEMEIER.

225w. ADVANCED ACCOUNTING THEORY. A study of the functions of accounts; their development; their place in the current business regime; and their relation to the process of economic development. (3-5) MR. SCOTT.

228w. STATISTICAL THEORY AND PRACTICE. Prerequisite, 107, 109 and preferably 127. The place of quantitative methods in the social sciences. An examination of the implications of statistical methods used by research workers (Given in alternate years.) (3-5) MR. HARTKEMEIER.

231f and w. SPECIAL STUDIES. (1-3.)

290f and W. RESEARCH. Credit to be arranged. MR. BAUER; MR. HARTKEMEIER; MR. SCOTT.

AGRICULTURAL CHEMISTRY

101f and w. GENERAL AGRICULTURAL CHEMISTRY. Prerequisite, chemistry 15. A chemical study of the materials recognized as pertaining to agriculture. (5) MR. RICHARDSON.

111f. AGRICULTURAL ANALYSIS. Prerequisite, chemistry 25. Quantitative analysis of agricultural products. (3-5) MR. RICHARDSON.

201f and w. SEMINAR. (1) MR. HOGAN.

204w. PHYSIOLOGICAL CHEMISTRY OF THE DOMESTIC ANIMAL. Prerequisite, 6 hours of organic chemistry. Designed to meet the requirements of students fitting themselves for investigations in animal industry. Offered in alternate years; given in the year 1939-40. Three lectures. (3) MR. HOGAN.

205f. PLANT CHEMISTRY. Prerequisite, 3 hours of physical chemistry. This course is designed for students interested in horticulture, botany or work of similar nature. Offered in alternate years; given in the year 1939-40. Three lectures, two laboratory periods. (3-5) MR. VINSON.

206w. DAIRY CHEMISTRY. Prerequisite, 6 hours of organic chemistry. The chemistry of milk constituents, their properties and physiological significance; the chemical processes involved in the manufacture of dairy products. Offered in alternate years; not given in the year 1939-40. (3).

207f. COLLOID CHEMISTRY. Prerequisite, 3 hours of physical chemistry. General principles of colloid chemistry and properties of the naturally occurring colloids of importance in agriculture and biology. Three lectures, two laboratory periods. (3-5) MR. MARSHALL.

208w. BIOENERGETICS. A study of energy transformations during growth and related processes with special reference to domestic animals. (2-3) MR. BRODY.

209w. HORMONE CHEMISTRY. Prerequisite, 6 hours of organic chemistry. The chemistry of the hormones. Two lectures. (2) MR. MAYER.

210f and w. SPECIAL INVESTIGATIONS. (2-6) MR. HOGAN; MR. BRODY; MR. MARSHALL: MR. VINSON.

290f and w. RESEARCH. This course may be elected either as a major or minor and may include a thesis showing the results of the investigation. Subjects may be selected in (a) animal nutrition; (b) composition of animal tissues;

(c) composition of feedingstuffs, fertilizers, soils, etc.; (d) the chemical problems involved in the dairy industries; (e) the chemical composition of plant tissues; (f) quantitative methods of determining plant constituents; (g) problems involving colloidal behavior. (2-8) MR. HOGAN; MR. BRODY; MR. MARSHALL Mr. VINSON.

AGRICULTURAL ECONOMICS

1f and w. AGRICULTURAL ECONOMICS. An introduction to the field of Agricultural Economics. Particular emphasis is placed upon economic principles as they relate to agriculture. (3) MR. HAMMAR.

10w. ADVANCED AGRICULTURAL ECONOMICS. A continuation of course 1f devoted to the economic problems of agriculture in production, taxation, foreign exchange, marketing, and in economic control. Required of all students specializing in Agricultural Economics. (2) MR. HAMMAR.

25f. FARM ACCOUNTS. Methods and practice in keeping farm accounts; especial attention to farm financial records, feed records, labor records, production records, and methods of determining livestock and crop production costs. (3) MR. FRAME.

101f. GENERAL AGRICULTURAL MARKETING. A general study of the marketing system for farm products from a functional viewpoint. (3) MR. HAAG.

107w. FARM FINANCE. Prerequisite, course 1f. A study of the financing of farm credit needs. Particular attention will be given uses of credit and to those institutions that are sources of agricultural credit, i. e., the Federal Reserve System, Federal Land Bank, Intermediate Credit Bank, etc. (3) MR. HAMMAR.

110w. GENERAL FARM MANAGEMENT. Prerequisites, 1f or its equivalent, and four semesters' work completed in a standard agricultural course or the consent of the instructor. A study of the elementary principles of farm management and the methods developed for analyzing a farm business, judging its efficiency by these principles, and the working out of corrections for weaknesses found in the farming system. (3) MR. JOHNSON.

121w. ECONOMIC HISTORY OF AGRICULTURE. Prerequisite, course 1f and 10w. A general historical syrvey of the economic development of American agriculture. (2) MR. JOHNSON.

125f. AGRICULTURAL STATISTICS. This course includes a study of the collection, analysis, and presentation of agricultural statistics and is designed to furnish a knowledge of statistical methods sufficient for all ordinary requirements in agricultural work. (3) MR. FRAME.

127f. AGRICULTURAL PRICES. Prerequisite course 125f or consent of instructor. A discussion of price movements and the factors accounting for changes in prices. Considerable attention is given to the construction and use of index numbers. (2) MR. HAAG.

130f and w. SPECIAL PROBLEMS. Prerequisite, the introductory course in the phase of agricultural economics in which the special problem falls. Special studies and readings by individual students wishing further work in some phase of agricultural economics but who find it impossible to take additional regular course work in this particular phase. Credit to be arranged. MEMBERS OF THE STAFF.

131f. FARMERS' COOPERATIVE BUSINESS ORGANIZATIONS. Prerequisites, courses 25f and 101f or consent of instructor. A detailed study of the organization,

practices, and problems of farmers' cooperative business organizations in this state. (Given in alternate years.) (Not offered in 1939-40.) (2) MR. HAAG.

150w. LAND ECONOMICS. Prerequisite, course 1f. A critical examination of the system of land utilization in the United States. The course is developed about the topics of conservation, land classification, land utilization, land valuation, tenancy, and the agricultural ladder, land taxation, and the land policies of the United States. (2) MR. HAMMAR.

190f. LAND RENTING AND MORTGAGE PROBLEMS. Prerequisites, 25f, 110w, and 125f. The economic and farm management aspects of the problems connected with tenant operated farms; adjusting rates to allow for changing costs and changing price level; farm management principles involved in drawing the lease agreements, etc. (2) MR. JOHNSON.

200f and w. SEMINAR. Special lectures and reports on economic problems in agriculture. (1).

201w. ADVANCED AGRICULTURAL PRICES. Prerequisite, course 127f. A study of the technical methods of analyzing prices of agricultural products and practical experience in the analysis of the price of a specific farm commodity. (3) MR. HAAG.

202f. ADVANCED MARKETING I: MILK, POULTRY, FRUITS AND VEGETABLES AND RELATED PRODUCTS. Prerequisite, course 101f or consent of instructor. A detailed study of the supply of and demand for fluid milk, cream, butter and other milk products; poultry and eggs; and fruits and vegetables. The usual marketing channels for each product will be described. (Given in alternate years. Not given in 1939-40) (3) MR. HAAG.

203f. ADVANCED MARKETING II: COTTON, GRAIN, LIVESTOCK AND RELATED PRODUCTS. Prerequisite, course 101f or consent of instructor. A detailed study of supply of and demand for cotton, grain, livestock, meats, wool and other related farm products. The common market channels for each product will be described. (3) MR. HAAG.

205w. CURRENT ECONOMIC PROBLEMS OF AGRICULTURE. Prerequisite, 16 hours of agricultural economics or their equivalent. Analysis of the more important current economic problems of the farmer, together with proposed remedies. (3) MR. JOHNSON.

207f. AGRICULTURAL POLICY. Prerequisite, 16 hours of agricultural economics or their equivalent. A topical study of the farmer in his public relations with special reference to public finance, land utilization, and agricultural production. (2) MR. HAMMAR.

210w. ADVANCED FARM MANAGEMENT. Prerequisite, course 110w. A study of the application of farm management principles on individual farms. Detailed analyses will be made on from 25 to 40 farms. Wherever possible, personal visits to the farm will be made. (3) MR. JOHNSON.

220f and w. APPRAISAL OF RESEARCH METHODS IN AGRICULTURAL ECONOMICS. A detailed appraisal of selected research studies in Agricultural Economics on the basis of sources of information, the schedules and methods used in collecting and analyzing data, and the form in which results are presented. The student will be expected to outline in detail a research project in any one phase of Agricultural Economics under the direction of the instructor of that subject. (2) MR. JOHNSON; MR. FRAME; MR. HAMMAR; MR. HAAG.

225w. ADVANCED AGRICULTURAL STATISTICS. Prerequisite, 125f or its equivalent. A study of the Poisson, Binomial and Normal distributions, tests of significance, and analysis of variance. Suited to all agricultural research, but especially adapted to students in the biological sciences. (3) MR. FRAME.

240f and w. RESEARCH IN AGRICULTURAL ECONOMICS. (Credit to be arranged.) Teacher selected by student.

AGRICULTURAL EDUCATION

See Vocational Education, page 334.

AGRICULTURAL ENGINEERING

1f. FARM POWER AND MACHINERY I. A study of fundamental principles as applied to mechanical work on the farm. The course includes work on gas engines, tractors, plows, mowers, planters, and binders. Selection and management of farm machinery; problems on costs of service. Laboratory practice in operating, adjusting, and testing. (3) MR. JONES; MR. HIGHTOWER.

10f and w. FARM SHOP WORK. Selection and use of tools for the farm repair shop. Methods and practices in repairing farm machinery and equipment. Farm blacksmithing and iron work, pipe fitting, soldering, rope splicing, harness sewing, tool sharpening, and farm woodwork. (3) MR. JONES; MR. HIGHTOWER.

103w. FARM BUILDINGS. The place of buildings in the business of farming. Arrangement of buildings on the farmstead and planning of barns, hog houses, poultry houses, granaries, etc., for economy, convenience, sanitation, and appearance. Building materials, their adaptability and use. Rafter cutting, farm concrete and masonry work. Blue-print reading and cost estimation. Modernizing the farm home. Water supply and sewage disposal. (3) MR. WOOLEY.

104w. FARM BUILDING DESIGN. Prerequisite, Agricultural Engineering 103 or registration therein. A laboratory course in design and testing. (2) or (3) MR. WOOLEY.

112w. FARM POWER AND MACHINERY II. A continuation of Agricultural Engineering 1f. Advanced work on gas engines and tractors. Harvesting and threshing machinery; feed grinders; ensilage cutters. Farm lighting plants; electric service from power lines; electric motors for farm work. (3) MR. JONES.

121f. DRAINAGE AND EROSION CONTROL. A study of the place of terraces, drains, and dams in the modern farming program. Field practice in laying out and constructing terraces, ditches, tile drains, barriers, and soil-saving dams. Elementary drainage law, district organization, etc. (3) MR. WOOLEY.

122w. IRRIGATION AND DRAINAGE. Prerequisite, Agricultural Engineering 121f or its equivalent. Water rights, irrigation by pumping, methods of applying water to the land, irrigation of different crops, the measurement of water, drainage of irrigated land. The course covers irrigation and drainage from the farmer's point of view. (2) MR. WOOLEY.

131f. ADVANCED DRAINAGE AND EROSION CONTROL. Prerequisites, C. E. 60, C. E. 140, and Soils 1. Studies of runoff from small agricultural areas. Topographic mapping. Design of terrace systems, waterways, and soil saving dams. Tile and open-ditch drainage systems for the farm. A study of terracing, furrowing, basin listing and drainage machinery. (2 lect.; 1 lab.) (3) MR. WOOLEY.

150f and w. SPECIAL PROBLEMS IN AGRICULTURAL ENGINEERING. Primarily for advanced undergraduates. Problems assigned or elected by the student subject to approval. (1-5) MR. WOOLEY; MR. JONES.

200f and w. SEMINAR. Studies of recent investigations in agricultural engineering and related fields; discussion of current literature; preparation and presentation of papers. (1) MR. WOOLEY; MR. JONES.

285f and w. SPECIAL INVESTIGATIONS IN AGRICULTURAL ENGINEERING. Research on minor problems not leading to a thesis. (Credit to be arranged.) MR. WOOLEY; MR. JONES.

299f and w. RESEARCH IN AGRICULTURAL ENGINEERING. Original research in farm power and machinery, farm buildings, drainage, or erosion control. Thesis required. (Credit to be arranged.) MR. WOOLEY; MR. JONES.

AGRICULTURAL AND HOME ECONOMICS EXTENSION

100s, f and w. FIELD WORK IN AGRICULTURAL EXTENSION. A field course occupying the full time of students for a minimum period of six weeks. Daily conferences by arrangement. (5) MR. HEARNE.

110s, f and w. FIELD WORK IN HOME ECONOMICS EXTENSION. A field course occupying the full time of students for a minimum period of six weeks. Daily conferences by arrangement. (5) MISS KELLY.

200s. EXTENSION METHODS. This course is designed primarily for experienced workers. Principles and techniques involved in extension teaching. The relative influence of teaching methods will be studied from the point of view of reaching and teaching more people. (2) MR. HEARNE.

201s, f and w. SPECIAL STUDIES IN AGRICULTURE AND HOME ECONOMICS EXTENSION. A problem course in methods of conducting and administering extension work in agriculture and home economics. (2-5) MR. HEARNE.

202s. ORGANIZATION AND PLANNING OF EXTENSION WORK. This course should be preceded by or taken with 200s, EXTENSION METHODS. Program determination, teaching plans, and ways of measuring extension progress. For experienced workers. (2) MR. HEARNE.

ANATOMY

101f. ELEMENTARY ANATOMY. A course designed to outline a few of the fundamentals of both gross and microscopic anatomy. No actual dissection is undertaken, but dissections made by medical students are studied. (Prerequisite, five hours of general zoology.) (3) MR. CROUCH; MR. SULLENS; MR. COPE.

102f. EMBRYOLOGY. A study of the development of the individual based upon man and the higher mammals. Open only to medical and graduate students. (4) MR. WELLS; MR. SULLENS; MR. COPE.

103f. HISTOLOGY. A study of the microscopic structure of the fundamental tissues of the human body. (2) MR. WELLS; MR. SULLENS; MR. COPE.

104w. HISTOLOGY. A continuation of course 103f. A study of the microscopic structure of the organs of the human body. (4) MR. WELLS; MR. SULLENS; MR. COPE.

105f. HUMAN DISSECTION. A study of the gross structure of the human body, dissection progressing in the following order: Thorax, superior extremities, neck and head. (7) MR. OVERHOLSER; MR. WELLS; MR. SHULL.

106w. HUMAN DISSECTION. A continuation of course 105f. Dissection of the abdomen, pelvis, perineum and lower extremities. (7) MR. OVERHOLSER; MR. WELLS; MR. SHULL.

107f. TOPOGRAPHIC AND APPLIED ANATOMY. A course devoted to the practical consideration of the principal structures stressed in clinical surgery. Special dissections are made on cadavers. (105f and 106w are prerequisite.) (3) MR. CROUCH; MR. COPE.

108w. NEURO-ANATOMY. The gross and microscopic structure of the central nervous system and the sense organs are studied. (4) MR. CROUCH; MR. COPE; MR. SULLENS.

200f and w. SEMINAR. The presentation and discussion of original investigation and current literature. Open to students in courses numbered above 200. (1).

201f and 202w. SPECIAL STUDIES IN ANATOMY. The intensive study of regions or systems as preparation for specialization in medicine. This may include developmental and microscopic as well as gross anatomy. (102 to 106 are prerequisite.) (Hours to be arranged) MR. OVERHOLSER; MR. CROUCH; MR. WELLS.

290f and w. RESEARCH. The facilities of the department are available to students qualified to undertake investigation in anatomy. (Hours to be arranged.)

ANIMAL HUSBANDRY

1f and w. ANIMAL HUSBANDRY. A general survey of the development of the live stock industry and present conditions. The fundamentals of live stock judging and its relation to production. The work covers horses, mules, cattle, sheep and hogs. (3) MR. WEAVER; MR. COMFORT; MR. DYER; MR. ELIJAH.

2f. BREEDS OF LIVE STOCK. History, development, and characteristics of the leading breeds of live stock; pedigrees and performances of superior individuals among horses, cattle, sheep and swine. (3) MR. TROWBRIDGE.

3w. LIVE SROCK JUDGING. Prerequisite, course 1. A study of various classes of farm animals, with particular reference to breed character, and differences. Comparative judging, supplemented by reference reading and illustrated lectures. (3) MR. DYER; MR. ELIJAH.

4f. FARM MEATS. Prerequisite, course 1. Slaughtering of domestic animals and cutting and curing of meats. Special attention will be given to the judging, grading, selection and identification of carcasses and wholesale and retail cuts of meat during the first one-third of the semester. Includes a field trip to one of the large packing centers. (2-3) MR. COMFORT.

100f and w. PRINCIPLES OF ANIMAL NUTRITION. Must be preceded or accompanied by organic chemistry, course 15. The laws of animal nutrition; adaptation of facts of physiological chemistry to feeding of domestic animals. (3) MR. HOGAN; MR. WEAVER.

101w. ANIMAL BREEDING. Prerequisite, general zoology 1. Principles and practices involved in the improvement of domestic animals; physiology of reproduction, growth, and development; master breeders, variation, heredity, close breeding, cross breeding, grading, prepotency, pedigree, selection and allied subjects in their relation to live stock improvement. (3) MR. TROWBRIDGE; MR. MCKENZIE; MR. BOGART.

102f. ADVANCED LIVE STOCK JUDGING. Prerequisite, course 3, live stock judging. A continuation of the comparative judging work given in course 3; includes excursions to live stock shows and noted breeding farms. (3) MR. ELIJAH.

103w. LIVE STOCK PRODUCTION. Prerequisites, courses 1 and 100. Systems of beef, pork, sheep, horse and mule production, including breeding, feeding, and management of commercial and purebred live stock. (5) MR. WEAVER; MR. DYER.

107f. LIVE STOCK MANAGEMENT. Prerequisite, 103w. The operation of live stock farms. Special studies concerning the various classes of live stock and their products. (1-2) MR. TROWBRIDGE; MR. WEAVER.

111s, f, and w. SPECIAL PROBLEMS. Current problems in live stock production. Assigned topics. Each student may, under supervision, undertake a project outlining objectives, planning and keeping records, caring for live stock and summarizing results in a written report. (1-3) MEMBERS OF DEPARTMENTAL STAFF.

125s. LIVE STOCK JUDGING AND MANAGEMENT. Prerequisites, course 1, animal husbandry, and 100, principles of animal nutrition, or equivalents. Adapted to high school teachers of vocational and general agriculture. Basic and current live stock types and methods of production. (Last half of term only.) (2) MR. TROWBRIDGE; MR. WEAVER; MR. COMFORT; MR. DYER.

130f. GENETICS OF FARM ANIMALS. Prerequisite, course 101w. The application of the principles of genetics to the improvement of live stock by breeding methods. (2) MR. BOGART.

200f and w. SEMINAR. Critical consideration of research and particular subjects. Review of current literature. (1) MR. TROWBRIDGE; MR. MCKENZIE.

204w. ANIMAL NUTRITION. Prerequisite, course 100. A study of the more important contributions to the knowledge of animal nutrition; designed for students specializing in some phase of animal industry. Alternates with agricultural chemistry 204f, physiological chemistry of the domestic animal. Not given in the year 1939-40. (3) MR. HOGAN.

206f. ANIMAL BREEDING INVESTIGATIONS. Prerequisites, courses 101w and veterinary science, 1f. Study of specimens and original investigations; current literature on anatomy and physiology of reproduction. (2) MR. MCKENZIE.

207w. LIVE STOCK FEEDING INVESTIGATIONS. Prerequisite, course 103w. A study of more important investigations in feeding cattle, hogs, sheep, horses, and mules. (2) MR. TROWBRIDGE; MR. WEAVER.

290s, 291f, 292w. RESEARCH. Investigation in live stock production, meats, genetics, animal breeding, nutrition, or physiology of reproduction. The results are to be presented in a carefully organized written report or thesis. MR. MUMFORD; MR. TROWBRIDGE; MR. HOGAN; MR. WEAVER; MR. MCKENZIE; MR. COMFORT; MR. BOGART.

ARCHAEOLOGY (CLASSICAL)

See Classical Languages and Archaeology, page 319.

ART

Theory and Practice

Elementary Courses

See *Applied Art 55, 75* and other courses which have no prerequisite for *Other Elementary Courses.*

2f and w. INTRODUCTION TO ART. Open to all students. Elementary study of the materials and methods of the artist as employed creatively. Stress on theory and practice as a means to finer appreciation. Should be accompanied by course 3, or Art History, 11f or 12w. (3) MR. ADAMS; MR. SHANE.

3f and w. APPRECIATION OF ART. Open to all students. Discussions of the nature of art, its functions and the methods of creative expression. Illustrated by examples from many art fields both historic and contemporary. (2) MR. HANSEN.

5f and w. THEORY OF DRAWING. Open to all students. Practice in applying the fundamental theories of drawing so that the inexperienced student may quickly acquire the means of self-expression. Intended as a foundation course for students of costume designing, advertising, teaching, and cartooning as well as art. (2) MR. SHANE.

19f and w. COMPOSITION I. Prerequisite, course 2. Theory and practice of making pictures with emphasis on line and pattern organization. Intended to quicken the appreciation of technical art values as well as to prepare for more advanced technical studies. (2) MR. ADAMS.

40f and w. WATER COLOR. Prerequisite, course 2 or 5. Theory and practice in painting in water color from still life, landscape, and figure. (2) MR. HANSEN.

70f and w. DESIGN I. Prerequisite, course 2. Theory and practice of decorative design as applied to a wide variety of art projects. (3) MR. HANSEN.

128f and w. LETTERING AND ADVERTISING LAYOUT. Open to all students. Study of lettering and layout with accent upon the application of theories. (2) MR. HANSEN.

Painting and Decorative Design

77f and w. PAINTING I. Prerequisite, courses 2, 5 or 168. Painting in oil from landscape and still life. (3) MR. ADAMS; MR. SHANE.

177f and w. PAINTING II. Prerequisite, course 77. Painting from the head and figure with accessories. (3) MR. ADAMS; MR. SHANE.

187f and w. PAINTING III. Prerequisite, course 177. Advanced color study from the human figure. (3) MR. ADAMS; MR. SHANE.

197f and w. PAINTING IV. Prerequisite, course 187. Advanced study of pictorial projects in color. (3) MR. ADAMS; MR. SHANE.

168f and w. DRAWING I. Prerequisite, course 2 or 5. Drawing from landscape and the human figure. (3) MR. ADAMS; MR. SHANE.

178f and w. DRAWING II. Prerequisite, course 168. Study of the human figure continued. (3) MR. ADAMS; MR. SHANE.

188f and w. DRAWING III. Prerequisite, course 178. Advanced study of landscape and the human figure. (3) MR. ADAMS; MR. SHANE.

198f and w. DRAWING IV. Prerequisite, course 188. Advanced study continued. (3) MR. ADAMS; MR. SHANE.

159f and w. COMPOSITION II. Prerequisite, course 19. Color organization in pictorial design. (2) MR. ADAMS.

179f and w. COMPOSITION III. Prerequisite, course 159. Designing of illustrations and easel picture in color. (2) MR. ADAMS.

189f and w. COMPOSITION IV. Prerequisite, course 179. Designing of mural paintings. (2) MR. ADAMS.

199f and w. COMPOSITION V. Prerequisite, course 189. Advanced studies in pictorial organization. (2) MR. ADAMS.

160f and w. DESIGN II. Prerequisite, course 70. Continued application of design theories to art projects of great variety. (3) MR. HANSEN.

170f and w. DESIGN III. Prerequisite, course 160. Study of the methods and techniques of the important phases of design tending toward ultimate specialization. (3) MR. HANSEN.

180f and w. DESIGN IV. Prerequisite, course 170. Specialized study in one of the important phases of decorative design. (3) MR. HANSEN.

190f and w. DESIGN V. Prerequisite, course 180. Continuation of specialized study in design. (3) MR. HANSEN.

200f and w. SEMINAR. To be arranged. ARTS STAFF.

220f and w. GRADUATE COLLABORATION. Advanced designing in conjunction with students representing other arts. (8) ARTS STAFF.

230f and w. SPECIAL PROBLEMS. Original work in the student's chosen field. (8) ARTS STAFF.

240f and w. HISTORIC RESEARCH. Investigation of historic precedent and methods. (4) ARTS STAFF.

250f and w. ADVANCED COMPOSITION. Projects in the designing of easel pictures and mural decorations. (8) MR. HUDSON.

Applied Arts

55f and w. ART FUNDAMENTALS. Open to all students. Practical work with various materials, observation and discussion, through which will be emphasized the fundamental principles which are essential to beauty in everyday life. Encourages creative expression in representation, color and design. Offers a brief survey of the various functions of art. Planned to meet the needs of students who have had little or no previous training and are unaware of any artistic ability. (2) MISS WULFEKAMMER.

75f and w. ARTCRAFT I. Open to all students. Problems in construction and decoration involving the fundamental principles of design as related to materials. Projects in paper, cloth, clay, stenciling, lettering and poster making. (3) MISS WULFEKAMMER.

150f and w. ARTCRAFT II. Prerequisite, Artcraft I, 75 or equivalent. Problems in construction and decoration involving the fundamental principles of design as related to materials. Projects include leather tooling, block printing, wood carving. (2) MISS WULFEKAMMER; MISS WHEELER.

175f and w. ARTCRAFT III. Prerequisite, 150 and Introduction to Art, or equivalent. Special problems in one or two crafts. Emphasis upon historical background, structural design and development of skill. Projects include block printing in multiple colors, etching and art metal. (2-4) MISS WULFEKAMMER.

103f and w. BASKETRY. No prerequisite. Practical work with reeds, raffia, pine needles, and native materials. Emphasis on historical background, structural design, and relation to playground work and occupational therapy. (2) MISS WHEELER.

105f. TOYMAKING. No prerequisite. Course deals with toymaking as a craft. Emphasis given to its use as an elementary school project, its use as a medium in occupational therepy and its commercial value. Processes involve mechanical principles, the use of common tools and materials, and the application of principles of design. Practical work with emphasis on procedure and methods of presentation. (2) MISS WHEELER.

109w. BOOKBINDING. No prerequisite. Includes the making of books and the binding of magazines, together with some preliminary work with cardboard in making portfolios, boxes, etc. Emphasis on structural and decorative design and historical background. (2) MISS WULFEKAMMER; MISS WHEELER.

120f and w. WEAVING I. No prerequisite. Practical work in the weaving of textiles, including plain and pattern weaving of scarfs, rugs, towels and similar articles. Use of four harness loom. Emphasis on structural design, pattern drafting, and historical background. (2) MISS WULFEKAMMER.

121f and w. WEAVING II. Prerequisite, 120. Special problems in weaving, similar to 120 but of greater difficulty. Use of six and eight harness looms. Emphasis upon structure and mechanics of looms. (2) MISS WULFEKAMMER.

130f and w. POTTERY I. Prerequisite, working knowledge of design. Practical work in pottery making, including the process of modeling, molding, firing and glazing. Emphasis on structural design, technical, processes, and historic background. (2) MISS WHEELER.

131f and w. POTTERY II. Continuation of Pottery I, which is prerequisite to this course. (2) MISS WHEELER.

History of Art

11f. INTRODUCTION TO ANCIENT AND MEDIAEVAL ART. Architecture, sculpture, and painting of the Ancient Orient, Greece and Rome, and mediaeval Europe. Illustrated lectures and collateral reading. (2) MR. WELLER.

12w. INTRODUCTION TO RENAISSANCE AND MODERN ART. Continuation of course 11f, tracing the general evolution of art from the XV century to contemporary times. Illustrated lectures and collateral reading. (2) MR. WELLER.

13w. HISTORY OF FRENCH PAINTING. After a discussion of mediaeval and renaissance French art, particular emphasis is placed upon the developments of the XIX and XX centuries. Illustrated lectures and collateral reading. (2) MR. WELLER.

16f. HISTORY OF ENGLISH AND AMERICAN PAINTING. The interrelations of the art of the two countries, and the influence of contemporary society and literature are stressed. Illustrated lectures and collateral reading. (2) MR. WELLER.

112f. HISTORY OF ITALIAN RENAISSANCE PAINTING. A study of Italian painting from the late XIII to the late XVI centuries, stressing the general characteristics of the Renaissance period, the individual qualities of local schools, and the evolution of style. Illustrated lectures and individual investigation. (3) MR. WELLER.

113w. History of the Northern Renaissance. A study of the art of Flanders, Germany, and Holland from the XV to the XVII century, emphasizing the relationship of art with race, history, and philosophy. Illustrated lectures and individual investigation. (3) Mr. Weller.

114f. Masterpieces of Architecture and Sculpture. A general course stressing aesthetic principles rather than historic development. Illustrated lectures and collateral reading. (1) Mr. Weller.

115w. Masterpieces of Painting. Continuation of course 114f. Illustrated lectures and collateral reading. (1) Mr. Weller.

116w. History of Italian Renaissance Sculpture. The evolution of Italian sculpture from Niccolo Pisano to Bernini, with emphasis upon the relationship of sculpture with the contemporary architecture and painting. Illustrated lectures and collateral reading. (2) Mr. Weller.

118w. History of Prints. The technique and stylistic evolution of woodcut, engraving, etching, lithograph, mezzotint, etc., from late mediaeval to contemporary times, bringing out the influence of time and place upon art forms. Illustrated lectures and collateral reading. (2) Mr. Weller.

119f. Mediaeval Sculpture. The study of Early Christian, Byzantine, Pre-Romanesque, Romanesque, and Gothic Sculpture in Italy, Germany, Spain, England and France, with frequent citation of the contemporary minor arts, and reference to contemporary philosophy, literature, and symbolism. (2) Mr. Weller.

120w. Leonardo and Michelangelo. A study of the painting, sculpture, architecture, and literary productions of these two men, with special emphasis upon their place in the evolution of Italian art and thought. Illustrated lectures and collateral reading. (2) Mr. Weller.

136f and w. Greek Art. A study of the development of Greek architecture and sculpture. (3) Mr. Weller; Mr. Graham.

200f and w. History of Art Seminar. Hours and work to be arranged. The seminar may involve individual research related to one of the lecture courses. Mr. Weller.

210f and w. Research and Thesis. Independent investigation of some chosen or assigned topic, to result in a thesis presented for the degree of Master of Arts. Hours and work to be arranged. Mr. Weller.

ASTRONOMY

1f and w. Introduction to Astronomy. Prerequisite, plane geometry. A study of the major astronomical phenomena, with emphasis on their relation to human affairs, and a survey of the solar system. (5).

2w. Introduction to Astronomy. A continuation of course 1. Treats of the sun, stars and nebulae. Together with course 1, completes an introductory survey of the field of astronomy. (3).

3f. Elementary Observing. Prerequisite, course 1. Constellation study and simple observations with the instruments of the Observatory. Laboratory course. (1).

104f. Practical Astronomy. Prerequisite, differential calculus. The course presents those portions of spherical and practical astronomy which are fundamental for the work of the surveyor and the navigator. Observations are made chiefly with the surveyor's transit and the sextant. Laboratory course. (3).

105w. Advanced Practical Astronomy. Prerequisite, course 104. Precise observations with the instruments of the observatory. Laboratory course. (2).

110w. History of Astronomy. Prerequisite, course 1. (3).

125w. Numerical Analysis. Prerequisite, integral calculus. Offered alternately with course 110w. (3).

150w. Celestial Mechanics. Prerequisite, course 1, integral calculus, and college physics. (3).

206w. Theory of Orbit Determination. Prerequisite, course 150. Offered alternately with course 150w. (3).

BIBLE

See *Religion*, page 392.

BIOCHEMISTRY

Two beginning courses, 101w for 3 hours and 106f for 6 hours are offered. The two together give 8 hours.

101w. Elementary Physiological Chemistry. An outline of vertebrate physiological chemistry, with principal reference to the conditions in man; about 25 lectures and 25 laboratory periods are given. Prerequisite, organic chemistry, 3 hours. Not open for medical credit. (3) Mr. Gulick; Mr. Banner.

106f. Physiological Chemistry. Prerequisite, organic chemistry, course 110f or equivalent. (6) Mr. Gulick; Mr. Thomas; Mr. Banner; Mr. Bunding.

108W. Toxicology. The chemical identification of toxic substances. (2) Mr. Gulick.

200f and w. Biochemistry Seminar. Roundtable reviews of research topics and literature, led by the staff and graduate students. (1) Mr. Gulick.

203f and 204w. Advanced Physiological Chemistry. A course extending and supplementing Course 106f. The prosecution of a short experimental problem required. (3-4) Mr. Gulick.

205f and w. The Blood. A chemical, physiological and clinical study. Prerequisite, 106f or equivalent. (3 or 4) Mr. Thomas.

208w. Biochemical Preparations. The isolation and purification of biochemically important materials. Prerequisite, 106f or equivalent. (2-4) Mr. Thomas.

210w. Biochemical Mechanisms. Lectures and literature study on the chemical mechanisms of life. Prerequisite, 106f and 205 or equivalent. (2) Mr. Gulick.

215f and 216w. Biochemical Problems. Assigned problems in elementary research. (2-10) Mr. Gulick; Mr. Thomas.

290f and w. Research. Investigation of unsolved problems under the guidance of the staff. Mr. Gulick; Mr. Thomas.

BOTANY

Seniors taking Course 1 as a required course receive 4 hours credit unless additional assigned work is completed.

Greek 13 (Greek for students of the Sciences) is recommended to students specializing in Botany.

1fw. GENERAL BOTANY. Principles of biology as illustrated by plants, with a survey of the kinds of plants and their importance to man. This course is designed especially for students who may do no further work in biology. It serves also as a fundamental course upon which advanced work may be based. (3 or 5) MR. RICKETT; MR. BURKHOLDER; MR. NAYLOR.

3fw. GENERAL BACTERIOLOGY. A general course in the fundamental principles of bacteriology. Prerequisite, general botany or general zoology, and general inorganic chemistry. (3) MR. MANEVAL.

10w. ELEMENTARY TAXONOMY. Laboratory and field work on taxonomy of plants, with special reference to the local flora. (3) MR. RICKETT.

100w. PLANT PHYSIOLOGY. Lectures and laboratory work on the physiology of the common cultivated plants. Prerequisites, general botany and five hours credit in chemistry. (5) MR. BURKHOLDER.

101w. TAXONOMY AND ECOLOGY. Principles of classification of plants; and readings and lectures on plant associations, with an introductory to ecology. This course is designed especially for students with majors in biology (botany or zoology). The laboratory and field work may be taken without the lectures. (3-5) MR. RICKETT.

102f. PLANT PATHOLOGY. A study of special groups of fruit, vegetable, and cereal diseases, with reference to symptoms, life histories, parasites and methods of control. General bacteriology should precede this course. (3) MR. MANEVAL.

104w. HISTOLOGICAL METHODS. Methods used in the preparation and preservation of class material and in cutting and staining sections for microscopical study. (3) MR. NAYLOR.

105f. MORPHOLOGY OF SEED PLANTS. Lectures and laboratory studies on the structure and development of Gymnosperms and Angiosperms. Either course 105 or 106 may be taken independently or both in any sequence. Offered in alternate years (not offered in 1939-40.) (5) MR. RICKETT; MR. NAYLOR.

106f. MORPHOLOGY OF CRYPTOGAMS. Lectures and laboratory studies on the structure and development of Algae, Bryophytes and Pteridophytes. Either course 105 or 106 may be taken independently or both in any sequence. Offered in alternate years (offered in 1939-40). (3) MR. RICKETT.

107w. MYCOLOGY. A systematic study of the fungi, with special reference to those causing plant disease. Prerequisite, course 102. (3) MR. MANEVAL.

125f. HEREDITY AND GENETICS. Theories and facts of heredity, with their applications to plant breeding and evolution. This course should be preceded by 10 hours biology (botany or zoology), or by 5 hours with a grade of S or better. (5).

150f, 151w. SPECIAL PROBLEMS. On consultation with the teachers concerned, properly prepared students may take up special problems in the various fields of botany. (Credit to be arranged). MR. TUCKER; MR. RICKETT; MR. BURKHOLDER; MR. MANEVAL; MR. NAYLOR; MISS MCCLINTOCK.

200f and w. SEMINAR. Special subjects of botanical work will be discussed, including the results of investigations carried on in the department. A reading

knowledge of French and German is essential. (1) MR. TUCKER; MR. RICKETT: MR. BURKHOLDER; MR. MANEVAL; MR. NAYLOR; MISS MCCLINTOCK.

201w. ADVANCED PLANT PATHOLOGY. A general course in phytopathological technique, including preparation of culture media, isolation, cultivation and physiological study of fungi, inoculation of host plants and relation of host to pathogene. (3) MR. TUCKER.

202f and w. ADVANCED PLANT PHYSIOLOGY. Prerequisite, course 100w or equivalent. Lectures in general plant physiology and plant production through the year. Laboratory work on methods of research applicable to problems in both theoretical and applied plant science is offered only in the first semester. (3-5) MR. BURKHOLDER.

203f and 204w. SPECIAL TOPICS. Study of subjects in botany not included in the courses regularly offered. Designed especially for graduate students whose major interest or whose research work demands additional directed training. (Credit to be arranged). MR. TUCKER; MR. RICKETT; MR. BURKHOLDER; MR. MANEVAL; MR. NAYLOR; MISS MCCLINTOCK.

206w. THE HISTORY OF BOTANY. A series of lectures and assigned readings on the development of the various fields of botanical science. Offered in alternate years. Not given in 1939-40. (1) MR. TUCKER; MR. RICKETT; MR. BURKHOLDER; MR. MANEVAL; MR. NAYLOR; MISS MCCLINTOCK.

215w. ADVANCED GENETICS. Prerequisite, Botany 125f, or the equivalent. Lectures and readings from the original literature. (3) MISS MCCLINTOCK; MISS GUTHRIE; MR. STADLER.

290f, 291w. RESEARCH. Students who have had adequate preparation will be assigned some special problem for investigation. A reading knowledge of French and German is essential. (Credit and hours to be arranged.) MR. TUCKER; MR. RICKETT; MR. BURKHOLDER; MR. MANEVAL; MR. NAYLOR; MISS MCCLINTOCK.

CHEMICAL ENGINEERING

104w. ENGINEERING MATERIALS LABORATORY. Prerequisite, course 123. A study of the properties of engineering materials frequently used in chemical engineering. (2) DEPARTMENT STAFF.

116w. ORGANIC TECHNOLOGY. Prerequisite, preceded or accompanied by Chemistry 112. A study of the methods of manufacture of important industrial organic chemicals, including some recent developments. Representative types of processes are studied in detail. (3) MR. LORAH.

123f. ELEMENTS OF CHEMICAL ENGINEERING I. Co-requisite, Chemistry 131. Industrial processes and equipment, combustion calculations, material balances, industrial stoichiometry. (3) MR. LUEBBERS.

124f. ELEMENTS OF CHEMICAL ENGINEERING II. Prerequisite, course 123. Unit operations such as size reduction, separation, mixing, filtration, drying, material handling, etc. (3) MR. LUEBBERS.

135f. PRINCIPLES OF CHEMICAL ENGINEERING I. Prerequisite, course 124 and Physical Chemistry. A study of unit operations, particularly evaporation, crystallization, diffusion, drying, distillation, absorption, extraction, fluid flow and heat transfer. (3) MR. LORAH.

136w. PRINCIPLES OF CHEMICAL ENGINEERING II. Prerequisite, course 135. A continued study of certain advanced phases of unit operations. (3) MR. LORAH.

143f. CHEMICAL ENGINEERING LABORATORY. Prerequisite, course 124. Laboratory study of unit operations. (2) DEPARTMENT STAFF.

150f and w. SPECIAL PROBLEMS. Prerequisite, senior standing. Directed study of problems in the field of chemical engineering. (2-4). DEPARTMENT STAFF.

151w. CHEMICAL ENGINEERING PROJECT. Prerequisites, courses 135 and 143. Individual work on a chemical engineering problem. (2) DEPARTMENT STAFF.

161f and 162w. CHEMICAL THERMODYNAMICS I and II. Prerequisites, Math. 100 and Chem. 131. A study of thermodynamics with particular reference to its application in chemistry and chemical engineering. (3, 3) MR. PORTER.

185f and 186w. CHEMICAL PLANT DESIGN I and II. Prerequisite, senior standing. Selection and design of process equipment, layout of building and plant, cost estimates. (3, 3) MR. CURTIS.

200f and w. SEMINAR. Prerequisite, graduate standing. Reviews of recent investigations and projects of major importance in the field of chemical engineering. (1) DEPARTMENT STAFF.

218f. PETROLEUM TECHNOLOGY. Prerequisite, course 136. The processing and utilization of petroleum products. (2) MR. PORTER.

252f and w. ADVANCED CHEMICAL ENGINEERING. Prerequisite, courses 136 and 161. Advanced study of the unit operations of chemical engineering. (3, 3) DEPARTMENT STAFF.

261w. PROCESS DEVELOPMENT AND PLANT DESIGN. Prerequisite, course 185. Lectures and individual study of the chemical, engineering and economic factors involved in the development of chemical manufacturing processes. (3) MR. CURTIS.

285f and w. SPECIAL STUDIES. Prerequisite, graduate standing. Experimental investigation of problems in the field of chemical engineering. (2-5) DEPARTMENT STAFF.

299f and w. RESEARCH. Prerequisite, graduate standing. Independent investigation of some problem or design in the field of chemical engineering to be presented in the form of a thesis. DEPARTMENT STAFF.

CHEMISTRY

Course 13w. Greek for Students of the Sciences is recommended to students in Chemistry.

Students who do not present entrance credit in at least one of these subjects: Chemistry, physics, or mathematics (2 units), are advised to precede or accompany Chemistry 1 by a college course in mathematics (Mathematics 1 or 2).

1s, f, and w. GENERAL INORGANIC CHEMISTRY. An introductory course. (5) MR. BENT; MR. LONG; MR. THOMAS AND ASSISTANTS.

2s, f, and w. GENERAL INORGANIC CHEMISTRY. Prerequisite, a grade of M or better in course 1 or its equivalent. A continuation of course 1. (3) With laboratory work (5) MR. THOMAS; MR. BENT; MR. LONG; AND ASSISTANTS

15s, f, and w. ELEMENTARY ORGANIC CHEMISTRY. Introductory course. Prerequisite, course 1. (3) MR. FRENCH AND ASSISTANT.

25f and w. ANALYTICAL CHEMISTRY. Prerequisite, course 1. Elective for students preparing to take medicine or home economics. A brief survey of the qualitative and quantitative analytical methods. (5) MR. MORRIS.

27s, f, and w. QUALITATIVE ANALYSIS. A laboratory course. Must be preceded or accompanied by course 2. (3) MR. BRECKENRIDGE.

110s, f, and w. ORGANIC CHEMISTRY. Prerequisite, ten hours' work in chemistry; medical students will be admitted to this course with eight hours' chemistry. (5) MR. CALVERT; MISS NIGHTINGALE.

112s, f, and w. ORGANIC CHEMISTRY. Continuation of the subject-matter of course 110. Required of chemistry majors and chemical engineers. Prerequisite, 5 hours' credit in organic chemistry (aliphatic compounds). (3) MR. CALVERT; MISS NIGHTINGALE; (MR. DAY, Rolla).

113s, f, and w. ORGANIC SYNTHESIS. A laboratory course in synthetic organic chemistry. May be taken with course 112. (3-5) MISS NIGHTINGALE.

121s, f, and w. QUANTITATIVE CHEMICAL ANALYSIS. Prerequisite, course 27. The general principles. (3-5) MR. BRECKENRIDGE.

122f, and w. QUANTITATIVE CHEMICAL ANALYSIS. Prerequisite, course 121. The analysis of commercial materials and products. (3-5) MR. BRECKENRIDGE.

125s, and w. QUANTITATIVE ORGANIC ANALYSIS. Must be preceded by course 121. Quantitative analysis of pure organic compounds, using micro and some semi-micro methods. (3) MISS NIGHTINGALE.

127f and w. MICROCHEMISTRY. Prerequisite, course No. 27. A systematic presentation of the technique involved in the detection of the common elements in small quantities of materials. (2) MR. MORRIS.

130s and w. PHYSICAL CHEMISTRY. Prerequisite, college course in physics, 3 hours quantitative analysis, 3 hours of organic chemistry. Recommended to students majoring in biological sciences, home economics, and students specializing in agriculture. Generally given in alternate years in summer school. (3) MR. STEARN.

131f and s. PHYSICAL CHEMISTRY. Prerequisite, course 110 and 121; college course in physics; preceded or accompanied by mathematics 10 or 100. Generally given in alternate years in summer school. Given in 1938. (5) MR. STEARN.

133w. ELECTRO-CHEMISTRY. Prerequisite, course 131 or consent of instructor. Generally offered alternate years. Given in 1937-38. (4) MR. STEARN.

For courses in chemical engineering and applied chemistry, see page 312.

Courses above 200 must be preceded by a major in chemistry or accompanied by courses required to complete the major.

200f and w. SEMINAR. Meetings at which subjects of chemical interest are discussed by students of sufficient attainment and members of the teaching staff. A reading knowledge of French and German is desirable. (1-2).

205f. PLANT CHEMISTRY. See Agricultural Chemistry. MR. VINSON.

207f. COLLOID CHEMISTRY. See Agricultural Chemistry. MR. MARSHALL.

211f. ADVANCED ORGANIC CHEMISTRY. Lectures on selected topics, principally stereochemistry and its applications, carbohydrates, nitrogen compounds, etc. (4) MR. CALVERT.

212w. ADVANCED ORGANIC CHEMISTRY. Lectures on selected topics, supplemented by readings and reports. In the selection of topics, the special needs of the students will be considered. (4) MR. CALVERT.

213s and w. REACTIONS AND RECENT THEORIES IN ORGANIC CHEMISTRY. Prerequisite, major in Chemistry. Credit up to 4 hours, though but 2 hours

work will be given in any one semester. The subjects will be presented in alternate years: (a) *Recent Theories in Organic Chemistry.* A discussion of the electronic structures of molecules, with an electronic explanation of certain organic reactions. Relation of dipole moment to molecular structure. (v) *Reactions in Organic Chemistry.* A discussion of the uses and limitations of certain of the reactions of organic compounds. Given in 1938-39. MR. FRENCH.

Chemistry 214s and f. SPECIAL TOPICS OF ORGANIC CHEMISTRY. Prerequisite, a major in Chemistry. The organo metallic compounds, molecular rearrangements, tautomerism, chemistry of some of the hormones, etc. Generally given in alternate years. Given in 1938-39. (2) MISS NIGHTINGALE.

216s and w. ADVANCED INORGANIC CHEMISTRY. This course is open to those who have passed or are taking a course in physical chemistry. One of the major objectives of this course is to supply a broad background for those who expect to teach general chemistry. Generally given alternate years. Given the summer of 1928 and the winter of 1938-39. MR. BENT. (2)

225f and s. QUALITATIVE ORGANIC CHEMISTRY. Must be preceded by course 112. (4) MR. FRENCH.

227w. ADVANCED ANALYTICAL CHEMISTRY. Prerequisite, course 121. Chiefly laboratory work. The work of the course is varied to meet the needs of the individual. (Credit to be arranged.) MR. BRECKENRIDGE.

231f and w. PHYSICO-CHEMICAL CALCULATIONS. Prerequisite, 131. (2-5) MR. STEARN.

232f and w. ADVANCED PHYSICAL CHEMISTRY. Prerequis.te, course 131. From semester to semester various aspects of the field will be considered. Credit up to 9 hours, though work for only 3 hours per semester will be given. There is no set sequence in the rotation of the subjects covered. The general field has been divided into the following courses:

(a) THERMODYNAMICS. The formal application of thermodynamic theory to the solution of chemical problems.

(b) CHEMICAL KINETICS. Application of the results of statistical mechanics to the problem of reaction velocities in homogeneous reactions. Activation, collision diameters and steric factors are considered from a classical point of view; and the more recent treatment of the activated complex, with properties derived from quantum mechanics, is given.

(c) QUANTUM MECHANICS APPLIED TO CHEMISTRY. An introduction to the fundamental ideas of wave mechanics with special emphasis on the Heitler-London-Slater-Pauling-Eyring method for chemical bond energies.

(d) ELECTROSTATIC VALENCE THEORY. The application of electrostatic theory to the problems of chemical bonding, complexion formation, crystal structure, and chemical stability.

(e) THEORY OF SOLUTIONS. Based on the interionic attraction theory of Debye-Huckel-Onsager-Bjerrum-Fuoss. MR. STEARN.

235w. RADIOACTIVITY AND NUCLEAR CHEMISTRY. Study of the radio elements, and their radiations, atomic disintegration, atomic structure, artificial radioactivity, applications of radioactivity to problems in chemistry, geology, and physics. Generally offered alternate years. (3).

236f. PHOTOCHEMISTRY AND MOLECULAR EXCITATION. The course treats the principles and experimental work of photochemistry; photosensitized re-

actions; inelastic collisions; principles and experimental methods of the field of critical potentials and related subjects. Generally given alternate years. (2) MR. THOMAS.

237w. APPLICATIONS OF THERMODYNAMICS. The stability of chemical compounds will be discussed with particular emphasis on chemical equilibrium involving organic materials. Generally given alternate years. (2) MR. BENT.

271f and 272w. RESEARCH. Arrangements for research should be made by consultation with the professor or instructor with whom the research is elected.

The University of Missouri Section of the American Chemical Society meets periodically. Students may attend these meetings.

CITIZENSHIP

1f and 2w. CITIZENSHIP. Problems in American citizenship. (2) MR. HECKEL.

CIVIL ENGINEERING

50s, f and w. STATICS. Prerequisite, Physics 3; preceded or accompanied by Math. 10. Vectors, force systems, friction, centroids, moment of inertia. (3) MR. WOOD; MR. COMINS; MR. HOLMES.

60f and w. ENGINEERING SURVEYS. Prerequisite, Math. 2. Use and adjustment of ordinary surveying instruments. (3) MR. RUBEY; MR. HOLMES.

61w. HIGHER SURVEYING. Prerequisites, C. E. 60 and M. E. 1. Mining topographic, and hydrographic surveys. Astronomical determination of azimuth, plane triangulation, control of surveys. Methods of mapping areas. (4) MR. LA RUE.

82f and w. ENGINEERING MATERIALS. Prerequisite, Chemistry 1. Properties of materials used in engineering. Chemical control and reactions involved in manufacture of materials. (2) MR. LA RUE; MR. COMINS.

101f and w. MECHANICS OF MATERIALS. Prerequisite, C. E. 50 or M. E. 116. Stresses and strains in elastic materials; riveted joints, torsion, deflection, continuous beams, columns. (4) MR. WOOD; MR. LOGAN; MR. COMINS; MR. HOLMES.

112f. ROUTE SURVEYS. Prerequisites, C. E. 60 and junior standing. Curves and earthwork. The field and office design of location of engineering projects, including cost estimates. (4) MR. RUBEY.

120f. STRUCTURAL STRESSES. Prerequisite, registration in C. E. 101. Analysis of stresses in statically determinate structures. (3) MR. MOORMAN; MR. HOLMES.

121w. STRUCTURAL STEEL. Prerequisites, C. E. 101. Design of steel members in tension, compression, and bending; riveted and welded connections. (2) MR. MOORMAN; MR. HOLMES.

122w. REINFORCED CONCRETE. Prerequisites, C. E. 101, and accompanied by C. E. 133. Elements of reinforced concrete theory. (2) MR. MOORMAN.

133w. PLAIN CONCRETE. Prerequisite, junior standing. Design and control of concrete mixes. Laboratory tests on concrete materials. (2) MR. COMINS.

135f. HIGHWAY ENGINEERING I. Prerequisites, C. E. 60 and 82. Materials and methods used in construction of roads and pavements. Principles of location and design of highways. (3) MR. LA RUE.

140f and w. HYDRAULICS. Prerequisite, Math. 10 or 100. Fundamental principles of the mechanics of fluids, including hydrostatics and hydrodynamics. Elementary principle of hydraulic motors. (3) MR. WOOD.

141f and w. HYDRAULIC ENGINEERING. Prerequisite, C. E. 140. A general course in hydraulic engineering, including the application of the principles of hydraulics to typical problems in the general field of hydraulic design and construction; problems common to water supply, water-power, sanitary, drainage and irrigation works. (3) MR. WOOD.

142f or w. ADVANCED HYDRAULICS. Prerequisite, C. E. 140. Hydraulics of open channels. Non-uniform flow, flow at critical depth, hydraulic jump, backwater, transition structures. (2) MR. WOOD.

152f or w. ADVANCED MECHANICS OF MATERIALS. Prerequisite, C. E. 101. Continuation of C. E. 101 involving analysis of more complicated problems in stresses and strains. (2 or 3) MR. WOOD.

155f or w. SOIL MECHANICS. Prerequisite, senior standing. A study of the engineering properties of soils with special emphasis on classification of soils for engineering purposes. (2).

163f or w. ECONOMY OF RAILWAY OPERATION. Prerequisite, C. E. 112. The engineering attack on administrative problems, using railway cases. (2 or 3) MR. RUBEY.

165f and w. ENGINEERING ADMINISTRATION I. Prerequisite, senior standing. The engineer's business relations as developed in connection with the promotion, design, construction, operation and management of projects. (3) MR. RUBEY.

167w. CONSTRUCTION AND CONTRACTING. Prerequisite, C. E. 165, or permission of instructor. Construction methods, bidding, organization, and management, contracts and specifications. (3) MR. RUBEY.

172f. FOUNDATIONS AND MASONRY CONSTRUCTION. Prerequisite, C. E. 122. Dams, retaining walls, bridge piers and abutments, shallow bins, deep bins, culverts, arches, foundations. (2) MR. MOORMAN.

173f. STRUCTURAL DESIGN I. Prerequisites, C. E. 121 and 122, and accompanied by 172. Structures of reinforced concrete, steel, and timber; primarily buildings. (3) MR. MOORMAN.

174w. STRUCTURAL DESIGN II. Prerequisite, C. E. 173. Structures of reinforced concrete, steel, and timber; primarily bridges. (4) MR. MOORMAN.

175f or w. STATICALLY INDETERMINATE STRUCTURES I. Prerequisite, C. E. 120. The elastic theory and its applications to statically indeterminate structures. (3) MR. MOORMAN.

176w. STATICALLY INDETERMINATE STRUCTURES II. Continuation of C. E. 175. (3) MR. MOORMAN.

184f or w. ROAD MATERIALS. Prerequisite, C. E. 133. Properties of materials used in highway construction, with particular attention to the bituminous materials. Laboratory tests. (3) MR. LA RUE.

185f and w. SPECIAL PROBLEMS. Directed investigation of problems in the field of civil engineering. (2-4) STAFF.

186f or w. HIGHWAY ENGINEERING II. Prerequisite, C. E. 135. Administration, management and financing of highway programs. Maintenance and operation of highways. Studies of traffic and safety. (2) MR. LA RUE.

187f. TRANSPORTATION. Prerequisite, C. E. 112. Relation of highway, waterway, railway, pipe line, and airway transportation, with emphasis on railways. (2) MR. RUBEY.

192f. WATER SUPPLY I. Prerequisite, C. E. 141. The public health aspect of water supply engineering; the design and operation of municipal water works including the study of sources, collection, purification and distribution. (2) MR. LOGAN.

193w. SANITARY ENGINEERING I. Prerequisite, C. E. 141. The design and construction of sewers; sewage treatment processes; the design and operation of disposal plants. (3) MR. LOGAN.

194f or w. WATER SUPPLY II. Prerequisite, C. E. 192. Advanced work in water purification theory and design. (3) MR. LOGAN.

195f or w. WATER POWER. Prerequisite, C. E. 140. Hydrology, stream measurement, weirs, current meters; storage reservoirs and dams; water-wheels; the problem of a water-power development. (3) MR. WOOD.

200f and w. SEMINAR. Reviews of recent investigations and projects of major importance in the field of civil engineering. (1) STAFF.

201f or w. GEODETIC SURVEYING. Prerequisite, C. E. 61. Elements of geodesy, with practice in the use of precise instruments. (2) MR. LA RUE.

203f. THEORY OF ELASTICITY. Prerequisite, C. E. 101. General equations of equilibrium, stress and strain, two-dimensional and three-dimensional problems of the theory of elasticity, torsion. (2) MR. WOOD.

204w. THEORY OF ELASTICITY. Prerequisite, C. E. 101. Analysis of stress and strain in the bending of thin plates. Buckling of plates, columns and tubes. Strain energy. (2) MR. WOOD.

216f or w. ENGINEERING ADMINISTRATION II. Continuation of C. E. 165. (3) MR. RUBEY.

227f or w. STRUCTURAL THEORY AND DESIGN. General theory of continuity, moment distribution, the column analogy, rigid frame bridges and buildings, fixed arches, (3-6) MR. MOORMAN.

228f or w. STRUCTURAL THEORY AND DESIGN. Statically indeterminate trusses, continuous trusses, steel arches, secondary stresses. (3-6) MR. MOORMAN.

230f or w. REINFORCED CONCRETE THEORY. Review of experimental and analytical data pertaining to reinforced concrete design. (3-6) MR. MOORMAN.

233f. CONCRETE. Prerequisite, C. E. 133. Review of researches on the design of concrete with reference to quality. Laboratory practice in design of mixes. (3) MR. COMINS.

238f or w. HIGHWAY TRANSPORTATION. Prerequisites, C. E. 135 and 186. Economics of transportation on highways. Comparison of costs of vehicle operation. Project studies of the highway problem in general. (3) MR. LA RUE.

241f or w. ADVANCED HYDRAULIC ENGINEERING. Prerequisite, C. E. 141. Problems in design and construction relating to reservoirs, dams, conduits, waterways and general hydraulic engineering. (3) MR. WOOD.

285f and w. SPECIAL STUDIES. Independent study of some problem in the field of civil engineering. (2-5) STAFF.

293f or w. SANITARY ENGINEERING II. Prerequisite, C. E. 193. Advanced work in the theory of wastes treatment and in the design of treatment works. (2) MR. LOGAN.

296w. SANITARY SCIENCE. Prerequisites, Sanitary Bacteriology 110, Quantitative Analysis 121. Laboratory methods employed in the study of sanitary projects and the interpretation of the results. Microscopy of water, physical and chemical methods of analysis. The application of these methods to experimental projects and to field work in stream pollution and plant operation. (5) MR. LOGAN.

299f and w. RESEARCH. An independent investigation of some problem or design in the field of civil engineering, to be presented in the form of a thesis. (Minimum 4 hrs.) STAFF.

CLASSICAL LANGUAGES AND ARCHAEOLOGY

Classical Archaeology

60f and w. CLASSICAL MYTHOLOGY. The aim is to familiarize the student with the myths of Greece and Rome, as an aid to the interpretation and appreciation of literature and art. No knowledge of Latin or Greek is required for admission. (2) MR. GRAHAM.

136f and w. GREEK ART. A study of the development of Greek architecture and sculpture. No knowledge of Latin or Greek is required for admission. (3) MR. WELLER; MR. GRAHAM.

140w. ROMAN LIFE AND CIVILIZATION. A general survey of the main contributions of the Romans, paying attention to Roman private life, Roman architecture and engineering particularly as illustrated by recent archaeological excavations, the main ideas expressed in Latin literature and philosophy, and the underlying ideas of Roman government and law. Designed for both classical and non-classical students. No knowledge of Latin or Greek is required for admission. (2) MR. GRAHAM.

145f. GREEK LIFE AND CIVILIZATION. A general survey of the main contributions of the Greeks, paying attention to Greek private life, Greek architecture, sculpture, and painting particularly as illustrated by recent discoveries and archaeological excavations, the main ideas expressed in Greek literature, and the main outlines of Greek philosophy. Designed for both classical and non-classical students. No knowledge of Latin or Greek is required for admission. (2) MR. GRAHAM.

Museum of Classical Archaeology and Art. The Museum occupies the third floor of the west wing of Jesse Hall. It possesses a fine collection of classical sculpture in the form of plaster casts, and also models of Greek buildings, specimens of pottery, reproductions of ancient metal-work, numerous photographs, and a large collection of lantern slides.

Greek

Students entering with no high school units in Greek should take course 3; students entering with high school units in Greek should consult the chairman of the department concerning the course in which to enroll.

3f and w. ELEMENTARY COURSE. For students who have not previously studied Greek. The essentials of Attic Greek forms and constructions, with reading of easy selections of Attic Greek and portions of Xenophon's *Anabasis*. (5) MR. HARRELL; MR. GWATKIN.

5f and w. INTERMEDIATE COURSE. For students who have completed course 3. Continued reading of Xenophon's *Anabasis* and reading of portions of the first books of Homer's *Iliad*. (5) MR. GWATKIN; MR. HARRELL.

105w. GREEK DRAMA. Prerequisite, courses 3 and 5, or the equivalent. Reading and literary interpretation of selected plays of Aeschylus, Sophocles, Euripides, and Aristophanes. (3) Not given in 1939-40.

107w. GREEK PHILOSOPHERS. Prerequisite, courses 3 and 5, or the equivalent. Reading and interpretation of the *Apology* and *Crito* of Plato, and selections from other Greek philosophical works. (3) MR. GWATKIN.

111f. THE GREEK HISTORIANS. Prerequisite, courses 3 and 5, or the equivalent. Study of selected books of Herodotus and Thucydides. (3) MR. HARRELL.

147f. THE GREEK ORATORS. Prerequisite, courses 3 and 5, or the equivalent. Study of selected orations of Lysias and Demosthenes' *On The Crown*. (3) Not given in 1939-40.

Latin

Students entering with no high school units in Latin should take course 1; students entering with two high school units should take courses 4 and 10, preferably simultaneously; students entering with three or four high school units should take course 100 or course 101.

1f and w. BEGINNING LATIN. For students who have not previously studied any Latin. Training in the elements of the language, with easy reading. (5) MR. GRAHAM; MR. GWATKIN.

2f and w. CAESAR. Prerequisite, course 1. Connected reading of selections from Caesar's *Gallic War*, with intensive study of forms and constructions. (5) MR. HARRELL; MR. GRAHAM.

4f and w. GRAMMAR. Intensive study and review of forms, syntax, and vocabulary of the Latin language; designed especially for students with two entrance units in Latin who have not studied the language for several years, but suited to all students desiring to review the essentials of Latin grammar. This course, together with course 10, will satisfy five hours of the freshman-sophomore requirement in foreign language. (2) MR. GWATKIN; MR. HARRELL.

10f and w. CICERO'S ORATIONS. Prerequisite, courses 1 and 2, or two entrance units in Latin. Reading of selected orations and letters of Cicero, accompanied by a survey of the political personalities and institutions of his age. This course, together with course 4, will satisfy five hours of the freshman-sophomore requirement in foreign language. (3) MR. GWATKIN; MR. HARRELL.

100f and w. VERGIL'S AENEID: I-IV. Prerequisite, courses 1, 2, 4, and 10, or three entrance units in Latin. Translation of several of the earlier books of the *Aeneid*, with practice in oral reading and attention to the language and style of Latin epic poetry. (5) MR. GWATKIN; MR. GRAHAM.

101f. CICERO'S ESSAYS ON FRIENDSHIP AND OLD AGE. Prerequisite, courses 1, 2, 4, and 10, or three entrance units in Latin. Reading and interpretation of the *De Amicitia* and the *De Senectute*, with careful review of forms and syntax, and practice in the writing of Latin. (5) MR. GRAHAM.

102w. PLINY: SELECTED LETTERS. Prerequisite, course 100 or 101, or four entrance units in Latin. Reading and interpretation of selected letters, with discussion of Roman history and Roman society of the first century after Christ. (2) MR. HARRELL.

103w. OVID: SELECTED POEMS. Prerequisite, course 100 or 101, or four entrance units in Latin. Reading and literary interpretation of selected poems of Ovid, including the *Metamorphoses*, with attention to Ovid's influence upon English poetry. (3) MR. HARRELL.

104f. LATIN PROSE CÓMPOSITION. Study of the vocabulary and idiom of the Latin language through the translation of English sentences into Latin. (1) MR. HARRELL.

106w. LATIN PROSE COMPOSITION. Prerequisite, course 104. Connected writing of Latin; comparative study of Latin prose style. (1) MR. HARRELL.

110f. HORACE: SELECTIONS. Prerequisite, courses 100 and 101, or equivalent. Reading and literary interpretation of the more important works of Horace, chosen from the *Odes*, *Epodes*, *Satires*, and *Epistles*. (3) MR. GWATKIN.

114f. CICERO'S LETTERS. Prerequisite, course 110 or equivalent. Reading and interpretation of selected letters of Cicero, with attention to the features of his style as a letter-writer, the chief events of his life, and his characteristics as a man. (3) MR. HARRELL.

115f and 116w. RAPID READING. Prerequisite, course 110 or equivalent. Readings from authors of comparative ease with a view towards the development of the ability to read rapidly. The author or authors will be chosen to suit the needs of the class. (2) MR. GRAHAM; MR. HARRELL.

117w. CATULLUS: SELECTED POEMS. Prerequisite, course 110 or equivalent. Most of the poems of Catullus will be read, and a study made of his position and influence in Latin literature. (3) MR. GWATKIN.

119f. VERGIL'S AENEID: VI-XII. Prerequisite, course 110 or equivalent. Translation of the later books of the *Aeneid*, with metrical reading and literary interpretation. (3) Not given in 1939-40.

120f. LATIN COMEDY. Prerequisite, course 110 or equivalent. Reading of selected comedies of Plautus and Terence, with attention to their dependence upon their Greek originals, and their influence upon later European drama. (3) Not given in 1939-40.

121w. JUVENAL'S SATIRES. Prerequisite, course 110 or equivalent. Reading and interpretation of Juvenal, with discussion of the history of satire and Juvenal's influence upon English writers. (3) Not given in 1939-40.

150w. TACITUS. Prerequisite, course 110 or equivalent. Reading and literary interpretation of the chief works of Tacitus, with particular emphasis upon the history of Rome from Augustus to Nero. (3) Not given in 1939-40.

210f and 211w. HISTORY OF LATIN LITERATURE. (a) From the beginning to the Augustan Age; (b) from the Augustan Age to the period of Decline. Studied through selections from the authors of various periods. (3) Not given in 1939-40.

215f. INTRODUCTION TO GRADUATE STUDY IN CLASSICS. Systematic study of the history of Greek and Latin literature and the political history of Greece and Rome; translation of extensive portions of the writings of the author to be studied in the seminar the following semester; lectures on the history of classical scholarship, the philology of the Greek and Latin languages, Greek and Latin manuscripts and text criticism, and other topics according to the needs and desires of those enrolled. (3) MR. GWATKIN.

218w. SEMINAR. Reports and discussion by the members of the seminar upon problems presented by the subject assigned for study. In the winter semester of the school year 1939-40 a study will be made of Horace's *Odes*. (3) MR. GWATKIN.

230f and w. RESEARCH AND THESIS. Independent investigation, under the direction of a member of the staff, of some chosen or assigned topic, to result in a thesis presented for the degree of Master of Arts. (3-4) MR. GWATKIN; MR. GRAHAM; MR. HARRELL.

For The Teaching of Latin, see Education D125f, page 329.

Courses in Classics Requiring No Knowledge of Latin or Greek

13w. GREEK FOR STUDENTS OF THE SCIENCES. Study of the derivation and meaning of scientific nomenclature. (1) MR. GWATKIN.

112f. GREEK LITERATURE IN ENGLISH TRANSLATION. A general view of Greek literature intended primarily for non-classical students. (2) MR. HARRELL.

113w. LATIN LITERATURE IN ENGLISH TRANSLATION. A general view of Latin literature intended primarily for non-classical students. (2) MR. HARRELL.

118w. GREEK TRAGEDY IN ENGLISH TRANSLATION. A study of the origin of Greek tragedy and the Greek theater, and the reading in translation of selected plays of Aeschylus, Sophocles, and Euripides. (1) MR. HARRELL.

For courses in *Sanskrit*, see Germanic Languages 220f and 221w.

DAIRY HUSBANDRY

1f and w. DAIRY HUSBANDRY. An introductory course teaching the fundamentals of the dairy industry. The dairy breeds, selection of individuals, starting and developing farm dairy herds and community dairy development are studied. Emphasis is placed upon the constituents, properties and factors affecting the composition of milk, milk secretion, the Babcock and other common dairy tests and processes, the sanitary production of milk, market milk, the manufacture of dairy products, and dairy calculations. (Prerequisites to all other courses in Dairy Husbandry.) (3) MR. RAGSDALE; MR. HERMAN; MR. ARBUCKLE; MR. RALSTON.

2f. DAIRY PRODUCTS. The fundamental principles concerned in the handling and processing of market milk, butter, ice cream, cheeses, condensed and powdered milks and dairy by-products are taught and applied in practice. (3) MR. REID; MR. ARBUCKLE.

3w. DAIRY CATTLE JUDGING. A study of dairy and breed types, judging, selection and fitting for sale and showing. Fits the needs of dairy cattle breeders, extension agents and vocational teachers. (2) MR. HERMAN.

4w. DAIRY PRODUCTS JUDGING. A study of the physical properties and factors affecting flavor, body and texture of market milk, butter, ice cream, cheeses, condensed and powdered milks and dairy by-products. Fits the needs of students preparing for positions as commercial judges, home demonstration agents, hospital dietitians and hostesses for dairy products establishments. (2) MR. REID.

100w. DAIRY PRODUCTION. A study of the problems of the milk producer and dairy cattle breeder. Special attention is given to feeding and management practices, herd record and testing systems, selection of breeding animals, calf raising, the herdsman's part in dealing wth common diseases and ailments, dairy barns and milk houses, equipment for the dairy farm, and the marketing of dairy cattle and their products. Subject matter is presented in such a way as to meet the needs of extension agents, vocational teachers, and representatives of commercial organizations. (3) MR. RAGSDALE.

101f. DAIRY BACTERIOLOGY. An applied course teaching the relationship of micro-organisms to milk, factors affecting the sanitary production and processing of milk, important milk micro-organisms and the relation of milk and its products to public health. (Prerequisite, General Bacteriology.) (3) MR. GARRISON.

102w. MARKET MILK AND MILK CONTROL. This course deals with the problems of the market milk producer, milk distributor and milk inspector. A study is made of the care of milk on the farm, grading, processing, delivery of milk, equipment, business methods. Special attention is given to dairy farm and city milk inspection. (Prerequisite, General Bacteriolody.) (3) MR. GARRISON.

103f. ADVANCED DAIRY CATTLE JUDGING. A continuation of the comparative judging work given in course 3. It includes excursions to the farms of leading breeders and dairy cattle shows. (Prerequisite—Dairy Cattle Judging 3 or its equivalent.) (1) MR. HERMAN.

104f. ADVANCED DAIRY PRODUCTS JUDGING. A continuation of the comparative judging work given in course 4 which may include excursions to dairy products plants, markets, and dairy products shows. (Prerequisite—Dairy Products Judging 4 or its equivalent.) (1) MR. REID.

110w. DAIRY CATTLE BREEDING. A study of dairy herd improvement through breeding methods. It includes a study of prominent breed families, popular blood lines, selection and evaluation of breeding stock, pedigree analysis, and the organization of a breeding program. The subject matter is arranged to meet the needs of students planning to engage in dairy farming, agricultural extension, vocational teaching, or commercial work. (3) MR. HERMAN.

120w. DAIRY MANUFACTURES. Advanced problems and factors concerned in the manufacture of butter, ice cream, cheeses, condensed milk, milk powder, dairy by-products and refrigeration methods. (Prerequisite, Dairy Products; also Dairy Bacteriology is recommended.) (3) MR. REID.

130w. BACTERIOLOGY OF DAIRY PRODUCTS. A study is made of the bacteriology of starters and fermented milk drinks, the control of micro-organisms important in the manufacture of butter and cheeses, and the relationship of bacteria to ice cream, condensed milk, powdered milk and dairy by-products. (Prerequisites, Dairy Products and Dairy Bacteriology.) (2) MR. GARRISON.

140w. DAIRY PLANT MANAGEMENT. The organization, operation and management of market milk plants, creameries, cheese factories, ice cream plants, condensaries, milk powder and dairy by-products plants. (Prerequisite—Market Milk or Dairy Manufactures should precede or accompany this course.) (2) MR. REID.

150f and w. SPECIAL PROBLEMS. This course is designed to supplement the regularly organized courses and is for advanced and well trained undergraduates who wish to make further studies in some phase of dairy husbandry. (Credit to be arranged.) Members of the Departmental Staff.

200f and w. SEMINAR. Students and members of the staff present for critical consideration and discussion reviews of correct literature, subjects of special importance and interest and results of their own research. This will include outlining, and defining the problem, technique in management, methods used in collecting and tabulating the data, interpretation and presentation of results. (1) MR. RAGSDALE AND DEPARTMENTAL STAFF.

210f. MILK SECRETION. The comparative anatomy of the mammary gland with special reference to the dairy cow. (2) MR. TURNER.

220w. MILK SECRETION. The physiology and biochemistry of milk secretion. (2) MR. TURNER.

230w. GROWTH AND DEVELOPMENT. Deals with growth, senescence and related nutritional problems. Selection of specific problems for study may vary with the preparation and interests of students. Prerequisites, one or more courses in Nutrition or Biochemistry. (3) MR. BRODY.

240f and w. SPECIAL STUDIES. Leading scientific journals and experiment station publications in a chosen field of the dairy industry are studied to acquaint the student with research methods, current research problems, and the results of scientific research. A minor research problem may be included. (Credit to be arranged.) MR. RAGSDALE; MR. REID; MR. BRODY; MR. TURNER; MR. GARRISON; MR. HERMAN.

250f and w. RESEARCH. The various phases of dairy husbandry included under dairy production and dairy manufactures offer many attractive problems for graduate research. Students are usually permitted to assist in special investigations associated with one of the regular research projects of the Agricultural Experiment Station. (Credit to be arranged.) MR. RAGSDALE; MR. REID; MR. BRODY; MR. TURNER; MR. GARRISON; MR. HERMAN.

ECONOMICS AND FINANCE

No course in this department is open to Freshmen. Courses numbered 200 or above are open to undergraduate students only with the consent of the instructor.

1f and w. GENERAL ECONOMICS. Prerequisite, thirty hours of college credit, exclusive of military science and physical education, and *not less than thirty points*. An introduction to the subject of economics with emphasis on certain fundamental principles and their application to questions of policy. (5) MR. BROWN and others.

10f and w. INDUSTRIAL ECONOMICS. Open only to students in the College of Engineering. An introduction to the study of economics specially designed for engineers. (3) MR. DYKSTRA.

90f. PERSONAL FINANCE. Financial problems of the citizen. Family budgets, insurance, home ownership, reserve funds, investment, building an estate, installment purchasing, sources and costs of loans. (2) MR. BOPP.

102f and w. PRINCIPLES OF BUSINESS MANAGEMENT. A study of the organization and management of business enterprises with emphasis on industrial production. (3) MR. DYKSTRA.

104f and w. PRINCIPLES OF MARKETING. Prerequisite, course 1. A study of the institutions and processes that facilitate the flow of goods from producers, through middlemen, to consumers. (3) MR. WENNBERG.

106f and w. TRANSPORTATION AND PUBLIC UTILITIES. Prerequisite, course 1. An economic study of the development, management, rates, and regulation of railways and other public utilities. (3) MR. DYKSTRA.

110f. LABOR PROBLEMS. Prerequisite, course 1. A survey of the labor market including labor supply, wages, unemployment, industrial accidents, trade unionism and industrial relations. (5) MR. BAUDER.

112f. SALES MANAGEMENT. Prerequisite, course 104. A study of the problems of marketing from the point of view of the executive of a business enterprise. (4) MR. WENNBERG.

114w. RETAILING. Prerequisite, junior standing. An analysis of the fundamental principles underlying the successful operation of retail stores. (3) MR. WENNBERG.

115w. PUBLIC REVENUES. Prerequisite, course 1 and either three hours of more advanced work in economics or senior standing or special consent of the instructor. A study of the finances and financial methods of governments, with especial reference to taxation and to tariff policy. (3) MR. BROWN.

116w. CREDITS. Prerequisite, course 1 and Elementary Accounting, Principles and practice of credit management, with especial attention to mercantile credit. (2) MR. BAUER.

118f and w. CORPORATION FINANCE. Prerequisite, course 1 and junior standing. Method and policy in the financing of business enterprises; organization and financial management of corporations. (3) MR. BOPP.

122f and w. INVESTMENT. Prerequisite, course 1 and junior standing. Principles of investment; investment markets; services to the investor; types of investments and their evaluation. (3) MR. BOPP.

125w. FOREIGN TRADE. Prerequisite, course 1. A study of the principles and practices of exporting and importing. (2) MR. WENNBERG.

129f and w. MONEY, CREDIT AND BANKING. Prerequisite, course 1 and junior standing. A study of modern currency and banking systems with special emphasis upon their place in our present financial organization of economic activities. (5) MR. WOOD.

130w. BANKING SYSTEMS. Prerequisite, course 129. A comparative study of the central and commercial banking systems of the United States, Great Britain, France, and Germany. (3) MR. BOPP.

136f. PERSONNEL MANAGEMENT. Personnel relations in industry; the development of labor policy; employment methods, labor turnover, safety programs, health, employee training, welfare activities, and employee representation. (3) MR. BAUDER.

150f and w. BUSINESS LAW A. Prerequisite, junior standing. A study of normal business relations in their legal aspects. Cases on contracts and related branches of the law. (3) MR. CURTIS.

151f. BUSINESS LAW B. Prerequisite, course 150. Legal questions arising in connection with the sale and custody of goods and the use of negotiable instruments in loans and payments. (2) MR. CURTIS.

156w. ADVANCED MANAGEMENT. Prerequisite, course 102. Special studies in working methods for profit planning and control, giving attention to the economic fundamentals involved in developing and maintaining a profitable enterprise. (2) MR. DYKSTRA.

160w. Economic Control. Prerequisite, course 1 and senior standing. Economic and legal aspects of control in the economic system. Recent developments. Public policy. (3) Mr. Bauder.

170f. Commercial Research. Prerequisite, courses 104, 112, and Elementary Statistics. The use of scientific method in the solution of marketing problems. (3) Mr. Wennberg.

190w. Economic Reorganization. Prerequisite, course 1 and senior standing. A survey of the literature of economic reform. (2) Mr. Bauder.

199f and w. Distinction.

205w. Industrial Relations. Readings and investigation in labor economics, particularly with reference to the employer-employee relationship. (2) Mr. Bauder.

209w. Theory of Imperfect Competition. A study of price determination under conditions of imperfect competition. (3) Mr. Wennberg.

211f. Advanced Economic Theory. A critical examination of the writings of leading modern economists, to the end of constructing a correct theory of value and distribution. (5) Mr. Brown.

221f. International Finance. Intensive study of international economic problems of contemporary importance. (2) Mr. Bopp.

223f and w. Thesis.

230f. Advanced Money and Banking. A study of recent writings and government reports on monetary control. (3) Mr. Wood.

231w. Current Monetary Problems. A study of current monetary policies in connection with public spending, farm relief, and other emergency measures for recovery. (2-3) Mr. Wood.

242f and w. Special Studies. Graduate students may select topics for study and investigation from the fields suggested by the undergraduate courses listed above, such as taxation, monopoly, etc. Credit to be arranged. Mr. Bauder; Mr. Bopp; Mr. Brown; Mr. Dykstra; Mr. Wennberg; Mr. Wood.

290f and w. Research. Research in connection with the thesis offered for the degree of Master of Arts or Doctor of Philosophy. (Credit to be arranged.) Mr. Bauder; Mr. Bopp; Mr. Brown; Mr. Dykstra; Mr. Wennberg; Mr. Wood.

EDUCATION

(A) EDUCATIONAL PSYCHOLOGY

A102f and w. Educational Psychology. Prerequisite, either elementary psychology or a biological science. Introduction to the science of education; application of the methods and results of experimental psychology to the problems of training children. Lecture and laboratory. (3) Mr. Saupe; Mr. Carter.

A140f and w. Diagnostic Testing and Remedial Teaching. Technique of using educational and mental tests in the improvement of instruction. Primarily for elementary school teachers. Prerequisites, A102, E121. (3) Mr. Saupe; Mr. Carter.

A176f. Psychology of Elementary School Subjects. The applications of educational psychology to the teaching of elementary school subjects. Prerequisite, A102. (3) Mr. Carter; Mr. Saupe.

A200f and w. SEMINAR IN EDUCATIONAL PSYCHOLOGY. (1-3) MR. IRION; MR. SAUPE.

A202f and w. INTELLIGENCE TESTING. Group intelligence testing including a critical study of various tests and practice in their administration. The course will also include a study of individual mental testing and the uses to be made of results in the classification and treatment of pupils. (3) MR. CARTER; MR. SAUPE.

Sec. I. Individual Intelligence Testing. (1)

Sec. II. Group Intelligence Testing. (2)

A205f. THE PSYCHOLOGY OF EDUCATION. An advanced course covering the entire field of educational psychology. (2½-3) MR. IRION; MR. SAUPE.

A207. DIFFERENTIAL PSYCHOLOGY. Prerequisite, 20 semester hours of professional work in education, including at least two courses in educational psychology. Presented primarily from the research point of view. Offered only upon special demand by advanced graduate students. (3) MR. IRION.

A208w. PSYCHOLOGY OF HIGH SCHOOL SUBJECTS. Deals with the applications of educational psychology to the mastery of high school subjects. Prerequisite, A205 or its equivalent. (2½-3) MR. IRION.

A250f and w. SPECIAL INVESTIGATIONS IN EDUCATIONAL PSYCHOLOGY. (Credit to be arranged.) MR. IRION; MR. SAUPE.

A290f and w. RESEARCH IN EDUCATIONAL PSYCHOLOGY. (Credit to be arranged.) MR. IRION; MR. SAUPE.

(B) HISTORY AND PHILOSOPHY OF EDUCATION

B125f and w. HISTORY OF AMERICAN EDUCATION. A comprehensive study of the historical development of American education to give a better understanding and appreciation of present educational problems. (3) MR. TOWNSEND.

B190w. COMPARATIVE EDUCATION. A course designed to introduce the student into the field of comparative education. The educational theories and practices of various European countries in contrast with American theory and practice will be studied. (2)

B200f and w. SEMINAR IN THE HISTORY AND PHILOSOPHY OF EDUCATION. (1-3)

B250f and w. SPECIAL INVESTIGATIONS IN THE HISTORY AND PHILOSOPHY OF EDUCATION. (Credit to be arranged.)

B271w. PHILOSOPHY OF EDUCATION. A study of the fundamentals of education in the light of modern science and philosophy. (2½-3)

B275f. COLLEGE TEACHING. Primarily for graduate students who expect to teach in junior or senior colleges, or in teachers colleges. Important practical matters in college teaching will be considered. Each student will be expected to prepare a syllabus for the teaching of one college course. (3)

B290f and w. RESEARCH IN THE HISTORY AND PHILOSOPHY OF EDUCATION. (Credit to be arranged.)

(C) EDUCATIONAL ADMINISTRATION

C170f and w. EDUCATIONAL STATISTICS. Statistical methods for teachers, supervisors, superintendents and beginning graduate students. (2½-3) MR. CAPPS.

C200f and w. SEMINAR IN EDUCATIONAL ADMINISTRATION. (½-3) MR. CAPPS; MR. CARPENTER.

C201f. METHODS OF EDUCATIONAL RESEARCH. Prerequisite, course C170 or equivalent. Principles and techniques involved in attacking problems in education. Methods of collecting and systematizing data, preparation of manuscripts for theses, dissertations and printed reports. (2) MR. CAPPS.

C209f. STATE AND NATIONAL SCHOOL ADMINISTRATION. A fundamental course in the principles and practices of national, state, and county educational administration. (2½-3) MR. CARPENTER.

C210w. CITY SCHOOL ADMINISTRATION. The principles and problems growing out of the relationships between the local board of education, the employed personnel, and the community. (2½-3) MR. CARPENTER.

C211f. ADMINISTRATION OF PUPIL PERSONNEL. Problems of pupil-progress in the public school system. Prerequisite, E120 or D140 or equivalent. (2) MR. CARPENTER.

C212w. SCHOOL BUILDING PROBLEMS. The responsibility of the school administrator for the construction, operation, and maintenance of school buildings. (2½-3) MR. CARPENTER.

C235w. ADVANCED EDUCATIONAL STATISTICS. Prerequisites, courses C170 and E205, or D207 or their equivalent. Advanced problems in partial correlation, reliability, index numbers, and test and scale construction. (2½-3) MR. CAPPS.

C240f. SCHOOL FINANCE. Fundamental principles and techniques of public school finance. (2½-3)

C241w. PROBLEMS IN SCHOOL FINANCE. Advanced problems in public school finance. Prerequisite, C240. (2½-3)

C242s. THE SCHOOL AUDIT. A study of principles and procedures of monthly and annual school audits, including actual experience in making school audits, the need for cost accounting and its importance to the preparation of the school budget and the audit. A study of cost units, methods and techniques of improving and evaluating financial management of public school business administration. Prerequisites C240 and C241. (2) MR. CARPENTER.

C246w. SCHOOL SURVEYS. The technique of the school survey and its use as an instrument of self-appraisal. Prerequisites, C209 and either C210 or C212. (3) MR. CARPENTER.

C250f and w. SPECIAL INVESTIGATIONS IN EDUCATIONAL ADMINISTRATION. (Credit to be arranged.) MR. CAPPS; MR. CARPENTER.

C251f. PROBLEMS IN STATE AND NATIONAL SCHOOL ADMINISTRATION. Prerequisite, C209. (2½-3) MR. CARPENTER.

C252s. PROBLEMS IN PUBLIC RELATIONS. Prerequisite, C210. (2½-3) MR. CARPENTER; MR. TOWNSEND.

C253f. ADVANCED SCHOOL BUILDING PROBLEMS. Prerequisite, C212. (2½-3) MR. CARPENTER.

C254w. PROBLEMS OF SCHOOL LAW REVISION. Prerequisite, C209. (2½) MR. CARPENTER.

C273f. JUNIOR COLLEGE ADMINISTRATION. The organization and administration of the junior college. (3) MR. CARPENTER.

C290f and w. RESEARCH IN EDUCATIONAL ADMINISTRATION. (Credit to be arranged.) MR. CAPPS; MR. CARPENTER.

(D) SECONDARY EDUCATION

D110f and w. TECHNIQUE OF HIGH SCHOOL TEACHING. This course deals with the activities of teachers and pupils in the development of learning in various courses at the high school level. Prerequisite, Education A102. (3) MR. WATKINS.

D111f and D112w. TEACHING OF ENGLISH. D111f deals with the teaching of language and composition; D112w with the teaching of reading and literature. Prerequisite, A102. (2) MR. MOFFETT.

D113f. TEACHING OF SPEECH. Aims, standards, problems and methods in the conduct of high school courses in speech improvement, oral interpretation, dramatics, public speaking, and debating. Designed for teachers of English and speech. Prerequisite, A102. (2) MR. REID.

D115f or w. TEACHING OF ART. Deals with the principles of art education as related to the elementary and high school curriculum. Seeks to develop an appreciation of art as a factor in daily life. Study is made of the function and selection of various art media. The broad scope of art experiences in drawing, design and crafts is considered from the standpoint of the child's interest and development. Observation and discussion of classroom work is included. (2 or 3) MISS WULFEKAMMER.

D118f and w. TEACHING OF MODERN LANGUAGES. Prerequisite, A102. (2) MR. ALMSTEDT; MR. JESSE; MR. WARSHAW.

D120f. TEACHING OF COMMERCIAL SUBJECTS. Teaching techniques, materials of instruction, current problems and trends in the major high school commercial courses. (2) MISS WILLIAMS.

D121f. TEACHING OF SOCIAL STUDIES IN HIGH SCHOOL. The required course for all majors in the social studies and elective for all minors. The fundamental problems of teaching the social studies on the high school level are considered. Prerequisite, A102. (2) MR. ELLIS.

D122w. ORGANIZATION OF HIGH SCHOOL SOCIAL STUDIES. An elective course for all majors and minors in social studies. Practice in organizing social studies courses into units, and preparing these units for classroom use. Prerequisite, A102. (2) MR. ELLIS.

D124w. THE TEACHING OF GENERAL SCIENCE. Prerequisite, A102. (2) MR. WATKINS.

D125f. THE TEACHING OF LATIN. Prerequisite, A102. Study of the content of the modern high school course in Latin, and the most effective methods of attaining the immediate and ultimate objectives in the teaching of the language. (2) MR. GWATKIN.

D128w. TEACHING OF HIGH SCHOOL MATHEMATICS. Prerequisite, A102. (2) MISS DOOLITTLE.

D130w. TEACHING OF HIGH SCHOOL MUSIC. (3) MR. NORMANN.

D131f. TEACHING OF INSTRUMENTAL MUSIC. Prerequisites, Music 141-144. Intended for the students in Music Education majoring in instrumental music. (2) MR. NORMANN.

D132f. TYPEWRITING. A fundamental course in touch typewriting for the purpose of mastering the keyboard and operative parts of the machine. (2) MISS WILLIAMS.

D133w. TYPEWRITING. Instruction and practice directed towards improvement of speed and accuracy. (2) MISS WILLIAMS.

D134f. TYPEWRITING. Preparation of personal, business and professional papers and forms; growth in speed and accuracy. (2) MISS WILLIAMS.

D135w. TYPEWRITING. Typewriting problems representative of various lines of business, also a continuation of the development of speed and accuracy. (2) MISS WILLIAMS.

D136f. STENOGRAPHY. An elementary study of the theory of Gregg shorthand and the development of shorthand reading and writing techniques. (3) MISS WILLIAMS.

D137w. STENOGRAPHY. Completion of the study of the theory of shorthand writing correlated with dictation and transcription practice. (3) MISS WILLIAMS.

D138f. STENOGRAPHY. A review of the principles of shorthand writing; intensive practice in dictation, reading and transcription. (2) MISS WILLIAMS.

D139w. STENOGRAPHY. Difficult reading and dictation matter and a study of the nature of secretarial work. (2) MISS WILLIAMS.

D140f and w. HIGH SCHOOL ADMINISTRATION FOR TEACHERS. Problems of effective methods of school management from the standpoint of teachers in secondary schools. Prerequisite, A102. (2) MR. RUFI.

D141f. ACCOUNTING FOR TEACHERS. Introductory course to furnish the teacher with a knowledge of accounting that will serve as a foundation for the bookkeeping and accounting courses taught in high school. (3) MISS WILLIAMS.

D150f and w. STUDENT TEACHING IN HIGH SCHOOL. Hours and credit must be arranged with instructor before registration. Application should be made in the term preceding that in which the course is wanted. Prerequisite, D110. (Credit to be arranged.) MR. PHILLIPS; MR. TOWNSEND.

D171s. PROBLEMS IN VISUAL EDUCATION. This course is planned specifically for classroom teachers. It includes problems in the organization and evaluation of visual education procedures in classroom instruction. It also includes the learning of certain skills in the preparation and use of visual education materials and equipment. Prerequisites, A102 and E121 or D110. (2) MR. BICKNELL.

D181w. PROBLEMS IN SCHOOL MUSIC TEACHING. Prerequisite, completion of the curriculum in Music Education for freshman and sophomore years or its equivalent and A102 and D110. (2) MR. NORMANN.

D200f and w. SEMINAR IN SECONDARY EDUCATION. (1-3) MR. RUFI; MR. TOWNSEND; MR. WATKINS.

D201s. EXTRA CURRICULAR ACTIVITIES. (2½-3)

D206f. HIGH SCHOOL ADMINISTRATION. Deals with the problems of administration from the point of view of the high school principal. Prerequisite, D140 or its equivalent. (3) MR. RUFI.

D207f. TESTS AND MEASUREMENTS FOR SECONDARY SCHOOLS. Study of the uses and the construction of educational tests and measurements for purposes of classification of students and for improvement of instruction in various subject-matter fields in secondary schools. (3) MR. CAPPS.

D212w. PROBLEMS IN THE TEACHING OF GENERAL SCIENCE. For teachers and supervisors of science. Problems of organization, content, and teaching. Includes a summary of the investigations on teaching of science. (2) MR. WATKINS.

D213s. METHODS IN ENGLISH LITERATURE IN SECONDARY SCHOOLS. (2) MR. MOFFETT.

D214s. METHODS IN ENGLISH COMPOSITION IN SECONDARY SCHOOLS. (2) MR. MOFFETT.

D215w. HIGH SCHOOL SUPERVISION. Methods of improving instruction in junior and senior high schools. (3) MR. RUFI.

D217s. CURRICULUM MATERIALS IN MUSIC EDUCATION. For teachers and supervisors of music. A survey and evaluation of materials: rote songs, choruses, cantatas, operettas, orchestra and band music, ensembles, class instructional materials, textbooks in theory, appreciation, history and methods, phonograph and appreciation materials suitable for various grade levels. Prerequisite: Education D130, E130, graduate standing. (2-5) MR. NORMANN.

D218s. PROBLEMS IN INSTRUMENTAL MUSIC. Intended for those with some experience in directing bands and orchestras. Problems of method, organization, technique, and instrumentation. (2) MR. NORMANN.

D219f. SPECIAL INVESTIGATIONS IN HIGH SCHOOL MUSIC TEACHING. Prerequisite, completion of major in Music Education in the School of Education or its equivalent. (2-5) MR. NORMANN.

D220w. PROBLEMS IN THE TEACHING OF SOCIAL STUDIES. A graduate course dealing with special problems of method and curriculum in the teaching of social studies in junior and senior high schools. Open to graduate students with a major or minor in the social studies. (3) MR. ELLIS.

D230w. THE JUNIOR HIGH SCHOOL. A survey of the progress of the junior high school, including a study of the more important problems of organization and administration. (2) MR. RUFI.

D240f. THE IMPROVEMENT OF HIGH SCHOOL TEACHING. For high school teachers and supervisors who have had considerable training in education and experience in teaching. Deals with recent developments in high school teaching, descriptions and evaluations of improved procedures. (2) MR. WATKINS.

D245w. THE HIGH SCHOOL CURRICULUM. For high school principals and teachers, and for superIntendents interested in the improved adaptation of secondary school curricula. Deals with present trends in curricular change, reasons for the existence of present curricula, methods of curricular investigation, and the adaptation of curricula to community needs. (2½-3) MR. WATKINS.

D246w. CURRICULUM CONSTRUCTION FOR SECONDARY SCHOOLS. Intended to meet the needs of those who have definite problems calling for the construction of curricula to meet definite situations, or the needs of those attempting to construct high school courses. Practice in actual construction of courses and curricula is provided. Prerequisite, Education D245, High School Curriculum. In cases of individuals furnishing evidence of other adequate previous training, the prerequisite may be waived by the instructor. (3) MR. WATKINS.

D250f and w. SPECIAL INVESTIGATIONS IN SECONDARY EDUCATION. (Credit to be arranged.) MR. RUFI; MR. TOWNSEND; MR. WATKINS.

D290f and w. RESEARCH IN SECONDARY EDUCATION. (Credit to be arranged.) MR. RUFI; MR. WATKINS; MR. TOWNSEND.

(E) ELEMENTARY EDUCATION

E107s. Teaching of Geography in the Elementary School. This course is based upon the following aspects of geography in the elementary schools: recent tendencies, function, selection of subject matter with type studies, and preparation of the teacher. (2)

E108s. Primary Materials and Methods. A critical study is made of the principles, techniques and materials which are used to organize the curriculum of the first three grades for a modern elementary school. One major feature of the study involves the consideration of the curriculum from the point of view of the activities of children. A limited amount of attention is devoted to extra-curricular activities. Prerequisites, A102 Educational Psychology and E121 Technique of Teaching in Elementary Schools. (3)

E118f. Art Activities in the Kindergarten and Primary Grades. This course is for the classroom teacher and the special teacher of art and handwork. Develops a practical method of relating the common activities of home and industrial life, and the mastery of tool subjects to the dominant interests of children. Outlines an order of procedure in the introduction of fundamental processes of construction in various materials and related art. Stresses creative and dramatic expression in school activities. Provides laboratory experiences with various media. (3) Miss Wulfekammer.

E119w. Art Activities in the Intermediate Grades. Stresses the use of art and handwork as an illustrative factor in teaching the regular school subjects. Introduces organization of such forms of art and handwork as may be successfully used in the regular classroom. Emphasis upon poster-making, bookmaking, applied art, illustrative construction in the study of industrial processes and the organization of units of study based on art and handwork activities. Provides laboratory experiences with various media. (3) Miss Wulfekammer.

E120f. Elementary School Organization and Management. A study of the major problems of organization and management from the point of view of the teacher in the elementary school. (3) Mr. Phillips.

E121w. Technique of Teaching in Elementary Schools. A study of the current principles and practices relating to the instructional activities of the elementary classroom teacher. Prerequisite, A102. (3) Mr. Phillips.

E122f. Child Study. The purpose of this course is to provide a critical study of the physical, mental, social and aesthetic characteristics of children during the pre-school, kindergarten, and lower primary periods. An attempt will be made to evaluate children's activities in such a way as to furnish information for guidance to students who propose to direct children of these periods in their natural growth and development. Prerequisite, A102. (3) Miss Taylor.

E123w. Kindergarten Methods and Management. A course in kindergarten theory and practice. (3) Miss Taylor.

E125s. Primary Materials and Methods in Reading. Prerequisites, A102 and E121. (3)

E127-128f and w. Song Literature for Children. Survey of music materials used in the elementary school. One recitation and a one-hour laboratory period per week. (1) Mr. Normann.

E129w. Elementary School Music. Music methods and materials for teachers in the elementary school. Prerequisite, Music I—Introduction to Music, or its equivalent. Two recitations and one laboratory period per week. (2) Mr. Normann.

E131f. Teaching Music in the Elementary School. This course is intended for students majoring in Music Education. (3) Mr. Normann.

E139s. The Technique of Handling the Problem Child. Prerequisite A102. (3)

E140w. Supervision of Art Activities. Lectures, observation, and discussion. Special emphasis on the theory and purposes of classroom projects in illustrative and technical handwork and art experiences. Topics considered in their relation to the work of the trained supervisor and also from the standpoint of the principal and superintendent who lack practical training. (2) Miss Wulfekammer.

E151f and w. Assistant in the Elementary School. Hours and credit must be arranged with the instructor before registration. Application should be made in term preceding that in which the course is desired. Prerequisites, A102, E121. (Credit to be arranged.) Mr. Phillips.

E165w. Problems in the Teaching of Reading. A comprehensive study will be made of the fundamental problems of reading instruction in grades one to nine. Diagnostic and remedial practices will be given some attention. Demonstrations of clinical procedures and apparatus will also be included. Prerequisites: A102 and E121 or D110. (3) Mr. Gorman.

E166w. Problems of Teaching Literature in the Grades. The study will include both the content and the methods of teaching literature to children in the six grades of the elementary school. The major emphasis will be placed upon content. The course includes a critical study for the selection of rhymes, fairy tales, folk lore, poems, stories of adventure, fables, and some creative writing. To obtain graduate credit considerable experience will be required in creative writing of the various types of children's literature and an undergraduate major in English. General prerequisites, A102, Educational Psychology and E121, Technique of Teaching in Elementary Schools. (2-3) Miss Farthing.

E167w. Problems of Teaching Arithmetic in the Elementary Schools. A critical study will be made to include the purposes, techniques, and materials which concern themselves with all of the elementary school grades. Some attention will be devoted to a careful investigation of modern textbooks in arithmetic. Students who desire graduate credit will be required to make a very elaborate study of the more recent researches in the various features concerning the teaching of arithmetic. Prerequisites, A102 and E121. (2) Mr. Gorman.

E168s. Problems of Teaching the Social Studies in the Elementary School. This course is designed primarily for elementary school teachers. It will include a discussion of programs of instruction and procedures. Moreover, some of the detailed techniques which are appropriate for teaching specific units in the social studies will receive consideration. Students will be required to organize some units of social studies suitable for an integrated program in this area of the curriculum. The field of study will include work in grades three to six. Prerequisites, A102 and E121. (2)

E170f. Elementary School Curriculum. A study of the modern elementary school curriculum from the point of view of objectives, methods and materials with suggestions regarding its practical reorganization. Prerequisites, A102 and E121. (2) Mr. Phillips; Mr. Gorman.

E175f. Rural School Supervision. A course intended primarily for county school superintendents. A critical examination of some of the important problems of rural school supervision will be included. (2) Mr. Phillips

E180. Music Supervision. A comparative study of modern methods of teaching music in grades I to VI. Prerequisite, completion of the curriculum in Music Education for freshman and sophomore years or its equivalent and E129 and A102. (2) Mr. Normann.

E195w. Problems in County School Supervision. (Maximum credit, 8 hours. Credit to be arranged.) Mr. Phillips.

E200f. Seminar in Elementary Education. (1-3) Mr. Phillips.

E204f. Elementary School Supervision. A study of the modern technique of improving the work of the classroom teacher in the elementary schools. (3) Mr. Phillips.

E205w. Tests and Measurements for Elementary Schools. Study of the uses and the construction of educational tests and measurements for the elementary schools from the points of view of the teacher, the supervisor, and the administrator. (3) Mr. Capps.

E206w. Curriculum Construction in Elementary School. Study of the principles and techniques of curriculum construction. (2-3) Mr. Phillips.

E208s. The Work of the Elementary School Principal. A course designed to deal with the special techniques needed by an elementary school principal. (2-3).

E218s. Special Problems in Elementary School Music Teaching. (2-5) Mr. Normann.

E250f and w. Special Investigations in Elementary Education. Section A. Selected problems to meet the needs of individual students. Prerequisites, E200 and E204. (Credit to be arranged.)

Section B. Investigations in reading: An intensive and critical study of the major researches concerning the fundamental problems of reading instruction in grades one to nine. Diagnostic and remedial practices will receive considerable attention. Opportunity will be offered for experience in the use of clinical equipment including ophthalmograph, metronoscope, and ophthalmic telebinocular. Prerequisite, A205, E204, or D215. Class limited to 25. (2-3) Mr. Gorman; Mr. Phillips.

E290f and w. Research in Elementary Education. (Credit to be arranged.) Mr. Phillips.

VOCATIONAL EDUCATION

Agricultural Education

F100w. Foundations of Vocational Agriculture. This course includes a brief study of the development of vocational education in agriculture, establishment and organization of departments in secondary schools, administrative problems of management surveys and program building, room arrangement and equipment. (Prerequisite to all courses in Agricultural Education.) (3) Mr. Dickinson.

F105f. Special Methods in Teaching Vocational Agriculture. This course deals with the methods of teaching vocational agriculture in secondary schools. (3) Mr. Dickinson.

F107f. Supervised Farm Practice in Vocational Agriculture. This course includes a study of the principles and practices involved in the use of the project as they should be applied in the teaching of vocational agriculture. Project study, outlining, planning, and supervision are discussed in a manner applicable to actual conditions. (2) Mr. Dickinson.

F120w. Community Educational Activities in Vocational Agriculture. A study of the work of the teacher of agriculture in his extension activities. Particular attention is given to the problems of Evening and Part-Time Schools. (2) Mr. Dickinson.

F156f and w. Student Teaching in Vocational Agriculture. Supervised observation of vocational agriculture teaching and actual participation in teaching activities together with conferences as provided. (Credit to be arranged.) Mr. Dippold.

F195f and w. Special Problems in Agricultural Education. Individual study of special phases of Agricultural Education. (Credit to be arranged.) Mr. Dickinson; Mr. Dippold.

F240f and w. Problems in Agricultural Education. Group study in current and advanced problems in the teaching and administration of agricultural education. (2-4) Mr. Dickinson; Mr. Dippold.

Home Economics Education

F110f and w. Methods of Teaching Vocational Home Economics. This course parallels student teaching. It deals with the problems arising in student teaching and those anticipated on the job. (2) Miss Irons.

F116w. Teaching of Related Subjects. This course deals with the selection of content and methods of teaching art and science as related to home economics. (2) Miss Irons.

Student Teaching of Vocational Home Economics. Described under D150f and w.

F175f and w. Organization of Vocational Home Economics. This course is given as a preparation for teaching home economics. It is a prerequisite for student teaching. A study is made of home economics programs, the vocational course, the organization of units, the preparation and presentation of lesson and of books and equipment to be used in teaching. (3) Miss Irons.

F230f and w. Supervision of Student Teaching of Vocational Home Economics. A course for those who are preparing to become supervisors of student teaching in home economics in institutions of college rank which train teachers for Vocational Home Economics in secondary schools. The course includes readings, discussion and supervised practice work in supervision. Prerequisites, D150, F175, F110. (Credit to be arranged.) Miss Irons.

F246s. Curriculum Construction in Home Economics. This course deals with the state curriculum revision program in home economics. It is open to all teachers of home economics in the state but is especially planned for those who have completed the undergraduate curriculum in vocational home economics or its equivalent. (Credit to be arranged.) Miss Irons.

F273w. Problems in Home Economics Education. This course furnishes opportunities for experienced teachers to study problems of teaching, supervision, critic teaching, or administration of home economics and related subjects. (3) Miss Irons.

Industrial Arts and Trades and Industries

F10f. General Wood Work. This course deals with tool processes and fundamental construction problems as exemplified in interesting and useful projects. The first part of the course will be confined to hand tools. The latter part of the term instruction will be given in the use of several of the wood working machines. Special attention will be given to the organization of the work for teaching purposes. (3)

F12w. General Metal Work. This course is designed to give experience in a variety of metal work. It will include ornamental iron work, forming, bending, welding, and tempering. It will also include some work in copper and brass. (3)

F14f. General Electricity. A study of elementary principles of electricity as applied to electrical construction and electrical devices. It will involve the principles of the electric circuit and resistance. The projects will include such things as the winding of small motors and the construction of useful electrical apparatus. (3)

F15f. Tools and Materials. Sharpening and care of tools, sources and supply of materials, woods and wood finishes. Lectures and laboratory work. (2)

F20w. Principles and Operation of Machines. This course involves the study of introduction of power into machines; the various devices for the transmission of power through the machine and a study of the mechanical devices involved in converting the power into useful work. (2)

F25f. Art Metal Work. This course will deal with work in brass, copper, aluminum, pewter, silver, etc. Instruction is designed to include a variety of experiences, ranging from simple handwork in shaping, forming, polishing, etc., to work in casting and metal spinning. (2)

F102w. General Shop. This is a teachers' course dealing with the organization and management of shop work in the grades and junior high school. Projects involving wood, metal, and electricity suitable for the various grades will be selected and organized for instructional purposes. The work will be so organized as to cover the things a boy should know with respect to materials and manipulative processes before he has completed the junior high school. Special attention will be given to classroom management and methods of instruction. (3)

F106w. Furniture Design and Construction. Deals with the problems of design, construction and finish of furniture. Use of wood working machinery. (3)

For Mechanical Drawing and Descriptive Geometry, see Mechanical Engineering.

F165f and w. Trade Analysis. This is a course for those preparing to teach a trade. It consists of an analysis of a trade into its unit operations and the formulation of definite plans for teaching them. (2) Mr. Selvidge.

F190f. Principles of Trade and Industrial Teaching. This course deals with the principles involved in determining what to teach, the arrangement of teaching materials, classroom practice, types of assignments, habits, skills, interest, job planning and testing.

This course should precede or accompany F194w. (3) Mr. Selvidge.

F192s. Problems of the Coordinator. This course will deal with the problems involved in the survey of the industries of a community and the organization and management of cooperative training courses. It will be restrictd to those who have had the necessary vocational experience to qualify them as coordinators. (2) Mr. London.

F194w. Selection and Organization of Subject-Matter. This involves the analysis of subject-matter fields into learning units; a selection of the particular units it is desired to teach; selecting or preparing the instructions for each unit; the selection of jobs, projects, or situations involving these units; written assignments and typical teaching plans based upon these projects or problems.

Designed especially for teachers of shop, related subjects, coordinators, and supervisors of distributive education. (2) Mr. Selvidge.

F196f. Organization and Administration of Industrial Education. Determining type of industrial education program; desirable arrangement with respect to shops, selection, purchase and arrangement of equipment; purchase, storage and handling of supplies; class organization and housekeeping; professional relations and improvement of teachers; costs, records, inventories, and reports. The organization and supervision of all-day, part-time, evening, and general continuation programs. The public and intra-school relations of teacher and coordinator; relation of Federal and State governments to local administration.

This course is designed especially for superintendents, principals, and teachers of trade and industrial subjects. (3) Mr. London.

F197f and w. Special Problems in Industrial Education. (Credit to be arranged.) Mr. Selvidge; Mr. London.

F204f. History of Industrial Education. A study of the economic, social, political, and philosophical factors that have motivated and influenced the development of industrial education, together with the various leaders, agencies, and movements that have contributed. The course is intended to develop the necessary historical background for the understanding of our present problems and program in industrial education. (2) Mr. London.

F221f. Vocational Guidance. The purpose and limitations of guidance, elements to be considered, personal, social and industrial factors, the accidental elements, the source of material, and the adviser's job. (2) Mr. Selvidge.

General

F200f and w. Seminar in Vocational Education. (1-3) Mr. Dickinson; Mr. Dippold; Miss Irons; Mr. London; Mr. Selvidge.

F210w. Philosophy of Industrial and Vocational Education. For graduate students who are candidates for the degree Master of Education or Doctor of Education. The course does not require a knowledge of technical subject matter. It is designed to give an understanding of the philosophy upon which vocational education is based and the place the work should occupy as an integral part of the program of public education. The procedure through which its aims and purposes may be realized will be discussed. Administrators will find this course helpful in organizing and carrying out a well rounded program. (2) Mr. Selvidge.

F250f and w. Special Investigations in Vocational Education. (Credit to be arranged.) Mr. Dickinson; Mr. Dippold; Miss Irons; Mr. London; Mr. Selvidge.

F290f and w. Research in Vocational Education. (Credit to be arranged.) Mr. Dickinson; Mr. Dippold; Miss Irons; Mr. London; Mr. Selvidge.

(G) GUIDANCE AND COUNSELING

G195f. Educational Guidance. A survey of the recent literature pertinent to such problems of guidance as objectives, and the materials and techniques for the realization of these objectives. (2½-3) Mr. Germane.

G196w. Guidance in Character Education. In this course two of the vital points in character education will be stressed, namely: (1) What are the psychological and environmental factors in the home, school, and community that affect human conduct? (2) What are the social situations in the home, school, and community that offer greatest opportunity for a united training in the making of desirable and wholesome social adjustments? (3) Mr. Germane.

G200f and w. Seminar in Guidance and Counseling. (1-3) Mr. Germane.

G206w. Mental Hygiene. The psychology of personal adjustment. A review of the studies and researches in the field of the psychology of improved self-management. Prerequisite, A205 or its equivalent. (2½-3) Mr. Germane.

G207f. Methods and Techniques of Counseling. A course for deans, principals, advisers and sponsors of high school and college students. Prerequisites, A205 and G195. (2½-3) Mr. Germane.

G208f. Problems in Student Counseling. A course for deans, personnel directors, principals, and part-time advisers of high school and college students. Prerequisite, A205 or its equivalent. (2½-3) Mr. Germane.

G222w. Clinical Procedures in Student Personnel. Prerequisites, courses G195 and G207, or their equivalents. A course dealing with such clinical procedures as analysis, synthesis, diagnosis, prognosis, treatment, and follow-up. (2-3) Mr. Germane.

G250f and w. Special Investigations in Guidance and Counseling. (Credit to be arranged.) Mr. Germane.

G290f and w. Research in Guidance and Counseling. (Credit to be arranged.) Mr. Germane.

(H) PHYSICAL EDUCATION

H119w. Teaching of Physical Education. The teaching of physical education activities in the grades, junior and senior high school, and college. Special emphasis on selection of activities, teaching methods and program planning. Prerequisite, Freshman and Sophomore Physical Education Activities. (2) Miss Duncan.

H124s. Rhythmical Activities for Elementary Schools. Practical work with singing games, rhythms, and selected folk and character dances suitable for use in the elementary schools. (2) Miss Duncan.

H126s. PHYSICAL EDUCATION PROGRAMS FOR PUBLIC SCHOOLS. Practical work with activities suitable for use in the physical education program in the grades and high school. (3) MISS DUNCAN.

H152f. HISTORY AND PRINCIPLES OF PHYSICAL EDUCATION. An historical survey of the aims and content of physical education in Europe and America combined with an analysis of the basic problems which influence the selection and adaptation of physical activities of conditions existing in modern American society. (3) MR. EDWARDS.

H165s. THE HIGH SCHOOL CURRICULUM IN PHYSICAL EDUCATION. A critical examination of traditional and modern physical education activities and programs, leading to the construction of general and special curriculums for various situations. Prerequisite, H152, History and Principles of Physical Education. (2) MR. HINDMAN.

H166w. INTRAMURAL SPORTS. A consideration of the objectives and principles in the administration of intramural sports in high schools and colleges, with special reference to the relationship of intramural sports to other parts of the physical education program. (2) MR. HINDMAN; MR. STANKOWSKI.

H170f. TESTS AND MEASUREMENTS IN PHYSICAL EDUCATION. Prerequisites, Physical Education 152 and Education D110; a course in statistics is desirable but not required. Measurement of aptitude and achievement in physical education activities with particular reference to the determination of standards. (3) MR. HINDMAN.

H190w. ADMINISTRATION OF PHYSICAL EDUCATION. The problems of the administrator and supervisor; finances, construction, equipment and care of physical education plant, selection of staff. Prerequisites, teaching of physical education and sports technique courses. (3) MR. HINDMAN; MISS MCKEE.

H200f and w. SEMINAR IN PHYSICAL EDUCATION. Reports on selected topics are presented by students and instructors, and criticized by the group. (1-2)

H220w. ADMINISTRATION OF INTERSCHOOL ATHLETICS. The organization and management of interscholastic and intercollegiate athletics. (3) MR. BREWER.

H250f and w. SPECIAL INVESTIGATIONS IN PHYSICAL EDUCATION. (2-6)

ELECTRICAL ENGINEERING

50s, f and w. ELECTRIC CIRCUITS AND MACHINES. Prerequisites, Physics 3 and Math. 5, accompanied by Physics 4 and Math. 100. Fundamentals of Electromagnetism. Voltage, current and power relations in direct and alternating current circuits. Characteristics of synchronous and direct current generators and motors, converters, transformers, induction motors. (5) Four class periods and one three-hour laboratory period per week. MR. WEINBACH; MR. WALLIS; MR. WAIDELICH; MR. GALBRAITH.

99f. FUNDAMENTALS OF ELECTRICAL MACHINERY. Prerequisites, Physics 4 and Math. 5. Fundamental electromagnetic relations. Simple direct and alternating current line calculations. Characteristics and control of synchronous generators and motors. (3) Two class periods and one laboratory period per week. MR. LANIER; MR. WALLIS; MR. VAILE; MR. WAIDELICH; MR. GALBRAITH.

100w. Fundamentals of Electrical Machinery. Prerequisite, E. E. 99. Characteristics, control and application of direct current generators and motors, transformers and induction motors. (3) Mr. Wallis; Mr. Vaile; Mr. Galbraith; Mr. Waidelich.

101. Motor Applications and Controls. Prerequisite, E. E. 100. Comparison of speed-torque characteristics and choice for various services; typical applications. Acceleration characteristics. Speed control. Thermionic tubes and photo-electric cells and their use in controls. (3) Two class periods and one three-hour laboratory period per week. Mr. Vaile.

110f. Alternating Current Circuits. Prerequisites, E. E. 50 and Math. 100. Fundamental laws of alternating current flow. Circuits with uniformly adjusted properties; magnetically coupled circuits. Solution of single phase circuits subject to non-sinusoidal voltages. Elementary study of recurrent networks. Analysis and solution of balanced and unbalanced polyphase circuits. (4) Three class periods and one three-hour laboratory period per week. Mr. Weinbach; Mr. Vaile; Mr. Waidelich.

133f. Illumination. Prerequisite, E. E. 50. Light production and laws of radiation; characteristics of light sources; photometric practice; theory of point and surface sources of light; theory of enclosure; principles of interior lighting design. (3) Two class periods and one three-hour laboratory period per week. Mr. Waidelich.

149w. Alternating Current Machinery. Prerequisite, E. E. 110. The constant potential transformer. Auto-transformers, three-winding, instrument and constant current transformers. The induction potential regulator. Transformer interconnections. Polyphase transformers and induction potential regulators. The principle of the polyphase induction motor. (4) Three class periods and one three-hour laboratory period per week. Mr. Lanier; Mr. Vaile; Mr. Galbraith.

150f. Alternating Current Machinery. Prerequisite, E. E. 149. Wound rotor and squirrel-cage induction motors. Induction generator. Single-phase induction motor. Theory and characteristics of synchronous generators and motors. Parallel operation of alternators. (4) Three class periods and one three-hour laboratory period per week. Mr. Lanier; Mr. Vaile; Mr. Galbraith.

151w. Commutating Machinery. Prerequisite, E. E. 150. The direct-current dynamo. Commutation. Direct-current generators and motors. Parallel operation of generators. Rotary converters. Commutator type alternating current motors. (3) Two class periods and one three-hour laboratory period per week. Mr. Lanier; Mr. Waidelich.

160w. Power Transmission and Distribution. Prerequisite, E. E. 110. Detailed study of the generation, transmission, and distribution of electrical energy for municipal and domestic lighting and industrial application. (4) Three class periods and one three-hour laboratory period per week. Mr. Weinbach.

170f. Wire Communication. Prerequisite, E. E. 110. Sound waves, their conversion into electric waves and reconversion into sound waves. Propagation of electric waves of audio frequencies along conductors. Principles of electrical transmission; line characteristics; attenuation and phase shift, distortion phenomena; the distortionless line and its properties; reflection. Equivalent circuits of lines; amplification. (4) Three class periods and one three-hour laboratory period per week. Mr. Weinbach.

180f. Electronics and Electron Tubes. Prerequisite, E. E. 110. Electron kinetics, cathode ray tubes. The electric field within the vacuum tube, space charge effects. Theory of thermionic emission. Vacuum tube characteristics. Photoelectric emission and phototubes. Principle of gaseous conduction; thermionic rectification and grid control. Three class periods and one three-hour laboratory period per week. (4) Mr. Wallis.

182w. Radio Communication. Prerequisite, E. E. 180. Resonant, coupled, and oscillatory circuit analysis. Audio and radio amplification, detection and modulation as used in radio communication. Antenna characteristics and principles of electromagnetic wave propagation. Three class periods and one three-hour laboratory period per week. (4) Mr. Wallis.

185w. Special Problems in Electrical Engineering. Prerequisite, E. E. 150, 170 or 180. Analytical or experimental problems pertaining to electrical circuits, machines, or thermionics. (2-4) Mr. Lanier; Mr. Vaile; Mr. Weinbach; Mr. Wallis, Mr. Waidelich.

200f or w. Seminar. Prerequisite, graduate standing. Reviews of recent investigations and projects of major importance. (1) Department Staff.

210f or w. Advanced Machine Analysis. Prerequisite, E. E. 151. Polyphase banks of transformers, polyphase induction and synchronous machines under conditions of unbalance in load or voltage. Higher harmonics, in transformers and rotating machines. Synchronous machines under transient conditions. (3) Mr. Lanier.

230f or w. High Voltage Circuits. Prerequisites, E. E. 150 and 160. Dielectric circuits; the breakdown of dielectrics; lightning disturbances; problems of design of apparatus for high voltage. (3) Mr. Vaile.

242f or w. High Voltage Transmission. Prerequisites, E. E. 160 and 170. Transmission of electrical energy; practical limitations due to static stability; line regulation; transient instability due to faults and switching; operative precautions. (3) Mr. Weinbach.

250f or w. Power Rectification, Inversion and Control. Prerequisite, 180w. Pulsating currents and laws of average values. Rectifier cut-off and non-cut-off characteristics. Exact solution of single-phase and polyphase rectifier circuits; anode circuit unbalance, mathematical analysis of the controlled rectifier and inverter circuit; inverter stability. (3) Mr. Wallis.

280f or w. Advanced Electric Circuit Analysis. Prerequisite, E. E. 110. Specialized study of higher mathematical analysis as applied to the solution of circuit networks with fixed and variable parameters under steady and transient conditions. (3) Mr. Weinbach.

285f and w. Special Studies in Electrical Engineering. Prerequisites, E. E. 150, 160, 170, and 180. Analytical or experimental investigation of problems pertaining to electric circuits, machinery or systems. (2-5) Mr. Lanier; Mr. Weinbach; Mr. Wallis; Mr. Vaile.

299f and w. Research. Prerequisites, E. E. 151, 170, and 180. Independent investigation of some problem or design in the field of electrical engineering, to be presented in the form of a thesis. (Min. 4 hrs.) Mr. Lanier; Mr. Weinbach; Mr. Wallis; Mr. Vaile.

ENGINEERING

Agricultural, page 302.
Chemical, page 312.
Civil, page 316.
Electrical, page 339.
Mechanical, page 369.

For curricula in *Engineering*, see pages 225 to 234.

ENGLISH

Composition and Rhetoric

1f and w. COMPOSITION AND RHETORIC. Detailed study and practice in construction and the kinds of composition. (3) MR. MOFFETT; MR. BREWSTER; MR. CRIST; MR. HICKS; MR. HINMAN; MR. HOPPE; MR. JOHNSON; MR. MORGAN; MR. OGDEN; MR. PEPPER; MR. RUDDEN; MR. RUST; MR. SPIDELL; MISS VAUGHN; MR. WESTBROOK.

2f and w. COMPOSITION AND RHETORIC. A continuation of course 1. (3)

Courses 1 and 2 are required work for freshmen, except for those entering with three units of Latin or with two units of Latin and two units of Greek, who may substitute further work in Latin or Greek.

50f and w. NARRATION. Study and practice in writing the short story and others forms of narrative composition. Prerequisite, course 5, 6, 30, or 40. (3) MR. RAMSAY; MISS BRASHEAR; MR. PEPPER; MR. JOHNSON.

60f and w. EXPOSITION. The critical study of current exposition, with practice in writing. Recommended for those who intend to enter the professional schools. (3) MR. RANKIN; MISS BRASHEAR; MR. HINMAN; MR. HOPPE; MR. JOHNSON; MISS LEWIS.

100w. THE SHORT STORY. An advanced course in the art of story writing, with criticism, discussion, and conferences. Prerequisite, course 50 or its equivalent. (3) MR. RAMSAY.

101f. ADVANCED WRITING. Advanced course open to a limited number. Prerequisite, consent of the instructor. (3) MR. RANKIN.

Speech and Dramatics

SPEECH CLINIC. For students with speech defects. No registration needed; admission after conference with the director of the clinic. (no credit) MR. REID.

15f and w. READING AND SPEAKING. Basic problems in effective communication illustrated by practice in reading and speaking. (This course is an introduction to both aspects of speech training: interpretation (74, 107, 108, 109, 110, 111, 112) and public address (16, 75, 105, 106, 114, 115, 116). Students having speech defects should register for the Speech Clinic and should continue with 73 and 118.) (2) MR. REID; MR. HUNTER.

16w. ELEMENTARY DISCUSSION AND DEBATE. Analysis of public questions; evidence; briefing; types of argument; fallacies; group discussion and formal debate. (2) MR. ALY; MR. HUNTER.

73f and w. VOICE AND ARTICULATION. Careful analysis of the voice and articulation difficulties of each student; remedial procedures adapted to individual problems. Lectures, assigned readings, demonstrations, exercises, conferences. (2) MR. REID.

74f and w. ORAL INTERPRETATION. Intensive study of literary forms; principles of oral reading; individual drill before classroom presentation of selections. Prerequisite, course 5, 6, 30, or 40. (2) MR. GILMAN.

75f and w. PUBLIC SPEAKING. Parliamentary practice; impromptu, extemporaneous, written, and memorized speeches; narrative, expository, and argumentative forms; drill on delivery. Prerequisites, courses 1 and 2. (3) MR. GILMAN; MR. ALY; MR. REID; MR. HUNTER; MR. DRUSHAL.

105f. ARGUMENTATION. Technique of persuasion by means of logical and psychological analysis, with practice both oral and written. (3) MR. ALY.

106w. GROUP DISCUSSION AND DEBATE. Analysis of current problems in public discussion, with the application of principles derived from the theories of persuasion and the study of historic debates. (3) MR. ALY.

107f. DRAMATIC INTERPRETATION. (Not offered in 1939-40.) (3) MR. RHYNSBURGER.

108w. CHARACTERIZATION AND ACTING. (Not offered 1939-40.) (3) MR. RHYNSBURGER.

109w. STAGECRAFT. Functions of stage settings. Theory of various methods and periods of stage decoration. Procedure in mounting play from first floor plans and sketches, through models and final construction and painting of scenery. (Laboratory arranged.) (3) MR. RHYNSBURGER.

110f. PRINCIPLES OF STAGE DIRECTION. Analysis, study, and practical demonstrations of the five fundamental principles of directing. Thorough consideration of all the visual aspects of directing a play. (Rehearsals arranged.) (3) MR. RHYNSBURGER.

111w. PLAY PRODUCTION. Directing different kinds of plays. Play selection, casting, rehearsals, and production. (3) (Rehearsal arranged.) MR. RHYNSBURGER.

112f. INTRODUCTION TO THE THEATRE. Brief consideration of each of the various contributing elements. (3) MR. RHYNSBURGER.

114w. PUBLIC ADDRESS. Persuasive speaking adapted to audience and occasion; study and delivery of deliberative, professional, social, and ceremonial speeches. Prerequisite, course 75. (3) MR. GILMAN.

115f. PRINCIPLES OF RHETORIC. Development of rhetoric from the time of Aristotle; derivation and application of standards for judging effectiveness in writing and speaking. (3) MR. GILMAN.

116w. BRITISH ORATORY. A study of structure, modes of persuasion, and style in typical British oratory from the seventeenth century to the present. (3) MR. GILMAN.

118f. APPLIED PHONETICS. The principles of phonetics applied to the problems of articulation and pronunciation confronting the speaker, the teacher, the speech clinician, and the actor. Laboratory work: standards of pronunciation, clinic cases, dialect studies. (3) MR. REID.

122f. SPEECH CORRECTION. Introduction to the field of speech correction. Systematic study of types of defective speech. Lectures, case presentations, laboratory demonstrations, selected readings. (3) MR. REID.

123w. CLINICAL TECHNIQUES IN SPEECH CORRECTION. Directed clinical training in the correction of speech defects. (2-3) MR. REID.

Literature and Language

5f and 6w. MASTERPIECES. Study of selected masterpieces of English literature. Recommended for freshmen, but open to others. The two courses are independent; either may be taken without the other. (2; 1½ for upperclassmen.) MR. AINSWORTH.

30f and w and 40f and w. ENGLISH LIFE AND LITERATURE. A general survey course in English literature studied in its relation to successive phases of English national life. Not open to freshmen. Required (both parts) for admission to upperclass courses in English literature. (3; 2 for upperclassmen, except those who have had no upperclass courses in English.) MR. WEATHERLY; MR. AINSWORTH; MISS BRASHEAR; MR. BREWSTER; MR. CRIST; MR. HICKS; MR. HINMAN; MR. HOPPE; MR. JOHNSON; MISS LEWIS; MR. MOFFETT; MR. MORGAN; MR. OGDEN; MR. RAMSAY; MR. RUDDEN; MR. RUST; MR. SPIDELL; MISS VAUGHN; MR. WESTBROOK.

102f and 103w. GENERAL LITERATURE. A course in prose and poetry, designed for juniors and seniors in technical professional schools. Prerequisite, consent of the instructor. (3) MR. WEATHERLY.

104w. THE APPRECIATION OF LITERATURE. Discussion of the appreciation of literature and theories of criticism. Practice in writing reviews and critical essays. (3) MR. RANKIN.

119f. THE ENGLISH LANGUAGE, PART ONE. Modern English, looking backward; a survey of the present facts of English, especially its vocabulary, dialects and kindred languages, grammar, and pronunciation, studied in the light of its past history and development. (3) MR. RAMSAY.

120w. THE ENGLISH LANGUAGE, PART TWO. Old English, looking forward; an elementary knowledge of Old English, with special attention to our modern inheritances from it, both in language and in life. Either Part One (119) or Part Two (120) may be taken first. (3) MR. RAMSAY.

Some acquaintance with at least two foreign languages (preferably Greek, Latin, German, French) is practically indispensable to students of the English language, and especially to prospective teachers of English.

121f. MASTERPIECES OF WORLD LITERATURE. A cooperative lecture course by representatives of the departments of Classical Languages, Philosophy, French, Spanish, and English. (This course is not included in English majors or minors.) (3)

125f. CHAUCER AND HIS TIME. A careful reading of some of the *Canterbury Tales* and rapid reading of other parts of Chaucer's work, together with a consideration of the social background of Chaucer's England; introduction to Middle English. (3) MR. RANKIN.

131f. ENGLISH POETRY OF THE RENAISSANCE. Non-dramatic poetry in England from 1500-1640, exclusive of Milton. Sidney, Spencer, the non-dramatic works of Marlowe and Shakespeare, Donne, Herrick, Herbert, and other representative poets will be considered. (3) MR. AINSWORTH.

135f and 136w. SHAKESPEARE. (3) MR. FAIRCHILD.

145w. MILTON. A study of his life and works in relation to his age. (3) MR. AINSWORTH.

155f. THE AGE OF REASON. English literature from 1660 to 1730, with major emphasis on Dryden, the Restoration dramatists, Swift, Pope, and the early eighteenth-century essayists. (3) MR. WEATHERLY.

156w. JOHNSON AND HIS TIME. English literature from 1730 to 1780 with major emphasis on the works of Dr. Johnson and his circle. (3) MR. WEATHERLY.

161f. THE RISE OF PROSE FICTION. Survey of English prose fiction from Malory to Jane Austen; the origin and development of the English novel. (3) MR. WEATHERLY.

162w. THE ENGLISH NOVEL. The English novel, from Jane Austen to the present. (3) MR. WEATHERLY; MR. HOPPE.

165f. THE ROMANTIC PERIOD. A study of literary tendencies and representative authors. (3) MR. AINSWORTH.

166w. THE VICTORIAN PERIOD. A study of the literary tendencies and representative authors. (3) MR. RANKIN.

171f. MODERN PROSE WRITERS. Study of selected prose writers of the nineteenth and twentieth centuries who deal with important present-day problems of American life. (3) MR. RANKIN.

175f and 176w. AMERICAN LITERATURE. (a) Sectional development; (b) The growth of nationality. (3) MR. MOFFETT.

177w. THE AMERICAN NOVEL. A study of the extent to which the novel represents the American experiment, social and political. (3) MISS BRASHEAR.

190w. MODERN POETRY. Representative poets and poetical movements in England and America since 1890. (3) MR. RAMSAY.

195f. MODERN DRAMA. The development of English and American drama during the last half century, with a survey of some foreign dramatists who have influenced its course. (3) MR. RAMSAY.

198f and 199w. DISTINCTION. Special work for candidates for graduation with distinction in English. (3) MR. AINSWORTH; MR. FAIRCHILD; MR. MOFFETT; MR. RAMSAY; MR. RANKIN; MR. WEATHERLY.

Graduate Courses

219f and 220w. LITERARY CRITICISM. History of critical theory from Plato to the present; current theories and problems. The two courses constitute a unit; if at all possible, students should plan on taking both of them. (3) MR. FAIRCHILD.

256f. THE AGE OF JOHNSON. Advanced study of the works of Dr. Johnson and his circle, considered in relation to contemporary social and cultural movements. (3) MR. WEATHERLY.

260f. ENGLISH BIBLIOGRAPHY AND METHOD. A course in methods of research and the discovery, limitation, and mode of attack on graduate problems, illustrated by recent articles and studies. (3) MR. RAMSAY.

265f. ROMANTICISM. A study of the chief English poets of the period from 1780-1825. (3) MR. AINSWORTH.

275w. AMERICAN LITERATURE. Problems for special investigation. (3) MR. MOFFETT.

279f. MARK TWAIN. Formative years, journalism, humor. (3) MISS BRASHEAR.

280w. THE FOREIGN DEBT OF ENGLISH LITERATURE (LYRIC POETRY). A study of the English lyric from the beginning to the present time, with emphasis upon the foreign influences which have demonstrably affected the content, mood, or form of lyric verse. (3) MR. RANKIN.

293w. RECENT FICTION. A study of men, movements, and types. (3) MR. RAMSAY.

299f and w. RESEARCH. Candidates for advanced degrees will meet with instructors for consultation upon their individual problems. (1-8) MR. AINSWORTH; MR. ALY; MISS BRASHEAR; MR. FAIRCHILD; MR. GILMAN; MR. MOFFETT; MR. RAMSAY; MR. RANKIN; MR. REID; MR. RHYNSBURGER; MR. WEATHERLY.

ENTOMOLOGY

1f and w. APPLIED ENTOMOLOGY. A study of the fundamental principles of insect life with special reference to its economic importance, including a careful study of a limited number of insect pests and remedies for their control. (3) MR. HASEMAN; MR. BIRKETT.

104f. INSECT TAXONOMY. A laboratory course dealing with the classification of insects. (2) MR. BIRKETT.

109f and w. BEEKEEPING. A technical study of the honeybee and the science of beekeeping, supplemented with practical work in the apiary. (2) MR. HASEMAN; MR. BIRKETT.

115w. VETERINARY AND MEDICAL ENTOMOLOGY. A detailed study of those insects which are parasitic on poultry, livestock and man. Special attention is paid to those which transmit disease. (3) MR. HASEMAN.

116f. MORPHOLOGY AND DEVELOPMENT OF INSECTS. A technical study of the embryology, growth, development and transformation of insects. (3) MR. HASEMAN; MR. BIRKETT.

117w. ANATOMY AND PHYSIOLOGY OF INSECTS. A technical study of external and internal anatomy and of insect physiology. (3) MR. BIRKETT.

118w. ADVANCED ECONOMIC ENTOMOLOGY. This course includes an intensive study of the behavior, development and control of the major insect pests. (3) MR. HASEMAN; MR. BIRKETT.

120f and 121w. SPECIAL PROBLEMS. Properly prepared students may take up special problems in the different fields of entomology as preparation for research. (Credit to be arranged.) MR. HASEMAN; MR. BIRKETT.

130f. INSECT ECOLOGY. The course covers the field of animal ecology but deals more especially with insects. A reading knowledge of French and German is essential. Open to students who have had adequate training. (3) MR. HASEMAN.

200f and 201w. SEMINAR. Reviews of current literature and reports on original investigations are presented and discussed by the students and members of the faculty. (1) MR. HASEMAN; MR. BIRKETT.

205f and 206w. RESEARCH. Students who have adequate training may undertake original research in economic entomology, systematic entomology or insect morphology. A reading knowledge of French and German is essential. (Credit to be arranged.) MR. HASEMAN.

FIELD CROPS

1f-w. FIELD CROPS. Required of all freshmen. An introductory course dealing with fundamental factors in the production and management of crops. (3) MR. ETHERIDGE; MR. POEHLMAN.

100f-w. FIELD CROPS MANAGEMENT. Required of all juniors. Enrollment restricted to juniors and seniors. Prerequisites, Field Crops 1 and Soils 1. Crop rotations for Missouri conditions and the management of crops in various systems of farming will be studied both theoretically and through practical problems from Missouri fields. (2) MR. HELM.

101f. FIELD CROPS IMPROVEMENT. Prerequisite, Field Crops 1f or w, Botany 1f or w. A summary of the principles underlying the economic breeding of crop plants. Studies in practical methods of plant improvement, in the testing and standardization of varieties, and the quality of seed. (3) MR. POEHLMAN.

102f. FIBER CROPS PRODUCTION. Prerequisite, course 1. Studies of the production of the principal fiber crops, with special attention to the production and management of cotton in Missouri. (2) MR. KING.

103w. FORAGE CROPS PRODUCTION. Prerequisite, course 1. An advanced study of the production and preservation as hay or silage of the principal forage crops; special attention is given to the production and maintenance of pastures. (2) MR. BROWN.

104w. GRAIN CROPS PRODUCTION. Prerequisite, course 1. An advanced study of the production of corn and other important grains; to reach a summary of the important results of investigations of factors related to the yield of each crop will be the essential aim of the course; laboratory studies in grain grading and the taxonomy of the varieties of grains. (3) MR. KING.

200w. CROP EXPERIMENTATION. A study of the methods of experimentation and research with crops in the laboratory, greenhouse, and field; defining the problem; planning the investigation or research; technique and management; collecting and tabulating data; analysis and presentation of data; interpretation of evidence; considerations of the principal sources of error; methods of reviewing literature. For graduate students or specially prepared seniors who intend to enter the professional field of agronomy. (Credit to be arranged.) MR. ETHERIDGE.

201f and 202w. SPECIAL PROBLEMS. A course scheduled by appointment for graduates or specially prepared seniors who wish to investigate along special lines the production of field crops. Problems may be assigned or may be chosen subject to approval. Credit to be arranged but the credit for this course cannot in any case be accepted as a substitute for the credit of any required and regularly scheduled course.

203f and 204w. RESEARCH. Original research in problems in the production, management and improvement of field crops. MR. ETHERIDGE; MR. STADLER; MR. HELM.

205f and 206w. SEMINAR. Discussions of research problems in the production, management and improvement of field crops. Students will present before the class their abstracts of the literature on special topics. Required without credit of graduate students majoring in field crops, but specially prepared seniors may receive a credit of one hour. (1) MR. ETHERIDGE.

215w. ADVANCED GENETICS. Prerequisite, Zoology 125f, or the equivalent. Lectures and readings from the original literature. (3) MISS MCCLINTOCK; MR. STADLER; MISS GUTHRIE.

FRENCH AND ITALIAN

French

1f, w and s. ELEMENTARY COURSE. (5) MR. FESS; MR. JESSE; MR. GIFFIN; MR. DORRANCE.

2f and w. INTERMEDIATE COURSE. (5) MR. JESSE; MR. DORRANCE.

3f and w. ADVANCED COURSE. Three hours of the credit for this course may be counted as upperclass work toward a major or minor in French. (5) MR. FESS; MR. DORRANCE; MR. JESSE.

101w. PHONETICS. The organs of speech, sound formation, oral and aural drill. (1) MR. JESSE.

102f. FRENCH CIVILIZATION. (2) MR. FESS.

103f, w, and s. COMPOSITION AND CONVERSATION. Course conducted entirely in French. (5) MRS. HUDSON.

104f and w. ADVANCED COMPOSITION. Prerequisite, coursd 103. Course conducted entirely in French. (3) MRS. HUDSON.

108f. MASTERPIECES OF FRENCH LITERATURE TO 1700. It is advisable that students take this course before taking others in French literature. (3) MR. JESSE.

108w. MASTERPIECES OF FRENCH LITERATURE FROM 1700 UNTIL TODAY. (3) MR. DORRANCE.

112f. FRENCH NOVEL. (3) MR. DORRANCE.

114f. LYRIC POETRY FROM CHENIER TO VERLAINE. A course conducted entirely in French. Alternates with course 115. (3) MR. TROMBLY.

115f. LYRIC POETRY OF TODAY. Course conducted entirely in French. Alternates with course 114. (3) MR. TROMBLY.

116w. HISTORY OF THE FRENCH LANGUAGE. (3) MR. FESS.

117w. FRENCH RENAISSANCE. (3) MR. FESS.

130f, w, and s. SPECIAL READINGS. (1-3) MR. TROMBLY.

199w. DISTINCTION. (3).

201f. OLD FRENCH. (2) MR. FESS.

202w. SURVEY OF OLD FRENCH LITERATURE. (3) MR. FESS.

205w. LITERARY CRITICISM IN FRENCH. (3) MR. TROMBLY.

206w. MOLIERE. (3) MR. TROMBLY.

207f, w, and s. SPECIAL INVESTIGATIONS. (1-8) MR. TROMBLY; MR. FESS.

210w. STUDIES IN MODERN LITERATURE. (2) MR. FESS.

290f, w, and s. RESEARCH. (1-8) MR. TROMBLY; MR. FESS.

D118w. TEACHING OF FRENCH. (2) MR. JESSE.

Italian

20f. ELEMENTARY COURSE. (5) MR. TROMBLY.

21w. INTERMEDIATE COURSE. (5) MR. TROMBLY.

120f. READINGS IN ITALIAN LITERATURE. (3) MR. TROMBLY.

121w. DANTE. (3) MR. TROMBLY.

127w. INDIVIDUAL WORK. (2) MR. TROMBLY.

GEOLOGY

1f and w. PRINCIPLES OF GEOLOGY. Earth history and materials. (5) MR. BRANSON; MR. TARR; MR. MEHL; MR. KELLER; MR. PECK; MR. OSTRANDER; MR. MOORE; MR. ELLISON.

2f and w. PHYSICAL GEOLOGY. Like 1, but omits the historical part. (3) MR. OSTRANDER; MR. DRAKE.

14f and w. COMMON ROCKS AND MINERALS. Prerequisite, course 1 or 2. (3) MR. MOORE.

15f and w. ADVANCED GENERAL GEOLOGY. Prerequisite, course 1 or 2. (4) MR. PECK.

50f and w. LIFE OF THE GEOLOGIC PAST. Prerequisite, course 1. (2) MR. MEHL.

45f. MINERALS AND ROCKS USEFUL TO MAN. Prerequisite, course 1 or 2. A non-technical consideration of the geology and uses of earth products. (2) MR. KELLER.

107f. MINERALOGY. Prerequisites, courses 1 and 14. (5) MR. TARR

118w. FIELD METHODS. Prerequisite, course 15. (2) MR. MEHL.

120f. HISTORICAL GEOLOGY. Prerequisites, courses 15 and 50. (3) MR. BRANSON.

121w. INTRODUCTION TO PALEONTOLOGY. Prerequisite, course 1. (3) MR. PECK.

145w. ECONOMIC GEOLOGY. Prerequisite, course 107. (3) The origin and exploitation of typical outstanding metallic and non-metallic mineral deposits of the world. (3) MR. TARR.

200f and w. SEMINAR.

201w. PRINCIPLES OF SEDIMENTATION. Offered in 1940-41 and alternate years. Prerequisite, course 107. In addition to the regular content of the course students may elect laboratory problems in mechanical analysis, heavy mineral suites, insoluble residues, etc., for one or two hours' credit. (3-5) MR. TARR; MR. KELLER.

202f. STRUCTURAL GEOLOGY. Prerequisites, courses 105 or 136, and 120. Offered in 1938-39 and alternate years. (3) MR. BRANSON.

204f. GEOLOGY OF OIL AND GAS. Prerequisites, courses 45 and 120. (3-5) MR. MEHL.

205w. HISTORY OF GEOLOGY. Prerequisite, an undergraduate major. (2) MR. BRANSON.

206f. WEATHERING. Prerequisite, course 107. (2) MR. TARR.

207f. VOLCANISM AND METAMORPHISM. Prerequisites, courses 107, 134, and 135. Offered in 1939-40 and alternate years. (2) MR. KELLER.

208w. PRINCIPLES OF ORE DEPOSITS. Prerequisite, course 107. Offered in 1939-40 and alternate years. (3-5) MR. TARR.

210f and w. FIELD PROBLEMS. Prerequisites, course 105 and other courses, depending on the problem selected. (1-8).

216w. ADVANCED STRUCTURAL GEOLOGY. Prerequisites, courses 136 and 202. Offered in 1939-40 and alternate years. (3).

217f. Optical Mineralogy. Prerequisite, course 107. Graduate students not having prerequisites admitted under special arrangements. (4-5) Mr. Keller.

218w. Petrography. Prerequisite, course 134. (3-5) Mr. Keller.

224w. Paleozoic Stratigraphy. Prerequisites, courses 120 and 121. Offered in 1940-41 and alternate years. (3-5) Mr. Branson.

225w. Mesozoic and Cenozoic Stratigraphy. Prerequisites, courses 120 and 121. Offered in 1939-40 and alternate years. (3-5) Mr. Branson.

233f. The Geologic History of the Vertebrates. Prerequisites, courses 120 and 121. Offered in 1940-41 and alternate years. (2-5) Mr. Mehl.

234f. Paleontology of Porifera, Coelenterata, Bryozoa, and Echinoderma. Prerequisites, courses 120 and 121. Offered in 1940-41 and alternate years. (3-5) Mr. Peck.

235f and w. Micropaleontology of Conodonts, Foraminifera and Ostracoda. Prerequisite, course 121. (2-5) Mr. Branson; Mr. Mehl; Mr. Peck.

236f. Paleontology of Mollusca, Brachiopoda, and Arthropoda. Prerequisites, courses 120 and 121. Offered in 1939-40 and alternate years. (3-5) Mr. Branson.

290f and w. Research.

GEOGRAPHY

6f and w. Introductory Geography. A study of natural conditions and cultural development in the several major geographic regions of the world. (3) Mr. Bratton; Mr. Adams.

7f and w. Geography Laboratory. Exercises involving major planetary conditions. May be taken with, or following course 6. (1) Mr. Bratton.

E107f. The Teaching of Geography. Prerequisite, course 6, or 50 hours of college credit. (2) Mr. Bratton.

110f. Geography of North America. Prerequisite, course 6, or consent of instructor. This course is concerned with natural and cultural conditions in each of the major geographic regions of the continent. (3) Mr. Adams.

112w. Geography of Europe. Prerequisite, course 6, or consent of instructor. This course is intended to give the student a general understanding of Europe as a whole, and of the major geographical aspects of the several countries. Offered in 1940-41 and alternate years. (3) Mr. Bratton.

114w. Geography of Asia. Prerequisite, course 6, or consent of instructor. A study of the major geographic conditions of the continent as a whole, also, particular emphasis upon the more important countries. Offered in 1939-40 and alternate years. (3) Mr. Bratton.

119w. Conservation. Prerequisite, 50 hours of college credit, or consent of instructor. A study of problems involved in the use and conservation of our natural resources. Offered in 1940-41 and alternate years. (3) Mr. Bratton.

125f and w. Economic Geography. Prerequisite, course 6, or 50 hours of college credit. A study of the principal producing and consuming areas of the world. (3) Mr. Adams.

130f and w. GEOGRAPHY OF TRADE. Prerequisite, course 6, or 50 hours of college credit. A study of trade centers and trade routes and their functions in the modern economic world. (2) MR. ADAMS.

140w. WEATHER AND CLIMATE. Prerequisite, course 6, or consent of instructor. A study of (1) climatic factors, (2) climatic elements, and (3) the causes of weather changes. (2) MR. BRATTON.

160w. GEOGRAPHY OF SOUTH AMERICA. Prerequisite, course 6, or consent of instructor. (3) MR. ADAMS.

170f. GEOGRAPHY OF CARIBBEAN AMERICA. Prerequisite, course 6, or consent of instructor. (3) MR. BRATTON.

180w. RELATIONS OF GEOGRAPHY AND HISTORY. Prerequisite, 50 hours of college credit. Offered in 1939-40 and alternate years. (3) MR. BRATTON.

190f and w. GEOGRAPHIC PROBLEMS. For students prepared to do semi-independent work. (1-3) MR. BRATTON; MR. ADAMS.

200f and w. SEMINAR. (1-3) MR. BRATTON; MR. ADAMS.

240f. ADVANCED PHYSIOGRAPHY. Offered in 1940-41 and alternate years. (3) MR. BRATTON.

250f and w. FIELD PROBLEMS. (2-4) MR. ADAMS.

280f. MATHEMATICAL GEOGRAPHY. Offered in 1939-40 and alternate years. (1-3) MR. BRATTON.

290f and w. RESEARCH. (1-8) MR. BRATTON; MR. ADAMS.

GERMANIC LANGUAGES

1f and w. BEGINNING COURSE IN GERMAN. (5) MR. ALMSTEDT; MISS NAGEL; MR. FULLER; MR. ZECH.

2f and w. GERMAN READING, SYNTAX AND COMPOSITION. Prerequisite, course 1. (5) MR. ALMSTEDT; MISS NAGEL; MR. FULLER; MR. ZECH.

3f and w. ADVANCED READING COURSE. Prerequisite, courses 1 and 2. (5) MR. ALMSTEDT; MISS NAGEL; MR. ZECH.

104f and w. MASTERPIECES IN GERMAN DRAMA, LYRICS, AND NOVEL. Intensive study from the literary and cultural side of a number of carefully chosen modern German dramas, lyric poems, and novels. Parallel reading and reports. (3) MR. ALMSTEDT.

106f and w. ADVANCED GERMAN COMPOSITION AND CONVERSATION. Advanced course in German theme-writing; discussion of grammatical, syntactical, and stylistic points. This course is intended for teachers of German or for students whose purpose is to become teachers of German; conducted in German. (2) MISS NAGEL; MR. FULLER.

107w. LESSING. Lectures on Lessing's life and works; intensive study of Lessing, the dramatist and the critic. (3).

108f and 109w. SCHILLER. Lectures on Schiller's life and works; intensive study of Schiller's drama and poetry. (3) MISS NAGEL; MR. FULLER.

110f and 111w. GOETHE. Lectures on Goethe's life and works; intensive study of Goethe's poetry and dramas. (3) MR. ALMSTEDT; MR. FULLER.

112f. GERMAN DRAMATIST OF THE NINETEENTH CENTURY. (3) MR. ALMSTEDT; MR. FULLER.

113w. The Modern German Novel. The course deals with the German novel of the past decades in intimate connection with philosophical, psychological, and social problems of modern life. (3) Mr. Zech.

114f. Outline Course in German Literature. The aim of the course is to acquaint the student with the most important works and movements in the evolution of German literary life. (3) Mr. Zech.

115w. Outline Course in German Language. This course, together with course 114, is arranged to meet the needs of the prospective teacher of German. Though the knowledge of the older periods is desirable, it is not required. (3) Mr. Almstedt.

199f and w. Special Readings. In this course advanced seniors will be given the opportunity to do special readings in language and literature. Admission upon conference with the chairman. (1-3) Mr. Almstedt; Miss Nagel; Mr. Fuller; Mr. Zech.

200f and w. Seminar. (1-3).

213f. Romanticism. This course is intended to comprise a study of German romanticists and their works and to show the relation of this movement to similar ones in other literatures. (3) Mr. Fuller.

214f. Middle High German. Introductory course. (3) Mr. Almstedt.

215w. Walter von der Vogelweide. A continuation of the introductory Middle High German course; an intensive study of Walter von der Vogelweide on the background of the historical and cultural conditions of the Hohenstaufen period. (3) Mr. Almstedt.

216f. Recent Movements in German Literature (since 1880). The course discusses naturalism, neo-romanticism, expressionism, and the post-expressionistic period. Stress is laid throughout on the intimate connection between German literature and German thought at large. (3) Mr. Fuller.

217w. Old High German. (3) Mr. Almstedt.

218f and 219w. Gothic. Phonology, morphology, and syntax; reading from Ulfilas; the relationship of Gothic to Indo-European and to later Germanic dialects; general introduction to the study of Germanic Philology. (3) Mr. Almstedt.

220f. Beginning Sanskrit. Elements of the language. Translation of the Sanskrit into English and English into Sanskrit. Thorough drill in forms. Perry's Primer, Whitney's Grammar, Lanman's Reader. (3) Mr. Almstedt.

221w. Continuation of 220f. (3) Mr. Almstedt.

290f and w. Special Studies. In this course graduate students will be given an opportunity to do special investigation work (other than their thesis assignment). Admission only upon conference with the chairman. (1-3) Mr. Almstedt.

299f and w. Research. The integral part of this course is work on a thesis. Admission only upon conference with the chairman. (1-8) Mr. Almstedt; Mr. Fuller.

Other courses in Germanic languages and German literature will be arranged if the needs of the student so require.

GREEK

See *Classical Languages and Archaeology*, page 319.

HISTORY OF ART

See *Art*, page 306.

HISTORY

1f and 2w. MODERN CIVILIZATION. A survey of the history of the modern world, with the division point around 1815. Both courses are open to freshmen, and either may be taken without the other. Upper classmen will receive 2½ hours credit in each course. (3).

4f and w. ANCIENT AND MEDIEVAL HISTORY. A general survey of historical development from the earliest times to about 1500 A. D. Seniors receive only 4 hours' credit. (5) MR. BRADY.

8f and w. AMERICAN HISTORY. A survey of the colonial and national periods. Four hours credit only to seniors. (5) MR. ATHERTON.

106f and w. CONTEMPORARY EUROPE. A survey of European history in the twentieth century, dealing with political and economic development and the insistent problems of world politics. (3) MR. WOLF.

110f and w. RECENT UNITED STATES HISTORY. A study of the United States since 1898 as an historical background to present-day problems. (3) MR. ELLIS.

115w. HISTORY OF MISSOURI. The economic, social and political development of the state. (2) MR. VILES.

124f. GREEK HISTORY. A study of the political and social institutions and the intellectual life of the Greek city-states to the time of Alexander. (3) MR. BRADY.

125w. ROMAN HISTORY. The origin and development of Roman institutions and of Rome's expansion and culture, through the reign of Marcus Aurelius. (3) MR. BRADY.

128w. THE HELLENISTIC AGE. The history of the Greek World from Alexander to the death of Cleopatra. (2) MR. BRADY.

132f. THE EASTERN ROMAN EMPIRE. A study of the institutions, culture, and foreign contacts of the Byzantine Empire. (2) MR. BRADY.

139w. HISTORY OF ISLAM. The institutions and culture of the Moslem world to the Mongol conquest. (2) MR. WRENCH.

146w. THE BRITISH EMPIRE. A survey of its growth and organizations and of the relations of the colonies and dependencies to the mother country. (3) MR. MULLETT.

150f. INTELLECTUAL HISTORY. A survey of the predominant ideas of the intellectual classes in the realms of religion, science, and social philosophy in ancient and medieval times as determining factors in historical development. (3) MR. MULLETT.

151w. INTELLECTUAL HISTORY. Continuation of 150f in modern times. (3) MR. MULLETT.

152f. THE EARLY MIDDLE AGES: 300-1050. A study of the transition from the Ancient to the beginnings of the Medieval World. (3) MR. WRENCH.

153w. THE MIDDLE AGES, 1050-1453. The Medieval World in its heighth and decline. (3) MR. WRENCH.

157f. MEDIEVAL FRANCE. A study of French history, institutions and influence from 987 to 1450. (2) MR. WRENCH.

158f. THE MEDIEVAL CHURCH. Alternate years. Given in 1939-40. (2) MR. WRENCH.

159w. THE BEGINNING OF CAPITALISM. A study of the rise of the capitalistic system in the thirteenth to the fifteenth centuries. Seniors and graduates only. (2) Alternate years. Given in 1940-41. MR. WRENCH.

165w. MODERN FRANCE. A study of the French internal and external problems and policies since 1815. (3) MR. WOLF.

166f. MODERN GERMANY. The origins and development of the institutions and ideas of the German Empire, the Republic and Third Empire. (3) MR. WOLF.

167w. ECONOMIC HISTORY OF MODERN EUROPE. The changes in agriculture and manufacturing and their effect on capital, labor, and governmental policies, external and internal. (3) MR. WOLF.

168f. DIPLOMATIC HISTORY OF EUROPE (since 1815). The policies of the Great Powers and the Alliances in the imperialistic period in relation to social, economic, political, and military conditions of the time. (3) MR. WOLF.

170f. ENGLISH CONSTITUTIONAL AND LEGAL HISTORY. A study of the development of English constitutional and legal institutions, the chief emphasis being placed on their relation to the general social and economic background. (3) MR. MULLETT.

171f. TUDOR AND STEWART ENGLAND. A comprehensive treatment of the period, 1485-1688, which saw the rise of the middle class, the evolution of parliamentary sovereignty, the separation from the Roman Church, and the beginning of overseas expansion. (3) MR. MULLETT.

172w. MODERN ENGLAND. A survey of English evolution in the eighteenth and nineteenth centuries, emphasizing political and economic developments. (3) MR. MULLETT.

180w. SOCIAL FORCES IN AMERICAN HISTORY. The origin and development of the principal American social forces and institutions. (3) MR. ELLIS.

181w. AMERICAN COLONIAL HISTORY. A study of colonial institutions as the background for the American Revolution. (3) MR. ATHERTON.

182f. HISTORY OF THE WEST. A study of the frontier in American history; its development and its influence on American ideals and politics. (3) MR. VILES.

183w. THE FAR WEST. The Great Plains and the Rocky Mountain-Pacific Coast areas and their influences on national development. (2) MR. VILES.

184f. HISTORY OF THE SOUTH. The chief emphasis will be placed on the social, economic, and intellectual life of the South in the ante-bellum period. (3) MR. ATHERTON.

185f. ECONOMIC HISTORY OF THE UNITED STATES. A survey of the structure and tendencies of American economic life from the Colonial period to the present. (2) MR. ATHERTON.

188f. FOUNDATIONS OF TWENTIETH CENTURY AMERICA. The economic social, cultural and political development of the United States from the end of the Civil War to the opening of the Twentieth Century. (3) MR. ELLIS.

189w. AMERICAN CONSTITUTIONAL HISTORY, 1763-1876. The development of constitutional theories and interpretations with special reference to sectional interests and party politics. (3) MR. VILES.

190f. AMERICAN DIPLOMATIC HISTORY. A survey of the foreign relations of the United States. (3) MR. STEPHENS.

198f and 199w. DISTINCTION. Special work for candidates for graduation with distinction in history. (3) THE DEPARTMENT.

201w. HISTORICAL INTERPRETATION. The nature and content of History and its relations to the other social studies. (2) MR. VILES.

210f and w. SPECIAL STUDIES. Designed especially for graduate students whose major interest or whose research work demands additional directed training. (Credit to be arranged.) THE DEPARTMENT.

220f and w. STUDIES IN GREEK AND ROMAN HISTORY. (2-3) MR. BRADY.

250w. READINGS IN MEDIEVAL HISTORY. (2) MR. WRENCH.

260f and w. READINGS IN CONTEMPORARY EUROPE. Selected topics in the recent history of Europe and world politics. (2) MR. WOLF.

270f. READINGS IN BRITISH HISTORY. (2) MR. MULLETT.

280f. STUDIES IN WESTERN HISTORY. (2) MR. VILES.

281w. STUDIES IN RECENT AMERICAN DIPLOMATIC PROBLEMS. (2) MR. STEPHENS.

283f and w. READINGS IN RECENT U. S. HISTORY. (2-4) MR. ELLIS.

284w. READINGS IN HISTORY OF THE SOUTH. (2) MR. ATHERTON.

299f and w. RESEARCH. (Credit to be arranged.) THE DEPARTMENT.

HOME ECONOMICS

1f and w. SELECTION AND PREPARATION OF FOOD. An elementary food course planned to give the student a knowledge of the principles underlying the selection and preparation of food. (5) MISS CLINE.

5w. FOOD PREPARATION. A laboratory course, primarily for nurses, designed to give a knowledge of proper selection and preparation of common foods and their combination into adequate and attractive meals. One two-hour period. Should follow or parallel home economics 130. (1) MISS WHIPPLE.

10f and w. HOME PROBLEMS. A course planned to give the student a general insight into the field of home economics and its application to personal living. (2) MISS HARRISON.

15f and 16w. DESIGN. The study of the elements and principles of design in relation to home problems. (2-2) MISS SCHELL.

20f and w. HOME NURSING AND HEALTH. A study of the home care of the sick and of family health. (2) MISS NAHM.

50f and w. TEXTILES AND CLOTHING. A study of textiles and the selection and care of clothing. (3) MISS BERESFORD.

51w. TEXTILES AND CLOTHING. Prerequisite, home economics 50. Clothing construction. (3) MISS BERESFORD.

110f and w. HOME FURNISHING I. Prerequisites, home economics 16 and 150, or permission of instructor. A study of furniture, fabrics and decorative accessories in relation to exterior and interior style of architecture. (3) MISS SCHELL.

111w. HOME FURNISHING II. Prerequisite, home economics 110. A study of the origins and development of contemporary house design and its decoration; and problems in adaptations of historic decorative periods. (2) MISS SCHELL.

115f and w. HOME MANAGEMENT. A course dealing with the problems arising in the management of a home. Opportunity is provided through residence in a self-sustaining home for developing judgment in the solution of typical problems. (4) MISS BOWMAN.

117f and w. ECONOMIC PROBLEMS OF THE FAMILY. Prerequisite, general economics. A study of the economic problems of the modern family including the size, source, control, adequacy, and security of the money income; the spending of the money income; and the utilization of time, energy and ability of members of the household in direct production. (3) MISS COLES.

118f and w. THE CONSUMER-BUYER AND THE MARKET. Prerequisite, general economics. A study of the present-day market from the standpoint of the consumer-buyer. (3) MISS COLES.

120f. FOOD BUYING. Prerequisite, home economics 1 or its equivalent. A study of grades, brands, varieties, costs and qualities of food products; modern methods of production, manufacture, and merchandising as they affect quality, availability, and price; and local, state, and Federal legislation as they affect quality and sanitation of food products. (2) MISS CLINE.

121f and w. NUTRITION. Prerequisites, organic chemistry, physiology and home economics 1. A study of the various nutrients occurring in the cell and in food; and digestion, absorption and utilization. (3) MISS WHIPPLE.

122f and w. DIETETICS. Prerequisite, home economics 121. A study of food requirements in health throughout childhood and adult life; the nutritive value of foods; and the practical application of the principles of human nutrition to the selection of adequate diets at different cost levels. (4) MISS BISBEY.

123w. ADVANCED DIETETICS. Prerequisite, home economics 122. A study of recent developments in nutrition and dietetics; and the application of principles of normal nutrition to diet in disease. (3) MISS BISBEY.

124w. FIELD WORK IN DIETETICS. A study of the special dietary problems of malnourished and normal individuals; work with children in the child-care laboratory; field work in connection with social welfare activities; and arranged field trips to institutions. (2-3) MISS WHIPPLE.

125f and w. MEAL PLANNING AND TABLE SERVICE. Prerequisite, home economics 1, or its equivalent; home economics 120 advised. Problems in time, labor, money, and equipment in relation to planning, marketing, preparation, and service of meals for the family group, considering dietary standards and food habits; and appropriate forms of service for various types of meals. (2) MISS WHIPPLE.

130f and w. FOOD IN RELATION TO HEALTH. A practical course in nutrition planned for students who are not specializing in home economics. No prerequisites. Open to both men and women. (3) MISS BISBEY.

145f and w. COSTUME DESIGN. Prerequisite, home economics 16 or Introduction to Art. A study of line, form, color and texture as applied to dress. (2) MISS BERESFORD.

146f. HISTORY OF COSTUME. Prerequisite, home economics 145. A study of the history of costume as a source of inspiration for modern costume design. (3) MISS BERESFORD.

150f and w. BUYING OF CLOTHING AND TEXTILES. Prerequisite, home economics 50. A study of the problems of buying clothing and textiles including household textiles. Desirable characteristics, methods of identification, uses, availability in various markets, and prices are studied. (3).

152w. COSTUME DESIGN AND CONSTRUCTION. Prerequisites, home economics 51 and 145. Draping and modeling costumes of original designs. (3) MISS BERESFORD.

155f. ADVANCED TEXTILES. Prerequisites, course 150 and organic chemistry. A study of the physical and chemical characteristics of the textile fibers; and the methods and importance of textile testing. (3).

156f. HISTORY OF DECORATIVE TEXTILES. Prerequisite, home economics 110 or permission of the instructor. A study of historic and modern textile design. Illustrated lectures and demonstrations. (2) MISS SCHELL.

160f and w. HOME CARE AND TRAINING OF CHILDREN. A study of problems arising in the normal, physical, mental and social development of children. (3) MISS BOWMAN.

161f and w. CHILD CARE LABORATORY. The laboratory is organized for observation of the pre-school child by the class in Home Care and Training of Children. It also gives opportunity for a few students to have the experience of working with the children while studying their social development. (Credit to be arranged.) MISS BOWMAN.

170f. EXPERIMENTAL COOKERY. Prerequisite, home economics 121. This course involves elementary research in the science of food preparation under controlled conditions. (2) MISS CLINE.

180f and w. SPECIAL PROBLEMS IN HOME ECONOMICS. With approval of instructor, opportunity is provided to work independently on special problems in home economics. (Credit to be arranged.)

200f and w. SEMINAR IN HOME ECONOMICS. The most recent work in home economics is reviewed in the fields of nutrition, food preparation, economic problems of the family, or textiles and clothing. (Credit to be arranged.) MISS BISBEY; MISS CLINE; MISS COLES.

202f. METABOLISM. Prerequisites, home economics 122 and chemistry 25, preceding or parallel. A study of various phases of metabolism through calorimetry, and human feeding experiments. (5) MISS WHIPPLE.

280f and w. SPECIAL STUDIES IN HOME ECONOMICS. With approval of instructor, investigation of special problems in various home economics fields are made.

290f and w. RESEARCH IN HOME ECONOMICS. (Credit to be arranged.) MISS BISBEY; MISS CLINE; MISS COLES.

HORTICULTURE, LANDSCAPE GARDENING AND FORESTRY

Horticulture

1f and w. GENERAL HORTICULTURE. An introductory course dealing primarily with the location and management of the farm orchard and garden. It embraces production, harvesting, and storing of fruits and vegetables; also the planning, planting, and management of the home grounds. Lectures, laboratory work, and assigned reading. (3) MR. SWARTWOUT; MR. TALBERT.

100f. GENERAL POMOLOGY. Prerequisite, course 1. A course dealing with the establishment and maintenance of orchards, vineyards and small-fruit plantings. Lectures, assigned readings, and laboratory work. (3) MR. TALBERT.

101w. ADVANCED POMOLOGY. Prerequisite, course 100f. A continuation of course 100, dealing especially with the subjects of root stocks, pruning, fertilizing, and spraying orchards. (3) MR. TALBERT.

105f and w. SYSTEMATIC HORTICULTURE. Prerequisites, Horticulture 1 and Botany 1. Open to juniors and seniors only. A systematic study of the classification and nomenclature, with laboratory work in description, identification, and judging of fruits, vegetables. (3) MR. SWARTWOUT.

106w. COMMERCIAL VEGETABLE GROWING. The use of irrigation, fertilizers, spraying equipment and forcing structures in their relation to vegetable-growing with discussion on seed-growing, truck farm management, and methods of marketing vegetables. Three lectures and assigned readings. (3) MR. SCHROEDER.

109f. GENERAL FLORICULTURE. The production of flowers with special reference to home culture and use; seeds and seeding, plants, propagation, varieties, planting, soils and fertilizers, pests, their control, and other cultural practices. Two lectures and one laboratory period. (3) MR. SWARTWOUT; MR. TALBERT.

113w. SPRAYING. Prerequisites, Horticulture 1 and General Inorganic Chemistry. A study of spray materials, spray machinery and results. Lectures, laboratory work, and assigned readings. (5) MR. SWARTWOUT.

114f. COMMERCIAL POMOLOGY. The harvesting, grading, packing, storage, and marketing of fruits. Lectures, assigned reading, and laboratory exercises. (3) MR. MURNEEK.

115w. IMPROVEMENT OF HORTICULTURAL PLANTS. A study of the fundamental laws of genetics, as applied to evolution and breeding of horticultural plants. Lectures, assigned reading and problems. (3) MR. MURNEEK.

116f and w. SPECIAL PROBLEMS. Topics in pomology, olericulture, forestry, landscape gardening, and floriculture. Hours by appointment. MR. TALBERT; MR. MAJOR; MR. MURNEEK; MR. SCHROEDER; MR. SWARTWOUT; MR. VINSON.

119w. VEGETABLE FORCING. Types and equipment of forcing structures with discussions on crops. Two lectures and one laboratory period. (3) MR. SCHROEDER.

133w. SMALL-FRUIT CULTURE. A course dealing with the planting, culture, and harvesting of small fruits and grapes. Two lectures and one laboratory period. (3) MR. SWARTWOUT.

144s and w. VEGETABLE GARDENING. The fundamentals involved in the growing of vegetable crops, primarily from the home gardener viewpoint. (3) MR. SCHROEDER.

203w. CHEMISTRY AND PHYSICS OF SPRAYING. Prerequisite, course 113w. A study of the composition, toxicity, compatibility, deterioration, spreading, and adhesion of spray materials. (To be arranged.) MR. SWARTWOUT.

204w. BREEDING OF HORTICULTURAL PLANTS. Prerequisite, course 115w or equivalent. Study of literature and original investigations on breeding and selection of horticultural plants. Hours by appointment. MR. MURNEEK.

206w. FORCING PROBLEMS WITH TRUCK CROPS. A study of such problems as soil sterilization, temperature and humidity, training, pruning, pollination, and the use of fertilizers. (3) MR. SCHROEDER.

208w. NUTRITION OF HORTICULTURAL PLANTS. A detailed study of the important nutrient elements, their absorption and utilization; of the manufacture and utilization of carbohydrates; and of fertilizer treatments with reference to horticultural plants. (3) MR. VINSON.

210f. METHODS OF HORTICULTURAL RESEARCH. A study of methods of procedure in work of investigation—outlining problems, assembling and analyzing data and presenting results. Lectures, assigned readings and problems. (3) MR. VINSON.

212w. PRUNING PROBLEMS. Prerequisite, course 100 or equivalent. The fundamental principles of pruning and its physiological effects upon deciduous fruit trees. Laboratory, assigned readings and problems. (3) MR. TALBERT.

215f and w. SEMINAR. A critical study of recent investigations in horticulture and of investigations in other fields as they relate to horticulture. (1) MR. TALBERT; MR. MURNEEK; MR. SWARTWOUT; MR. VINSON.

220f. ROOT STOCKS FOR DECIDUOUS FRUIT TREES AND VINES. Suitable stocks for apples, pears, and grapes. Propagation of apples and pears upon their own roots, by means of whole roots and crown grafts. Native grapes as stocks for the best commercial varieties. (Credit to be arranged.) MR. TALBERT.

221f. MORPHOLOGY OF HORTICULTURAL PLANTS. Prerequisite, Botany 1 and 104f. A detailed study of morphology and histological structure of horticultural plants of economic importance. (Credit to be arranged.) MR. MURNEEK.

290f and w. RESEARCH. Hours by appointment. (Credit to be arranged.) MR. TALBERT; MR. MAJOR; MR. MURNEEK; MR. SWARTWOUT; MR. VINSON.

Landscape Gardening

6f and w. ELEMENTARY LANDSCAPE GARDENING. Lectures, text, drafting of plans. Theory and principles of designing of the home grounds and a study of plan-making with reference to the arrangement of home grounds of the farm and town. (3) MR. MAJOR.

11f. HISTORY OF LANDSCAPE ART. A study of gardens: Mythological, ancient, Renaissance, mediaeval, and modern. Lectures and assignments. (1) MR. MAJOR.

102f. ELEMENTARY LANDSCAPE DESIGN. Theory and principles of landscape design as applied to the development of public and private estates including parks, churches, schools, railroad stations, cemeteries and country estates. Prerequisites, courses 6, 103, 104. Lectures and laboratory. (3) MR. MAJOR.

103f. ORNAMENTAL HORTICULTURE (Trees). A study of the shade trees and ornamental trees used in landscape gardening; their identification, character, habits, adaptation and care. Lectures, laboratory, and text. (3) MR. MAJOR.

104w. ORNAMENTAL HORTICULTURE (Shrubs and vines). A study of the ornamental, native and cultivated shrubs and vines used in landscape gardening; identification, character, habits, adaptation and care. Lecture and laboratory. (3) MR. MAJOR.

111w. ELEMENTARY LANDSCAPE DESIGN (2nd term). Prerequisite, 102f and surveying. (2) MR. MAJOR.

112w. ADVANCED LANDSCAPE DESIGN. Prerequisite, undergraduate work in landscape gardening. Principles of landscape design, with tracings and original designs for home, school, church, cemetery, and railroad grounds. (3) MR. MAJOR.

Forestry

Forestry 50f. GENERAL FORESTRY. An introduction to all phases of forestry to acquaint the student with the entire field. (3) MR. PECK.

Forestry 51w. DENDROLOGY. A systematic classification of deciduous and coniferous tree forms native to the United States and their identification under field conditions. 1 hour lecture, 4 hours field and laboratory. (3) MR. PECK.

Forestry 52f. FOREST MENSURATION. The use of instruments for measurement of height and diameter of trees; determination of volume of trees, logs and stands; growth of trees in diameter; height, and volume. 1 hour lecture, 2 hours field and laboratory. Prerequisite, mathematics 8f. (2) MR. PECK.

Forestry 53w. SILVICULTURE. The effect of the site factors on forest vegetation; classification and mapping of forest types; growth and reproduction of forests; effect of forests on the site; reproduction methods of cutting; stand improvement measures. 3 hours lecture, 4 hours field and laboratory. Prerequisite, Forestry 51w. (5) MR. PECK.

Forestry 150f. FARM FORESTRY. Identification of trees and woods; measurement of log and tree volumes; windbreaks; care of the woodland; forest planting; forestry practices for increasing game population; erosion control by forestry. 2 hours lecture; 2 hours field and laboratory. Fall semester. Not open to students taking professional forestry. (3) MR. PECK.

Forestry 151f. FOREST CONSERVATION. The forest resources of the United States; forest economics; methods of conserving forest resources; important forest regions of the United States and the problems in each. 3 hours lecture. Fall semester. (3) MR. PECK.

JOURNALISM

In addition to the Fall, Winter, and Summer Sessions, the School of Journalism holds an Intersession of five or six weeks during August and the first part of September. The work, giving one credit hour for each week, is in laboratory courses only and enrollment may be for the entire session or any part thereof. These courses are identified in this catalog as "ss".

Basic Courses

100f, w. HISTORY AND PRINCIPLES OF JOURNALISM. Lectures, textbook, written reports, giving orientation in newspaper practice and the essentials of the history of journalism, stressing principles and the use of background. Prerequisite, junior standing. No journalistic prerequisite. May be taken for credit in the College of Arts and Science. (5) MR. ELLARD.

102f, w and s. THE NEWS. Introductory course, prerequisite to all other courses in Journalism, except when noted, and except in courses in Advertising. Methods of gathering news, the work of press associations, the writing of news, and news values. (3) MR. MARTIN; MR. SWINDLER.

103f, w, s and ss. REPORTING I. Prerequisite, course 102. Assignments on a daily newspaper. (3) MR. SHARP; MR. BRYANT.

104f, w, s and ss. REPORTING II. Continuation of course 103. (3) MR. SHARP; MR. BRYANT.

105f, w, s and ss. REPORTING III. Advanced reporting and writing for a daily newspaper. Enrollment by permission. (3-5) MR. SHARP; MR. BRYANT.

110f, w and s. COPY READING I. Theory of editing newspaper copy and writing headlines. Course 103 must be taken either before or with this course. (2) MR. MORELOCK.

111f, w, s and ss. COPY READING II. Practice in editing copy and writing headlines for a daily newspaper. (2-4) MR. MORELOCK; MR. BRYANT.

112f, w, s and ss. COPY READING III. Continuation of course II. Enrollment by permission. (1-3) MR. MORELOCK; MR. BRYANT.

Advertising

120f, w and s. ADVERTISING PRINCIPLES AND PRACTICE. Advertising fundamentals in relation to modern business activities. Three lecture periods and two hours laboratory practice weekly. (3) MR. JOHNSTON; MR. JONES; MR. NELSON.

121f and w. ADVERTISEMENT WRITING AND LAYOUT. Application of modern merchandising methods to the preparation of advertising copy and layout design. Two lecture periods, with outside assignments, and two hours laboratory practice weekly. (3) MR. JOHNSTON; MR. NELSON.

123f and w. PRINCIPLES OF TYPOGRAPHY. Consideration of type styles and sizes and the mechanical equipment of the newspaper plant. (2) MR. FINLEY.

124f, w, s and ss. ADVERTISING COPY. Practice writing of advertisements for publication in newspapers and magazines. Prerequisite, course 121. (2) MR. JONES.

126f, w, s and ss. ADVERTISING SALESMANSHIP. Applying the principles of space selling to specific lines of business by work with advertising clients on a daily newspaper. Required of all students who have elected a major in advertising. (3) MR. JONES.

129f and w. CIRCULATION METHODS. Methods of building circulation for newspapers, with laboratory practice in the general and special problems encountered. (1) MR. JONES.

130f and w. CLASSIFIED ADVERTISING. The uses, mechanics, and laboratory practice in the selling of classified advertising. (1) MR. JONES.

132f. ADVERTISING AND DISTRIBUTION. The mechanism and operation of markets, in relation to effect on the distribution of advertised commodities and services. (2) MR. JOHNSTON.

134f. RETAIL ADVERTISING. Analysis, from the advertising viewpoint, of the selling and store-management problems encountered in the local field. (2) MR. JOHNSTON.

135w. DIRECT ADVERTISING. Practice writing to a selected audience through all forms of direct media, and a consideration of the physical make-up of each. (2) MR. JOHNSTON.

136w. ADVERTISING PROBLEMS. Analysis and solution, by the case method, of a wide variety of advertising, merchandising, and distribution problems, from the approach of the business executive. (2) MR. JOHNSTON.

137w. PROMOTIONAL ADVERTISING. The scope and possibilities of the use of radio, newspapers, magazines, direct mail, outdoor, and other forms of media in promoting civic, co-operative, public, institutional, and business organizations. (2) MR. JOHNSTON.

138w. TRADE AND TECHNICAL PUBLICATIONS. Study of publication types and writing for house organs, business, and trade and technical publications. (2) MR. BRYANT.

140f, w and s. SENIOR SEMINAR IN ADVERTISING. Special work on current problems. For seniors majoring in advertising. (1) MR. JOHNSTON; MR. JONES; MR. FINLEY.

142w. PRINCIPLES OF PHOTO-ENGRAVING. A study of engraving and printing processes, including rotogravure, photogravure, and process color printing. (2).

143f. USE OF ILLUSTRATIONS. Pictures in relation to text in both news and advertising. (1).

144f and w. PRESS PHOTOGRAPHY. News and advertising assignments involving the use of the camera. (1).

145f and w. ADVANCED PRESS PHOTOGRAPHY. Continuation of course 144, with special assignments. (1).

Editorial Direction

151w. COMPARATIVE JOURNALISM. Study of foreign and American publication. (3) MR. MARTIN; MR. SWINDLER.

152f, w, s and ss. THE EDITORIAL. Interpretative news writing, state capital, Washington and foreign correspondence. Fundamental attitudes toward basic contracts with the state, economic and governmental principle, historical trends, art, philosophy, etc. Prerequisite, twelve semester hours of upper class courses in economics, political science, history, including work taken simultaneously with enrollment in this course. (3) MR. ELLARD; MR. SWINDLER.

153f, w, s and ss. NEWSPAPER MAKING. Special laboratory instruction for advanced students in both news and advertising. Enrollment by permission. (1-3) MR. MARTIN; MR. ELLARD; MR. GERALD; MR. JOHNSTON; MR. MORELOCK; MR. SHARP; MR. BRYANT; MISS GRINSTEAD; MR. JONES; MR. FINLEY; MR. SWINDLER.

154s. SPECIAL CORRESPONDENCE. Field trip, including the daily writing of articles for newspapers. Details of each year's trip available about May 1. (8) MR. MARTIN.

155f. INTERNATIONAL NEWS COMMUNICATIONS. The use of cables and radio in carrying news between nations. (1) MR. SHARP.

156w. LAW OF THE PRESS. Study of libel, privacy, copyright and constitutional guaranties of freedom of the press. (2) MR. MORELOCK.

158f, w, s and ss. NEWS BROADCASTING. Processing and actual daily broadcasting of both local and leased-wire-service news. Prerequisite, course 103. (3) MR. BRYANT.

Special Writing

160f and w. FEATURE WRITING. The writing of feature stories, with related problems. Prerequisite, course 103. (3) MISS GRINSTEAD.

161f and w. THE SPECIAL ARTICLE. Writing of articles for syndicates, newspapers and magazines. Prerequisite, course 160 or its equivalent in writing experience. (3) MISS GRINSTEAD.

162f and w. LITERARY REVIEWING. Critical study of modern books; study of newspapers and magazines devoted entirely or in part to this type of journalism, preparation of book pages. Prerequisites, courses 103 and 110. (3) MISS GRINSTEAD.

163f and w. NEWSPAPER AND MAGAZINE DEPARTMENTS. Writing for and editing of special pages and departments. Prerequisites, courses 103 and 110. (4) MISS GRINSTEAD.

Country Journalism

170f. THE AGRICULTURAL PRESS. Writing for and editing of agricultural publications. For students who expect to become farm journal contributors, county agents, teachers, extension workers, or farm managers. (3) MR. GERALD.

171f and w. THE RURAL NEWSPAPER. News and editorial policies of the rural newspaper examined in the light of proved factors of newspaper appeal in the country town. No journalistic prerequisite. (3) MR. GERALD; MR. FINLEY.

172f and w. NEWSPAPER MANAGEMENT. Organization and operation of the small newspaper publishing business, emphasizing circulation methods and policies, local and national advertising procedure. No journalistic prerequisites. (3) MR. GERALD.

173f and w. COUNTRY NEWSPAPER PRODUCTION. A course in which students are given practical experience, by means of field trips, in newspaper production. Lecture and laboratory work in accounting and cost-accounting and shop management. Enrollment by permission only with courses 103, 111, and 171 as prerequisites. Course 121 is recommended. (1-3) MR. FINLEY.

174f and w. PROBLEMS OF NEWSPAPER PUBLISHING. Management, operation, and advertising salesmanship problems of the non-metropolitan newspaper. One or more field trips each semester. Experience given in market analysis, consumer research from advertising point of view, and advertising procedure. Open to seniors, with approval of instructor. (1-3) MR. FINLEY.

High School Publications

180s. THE SCHOOL NEWSPAPER AND ANNUAL. Primarily for high school teachers in charge of student publications. Available material, headlines, construction of the news story, illustrations, make-up, and editorial problems. (2) MR. MORELOCK.

Graduate Courses

200f, w, s and ss. NEWS-DESK METHODS. The handling of assignments and futures; the direction of reporters. (3) MR. SHARP.

201f, w, s and ss. COPY-DESK METHODS. The handling of copy; direction of copy-readers; advanced headling writing; principles of headline display. (3) MR. MORELOCK.

202f, w, s and ss. ADVANCED EDITORIAL WRITING. Experience in editorial page editing. A study of effective style, of public opinion campaigns, page policy and make-up. Current events from standpoint of editorial interpretation. Individual conference criticism, and a seminar report. Prerequisite, graduate standing, or a record of "S" or better in Journalism 152. (3) MR. ELLARD; MR. SWINDLER.

203f, w and s. JOURNALISM SEMINAR. A discussion of graduate problems, including a survey of bibliographical methods and aids in research. Must be taken with course 204. (1) MR. MARTIN; MR. ELLARD; MR. GERALD; MR. MORELOCK; MR. SHARP; MR. BRYANT; MISS GRINSTEAD; MR. FINLEY; MR. SWINDLER.

204f, w and s. RESEARCH IN JOURNALISM. Thesis. (1-10) MR. MARTIN; MR. ELLARD; MR. GERALD; MR. MORELOCK; MR. SHARP; MR. BRYANT; MISS GRINSTEAD; MR. FINLEY; MR. SWINDLER.

220f, w, s and ss. ADVERTISING-DESK METHODS. Advertising-office equipment and methods; direction of solicitors, selling procedure and publication contracts. (2) MR. JONES.

221f, w and s. ADVERTISING SEMINAR. Special problems, methods, organization, and objectives for research in advertising and related subjects. Must be taken with course 222. (1) MR. JOHNSTON; MR. JONES.

222f, w and s. RESEARCH IN ADVERTISING. Thesis. (1-10) MR. JOHNSTON; MR. JONES.

LATIN

See *Classical Languages and Archaeology*, page 320.

LAW

Required Courses for the First Year

100f and 101w. CONTRACTS. Offer and acceptance; consideration; formation of formal contracts; beneficiaries of contracts; assignment of contract; express conditions, conditions implied in law; impossibility; illegality; statute of frauds; measure of recovery for breach of contract. Quasi-contractual rights, if any, which arise in connection with the foregoing. (4) and (3) 100f is a prerequisite to 101w. MR. SMITH.

Grismore, Cases on Contracts, and supplementary material.

102f and 103w. TORTS. Assault, battery, false imprisonment, trespass to property, negligence, liability without fault, fraud and deceit, defamation, malicious prosecution, misuse of legal process, invasion of interests of political and economic advantage. (4) and (2) 102f is a prerequisite to 103w. MR. MCCLEARY.

Bohlen, Cases on Torts, (3rd ed.).

104f. PROPERTY I. *Personal Property.* Distinction between real and personal property; conception of possession; acquisition of rights; bailments; liens; pledges; gifts; fixtures; emblements. (2) MR. ECKHARDT.

Bigelow, Cases on Personal Property, (2d ed.).

105w. PROPERTY I. *Introduction to the Law of Real Property and Conveyancing.* Tenure; estates, seisin; future and incorporeal interests; disseisin; joint ownership; uses and trusts; modes of conveyance; air, water and fixtures. (3) MR. ECKHARDT.

Bigelow, Cases on Rights in Land (2d ed.).

106f. PLEADING I. History and functions of pleadings; forms of action and their abolition under modern codes; pleading of facts in tort, contract and property actions; relation of pleadings to proof. (4) MR. ATKINSON.

Clark, Cases on Pleadings and Procedure, Vol. I.

108w. EQUITY I. History of Equity; powers of courts of equity; decrees and orders; specific performance of contracts. (3) MR. OVERSTREET.

Durfee, Cases on Equity.

109w. CRIMINAL LAW AND PROCEDURE. The act, mental state, mitigating and exonerating circumstances in crimes against the person and property; attempts; parties; arrest; preliminary hearing; bail; accusation; jurisdiction; juvenile offenders. (4) MR. ATKINSON.

Waite, Cases on Criminal Law and Procedure, (2d ed.).

110f. LEGAL BIBLIOGRAPHY. The history of law reporting in the United States; federal and state statutory material; the reported case; the state reports, official and unofficial; the annotated case system; encyclopedias and general reference books; state and national digest systems and their use; the citator; legal periodicals and their use. (1) MR. HOGAN.

Required Courses for the Junior Year

120f. EQUITY II. Specific performance of contracts (continued); vendor and purchaser; injunctions against torts. (2) 108w is a prerequisite to 120f. MR. OVERSTREET.

Durfee, Cases on Equity.

121w. PLEADING II. Parties; joinder and splitting of causes; union of law and equity; petition; answer and reply; demurrer and motion; amendment. (3) 106f is a prerequisite to 121w. MR. ATKINSON.

Throckmorton, Cases on Code Pleading, (2d ed.).

122f and 123w. EVIDENCE. Judicial notice; presumptions and burden of proof; topics relating to witnesses. Leading rules of exclusion and selection; hearsay rule and its exceptions; rules and principles relating to writings. Real evidence; opinion; remote and prejudicial evidence; character of parties. Miscellaneous topics. (3) and (2) 122f is a prerequisite to 123w. MR. BOUR.

Morgan and Maguire, Cases on Evidence, (1937 ed.).

Elective Courses for the Junior Year.

124f and 125w. PROPERTY II. *Conveyances.* Accretion; adverse possession; prescription; description of property granted; landlord and tenant; joint ownership; creation of easements and profits; covenants for title; execution of deeds; registration; estoppel by deed; dedication. (3) and (2) 124f is a prerequisite to 125w. MR. MCCLEARY.

Warren, Cases on Conveyances.

126w. BILLS AND NOTES. Formal requisites of negotiable instruments; rights and liabilities of primary and secondary parties; legal effect of negotiability; liabilities of transferors; rights of holders in due course. (3).

Casebook to be announced.

127f and 128w. CONSTITUTIONAL LAW. Power of courts to pass on constitutionality of statutes; relation of the three departments of government to each other; relation of states to the federal government and limitations on the power of each; protection to persons accused of crime, *ex post facto* laws; laws impairing the obligations of contracts; due process of law; equal protection of the laws; police power; eminent domain; regulation of commerce. (3) and (3) 127f is a prerequisite to 128w. The course in Constitutional Law or its equivalent is a prerequisite to courses 151f, 149w, 157w, and 158w. MR. HOWARD.

Casebook to be announced.

130w. SALES. Subject matter of the contract; transfer of property and title; risk of loss; rights and obligations of seller and buyer; commercial statutes. (3) MR. OVERSTREET.

Bogert and Britton, Cases on Sales.

131f. WILLS AND ADMINISTRATION. Testamentary capacity and intent; execution, revocation and revalidation of wills; probate of wills and administration of estates; descent and distribution. (3) MR. ATKINSON.

Casebook to be announced.

132w. SURETYSHIP. Suretyship, guaranty, and the accommodation contracts of negotiable instruments. (2) MR. ECKHARDT.

Sturges, Cases on Credit Transactions, (2d ed.).

133f. MORTGAGES. Form of legal mortgages; title and lien theory; mortgagee and mortgagor; transfer; competition for the mortgage; priorities and marshaling. (3) MR. ECKHARDT.

Sturges, Cases on Credit Transactions, (2d ed.).

135f. INSURANCE. Formation, nature, subject-matter, construction and legal effect of insurance contracts; concealment; representations; warranties; forfeiture; waiver, estoppel; subrogation. (2).

Casebook to be announced.

138w. QUASI CONTRACTS. Nature and scope of quasi-contractual liability; recovery of benefits conferred by mistake, under contracts partially performed under compulsion, and of benefits voluntarily conferred without contract. (2).

Casebook to be announced.

139f. PERSONS. Rights and duties of infants, parents and spouses. (2).

Casebook to be announced.

198w. LEGAL RESEARCH. Editorial work in connection with the *Missouri Law Review*. Open to honor students elected by the Faculty on the basis of scholarship. (1).

Required Courses for the Senior Year

140f and 141w. PRACTICE. Commencement of actions; issuance and service of process; demurrers to the pleading; demurrers to the evidence; trials of issues of facts; declarations of law and instructions; verdict and judgment; motion for new trial and in arrest of judgment; exceptions; writs of error and appeal. (2) and (3) 140f is a prerequisite to 141w. MR. BOUR.

Casebook to be announced.

Course 140f alone is required if the student in all other respects completes the work necessary for the degree at the end of the fall term.

161f. THE LEGAL PROFESSION. History of legal profession; admission to practice; unlawful practice by lawyers and laymen; the attorney's authority, negligence and conflicting interests; his relations with client, adverse party, witnesses, other attorneys, and the court; fees, liens and collections; discipline; public obligations. (2)

Casebook to be announced.

Elective Courses for the Senior Year

142f. TRUSTS. Nature and requisites of express trusts, nature of *cestui que trust's* interests; resulting and constructive trusts; transfer of trust property; administration of the trust. Courses 108w and 120f are prerequisite for admission to this course. (3) MR. OVERSTREET.

Scott, Cases on Trusts, (2d ed.).

143f and 144w. BUSINESS ORGANIZATION. Creation and characteristics of the principal-agent relationship. Agent's power to create for his principal contractual rights and liabilities, and liability in tort. Undisclosed principal; ratification; termination.

Normal legal attributes of partnership, private corporations, limited partnership, joint stock companies, and business trusts; creation of business associations; legal problems involved in transactions of the promoter and the assembling of funds; selection of management; institution and defense of suits; acquisition, disposition and conservation of property; computation and distribution of profits, and distribution of capital; expansion; dissolution (solvent). (3) and (4) 143f is a prerequisite to 144w. MR. SMITH.

First Semester: Magill and Hamilton, Cases on Business Organization, Vol. I.

Second Semester: Frey, Cases and Statutes on Business Associations.

147f. CONFLICT OF LAWS. Jurisdiction of courts and of sovereigns over person and things; domicile; divorce; remedies; rights of action; procedure; creation of rights, personal and real, by inheritance, by contract and by tort; recognition and enforcement of rights and personal relations; administration of estates; recognition and enforcement of foreign judgments. (3) MR. BOUR.

Casebook to be announced.

148w. CREDITOR'S RIGHTS. A survey of the various proceedings which are available to creditors to enforce their claims; enforcement of judgments, execution, attachment and garnishment, creditors' bills and supplementary proceedings; fraudulent conveyances; general assignments; creditors' agreements; receivership; bankruptcy. (3) MR. MCCLEARY.

Hanna, Cases on Creditors' Rights, (2d ed.).

149w. TAXATION*. The nature of the taxing power; jurisdiction to tax persons and property; direct and indirect taxes; special assessments; income, inheritance and corporation taxes under state and federal government; exemptions; remedies for illegal taxation. (3) MR. HOWARD.

Magill and Maguire, Cases on Taxation, (2d ed.).

151f. ADMINISTRATIVE LAW*. A general survey of the field of administrative law; nature, procedure, and powers of administrative bodies; validity of administrative regulations; conclusiveness of administrative determinations and judicial review. (3) MR. HOWARD.

Stason, Cases and Other Materials on Administrative Tribunals.

152w. EQUITY III. Consideration of various equitable remedies, including equitable relief against torts, interpleader, bills of peace, bills *quia timet*, unfair competition, protection of copyrights, etc. (3) MR. OVERSTREET.

Chafee, Equitable Relief Against Torts; Ames, Cases in Equity Jurisdiction, Vol. III, Parts I-III.

154f. FUTURE INTERESTS. Classification of future interests; construction of limitations; powers; rule against perpetuities; illegal conditions and restraints on alienation. (3) MR. ECKHARDT.

Casebook to be announced.

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*The course in Constitutional Law, 127f and 128w, is a prerequisite to this course, except with the special permission of the instructor.

157w. MUNICIPAL CORPORATIONS. Nature of municipal corporations; creation, alteration, and dissolution; legislative control; administration of functions and powers acquiring, holding and dealing with property; tort liability; contract liability; taxation and indebtedness; remedies of creditors. (2).

Casebook to be announced.

158w. PUBLIC UTILITIES.* The public utility concept. Obligations of public utilities; obligation to serve; indiscriminating service; reasonable rates; adequate facilities. Governmental regulations. (2) MR. HOWARD.

Casebook to be announced.

160w. FEDERAL PROCEDURE. Cases and controversies; substantive and procedural law applied in federal courts; original and removal jurisdiction of district courts; relation between state and federal courts; jurisdiction of circuit courts of appeal and supreme court. (2).

Casebook to be announced.

198w. LEGAL RESEARCH. Editorial work in connection with the *Missouri Law Review.* Open to honor students elected by the Faculty on the basis of scholarship. (1).

MATHEMATICS

Students entering with three entrance credits who take course 1 may not take course 2 or course 6 for full credit except by special permission of the Dean of their division.

A grade of M must be made in courses 1, 2, 6 and 8 to satisfy the prerequisites for courses in Mathematics for which these courses are prerequisite.

1s, f and w. INTRODUCTORY COURSE. Prerequisite, two entrance units in Mathematics. (3).

2s, f and w. TRIGONOMETRY AND ALGEBRA. Prerequisite, three entrance units in mathematics or course 1. (5).

3f and w. SOLID GEOMETRY. Prerequisite, 2½ entrance units in mathematics. (2).

4f and w. ANALYTIC GEOMETRY. Prerequisite, course 2 or grade of S in course 1 and M in course 7. Plane and solid analytic geometry. (5).

5f and w. DIFFERENTIAL CALCULUS. Prerequisite, five hours of analytic geometry, of which at least one-third is in solid analytics. (5).

6f and w. ALGEBRA. Prerequisite, course 1 or three entrance units in mathematics. (3).

7f and w. TRIGONOMETRY. Prerequisite, course 1 or three entrance units in mathematics. Courses 6 and 7 cover the work in course 2. (2).

8f and w. GENERAL MATHEMATICS. Prerequisite, one entrance unit. No credit in Arts and Science. (5).

10f and w. INTEGRAL CALCULUS. Prerequisite, course 5. A short course not recommended to students specializing in mathematics. (3).

55f and w. THE MATHEMATICS OF FINANCE. Prerequisite, course 1 or 3 entrance units in mathematics. (3).

100f and w. INTEGRAL CALCULUS. Prerequisite, course 5. (5).

104f and 105w. ADVANCED ALGEBRA. Prerequisite, course 100 or a grade of S in course 10. (3) MR. WAHLIN.

110f and 111w. ADVANCED CALCULUS. Prerequisite, course 100, or a grade of S in course 10. (3) MR. WESTFALL.

115f and 116w. ADVANCED GEOMETRY. Prerequisite, course 100, or a grade of S in course 10. (3) MR. BLUMENTHAL.

180f and w. SPECIAL READINGS. Prerequisites, course 100, and special permission. (1 to 3).

198f and 199w. DISTINCTION. (2).

Courses above 200 must be preceded by a major in mathematics.

200f and w. SEMINAR.

210f and 215w. TOPICS FROM GEOMETRY. (3) MR. BLUMENTHAL.

230f and 231w. TOPICS FROM ANALYSIS. (3) MR. WESTFALL.

260f and 261w. TOPICS FROM ALGEBRA. (3) MR. WAHLIN.

280f and w. SPECIAL STUDIES. (1 to 3).

290f and w. RESEARCH. (1 to 6).

MECHANICAL ENGINEERING

Drawing, Manufacturing, Machinery

1s, f and w. ENGINEERING DRAWING. Lettering, sketches of machine parts and construction details, use of instruments, orthographic projection. Detail and assembly drawings, dimensioning, drafting conventions, tracings. (3) MESSRS. MILLER; GALBRAITH; HEUCHAN; HOLMES; JOHNSON; WAIDELICH; PHILLIPS.

2s, f and w. DESCRIPTIVE GEOMETRY. Prerequisite, M. E. 1. Space relations of points, lines, surfaces, intersections, and developed surfaces. (3) MESSRS. MILLER; GALBRAITH; HEUCHAN; HOLMES; JOHNSON; WAIDELICH; PHILLIPS.

60f and w. MACHINE TOOL OPERATIONS. Prerequisite, M. E. 1. A survey of modern machine tool operations; lectures and machine tool laboratory. (3) MR. PHILLIPS.

110w. METAL PROCESSING. Prerequisites, M. E. 60, C. E. 82 and 101. A study of metal processing by machine tools, heat treatment and welding; lectures and laboratory. (3) MR. PHILLIPS.

116f. ANALYTICAL MECHANICS. Prerequisites, Physics 3 and Math. 100. A study of statics including force systems, friction, centroids, moment of inertia and a study of dynamics including the motion of a particle, kinetics of rigid bodies, work and energy, momentum, impact. (4) MR. SOGARD.

118f and w. DYNAMICS. Prerequisite, C. E. 50. Motion of a particle, kinetics of rigid bodies, work and energy, momentum, impact, balancing of rotating bodies. (3) MR. SOGARD.

119f and w. KINEMATICS OF MACHINES. Prerequisites, M. E. 2, M. E. 116 or 118. Cams, toothed gearing, gear trains, link mechanisms, instant centers, velocity and acceleration diagrams. Recitations and drawing. (3) MR. WHARTON.

120w. MACHINE DESIGN. Prerequisites, M. E. 119 and preceded or accompanied by C. E. 101. The design analysis of machine parts. (3) MR. WHARTON.

121w. MECHANICAL ENGINEERING DESIGN. Prerequisites, M. E. 60, M. E. 120. The design of complete machines. (3) MR. WHARTON.

Heat Engineering

99f and w. HEAT ENGINES. Prerequisites, Physics 3, and Math 5. Elementary thermodynamics with application to perfect gases, air compressors, ideal internal combustion engine cycles, fuels and combustion, properties of steam, steam generation and steam prime movers. (3) MR. GRAY; MR. SCORAH.

101f and w. ENGINEERING THERMODYNAMICS. Prerequisites, Math. 10 or 100, M. E. 99 and Physics 4. Properties of working substances, mixtures, combustion, cyclic and steady-flow processes, power and refrigeration cycles. (3) MR. SCORAH.

102w. ENGINEERING THERMODYNAMICS. Prerequisite, M. E. 101. Dimensional analysis, heat transfer, flow of compressible fluids; applications to piping, nozzles, orifices, heat transfer apparatus. (3) MR. SCORAH.

103f. STEAM POWER PLANTS. Prerequisite, M. E. 102. A study of the design, construction, and performance of combustion and steam generating equipment, steam prime movers and auxiliary apparatus, power plant cycles, complete plants. (3) MR. SCORAH.

Economic Studies

125w. ECONOMIC STUDIES IN MECHANICAL ENGINEERING. Prerequisite, M. E. 103. A study of costs incident to grade of equipment and operating characteristics. Economic problems in the design, selection and life of mechanical equipment: the cost of steam and power supply. (3) MR. WHARTON.

134f. INDUSTRIAL MANAGEMENT. The fundamental principles of industrial organization and management, production planning, sales organization and problems of seasonal activities. (3) MR. SELVIDGE.

135w. PERSONNEL ADMINISTRATION. Personnel problems, organized labor, labor turnover, foreman training, training and compensation of labor and conditions of employment. (3) MR. SELVIDGE.

136f. PRODUCTION AND DISTRIBUTION PROBLEMS. An analysis of the factors involved in a series of production and distribution problems together with methods of control. (3) MR. SELVIDGE.

Experimental Engineering

141f and w. MECHANICAL LABORATORY. Prerequisite, M. E. 99. Calibration and use of instruments and experimental apparatus; simple tests of machine units and power equipment. (2) MR. BOLSTAD; MR. MCANULTY.

142w. MECHANICAL LABORATORY. Prerequisites, M. E. 101 and 141. Experimental determination of the characteristics and performance of simple machines and prime movers. (2) MR. BOLSTAD; MR. MCANULTY.

143f. MECHANICAL LABORATORY. Prerequisites, M. E. 102 and 142. Experiments in fuels and combustion, heat transfer, flow of fluids; tests of heaters, boilers, superheaters, condensers. (2) MR. GRAY; MR. SCORAH; MR. SOGARD.

144w. MECHANICAL LABORATORY. Prerequisites, M. E. 103 and 143. Experimental study of complete units; refrigeration, plant, internal combustion engines, steam prime movers and complete steam power plant. (2) MR. GRAY; MR. SCORAH; MR. SOGARD.

Technical Electives

150f and w. SPECIAL PROBLEMS IN MECHANICAL ENGINEERING. Prerequisite, senior standing in mechanical engineering. Special design, experimental, and analytical problems in the field of mechanical engineering. (2-4) DEPARTMENT STAFF.

151w. INTERNAL COMBUSTION ENGINES. Prerequisite, M. E. 102. A study of gas and oil engines. Thermodynamics of ideal and actual cycles, fuels and combustion carburetor and injection systems, performance, construction. (3) MR. GRAY.

153f. REFRIGERATION SYSTEMS. Prerequisite, M. E. 102. A study of compression, absorption, and steam-jet refrigeration systems. Properties of refrigerants. (3) MR. WHARTON.

154w. REFRIGERAT ON PLANTS. Prerequisite, M. E. 153. Types of refrigerating machinery and equipment, operating characteristics of ice plants and cold storage industries, economic considerations. (3) MR. WHARTON.

155f. HEATING AND AIR CONDITIONING. Prerequisite, M. E. 102. Fundamental laws and general principles; conditioning the air of buildings for comfort, ventilation and industrial purposes; steam, water, and hot air heating systems. (3) MR. GRAY.

156w. HEATING AND AIR CONDITIONING DESIGN. Prerequisite, M. E. 155. The design of heating and air conditioning plants for industrial, domestic and public building application. The layout, specifications and costs of the systems. (3) MR. GRAY.

157f. FACTORY PRODUCTION. Prerequisite, M. E. 110. A study of factory production and equipment. Methods, scheduling, routing, inspection and assembly. (3) MR. PHILLIPS.

158w. FACTORY DESIGN. Prerequisite, M. E. 157. The design of a factory and management system to produce a selected product. (2) MR. PHILLIPS.

160w. ADVANCED MECHANICAL DESIGN. Prerequisites, M. E. 101 and 120. Selected problems in vibration, balancing, governing, experimental stress analysis, thermal stresses, creep, fatigue, wear. (3) MR. SCORAH.

170f and w. AEROMECHANICS. Prerequisites, C. E. 50 and M. E. 104, or M. E. 116, and C. E. 101. Elementary theoretical aerodynamics, including standard air, air-foils, parasite drag, propellers, stability, control, airplane performance; elementary aircraft structures, including critical loading conditions, structural elements, problems in design of parts, materials, fastenings and connections. (3) MR. SOGARD.

Graduate

Entrance to graduate study in the field of mechanical engineering requires a full undergraduate preparation in that field. Candidates for advanced degrees should consult the chairman of the department.

The courses listed as technical options may be counted toward a minor study in Mechanical Engineering. The following courses may be counted toward either a major or a minor study in Mechanical Engineering.

211f and w. THERMODYNAMICS. Prerequisites, graduate standing and equivalent of M. E. 102. General theory, properties of working substances, engineering applications. (Minimum, 4 hours.) MR. SCORAH.

251f and w. REFRIGERATION. Prerequisites, graduate standing and equivalent of M. E. 153 and 154. Designs, plans, specifications, estimates for one or more selected studies, as: ice factory, cold storage, district refrigeration, nursery, market. Research, tests, improvements, appraisals, sales, management. (Credit as arranged.) MR. WHARTON.

285f and w. SPECIAL STUDIES IN MECHANICAL ENGINEERING. Prerequisite, graduate standing in mechanical engineering. Independent design, experimental, or analytical problems to be presented in the form of a report. (Credit as arranged.) DEPARTMENT STAFF.

299f and w. RESEARCH. Prerequisite, graduate standing in Mechanical Engineering. Independent investigation in the field of mechanical engineering to be presented in the form of a thesis. (Minimum, 4 hours.) DEPARTMENT STAFF.

MEDICINE

101w. PHYSICAL DIAGNOSIS. Lectures, demonstrations and practical exercises covering the field of the physical examination of the thorax. Practice in the use of instruments ordinarily used in auscultation and percussion especially with reference to the recognition of the physical signs of normal and disease processes in the respiratory and circulatory organs. Sixteen periods of 2 hours each, are devoted to clinics in medicine. (3) MR. STINE; MR. COOPER, MR. LEECH.

MILITARY SCIENCE AND TACTICS

Infantry Advanced Course

107fI. INFANTRY. *Seventh Semester.* Military law, military history; tactics; leadership; ceremonies. For this year only.

108wI. INFANTRY. *Eighth Semester.* Combat training; tanks; mechanization; O. R. C. regulations. For this year only.

Field Artillery, Basic Course

1fA. FIELD ARTILLERY. *First Semester.* National defense and ROTC regulations; military discipline, courtesy and customs of the service; field artillery ammunition and material; dismounted drill and ceremonies; elementary gunnery; military history and policy; duties of cannoneers and firing battery; map reading.

2wA. FIELD ARTILLERY. *Second Semester.* Military organization and organization of field artillery; dismounted drill and ceremonies; military sanitation and first aid.

3fA. FIELD ARTILLERY. *Third Semester.* Equitation; dismounted drill and ceremonies.

4wA. FIELD ARTILLERY. *Fourth Semester.* Care of animals; battery communications; fire control instruments; driving and draft; duties of members of battery commanders detail; leadership and ceremonies.

Field Artillery, Advanced Course

105fA. FIELD ARTILLERY. *Fifth Semester.* Defense against chemicals; pistol marksmanship; gunnery; equitation; reconnaissance; selection and occupation of position; aerial photograph reading.

106wA. FIELD ARTILLERY. *Sixth Semester.* Driving and draft; leadership; administration; gunnery.

107fA. FIELD ARTILLERY. *Seventh Semester.* Military law; history and policy; transpor; interior guard duty; command and instruction of student organization.

108wA. FIELD ARTILLERY. *Eighth Semester.* Tactics, O. R. C. regulations; transport; property.

MUSIC

Theoretical Music

1f and 2w. INTRODUCTION TO MUSIC. For those beginning the collegiate study of music. A brief survey of the scope of music, including representative compositions of various composers, with explanations and analysis; notation, sight-singing, ear-training, and the fundamentals of music. Group study of piano, voice or violin. More advanced students may substitute private lessons in applied music for group study. (For fees for private lessons in applied music see page —.) Five class periods per week for three hours of credit. (3) MR. QUARLES; MR. GREENLEE, AND STAFF.

3f. ELEMENTARY HARMONY. Harmonization of melodies and basses in two, three and four parts from the standpoint of harmony and counterpoint, utilizing triads and their inversions. Courses 1 and 2 are prerequisites except by permission of chairman of department. Three class periods per week. (2) MR. QUARLES AND MR. GREENLEE.

4w. ELEMENTARY COUNTERPOINT. A detailed study of strict counterpoint in two and three parts in all five species and in combinations of the various species, utilizing the harmonic resources learned in Elementary Harmony. (2) MR. QUARLES; MR. GREENLEE.

5f and 6w. EAR TRAINING. A course in ear training, dictation, and sight singing, affording fundamental training in terms of pitch and rhythm. Intended primarily for students in Public School Music. Prerequisites, courses 1 and 2. Three laboratory periods per week. (1) MR. NORMANN.

7f and 8w. KEYBOARD HARMONY. Harmonization of melodies, transposition and improvisation. Two laboratory periods for 1 hour credit. Prerequisite, course 3. MR. GREENLEE.

101f and 102w. ADVANCED HARMONY. Harmonization of melodies and basses, figured and unfigured, on paper and at the keyboard, utilizing all the seventh chords and their inversions, and including all types of ornamental tones. Analysis of recognized masterpieces and some original work in simple period form. Course 3 prerequisite. (2) MR. QUARLES.

103f and 104w. ADVANCED COUNTERPOINT. Modern counterpoint in all five species; mixed species; imitative counterpoint; the choral prelude; the canon; the invention; and the simpler forms of fugue. Course 4 prerequisite. (2) MR. QUARLES.

105f and 106w. MUSICAL FORM AND ANALYSIS. Analysis of the construction of works in the various musical forms. Original work in elementary form. Prerequisite, course 3. (2) MR. MACLEOD.

107f and 108w. ORCHESTRATION I. A course dealing with the capacities of the instruments of the orchestra, singly and in the separate groups of strings, woodwind, brass and precussion. Prerequisite, course 4. (2) MR. GREENLEE.

115f and 116w. COMPOSITION I AND II. A practical application of the principles of elementary form in works in the small forms, including the dance forms, the lyric piece, the etude and the theme and variations. Writing for piano, voice, violin, and piano with other instruments. Prerequisites, courses 102, 104 and 106. (2) MR. QUARLES.

History and Appreciation

21f and 22w. MUSICAL LITERATURE. A detailed study of selected masterpieces from all fields of musical literature. Especially recommended for freshmen and sophomores not majoring in music. Three class periods per week. (2) MR. QUARLES.

121f. THE PRE-CLASSIC PERIOD. (Courses 121, 122 and 123 may be taken in any convenient order.) A lecture course with collateral reading, dealing with the development of music from medieval times through the age of Bach and Handel. Two class periods and third at pleasure of instructor. Prerequisite, upper-class standing. Introduction to Music desirable. (2) MR. QUARLES.

122w. THE CLASSIC AND ROMANTIC PERIODS. A lecture course with collateral reading, dealing with the development of music from pre-Haydn times through Wagner. Two class periods and third at pleasure of instructor. Prerequisite, upper-class standing. Introduction to Music desirable. (2) MR. QUARLES.

123w. MODERN MUSIC. A lecture course with collateral reading, dealing with the development of music in Europe and America since 1870. The inauguration of new music systems, the growth of nationalism, and other modern trends will be discussed. Two class periods and a third at pleasure of instructor. Prerequisite, upper-class standing. Introduction to Music desirable. (2) MR. QUARLES. (Not given during 1939-1940.)

124w. SYMPHONIC LITERATURE. A course dealing with the various forms of symphonic music. The work of the first half of the course will include a comprehensive survey of orchestral works by Bach, Haydn, Mozart, Beethoven, and the appreciation of classic forms, while the second half will deal with romantic treatments of these forms and the more recent innovations introduced by Liszt, Berlioz, and the moderns. Two class periods and third at pleasure of instructor. Prerequisite, upper-class standing. Introduction to Music desirable. (2) MR. QUARLES.

Applied Music

The applied music group includes private instruction in Piano, Voice, Violin or Organ, and the various courses offered in Ensemble. The maximum credit which may be offered in this entire group is 12 hours. For fees in applied music, see page 00 of this catalog.

50f and w. SPECIAL PIANO. No credit and no prerequisites. Most valuable as a leisure-time and cultural activity. The grade and amount of material may be flexibly varied to suit the individual student's educational purpose. MR. MACLEOD.

51f and w. UNDERCLASS PIANO. Prerequisite, the ability to play in a pianistic and musical manner such works as Haydn, Mozart or Beethoven Sonatas; Schubert Impromptu, Opus 142, No. 2; Grieg, Papillons; Chopin, Nocturne, E flat; all major and minor scales in moderately rapid tempo. Students desiring

to study piano but unable to meet this standard of attainment should register in Special Piano, without credit, until such time as they have sufficiently developed for this course. This course may be repeated until a maximum of 4 hours has been accumulated. (1) MR. MACLEOD.

151f and w. UPPERCLASS PIANO. Prerequisite, 4 hours piano of collegiate grade—the equivalent of Course 51, Underclass Piano. This course may be repeated until a total maximum (including credit in Course 51) of 12 hours has been accumulated. (1-2) MR. MACLEOD.

60f and w. SPECIAL VOICE. No credit and no prerequisites. Most valuable as a leisure-time and cultural activity. The grade and amount of material may be flexibly varied to suit the individual student's educational purpose. MR. BILLS.

61f and w. UNDERCLASS VOICE. Prerequisite, the ability to sing on pitch with musical intelligence a very simple song such as "Old Folks at Home" or "Drink to Me Only With Thine Eyes." The student should have a knowledge of the rudiments of music and be able to sing at sight a simple hymn tune. Students desiring to study voice but unable to meet this standard of attainment should register in Special Voice, without credit, until such time as they have sufficiently developed for this course. This course may be repeated until a maximum of 4 hours has been accumulated. (1) MR. BILLS.

161f and w. UPPERCLASS VOICE. Prerequisite, 4 hours voice of collegiate grade—the equivalent of Course 61, Underclass Voice. This course may be repeated until a total maximum (including credit in Course 61) of 12 hours has been accumulated. (1-2) MR. BILLS.

70f and w. SPECIAL VIOLIN. No credit and no prerequisites. Most valuable as a leisure-time and cultural activity. The grade and amount of material may be flexibly varied to suit the individual student's educational purpose. MR. WHITMORE.

71f and w. UNDERCLASS VIOLIN. Prerequisite, the ability to play the first ten of the Kayser Etudes; major and minor scales in one octave through nine keys; rudiments of music, etc. Students desiring to study violin but unable to meet this standard of attainment should register in Special Violin, without credit, until such time as they have sufficiently developed for this course. This course may be repeated until a maximum of 4 hours has been accumulated. (1) MR. WHITMORE.

171f and w. UPPERCLASS VIOLIN. Prerequisite, 4 hours violin of collegiate grade—the equivalent of Course 71, Underclass Violin. This course may be repeated until a total maximum (including credit in Course 71) of 12 hours has been accumulated. (1-2) MR. WHITMORE.

90f and w. SPECIAL ORGAN. No credit and no prerequisites. Most valuable as a leisure-time and cultural activity. The grade and amount of material may be flexibly varied to suit the individual student's educational purpose. MR. QUARLES.

91f and w. UNDERCLASS ORGAN. Prerequisite the same as for Course 51, Underclass Piano. Students desiring to study organ but unable to meet this standard of attainment in piano should register in Special Organ, without credit, until such time as they have sufficiently developed for this course. This course may be repeated until a maximum of 4 hours has been accumulated. (1) MR. QUARLES.

191f and w. Upperclass Organ. Prerequisite, 4 hours organ of collegiate grade—the equivalent of Course 91, Underclass Organ. This course may be repeated until a total maximum (including credit in Course 91) of 12 hours has been accumulated. (1-2) Mr. Quarles.

Ensemble Courses

The maximum credit accepted in all ensemble courses in 4 hours, which is included within the maximum of 12 hours accepted in applied music. Students taking courses in applied music will be expected to include appropriate ensemble courses, as a laboratory section of such work.

40f and 41w. University Chorus. Preparation and public performance of great choral masterpieces. A voice of pleasing quality and an ability to read a very simple hymn tune are required for membership. All students of voice should elect this course as a means of acquiring skill in ensemble singing, sight-reading, and an intimate knowledge of certain masterpieces of choral literature. (1) Mr. Quarles.

42f and 43w. University Orchestra. Students playing orchestral instruments may become members of the University Orchestra, subject to a test of playing ability by the conductor. All violin students should elect this course as a means of acquiring orchestral skill and an intimate knowledge of orchestral repertoire. (1) Mr. Whitmore.

44f and 45w. Piano Ensemble. A progressive study of orchestral literature in the form of four-hand and eight-hand (two pianos) arrangements. It affords valuable training in sight-reading and for the development of the rhythmic sense. Open to all students possessing sufficient pianistic ability. All piano students should elect this course as laboratory experience. Three class periods per week. (1) Mr. MacLeod and Mr. Greenlee.

46f and 47w. String Ensemble. A similar course for string players. The material studied is from the recognized masterpieces of chamber music literature. The piano is used to some extent. Open to all students possessing sufficient ability. This course should be elected by all students of violin as a laboratory experience. Three class periods per week. (1) Mr. Whitmore.

48f and 49w. Wind Instrument Ensemble. Practice in concerted playing of wind instruments. Three laboratory periods per week. (1) Mr. Normann.

140f and 141w. Strings I and II.
142f and 143w. Strings III and IV.
144f and 145f. Woodwinds I and II.
146w and 147w. Brass I and II.

Practical work in orchestral instruments. These courses are designed to give class instruction in playing the various instruments of the orchestra. Given on a laboratory basis, with two recitations per week. (1) Mr. Whitmore and Mr. Normann.

148f and 149w. Conducting. Principles of beating time, the technique of the baton, interpretation. Three laboratory periods per week. (1) Mr. Normann.

Graduate Classes

223f. Bach and His Time. (2-5) Mr. Quarles.

224w. Haydn, Mozart and Beethoven. (2-5) Mr. Quarles.

225f. Richard Wagner and the Music-Drama. (2) Mr. Quarles.

226f and w. Orchestration II. (2) Mr. Greenlee.

227f and w. Advanced Composition. (2) Mr. Quarles.

230f and w. Special Problems. Hours and credit to be arranged. Mr. Quarles.

290f and w. Musical Research. Thesis course. Hours and credit to be arranged. Department Staff.

NURSING

1f. Principles and Practice of Nursing. This is a basic course for all subsequent nursing courses. It emphasizes the underlying principles and therapeutic value of the elementary and less advanced nursing procedures. The course includes lectures, recitations, demonstrations, and practice. Periods of supervised practice in the class room are arranged. Satisfactory technique in the class room is followed by supervised practice in the hospital wards. (2) Mrs. Elkins.

10w. Advanced Nursing Procedures. A continuation of the course in elementary Nursing, including lectures, demonstrations, and practice of the more difficult nursing procedures. (1) Mrs. Elkins.

2f. Nursing Ethics. Introduction to the ethical life of a nurse, including training in conduct and the high ideals of character and service. (1) Miss Nahm.

3f. Elementary Materia Medica. A study of weights and measures used in the handling of drugs, and the preparation of solutions and simple drug combinations. (1) Mrs. Elkins.

4f. Personal Hygiene. A study of health principles and habits as applied to the daily life of a nurse. (1) Miss Nahm.

5w. History of Nursing. A survey of the growth and development of nursing from the early ages to the time of professional training. (1) Miss Nahm.

6w. Materia Medica. A study of the course, therapeutic value, dosage and administration of drugs commonly used in the treatment and prevention of disease. Supplementing this course, each student is given at least 50 hours of supervised practice and instruction in the pharmacy. (2) Mrs. Elkins.

7f. Surgical Nursing I. This course is designed to give the student a practical understanding of the causes, symptoms, and treatment of surgical diseases, with emphasis on the nursing care. Surgical lectures are followed by demonstrations of surgical technique. (2) Mr. Dietrich; Mrs. Elkins.

8w. Medical Nursing I. A study of the causes, symptoms, therapeutic and prophylactic treatment of the various medical diseases. (2) Mr. Cooper; Mrs. Elkins.

10f. Nursing in Communicable Diseases. Factors of immunity and the transmission of disease precede the study of the various communicable diseases. Case study and bedside clinics supplement recitations and lectures. Practical demonstration and practice of medical asepsis precede ward practice. (1) Mrs. Elkins; Miss Welsh.

11w. Surgical Nursing II. This course is conducted in the same manner as the course in surgical nursing. (1) Mr. Dietrich; Mrs. Elkins.

12w. Obstetrical Nursing. This course includes theoretical and practical instruction in normal and operative obstetrical cases. It pertains to the care of the mother and the new-born. The instruction accompanies three months of practice in a fully acredited maternity hospital. (1) Obstetricians; Nurse Instructors.

13w. Nursing in Diseases of Children. Lectures, demonstrations, and practice accompanied by three months of ward practice in an accredited children's hospital. (1) Pediatricians; Nurse Instructors.

15w. Diet in Disease. A study of special diets used in the treatment of disease. (1) Miss Tillery.

16f. Orthopedics and Special Therapy. A course including lectures and recitations on the principles of orthopedic surgery, physiotherapy, and X-ray. Particular emphasis is given to nursing care. Practical demonstrations are given. (1) Mr. Stewart; Miss Copenhaver.

18w. Medical Nursing II. The course includes lectures by attending staff physicians followed by classes stressing nursing care and procedures used in occupational and dermatological diseases. (1) Mrs. Elkins.

20f. Professional Problems. A study of the ethical life and problems confronting a nurse after graduation.

22f and w. Applied Nursing. Practical application under supervision of the technique and principles used in the various nursing procedures. (4) Miss Nahm; Mrs. Elkins; Department Supervisors.

23f. Applied Nursing. A continuation of 22f and w. (14) Miss Nahm; Mrs. Elkins; Department Supervisors.

PATHOLOGY, BACTERIOLOGY AND PREVENTIVE MEDICINE

5f and w. Preventive Medicine. Value of preventive medicine; methods of spread and the prevention of specific communicable diseases; elements of school and community hygiene. (2) Mr. Moon; Dr. Neal; and Staff.

21f. Elementary Pathology. A course of 80 lecture, recitation, demonstration, and laboratory hours intended as an introduction to General Pathology, Medical Bacteriology, and Clinical Pathology, to second year students in the School of Nursing only. (3) Dr. Peers; Dr. Ziegler; Mr. Moon; Miss Brown.

No credit is given in the medical curriculum for courses 5f or w, and 21f.

The courses below listed are constructed and offered primarily for students in the School of Medicine, but are open to others showing requisite interest and offering acceptable prerequisites.

101f. General Pathology. The course consists of 64 lecture or recitation hours and 96 laboratory hours for Sophomore students. (6) Dr. Neal; Dr. Peers; Dr. Robnett.

102w. Special Pathology. A course of 64 lecture or recitation hours and 96 laboratory hours for Sophomore students. Prerequisite, General Pathology 101f. (6) Dr. Neal; Dr. Peers; Dr. Robnett.

In the courses 101f and 102w, General and Special Pathology, a collection of lantern slides, the projectoscope for, and with, histological slides are regularly used for class instruction and group drill. A loan collection of 380 slides is furnished to students for use in histopathology; therefore none of the laboratory

hours are used for staining or mounting sections. Systematic exercises in anatomic study and diagnosis, by means of Kaiserling prepared specimens, and available fresh material of the various lesions of each organ, are a part of the regular work. General Pathology, the first part to be considered, deals with the basic factors of disease; while Special Pathology, considered later, applies the principles of General Pathology to the various organs and tissues of the body. Throughout the courses emphasis is placed upon the relation between tissue changes, gross and microscopic, in a given disease, and the symptoms or manifestations that accompany such changes. Students are instructed in the methods of post-mortem examinations and are required to prepare complete and orderly records of all autopsies seen.

104w. CLINICAL PATHOLOGY. (Clinical Microscopy, Clinical Diagnosis). An elective course of 48 lecture, recitation or demonstration hours, and 64 laboratory hours, for Sophomore students. A laboratory course covering a careful study in the chemical, bacteriological, and microscopical methods used in examining blood, urine, sputum, gastric contents, spinal fluids, feces, exudates, etc., for diagnostic purposes. Prerequisites, Medical Bacteriology, Histology and Physiological Chemistry. (5) DR. NEAL; DR. PEERS; DR. ZIEGLER; MR. PETERSON.

105f and w. CLINICO-PATHOLOGIC CONFERENCES. An elective, open to Sophomore and graduate students, and graduates of Medicine. A weekly period is spent in reviewing autopsy or/and surgical specimens in correlation with clinical history, signs and symptoms. Sixteen hours a semester that may, but need not run consecutively. (1) DR. NEAL; DR. PEERS; DR. ROBNETT; DR. ZIEGLER.

107f. MEDICAL BACTERIOLOGY. A course for Sophomore students consisting of 48 lecture or recitation hours and 96 laboratory hours, covering the relation of bacteria to disease; the fundamental principles of infection, immunity, vaccine and serum therapy. Prerequisites, General Bacteriology 3f or w, and Organic Chemistry 110. (6) DR. ZIEGLER; MR. MOON; MR. PETERSON.

108w. GENERAL HYGIENE. A 32-hour lecture, recitation and demonstration course for Sophomore students that deals with the fundamental principles of public, community and personal hygiene. Prerequisite, 107f, or its equivalent. (2) DR. ZIEGLER.

109f. IMMUNITY. An elective course of 16 lecture and 64 laboratory hours dealing with the theories of immunity; preparation of vaccines; antigen-antibody reactions; blood grouping; Wassermann reaction; diagnostic precipitin tests; anaphylaxis, and related phenomena. Prerequisite, 107f. (3) DR. ZIEGLER.

110w. SANITARY BACTERIOLOGY. An elective course dealing with the bacteriology of water and sewage, standard methods of water and sewage analysis, water purification, and swimming pool sanitation. Prerequisite, General Bacteriology. (3) DR. ZIEGLER; MR. PETERSON.

200f and w. SEMINAR. A presentation and critical discussion of current literature and original investigations within the fields of the Department. (1) DR. ZIEGLER; DR. NEAL.

207f and 208w. ADVANCED PATHOLOGY. A graduate course in which the amount and character of the work will depend upon the needs, qualifications, and interests of the student. DR. NEAL; DR. PEERS.

211f and 212w. ADVANCED BACTERIOLOGY. A graduate course designed to give more detailed information and training in the newer aspects of bacteriology and immunity. DR. ZIEGLER; MR. MOON.

250f and w. Special Investigations in Bacteriology. Problems for special study are assigned in bacteriology or immunology to qualified graduate students. Prerequisites, General Bacteriology 3f or w and Organic Chemistry 112, or Medical Bacteriology 107f. Dr. Ziegler; Mr. Moon.

291f and w. Research in Pathology. Open only to properly qualified graduate students. A reading knowledge of German is required and one of French is recommended. Dr. Neal; Dr. Peers.

295f and w. Research in Bacteriology. A strictly graduate course in which students of suitable interests and qualifications may pursue original investigation in the fields of Bacteriology and Immunology. Prerequisite, Advanced Bacteriology 211f or 212w. Dr. Zeigler; Mr. Moon.

PHILOSOPHY

1f and w. Elementary Logic. The formal principles of deduction and induction, with special attention to the criticism of arguments the detection of fallacies and certain philosophic problems arising out of logic. (3) Mr. Hudson; Mr. Moore; Mr. Hahn; Mr. Rein'l.

5w. Introduction to Philosophy. The principal problems of philosophy and their typical solutions, with special reference to social problems of philosophic significance. (3) Mr. Moore.

103f. Ethical Theory. The main problems of ethics and of the chief methods of their solution, with constant reference to the principal historic schools for illustration and interpretation. (3) Mr. Hudson.

104f. Early European Philosophy. Philosophic thought from Thales to Augustine, with emphasis upon Plato and Aristotle; a critical survey in the light of present-day problems. (3) Mr. Moore.

105w. Modern Philosophy. Properly follows course 104, although this is not required. The development of modern systems and their relation to science and to political and social movements. (3) Mr. Moore.

107f and 108w. Special Readings. For qualified students who desire to do reading in philosophy independent of formal courses. (1-3) Mr. Hudson; Mr. Moore; Mr. Hahn.

112w. American Ideals. The philosophic interpretations of life implied in American social and political institutions of the present, including their international reference. Prerequisite, junior standing. (3) Mr. Hudson.

115f. Philosophical Ideas in Literature. Metaphysical and ethical world-views embodied in representative classics of poetry and prose. (3) Mr. Hahn.

117w. Aesthetics. The philosophy of beauty from an historical and critical standpoint. (3) Mr. Hudson.

120w. Philosophy and Modern Science. The philosophic implications of current scientific concepts such as Matter, Time, Space, Cause, Relativity, Evolution; the method and presuppositions of science; the limits of science; the emergence of problems of philosophy from those of science. (3) Mr. Hahn.

121f. Present Philosophical Tendencies. Representative systems and issues of the present, including Absolute and Pluralistic Idealism, Pragmatism, Neo-Realism, Bergson's Philosophy, and Positivism. (3) Mr. Moore.

125f. THE PHILOSOPHY OF THE STATE. The basic philosophical concepts involved in the state as a social institution. (3) MR. HUDSON.

198f and 199w. DISTINCTION. Special work for candidates for graduation with distinction. (3) THE DEPARTMENT STAFF.

200f and w. SEMINAR. (1-3) THE DEPARTMENT STAFF.

290f and w. RESEARCH. (3-5) THE DEPARTMENT STAFF.

PHYSICAL EDUCATION

Required Courses. All men and women students are required to take courses in physical education throughout the first and second years; for men: 1f, 2w, 5f, and 6w; for women: 3f, 4w, 7f, and 8w. These courses provide definite instruction leading to knowledge, appreciation and skills in a variety of recreational activities of value in adult life.

The regulation costume for women may be purchased at the Women's Gymnasium; for men, at various placed in Columbia.

1f and 2w. REQUIRED COURSE. FRESHMAN MEN. Two periods each week. With important restrictions which will be explained at the time of registration, men will be allowed to elect activities in which they will receive instruction. The activities offered will include volley ball, tennis, softball, boxing and many others. (1) THE STAFF.

3f and 4w. REQUIRED COURSE. FRESHMAN WOMEN. Two periods each week in one of the following activities: *Fall season*—hockey, soccer, tennis, golf, archery, swimming, dancing, correctives. *Winter season*—basket ball, volley ball, correctives, dancing, swimming, rifle games. *Spring season*—tennis, archery, swimming, dancing, correctives, baseball, golf. (1) THE STAFF.

5f and 6w. REQUIRED COURSE. SOPHOMORE MEN. Two hours each week. A continuation of 1f and 2w. (1) THE STAFF.

7f and 8w. REQUIRED COURSE. SOPHOMORE WOMEN. A continuation of 3f and 4w. (1) THE STAFF.

11f and 12w. RECREATIONAL ATHLETICS FOR JUNIOR WOMEN. Prerequisites: 3f, 4w, 7f, 8w, or equivalents. (1) THE STAFF.

13f and 14w. RECREATIONAL ATHLETICS FOR SENIOR WOMEN. A continuation of 12w. (1) THE STAFF.

PROFESSIONAL COURSES IN PHYSICAL EDUCATION

See Education for outline of curriculum.

The degree Bachelor of Science in Education and a life certificate to teach are granted to students who complete satisfactorily the teacher-training curriculum in physical education. This includes meeting the requirements of the first two years in the College of Arts and Science and of the last two years in the School of Education.

27f. MODERN DANCE. Presents the dance from the standpoint of its use in education and Physical Education. It stresses simplicity, directness, and freedom of movement. The course includes fundamental movement techniques and rhythmic form and analysis. (1) MISS TAYLOR.

28w. MODERN DANCE. A continuation of course 27f, including dance composition and some teaching experience. (1) MISS TAYLOR.

41f. Freshman Physical Education Activities. Two or more class meetings each week. Open only to first year students in the teacher-training curriculum in physical education. Separate sections for men and women. (1) The Staff.

Section A. Women. Practical work must be taken as follows: *Fall season*—soccer or hockey, and choice of tennis, archery, golf or dancing. *Winter season*—basket ball, or volley ball, and choice of swimming, games, or dancing. *Spring season*—tennis, or baseball, and choice of swimming, archery, dancing, or golf. (Note: Choice of activities should be made from activities not previously elected.) (1) The Staff.

Section B. Men. 41f, 42w, 43f, and 44w are a series of courses designed to develop skill in, and an understanding of, the physical education activities considered most valuable for schools and recreation centers. The courses will be divided into rather small units and the student will be given credit for any unit as soon as he is able to meet the standard set, progress being measured entirely in terms of achievement. The amount of time required and the nature of the units studied will, therefore, vary with the initial ability and rate of learning, but the amount of time will never be less than two class periods each week.

42w. Freshman Physical Education Activities. A continuation of 41f. (1) The Staff.

43f. Sophomore Physical Education Activities. Two or more class meetings each week. Open only to first year students in the teacher-training curriculum in physical education. Separate sections for men and women. (1) The Staff.

Section A. Women. Practical work must be taken as follows: *Fall season*—soccer or hockey, choice of tennis, archery, golf or dancing. *Winter season*—basket ball or volley ball, choice of swimming, games, or dancing. *Spring season*—tennis or baseball, and choice of swimming, archery, or golf. (Note: Choice of activities should be made from those not elected in 41f or 42w.) (1) The Staff.

Section B. Men. A continuation of 42w. (1) The Staff.

44w. Sophomore Physical Education Activities. A continuation of 43f. (1) The Staff.

54f and w, and s. Plays and Games. Activities suitable for the playground and elementary and secondary schools. Credit may not be received for this course and 56w. (2) Miss McKee.

55f. Informal Activities for Boys and Men. Methods of organizing and teaching contests (individual athletics), stunts, informal relays, and informal combative activities. (2) Mr. Stankowski.

56w. Minor Games. Credit may not be obtained for both this course and 54w. Methods of organizing and teaching informal and semi-organized games suitable for boys and men. (2) Mr. Hindman.

106f. Major Sports. Prerequisite, activity courses in football and basketball. Coaching and management of football and basket ball. (3) Mr. Faurot; Mr. Edwards.

107w. Major Sports. Prerequisite, activity courses in baseball and track. Coaching and management of baseball and track teams. Fundamental problems of administration of interschool athletics; prevention and care of injuries. (3) Mr. Simmons; Mr. Simpson.

115f. JUNIOR MAJOR GYMNASTICS AND ATHLETICS. WOMEN. Instruction and practice in the analysis of sports technique and methodology; gymnastics; marching tactics, apparatus and tumbling. Coaching and practice teaching in sports and gymnastics. Prerequisites, 41f, 42w, 43f, 44w. (2) THE STAFF.

116w. JUNIOR MAJOR GYMNASTICS AND ATHLETICS. WOMEN. A continuation of course 115f. (2) THE STAFF.

117f. SENIOR MAJOR GYMNASTICS AND ATHLETICS. WOMEN. Instruction and practice in the analysis and methodology of sports, rhythmic activities and swimming. Practice teaching, coaching, and officiating in sports and swimming activities, and practice teaching in rhythmic activities. Prerequisites, 115f, 116w. (2) THE STAFF.

118w. SENIOR MAJOR GYMNASTICS AND ATHLETICS. A continuation of course 117f. (2) THE STAFF.

119w. TEACHING OF PHYSICAL EDUCATION. The teaching of physical education activities in the grades, junior and senior high school, and college. Special emphasis on selection of activities, teaching methods and program planning. Prerequisite, Freshman and Sophomore Physical Education Activities (Same as Education H119). (2) MISS DUNCAN.

125f. ELEMENTARY FOLK DANCING. Rhythmical form and analysis of dance patterns, selected and graded singing games, elementary folk dances, and character and clog dances, suitable for use in classroom, gymnasium, and on the playground. (2) MISS TAYLOR.

128f. THEORY OF THE MODERN DANCE. Brief history of the dance; the aims and justifications of the dance in the school curriculum; application of dance material to different age groups. Prerequisites, 2 semesters of dancing. (2) MISS TAYLOR.

129f. TECHNIQUE OF FIELD HOCKEY AND BASKET BALL FOR WOMEN. Analysis of skills, rules and methods of teaching; instruction and practice in coaching and officiating. Prerequisite, one season practical experience in the sports. (2) MISS LEAVITT.

134f. TECHNIQUE OF SWIMMING. Principles and methods in teaching swimming, diving, and life saving. The problems of construction and management of swimming pool are considered. Open to men and women of advanced swimming ability. (2) MISS CLINE.

140w. CAMP COUNSELORSHIP. A course designed to meet requirements for counselors as set up by National Camp Directors Association; program building for the organized camps. (2) MISS LEAVITT.

149w. TECHNIQUE OF BASEBALL AND TENNIS. Instruction and practice in analysis of techniques; team play; teaching methods class organization; coaching and officiating. Prerequisites, Freshman and Sophomore Major Athletics. (2) MISS DUNCAN.

D150f and w. SEE EDUCATION—STUDENT TEACHING. Student teaching in elementary schools, junior and senior high schools. Prerequisite, Education, D119 and D110. (5) Two hours one semester, three hours one semester.

151f. COMMUNITY RECREATION. The play movement; nature and function of play; the development of recreation centers and areas. Civic and rural recreation; the promotion and administration of community and industrial programs. The practical conduct of recreational activities and programs. Prerequisites 54w or 56w or equivalent. (3) MISS DUNCAN.

152f. Same as Education H152f. HISTORY AND PRINCIPLES OF PHYSICAL EDUCATION. A historical survey of the aims and content of physical education in Europe and America combined with an analysis of the basic problems which influence the selection and adaptation of physical activities or conditions existing in modern American society. (3) MR. EDWARDS.

160f. HEALTH EDUCATION. The organization of the school health program including a study of the fundamental background for hygiene practices and the adaptation of this material to the school health program. Prerequisite, Anatomy. (3) MISS CLINE.

162w. ADVANCED FOLK DANCING. History of dances of different nations, a study of characteristic steps and dances and methods of presenting material to high school and college classes. (2) MISS TAYLOR.

165s. Same as Education H165s. THE HIGH SCHOOL CURRICULUM IN PHYSICAL EDUCATION. A critical examination of traditional and modern physical education activities and programs, leading to the construction of general and special curriculums for various situations. Prerequisite, 152, History and Principles of Physical Education. (2) MR. HINDMAN.

166w and s. Same as Education H166s. INTRAMURAL SPORTS. A consideration of the objectives and principles in the administration of intramural sports in high schools and colleges, with special reference to the relationship of intramural sports to other parts of the physical education program. (2) MR. HINDMAN.

170f. Same as Education H170. TESTS AND MEASUREMENTS IN PHYSICAL EDUCATION. Prerequisites, physical education 152w and Education D110; a course in statistics is desirable but not required. Measurement of aptitude and achievement in physical education activities with particular reference to the determination of standards. (3) MR. HINDMAN.

175s. APPLIED ANATOMY. This course presents the anatomy necessary to understand nerve control and joint and muscular mechanism of big muscle activity, as a background for the development of motor skills and correction of body defects. A student may not receive credit for 175 and anatomy 107 or physical education 180. (3) MISS CLINE.

180w. BODY MECHANICS. Technique of posture examinations, the application of individual exercises, including the principles of massage and the necessary background in kinesiology. Prerequisite, Anatomy. (5) MISS KELLY.

190w and s. Same as Education H190. ADMINISTRATION OF PHYSICAL EDUCATION. The problems of the administrator and supervisor; finances, construction, equipment and care of physical education plant, selection of staff. Prerequisites, teaching of physical education and sports technique courses. (3) MR. HINDMAN; MISS MCKEE.

200f and w. Same as Education H200. SEMINAR. Reports on selected topics are presented by students and instructors, and criticized by the group. (1-2) THE STAFF.

210f. KINESIOLOGICAL ANALYSIS. The kinesiological background of physical education practices with emphasis on the application of body mechanics to the development of sport techniques and motor skills. Prerequisites, Anatomy, Body Mechanics. (2) MISS CLINE.

215f. REMEDIAL GYMNASTICS. Advanced study of postural problems and correction of defects. Prerequisite: Body Mechanics. (2) MISS KELLY.

220w. Same as Education H220. ADMINISTRATION OF INTERSCHOOL ATHLETICS. The organization and management of interscholastic and intercollegiate athletics. (3) MR. BREWER.

235f. PHILOSOPHY OF THE DANCE. Prerequisites, 27f, 28w, 128f. A historical analysis of the dance as an art form; the dance as correlated with philosophy, art, science, and theory; relation of music to the dance; elements of dance composition and program planning. (2) MISS TAYLOR.

240f. SCIENTIFIC STUDIES IN PHYSICAL EDUCATION. A survey and critical evaluation of reports of research in the field of physical education. Does not include the carrying on of research, but only the study of research reported by others. (3) MR. HINDMAN.

250f, w, and s. Same as Education H250. SPECIAL INVESTIGATIONS IN PHYSICAL EDUCATION. (2-6) THE STAFF.

PHYSICS

Two beginning courses are offered. Those who wish only a course for general information should take 1, and 2 or 5, while those who desire a more thorough course, and have had trigonometry, should take 3 and 4. Students who plan to major in any physical science should select 3 and 4 in preference to 1 and 2. Course 1 is required of students in agriculture, and it together with course 2 will fulfill the requirements of the Association of American Medical Colleges. No one may receive a total of more than 10 hours credit in courses 1, 2, 3, and 4 or their equivalent.

1f, w and s. ELEMENTARY COLLEGE PHYSICS. Prerequisite, plane geometry. (5)

2w. ELEMENTARY COLLEGE PHYSICS. A continuation of 1. Courses 1 and 2 together cover in an elementary way most of the field of physics. (3)

5s. ELEMENTARY COLLEGE PHYSICS. A continuation of 1. Covers Magnetism and Electricity, Sound and Light. Somewhat more extensive than 2. Courses 1 and 5 cover in an elementary way most of the field of physics. (5)

3f and w. GENERAL PHYSICS. Prerequisite, trigonometry. (5).

4f and w. GENERAL PHYSICS. A continuation of 3. Prerequisite, course 1 or 3, and trigonometry. Courses 3 and 4 together cover the same field as courses 1 and 2 but more thoroughly. Full credit is not allowed in course 3 to those who have had course 1, nor in course 4 to those who have had course 2. (5)

104w. ELECTRICAL MEASUREMENTS. Prerequisite, courses 1 and 2 or 5, or 3 and 4, and calculus. (3) MR. STEWART; MR. HAMMOND.

Courses 110, 112, 113, 114, and 117 constitute together a general course in advanced physics. No one of them includes laboratory work, but students who desire advanced laboratory work in physics would do well to elect, along with these courses, courses in the groups 106, 107, 108, 116.

110f. ELECTRICITY AND MAGNETISM. Prerequisite, courses 1 and 2, 1 and 5, or 3 and 4, and calculus. A fairly advanced course, partly mathematical. (3) MR. STEWART.

112f. HEAT. Largely descriptive, but involving some mathematical work. Prerequisite, courses 1 and 2, 1 and 5, or 3 and 4. (3) MR. DUFFORD.

113w. LIGHT. Largely descriptive, but involving some mathematical work. Prerequisite, courses 1 and 2, 1 and 5, or 3 and 4. (3) MR. REESE.

114w. MECHANICS. Prerequisite, courses 1 and 2, 1 and 5, or 3 and 4, and calculus. A fairly advanced course, partly mathematical (3) MR. STEWART.

117f and s. SOUND. Largely descriptive, but involving some mathematical treatment. Prerequisites, one year of college physics and calculus. (3) MR. HAMMOND.

125s. FUNDAMENTALS OF HIGH SCHOOL PHYSICS. For high school teachers. A survey course with emphasis on fundamental concepts, experimental demonstrations, laboratory techniques, problem solving. Prerequisite, one year college physics. Credit for this course is not allowed in Arts and Science nor toward a graduate major in physics. (2) MR. HAMMOND.

130s and w. MODERN PHYSICS. Prerequisite, one year of college physics. Working knowledge of calculus desirable. (3) MR. HAMMOND.

150w. THEORY OF THE MICROSCOPE. Theory and principles of correct usage, special purpose microscopes, accessory equipment, photo-micrography. Lectures and demonstrations. Prerequisites, one year of college physics and at least one laboratory course in a microscopical science. Generally offered in alternate years. To be given 1939-40. (2) MR. UBER.

The following courses consist entirely of laboratory work. Courses 1 and 2, 1 and 5, or 3 and 4, or their equivalent, are prerequisite for any one of them, in addition to the special prerequisites as noted.

106f. IONIZATION OF GASES. Experiments in the conduction of electricity through gases, electronic emission, and radioactivity. Calculus is a prerequisite. (2) MR. DUFFORD.

107w and s. ELECTRICITY. Much the same as the laboratory part of 104. Calculus is prerequisite. (1 or 2) MR. STEWART; MR. HAMMOND.

108w. LIGHT LABORATORY. Wave length and refractive index measurements, polarization, spectroscopy, etc. (2) MR. REESE.

116s. ADVANCED LABORATORY PHYSICS. Selected experiments, in all branches of physics, of more advanced grade than those given in general physics. Prerequisite, calculus. (2)

Integral calculus and two years of physics are prerequisite for all courses numbered 200 or higher, with exception of course 250.

200f and w. SEMINAR. A colloquium in which all members of the departmental staff and students of sufficient attainments participate. (1)

202s, f or w. SPECIAL INVESTIGATIONS. Advanced laboratory work for graduate students. Involves study of the literature of special fields. Students who can attend the University only in the summer should elect this course in place of research. (1 to 4)

213f and s. INTRODUCTION TO THEORETICAL PHYSICS. Some familiarity with differential equations is desirable. (3) MR. HAMMOND.

210s and f. ATOMIC STRUCTURE. An introduction to the fundamental physical properties of the atom. (3) MR. GINGRICH.

214w and s. CONDUCTION OF ELECTRICITY THROUGH GASES. (4) in winter, (3) in summer. MR. DUFFORD.

217f and s. SOUND. Mathematical theory of sound, with applications to some recent developments. (3) MR. HAMMOND.

218w and s. X-RAYS. The modern theory of X-radiation, and its bearing on various physical phenomena. (4) MR. GINGRICH.

219f and w. X-RAY LABORATORY. The technique of X-ray measurements acquired through the repetition of classical experiments on the absorption, scattering, polarization, and diffraction of X-rays. Prerequisite, consent of the instructor. (2 to 4) MR. GINGRICH.

240f or w. NUCLEAR PHYSICS. Production and detection of nuclear disintegrations by particle radiation, gamma rays, and cosmic rays. Introduction to theories of nuclear structure. (3) MR. GINGRICH.

250w. BIOLOGICAL EFFECTS OF RADIANT ENERGY. The principal data obtained from irradiation experiments with ultraviolet, X-rays, radium, and particle radiation are coordinated and interpreted in terms of physical and photochemical phenomena. Special prerequisites: one year college physics, chemistry, and consent of instructor. (3) MR. UBER.

Students who elect one or more of the following group of five courses in mathematical physics should take the course in advanced calculus, either before or concurrently.

215w. ADVANCED ELECTRICITY AND MAGNETISM. (4) MR. STEWART.

221f and s. DYNAMICS. (4) in fall, (3) in summer. MR. REESE.

222w. ELECTROMAGNETIC THEORY AND LIGHT. Prerequisite, 221 (4) MR. STEWART.

233f or w. MATHEMATICAL THEORY OF OPTICS. (4) MR. STEWART.

241f and s. WAVE MECHANICS. Prerequisite, 221. It is also desirable that the student shall have taken advanced algebra. (4) in fall, (3) in summer. MR. REESE.

232w and s. THEORY OF SPECTRA. (3) MR. REESE.

230f and w. READING COURSE. Selected topics in advanced reading, varied from year to year. (3).

233f and w. MATHEMATICAL THEORY OF OPTICS. (4) MR. STEWART.

290f, w and s. RESEARCH. Work for the preparation of a thesis for the Master's or Doctor's degree. Students who do all their graduate work in summer sessions may not register for research. THE STAFF.

291f, w, and s. RESEARCH IN BIOPHYSICS. Problems may be undertaken by properly qualified students of the physical, biological, or agricultural sciences. MR. UBER.

PHYSIOLOGY AND PHARMACOLOGY

100f, w and s. ELEMENTS OF PHYSIOLOGY. Presenting the basic physiological principles and activities with special reference to the human body. Intended for those desiring a general knowledge of physiology, and as preparation for advanced courses. It is recommended that five hours of inorganic Chemistry precede this course. (5) MR. WESTFALL AND ASSISTANTS.

102w. GENERAL PHYSIOLOGY. The physiology of muscle tissues, the nervous system and special sense organs. A study of the regulation and control of physiological activities. Prerequisites, 100w or five hours Zoology, and five hours inorganic Chemistry. (5) MR. ELLIS; MR. MOTLEY; MR. WESTFALL.

103f. ADVANCED GENERAL PHYSIOLOGY. The physiology of the circulatory, respiratory, digestive, excretory, glandular and reproductive systems. Prerequisites, 100w, 102w, or advanced standing in Chemistry. (5) MR. ELLIS; MR. MOTLEY; MR. WESTFALL.

111f. MATERIA MEDICA. A study of the origin, preparation and administration of the common official drugs and drug preparations. Prerequisite, 102w. or 103f. Open only to medical students and advanced physiology majors. (2) MR. MOTLEY; MR. WESTFALL.

112w. PHARMACOLOGY. A study of the action of drugs on man and selected laboratory animals. Prerequisite, 100w or 102w, 103f, and 111f or equivalents. (5) MR. ELLIS; MR. MOTLEY; MR. WESTFALL.

200w and 201f. SEMINAR. Review of current literature on selected physiological and pharmacological topics. (1) STAFF.

216w and 217f. ADVANCED EXPERIMENTAL PHYSIOLOGY. Advanced studies of respiration, circulation, internal secretions and gland action in man and experimental animals. (2-4) MR. ELLIS; MR. MOTLEY.

220w. CLINICAL PHYSIOLOGY. The study of particular physiological processes as modified by clinical, surgical and experimental conditions. Credit arranged. MR. ELLIS; MR. MOTLEY.

230w, 231f and 232s. SPECIAL STUDIES. Individual problems in physiology and pharmacology are assigned to expand previous work or as any introduction to research. Credit arranged. MR. ELLIS; MR. MOTLEY; MR. WESTFALL.

290w, 291f and 292s. RESEARCH. Opportunities for research in physiology and pharmacology are offered. Credit arranged. MR. ELLIS; MR. MOTLEY; MR. WESTFALL.

POLITICAL SCIENCE AND PUBLIC LAW

No course in this department is open to freshmen. Course 1 or its equivalent is a prerequisite to all other courses except 5. Students in Arts and Science should elect the following courses for a major: Political Science 1, 5, and 100. Eleven hours of additional work in Political Science are required. These are to be selected in consultation with the adviser.

1f and w. AMERICAN GOVERNMENT. A basic course dealing with the fundamental principles of political science and the organization, principles, and functions of American government in all its divisions—national, state, and local. (5) MR. BRADSHAW; MR. FAUST; MR. HEINBERG; MR. HILL.

5f. INTERNATIONAL RELATIONS. Lectures and readings on contemporary international relations. (3) MR. HILL.

100w. EUROPEAN GOVERNMENTS. A comparative study of the constitutional development, present functions, and practical workings of the governments of England, France, Germany, Italy, and Russia. (5) MR. HEINBERG.

101f. LOCAL RURAL GOVERNMENT. A study of the development, present organization, and functions of county and township government in the United States, with especial reference to Missouri. (3) MR. BRADSHAW.

102w. ADMINISTRATION OF JUSTICE. A study of the activities of governmental agencies and officials engaged in the administration of criminal law. (2) MR. HEINBERG.

104w. COLONIAL GOVERNMENT. Imperialism, government of the British dominions, and the administration of mandates and modern dependencies, with special reference to American colonial problems. (3) MR. BRADSHAW.

105f. POLITICAL PARTIES. A study of the theory, organization, methods of action, and functions of political parties, especially in the United States. (3) MR. BRADSHAW.

106f. MUNICIPAL GOVERNMENT AND ADMINISTRATION. A comprehensive study of municipal government and administration in the United States, dealing with the law of municipal corporations, municipal politics and elections, forms of city government, and administrative functions and activities. (5) MR. FAUST.

109f. INTERNATIONAL LAW. A general treatment of the laws governing international relations in peace and war. (3) MR. HILL.

110f. PRINCIPLES OF PUBLIC ADMINISTRATION. A general survey of the field of public administration, with especial reference to the organization of administrative services, the management of personnel, finance administration, the relationship of administration to other branches of the government and to the public interest. (3) MR. FAUST.

111w. ADMINISTRATIVE REGULATION OF BUSINESS AND INDUSTRY. A study of the organization, powers, and procedure of important administrative agencies in national and state government regulating business and industry. (3) MR. FAUST.

115w. FOREIGN SERVICE ORGANIZATION. A survey of the conduct of foreign affairs in the United States, Japan, and major European states. (3) MR. HILL.

120f. THE AMERICAN CONSTITUTION. A consideration of the Americans federal system with especial reference to interstate commerce, the powers of Congress, governmental relations between the states and the United States, constitutional limitations for the protection of life, liberty, and property; police power, taxation and eminent domain. (3) MR. HEINBERG.

175w. LEGISLATION. The nature of the legislative power; constitutional limitations; organization, rules of procedure, and practice of American legislative bodies; and bill drafting. (Alternate years.) (3) MR. BRADSHAW.

185w. INTERNATIONAL ORGANIZATION. Prerequisite, course 5 or 109. A study of the form and functions of the various co-operative international organizations, with special reference to the League of Nations and Permanent Court of International Justice. (3) MR. HILL.

198f and w. DISTINCTION. Special readings and reports in the several fields of Political Science. Limited to candidates for graduation with distinction in Political Science. (1-3) MR. BRADSHAW; MR. FAUST; MR. HEINBERG; MR. HILL.

202f. PROBLEMS OF EUROPEAN GOVERNMENT. Prerequisite, course 100. A detailed study of selected problems of English, French, German, Italian, and Russian governments, particularly in the fields of administration and in the relations between government and economic activity. (Alternate years.) (3) MR. HEINBERG.

203w. PROBLEMS OF PUBLIC ADMINISTRATION. Prerequisite, course 101, 106, or 110. A study of administrative organization, practice, and procedure, and the methods of controlling administrative action. (3) MR. FAUST.

210w. HISTORY OF POLITICAL THOUGHT. A review of the history of political thought from Plato to Rousseau. (Alternate years.) (3) MR. HEINBERG.

212f and w. SPECIAL STUDIES. Opportunity is offered to graduate students and seniors who have completed the necessary prerequisite courses to choose topics in one or more of the several fields of Political Science for individual investigation and study. Credit to be arranged. MR. BRADSHAW; MR. FAUST; MR. HEINBERG; MR. HILL.

290f and w. RESEARCH. A thesis is required of all candidates for advanced degrees majoring in Political Science and Public Law. A student should confer with the instructor in whose field he wishes to do his research work relative to the selection of a thesis subject. Credit to be arranged. MR. BRADSHAW; MR. FAUST; MR. HEINBERG; MR. HILL.

The following courses in Public Law may be taken for graduate credit with the approval of the student's major adviser and with the permission of the instructor in the course.

249f and w. TAXATION. (3) MR. HOWARD.

251f and w. ADMINISTRATIVE LAW. (3) MR. HOWARD.

258f and w. PUBLIC UTILITIES. (3) MR. HOWARD.

POULTRY HUSBANDRY

1f and w. POULTRY PRODUCTION. A general course in poultry husbandry including breeds, breeding, culling, incubation, brooding, housing, feeding, management, marketing, and the control of disease. (3) MR. KEMPSTER; MR. PARKER.

3w. TYPES AND BREEDS OF POULTRY. History, development, and characteristics of the most common breeds of poultry. This course is designed for students interested in poultry judging, methods employed in training poultry judging teams, and the organization of poultry exhibits. (2) MR. FUNK.

103f. MARKETING POULTRY PRODUCTS. Prerequisite, 1. A course dealing largely with the practices employed in commercial poultry and egg-handling establishments, both in reference to fattening and killing poultry and to the handling of eggs. (3) MR. KEMPSTER; MR. FUNK.

104f. POULTRY JUDGING. Prerequisite, 1. Special attention is given to exhibition and production judging, and the judging of poultry products. The College poultry judging team is selected from the students enrolled in this course. (3) MR. FUNK.

105w. POULTRY FARM MANAGEMENT. Must be preceded or accompanied by course 1. A study of poultry farm methods and practices. (3) MR. KEMPSTER; MR. FUNK.

106w. INCUBATION AND BROODING. Principles and practices of incubation and brooding. Organization and management of commercial hatcheries. (3) MR. FUNK.

107f and w. SPECIAL PROBLEMS. Primarily for advanced undergraduates. Topics will be assigned. MR. KEMPSTER; MR. FUNK.

108w. ADVANCED POULTRY PRODUCTION. A study of the problems of the poultry farmer and breeder. Special attention is given to breeding, feeding, and management practices. (Prerequisites, poultry husbandry 1 and animal nutrition.) (3) MR. KEMPSTER.

200f and 201w. SEMINAR. Special investigations in poultry husbandry. Literature is reviewed and discussed by the class. (1) MR. KEMPSTER.

202f and 203w. RESEARCH IN POULTRY HUSBANDRY. Advanced studies of special phases of poultry production. Opportunity is offered students for original investigation. In some cases they will assist in experimental work being conducted by the department of poultry husbandry. MR. KEMPSTER; MR. FUNK.

PSYCHOLOGY

1f and w. General Psychology. The basic facts and principles of the mental activity of human beings. Lectures and classroom demonstrations. This course is a prerequisite for all other courses in the department except Psychology 10f and w. (3) Mr. Courts; Mr. Peters.

10f and w. Applications of Psychology to Student Problems. A course primarily for underclassmen in effective study techniques, vocational selection, and personality problems. (2) No prerequisite. Cannot be taken for credit by juniors and seniors, and cannot be applied toward a major or minor in psychology. Mr. McKinney.

50f and w. Applied Psychology. A study of the psychological principles of most importance in the practical control of human behavior. The applications of psychology to advertising, selling, personnel work, law, medicine, and industry are given special consideration. (3) Mr. McKinney.

98w. Mental Development. The origin of psychological traits and their development in the normal human individual, with emphasis on the behavior characteristics of the infant, child, and adolescent. Some consideration is given prenatal development and old age. (3) Mr. Courts.

122f and w. Abnormal Psychology. A survey of the abnormalities of human behavior and experience, with special emphasis on the abnormalities of the whole personailty. The psychological, psychoanalytic, physiological, and neurological interpretations of maladjustments are evaluated. (3) Mr. Melton.

125f. Social Psychology. The psychological factors involved in social behavior. Consideration is given such phenomena as customs, social interaction, crowd behavior, fads, propaganda, public opinion, and leadership. Contemporary social phenomena will be considered psychologically. (3) Mr. Courts.

187f. Psychology of the Individual. A survey of methods and theory of measuring individual differences in intelligence, special aptitudes, interests, attitudes, and personality traits. Laboratory demonstrations of the testing procedures discussed in the lectures will be given. (3) Mr. McKinney.

189f. Psychology of Sensation and Perception. A survey of the sensory phenomena of human experience and the common perceptual adjustments of the individual to the environment. Special attention is given to the perception of space, time, and movement. Laboratory demonstrations of the major principles accompany the lectures. (3) Mr. Peters.

190w. Psychology of Action and Emotion. A survey of the principles of reflex action, voluntary action, mental and physical work, and the conditions and consequences of emotion. Laboratory demonstrations of the major principles accompany the lectures. (3) Mr. Peters.

191f. Psychology of Learning I. A survey of the factors affecting the efficiency of human learning and retention. The course prepares the student for the intensive analysis of the learning and forgetting processes in Psychology of Learning II, but may be taken separately for credit. (2) Mr. Melton.

192w. Psychology of Learning II. An intensive study of the learning process and the conditions essential for learning and retention, with special reference to current psychological and neurological theories. Laboratory and film demonstrations of conditioned reflex phenomena, the role of reward and punishment in learning, the conflict of incompatible habits etc.. supplement the

lectures. Prerequisite, Psychology 191f or the consent of the instructor. (3) Mr. Melton.

193f and 194w. Special Problems. On consultation with the teacher concerned properly prepared students may undertake original investigations in experimental psychology under supervision. Designed to supplement courses 187f, 189f, 190w, 191f, or 192w. (2-5) Mr. Melton; Mr. McKinney; Mr. Peters; Mr. Courts.

196w. Systematic Psychology. A survey of major theoretical problems of contemporary psychology, and a critical evaluation of the theoretical systems of psychology that have molded the concepts and methods of contemporary experimental psychology. (3) Mr. Melton.

197f and 198w. Distinction. Readings and seminar work designed to orient the student with respect to the history of psychology and to integrate the study of the various fields of psychology. Limited to candidates for distinction in psychology. (3) Mr. Melton.

200f and 201w. Seminar in Psychology. An intensive study of the philosophy and logic of science as applied in psychological investigations, with special emphasis on the experimental and statistical methodology of psychology. Lectures, student reports, and readings in current psychological publications. (3) Mr. Melton; Mr. Peters; Mr. Courts.

209f and w. Readings in Psychology. Intensive reading at an advanced level in one or more of the major fields of psychology. (4) Mr. Melton; Mr. McKinney; Mr. Peters; Mr. Courts.

210f and w. Research in Psychology. Investigation in psychology undertaken with the expectation that the work will terminate in a thesis. (3-6) Mr. Melton; Mr. McKinney; Mr. Peters; Mr. Courts.

RELIGION

Courses in religion offered by the Bible College of Missouri may be taken for credit toward degrees in the University of Missouri. All courses are accredited in the College of Arts and Science, from which a student may elect as many as fourteen hours toward the degree of Bachelor of Arts.

Students may elect courses toward other degrees as approved by deans of the respective schools.

Introduction

3f and w. Fundamental Moral and Religious Values. An investigation of the moral and spiritual values contained in the idea of the Kingdom of God. An examination of Jesus' conception of the abundant life as an ideal for the individual and society. The methods, scope and limitations of science. A philosophical approach to the problems of immortality, God and freedom.

Open to freshmen and sophomores. Not a prerequisite to any other course offered in the Bible College. (2) Mr. Agee; Mr. Minor.

Language and Literature

Biblical Literature

50f and w. Life and Literature of the Old Testament. A study of the literature of the Old Testament arranged in its historic setting, including a consideration of the social, economic, and religious phases of the periods in which

the particular texts were written. Special attention will be given to the literary quality and to the growth of ideas and concepts contained in this portion of the Bible. Prerequisite, sophomore standing. (2) MR. KEYFITZ.

60f and w. LIFE AND LITERATURE OF THE NEW TESTAMENT. A study of the central documents of the Christian religion to determine their origin, authorship, literary structure, nature, and permanent value. Prerequisite, sophomore standing. (2) MR. AGEE.

Language

100f and 101w. INTRODUCTION TO THE STUDY OF NEW TESTAMENT GREEK. The characteristics of the language; a drill on the forms and syntax, the building of a New Testament vocabulary, a translation of John. Three times per week the first semester, and twice per week the second semester. Prerequisites, Greek 3 and 5. (5) MR. AGEE.

105f and 106w. HEBREW LANGUAGE I AND II. Beginner's course: the alphabet, grammatical principles, acquisition of vocabulary, and translation of Genesis I-VIII, with some easy sight reading. Three times per week through two semesters. (6) MR. KEYFITZ.

107f and 108w. HEBREW LANGUAGE III AND IV. Advanced course. A knowledge of the forms is presupposed. Introduction to syntax. Selections from the prophets and Hagiographa. During the second semester the student will be introduced to Aramaic forms, and will read selections from Daniel. Three times per week the first semester and twice per week the second semester. (5) MR. KEYFITZ.

111f and 112w. POST-BIBLICAL HEBREW. Lectures on the history of post-Biblical Hebrew literature. Reading of representative selections from Talmudic. Midrashic, and modern prose and poetry. Open to students who qualify in the knowledge of Hebrew. Two hours weekly through two semesters. During the second semester the course will be conducted in Hebrew. (4) MR. KEYFITZ.

113f and 114w. ELEMENTARY SYRIAC. A beginner's course in Syriac. Grammar and reading of easy selections from Kalilah wa-Dimnah. (4) MR. KEYFITZ.

115f and 116w. ELEMENTARY ARABIC. An elementary course in Arabic grammar, exercises in the language, and reading of selected portions in the Arabian Nights. (4) MR. KEYFITZ.

117f and 118w. ASSYRIAN FOR BEGINNERS. An introductory course in cuneiform. Grammar and selected readings in Assyrian annals. Delitzsch, Assyrische Lesestucke will be used. (4) MR. KEYFITZ.

119f and 120w. INTRODUCTION TO EGYPTIAN. The student will be introduced to hieroglyphics through selected readings from Sinuhe and other Egyptian narratives. The course will be accompanied by a study of Egyptian grammar. (4) MR KEYFITZ.

HISTORY

History of Religions

130f and w. COMPARATIVE RELIGION. A rapid survey of the chief religions now prevailing in the world, including Hinduism, Buddhism, Confucianism, Zoroastrianism, Islam, Judaism, and Christianity. Prerequisite, junior standing or consent of the instructor. (2) MR. HEARN.

132f and w. Ethics of World Religions. A study of the ethics of the world's living religions, including Hinduism, Buddhism, Confucianism, Zoroastrianism, Islam, Judaism, and Christianity. The ethical standards of these religions are surveyed first in their formative periods and their scriptural expressions, and then in their present approach to the ethical problems of the modern world. Prerequisite, junior standing or consent of the instructor. (2) Mr. Hearn.

Semitic History

140f and w. The Ancient Orient. The rise of civilization in Egypt and Mesopotamia, and the political history of ancient kingdoms and empires. The history of Assyria and special reference to the Hittites and Syria-Palestine through the Amarna period will be studied. Material civilization as well as spiritual culture, art, literature and religion will receive special consideration. (3) Mr. Keyfitz.

141f and w. The Early History of Israel. A survey of the history of Israel from the settlement in Palestine to the end of the Maccabean period. The evolution of government, law, religion, and prophecy will form the chief content of this course. The contacts of Palestine with its neighbors and their influence upon Israel's ideas and institutions will be especially stressed. (3) Mr. Keyfitz.

145f and w. Religion of the Ancient Hebrews. A comparative study of the religions of Egypt and Mesopotamia, and their influence on the religion of Palestine. A survey of religious development in pre-Hebrew days. Types of early Hebrew religious belief. The religion of the prophets. The rise of henotheism, and the triumph of monotheism. (2) Mr. Keyfitz.

146w. Post-Exilic Religion of the Jews. The progress of religious thought under Ezekiel and other post-exilic prophets. The development of democracy in religious practice, and later in education. The importance of the synagogue. Further progress in Judaism under the Scribes, the Pious, and the Pharisees. (2) Mr. Keyfitz.

Church History

150f and w. Origins of the Christian Church. A study of the ideals and environment out of which the early Christian Church developed. Source materials: pre-Christian life and literature of the Jewish people; customs, philosophical and religious beliefs of contemporary nations; New Testament and other first century writings. (2) Mr. Hearn.

152f and w. History of the Christian Church. A survey of the outstanding developments in the life of the church from the Apostolic age to the present. The history of the church will be considered in the light of political, economic, and social movements. (3) Mr. Hearn.

154f and w. History of Religion in America. A study of the religious background of the early colonists, the distinctive features of American religious history, the growth of denominations, movements toward unity, and other modern trends. (2) Mr. Hearn.

Philosophy and Psychology of Religion

170f and w. Psychology of Religion. Analytical study of that kind of human behavior which attempts to connect human life with what has greatest

value; objectification and analysis of behavior problems which prevent this connection. Prerequisite, junior standing or consent of the instructor. (3) MR. MINOR.

171f and w. PHILOSOPHY OF RELIGION. Analysis of the basic concepts of religion, such as God, freedom, immortality, sin, faith, salvation, with especial reference to their philosophic import. Prerequisite, junior standing or consent of the instructor. (3) MR. MINOR.

RURAL SOCIOLOGY

115s, f, and w. RURAL SOCIOLOGY. A study of rural social life and organization, together with comparisons with the city and the interrelations between the two. (3) Not open to freshmen. Prerequisite an introductory course in Economics. MR. LIVELY.

117s and w. COMMUNITY ORGANIZATION. Considers the principles and methods of organization and development of various types of communities. Designed for those who will have occasion to use the community as an organization unit in their future work. Prerequisite, course 115 or 6 hrs. Sociology. (3) MR. LIVELY.

190s and w. GROUP LEADERSHIP. A study of the biological, psychological, and sociological aspects of leadership, and of the training of leadership in community affairs. Leaders in such fields as agriculture, business, education, religion, politics and social organization are analyzed. Prerequisite, Psychology and six hours of Sociology. Senior standing. (2) MR. LIVELY.

200f and w. SEMINAR. Special lectures and review of literature. Credit arranged. MR. LIVELY.

201f. ADVANCED RURAL SOCIOLOGY. An advanced study of farm life and its institutions with particular reference to the changing psychology and group relations in rural affairs. Prerequisites, Course 115 and 117 or equivalents. (Not offered in 1939-40.) (3) MR. LIVELY.

234w. FARMER MOVEMENTS. A critical study of the principal former movements in Europe and in America with a view to an evaluation of present-day movements in the light of current trends in agriculture and country life. (Not offered in 1939-40.) (2) MR. LIVELY.

240s, f, and w. SPECIAL INVESTIGATIONS. Credit arranged. MR. LIVELY.

290s, f, and w. RESEARCH. Thesis required. Credit arranged. MR. LIVELY.

SANSKRIT

See *Germanic Languages*, page 351.

SOCIOLOGY

Course 1 is open to Freshmen with the consent of the instructor. Prerequisites are listed with each course, but some of these prerequisites may be waived for Seniors and Graduates with the consent of the instructor.

1f and w. GENERAL SOCIOLOGY. A study of the factors influencing group life, and of the most important processes and institutions found in society. (3) MR. BERRY; MR. EMIG; MR. GIST; MRS. PHILIPS.

10f and w. Social Behavior. A socio-psychological study of personality and human behavior. Considering the socialization of the individual; attitudes and prejudices; social roles; leadership; crowds; fashions and fads; public opinion. Prerequisite, course 1. (3) Mr. Gist.

105f. Population Trends. A general survey of the field of population; composition; trends in fertility and mortality; the future growth of population; population redistribution and the problems of quality. Prerequisite, course 1. (3) Mr. Pihlblad.

110f and w. Social Pathology. A study of social disorganization and personal demoralization. Emphasis is placed on the processes by which social variants become maladjusted, and on the processes by which institutions and communities tend to disintegrate. Prerequisite course 1. (3) Mr. Gist.

111f and w. Criminology Individual and social factors in the etiology of crime; institutions of criminal justice; punishment and treatment of the offender. Prerequisite, course 1. (3) Mr. Pihlblad.

112f. Child Welfare. A study of the socializing process and its conditioning by heredity and physical and social factors; a description of social policies and agencies for the promotion of child welfare. Prerequisite, course 1. (3) Mr. Nebel.

113w. Social Security. A critical analysis of policies and agencies for dealing with the social and economic aspects of sickness, invalidity, old age, accident, and unemployment. Prerequisites, courses 1 and 110. (2) Mr. Pihlblad.

114w. The Family. A study of the family as a natural and institutional group, the influences which tend to modify its form and functions, the process of disintegration, current theories of reconstruction. Prerequisites, courses 1 and 110 or 112. (3) Mr. Emig.

116f. Urban Sociology. An analytical and critical study of the structure and function of city life, a development of concepts with which to understand urban problems, Prerequisite, course 1. (2) Mr. Gist.

125f. General Anthropology. An introduction to the study of man and culture; the origin and evolution of man as an animal; fossil man; the beginnings of civilization; the diffusion of culture. Prerequisite, course 1. (3) Mr. Berry.

126w. Cultural Anthropology. A study of primitive folkways and institutions such as forms of marriage, property, religion, social organization, etc. The factors affecting culture; the significance of the study of primitive culture for an understanding of contemporary civilization. Prerequisite, course 1. (3) Mr. Berry.

127f. Immigration and American Society. A study of the cultural background of principal immigrant groups, their adjustments, and their contributions to American Society. Prerequisite, course 1. (2) Mr. Pihlblad.

135w. The American Indian. The origin and antiquity of man in America; American archaeology; civilization of the Mayas, Aztecs, and Incas; the various culture areas of the Americas; customs of representative tribes. (2) Prerequisite, course 1. Mr. Berry.

137f. Race and Race Relations. The nature, criteria, classification, and distribution of races; race differences; race contacts and conflicts. Prerequisite, course 1. (2) Mr. Berry.

198f and w. DISTINCTION IN SOCIOLOGY. Supervised work for candidates. (3) THE STAFF.

200f and w. THE SEMINAR. Reports of research by students and faculty members. The recent outstanding contributions are reviewed. Required of all graduate majors in sociology with or without credit. (1-2) THE STAFF.

220f. PRINCIPLES OF SOCIOLOGY. A critical study of contemporary theories and schools of social thought. Prerequisite, 12 hours of Sociology. (3) MR. EMIG.

221w. THEORY OF POPULATION. This course will consist of an analysis of important recent monographs and studies in the field of population. Prerequisite, 12 hours of Sociology or Course 105. (2) MR. PIHLBLAD.

222f. METHODS OF SOCIAL RESEARCH. A critical study of methods applicable to the study of social problems. Problems of investigation by the class. Required of all graduate majors. Prerequisite, 12 hours of Sociology. (3) MR. EMIG.

227f. THE AMERICAN NEGRO. A study of the historical background and present status of the American negro. Prerequisite, 12 hours of Sociology. (2) MR. PIHLBLAD.

230w. HISTORY OF SOCIAL PHILOSOPHY. The development of social thought from the Hebrews to the present. Some of the outstanding sources are assigned. Prerequisite, 12 hours of Sociology. (3) MR. EMIG.

240f and w. SPECIAL INVESTIGATION. Directed reading and investigation not leading to a thesis. (1-3) THE STAFF.

290f and w. RESEARCH. A thesis is required for all advanced degrees in Sociology. (1-6) THE STAFF.

Social Welfare Courses

150f. FIELD OF SOCIAL WORK. A historical survey and analysis of the origin, development, and present status of the various fields in social work. Prerequisite, course 1. (3) MR. NEBEL.

153f and w. SOCIAL CASE WORK I. An introduction to the basic processes involved in case work, and to recognized methods of dealing with them. Prerequisite, 8 hours of Sociology. (3) MR. NEBEL.

155f and w. FIELD WORK I. Credit is arranged. Unpaid practice work under the supervision of an accredited agency. Prerequisite 150, 153, 157.

157w. SOCIAL CASE WORK II. An analysis of case records in order to discover sound techniques in serving the client. Prerequisite, course 153. (2) MR. NEBEL.

159w. COMMUNITY PROBLEMS FOR SOCIAL WORK. Information concerning the community and its problems, the interrelationship between social agencies, and the relationship of the social worker to them. Community resources and the manner in which they are utilized by the social worker. Prerequisite, course 1. (3) MR. NEBEL.

180f. PUBLIC WELFARE ADMINISTRATION. A study of the principles and methods of the organization and administration of social welfare work. Prerequisite, course 153. (3) MR. NEBEL.

185w. SOCIAL LEGISLATION. A study of the laws and legal principles to be understood in social welfare work. Prerequisite, course 153. (2) MR. NEBEL.

187w. MEDICAL INFORMATION. Medical information necessary to the welfare worker. The relation of medicine to social case work. Prerequisite, course 153. (2) DR. COOPER.

203w. CASE WORK IN CHILD WELFARE. Case work problems in child welfare. Cases will be studied showing the child in the home, foster homes, agencies caring for children, problems of adoption and illegitimacy. Prerequisites, 112 and 153. (3)

205f and w. SPECIALIZED CASE WORK. Training for case work in any specific field: Delinquency, Child Welfare, Family, etc. (2-3). Prerequisite, 12 hours Sociology. MR. NEBEL.

207w. PROBATION AND PAROLE. A study of the history, theory and practice of probation and parole. An attempt will be made to acquaint the student with the practical problems of administration as they are found in Missouri courts and correctional institutions. Enrollment by arrangement with the instructor. Prerequisite, Courses 111, 153 and Psychology 122. (3) MR. PHILBLAD.

210w. PSYCHIATRIC INFORMATION. A study of social and mental variants, and of the processes by which they become maladjusted. The social workers approach to these problems and his relationship to the specialist in the field of psychiatry. Prerequisite, 12 hours of Sociology. (3) Not given in 1939.

212f and w. FIELD WORK II. Field work for graduate students. Credit is arranged. Prerequisite, 12 hours Welfare Work. MR. NEBEL.

SOILS

1f and w SOILS. Prerequisites, chemistry 1 and geology 2. An introductory course dealing with the subject of soils and the principles underlying rational soil management. Three class periods and two laboratory or field periods. (5) MR. ALBRECHT; MR. GRAHAM.

100f. SOIL FERTILITY. Prerequisite, course 1. Eight hours of chemistry should precede this course. A course having to do with the essential principles in maintaining soil fertility. One lecture and two laboratory periods. (3) MR. ALBRECHT; MR. GRAHAM.

101w. SOIL MANAGEMENT. Prerequisite, course 1. A course dealing with the principles of soil management as applied to the physical improvement and the fertility maintenance of soils. (3) MR. SMITH.

102f. SOIL SURVEYING AND LAND APPRAISAL. Prerequisite, course 1. A course designed to familiarize students with the principles and practices of soil surveying, land judging and land appraisal. Two lectures and one laboratory period. (3) MR. KRUSEKOPF.

104f. SOILS AND LAND USE IN THE UNITED STATES. Prerequisite, course 1. The soils of the United States, their origin, development, field characteristics and systems of farming. Particular attention given to the soil factors as they determine land use. Offered in alternate years. Offered in 1939-40. (2) MR. KRUSEKOPF.

105w. SOIL BACTERIOLOGY. Prerequisite, course 1 and general bacteriology. Microorganic life of the soil in relation to soil fertility, including studies of nitrogen transformations, decay of farm manures, soil inoculation and other biological processes. One lecture, two laboratory periods. (3) MR. ALBRECHT; MR. GRAHAM.

106w. Soil Development and Morphology. Prerequisite, course 1. Course 102f is recommended. A course having to do with the principles of soil origin and development as determined by environmental factors. Special attention given to the modern ideas of pedologists regarding soil morphology. Offered in alternate years. Not offered in 1939-40. (2) Mr. Krusekopf.

107w. Physical Properties of Soils. Prerequisites, course 1 and college physics; a course in physical chemistry is recommended. A fundamental study of the physical constitution and colloidal properties of soils in their relation to soil structure and consistency, water absorption and movement, aeration and temperature. Practical applications to cultivation, drainage and erosion problems. Offered in alternate years. Offered in 1939-40. (3-5) Mr. Marshall.

108f. Soil Conservation. Prerequisite, course 1. A course emphasizing the conservation of the soils and their fertility, with special attention to the soil types of Missouri. Consideration will be given to the factors influencing erosion and other processes of soil deterioration, and to the agronomic principles of their control. (3) Mr. Woodruff.

120f and w. Special Problems. Prerequisite, ample background in soils and allied sciences. Assigned problems in soil physics, fertility, or biology in connection with certain experiment station projects or problems chosen by the student with approval. (2-5) Mr. Albrecht; Mr. Krusekopf; Mr. Marshall.

200f and w. Seminar. Discussion of recent developments in soil science. Papers on assigned topics are presented for discussion. (1) Mr. Albrecht.

202f and w. Special Investigations. Prerequisite, one year of graduate study for non-majors in soils. Independent investigation of soil problems not terminating in a thesis. (2-5) Mr. Albrecht; Mr. Krusekopf; Mr. Marshall.

203w. Theories and Applications in Soil Research. Prerequisite, graduate standing in soils. A course designed to familiarize students with the development of theories underlying the major phases of soil research and with the methods of conducting soil investigations. Offered in alternate years. Offered in 1939-40. (2) Mr. Albrecht.

204w. Physical Chemistry of Soils. Prerequisite, physical or colloid chemistry. The application of the methods of physical and colloid chemistry to soil problems with special emphasis upon the physico-chemical nature of the inorganic and organic colloids as affecting soil acidity, base exchange, absorption, and the nature of the soil solution. Offered in alternate years. Not offered in 1939-40. (3-5) Mr. Marshall.

205f and w. Soil Research. Special investigations in soils. Mr. Albrecht; Mr. Krusekopf; Mr. Marshall.

SPANISH

(Prerequisites: for 105, 108, 114, 125, 126, 130, course 3 or equivalent; for 111 and 122, course 105 or equivalent; for 112, instructor's consent; for 117, 16 hours of Spanish.)

1f and w. Elementary Course. (5) Miss Bohannon; Miss Johnson; Mr. Scherr; Miss Walker; Mr. Warshaw.

2f and w. Intermediate Course. (5) Miss Bohannon; Miss Johnson; Mr. Scherr; Miss Walker; Mr. Warshaw.

3f and w. Advanced Course. Rapid reading of modern works. Three hours of the credit of this course may be counted as upperclassman work toward

a major or a minor in Spanish. (5), (3), (2) Miss Bohannon; Miss Walker; Mr. Scherr.

101w. Latin-American Life, Literature, and Affairs. A knowledge of Spanish is not required. The work of the course is done in English. (2) Mr. Warshaw.

105f and w. Composition and Conversation. (3) Miss Walker; Mr. Warshaw.

108w. The Dramatic Work of Benavente. (2) or (3) Mr. Warshaw.

111f. Advanced Composition and Conversation. (2) Mr. Warshaw.

112f and w. Special Readings. Directed study of work suited to the needs of the individual student. (1-3) Mr. Warshaw.

114f. Contemporary Spanish Novel. Alternates with course 113f, Nineteenth Century Spanish Novel, which will not be offered in 1939-40. (3) Miss Bohannon.

117f. Cervantes. Alternates with course 119f, Spanish Drama of the 16th and 17th Centuries, which will not be offered in 1939-40. (3) Mr. Scherr.

122w. Commercial Spanish. (2) Miss Walker.

125w. Mexican Literature. Alternates with course 120w, Masterpieces of Spanish Literature, which will not be offered in 1939-40. (3) Miss Walker.

126w. Spanish Literature of the 18th Century. Alternates with course 128w, Spanish Romantic Period, which will not be offered in 1939-40. (3) Mr. Scherr.

130w. Spanish Lyric Poetry. Alternates with course 132w, Spanish Short Story, which will not be offered in 1939-40. (2) Mr. Scherr.

197f and 198w. Distinction. Special work for candidates for graduation with distinction. (3) Members of the Staff.

201f and w. Special Investigations. (1-4) Mr. Warshaw.

202w. Old Spanish. (Alternates with course 204w, Historical Spanish Grammar, 205w, The Early Spanish Epic, or 210w, Historical Spanish Syntax.) (3) Miss Johnson.

203f and w. Special Studies. (1-4) Mr. Warshaw.

207f or w. Lope de Vega's Predecessors in the Drama. (Alternates with course 206f or w, The Spanish Ballad.) (3) Mr. Warshaw.

208f. The Entremes in the Drama of the 16th and 17th Centuries. (Alternates with course 209f, The Spanish Novel of the Golden Age.) (3) Mr. Scherr.

211f and w. Galdos. (3) Mr. Warshaw.

290f and w. Research. Required of students who elect to present a thesis in the Department of Spanish. (Credit to be arranged.) Mr. Warshaw.

Philology. Courses 202, 203, 204, and 210 will provide for the needs of students primarily interested in Spanish philology. Attention is called to courses in philology offered in the Department of French and Italian.

(Teaching of Spanish. See Education D118w.)

SURGERY

102w. Minor Surgery. The lectures on the general principles of surgery included the consideration of asepsis and antisepsis, inflammation, healing of wounds, hemorrhage and sepsis. Material for demonstration of the minor sur-

gical lesions is obtained from the dispensary. The laboratory periods are devoted to a study of bandaging and the preparation and use of surgical material and dressings. Each student will have twelve lessons on the practical application of bandages, including the general principles in the use of plaster bandages, adhesive dressings, splints, etc. The preparation of dressings and instruments is studied in the hospital. (2) MR. CONLEY; MR. DIETRICH; MR. BRUNER; MR. STEWART; MR. LEMONE.

103w. MEDICAL ETHICS AND ECONOMICS. Four one-hour lectures during the second semester. Optional for second-year medical students. MR. CONLEY.

VETERINARY SCIENCE

1f and w. GENERAL VETERINARY SCIENCE. (a) An elementary study will be made of the anatomy of the skeleton, muscles, joints, and internal organs. (b) Physiology of the internal organs, with special attention to the organs of reproduction. (c) Prevention of the common non-infectious diseases of farm animals. (3) MR. OLVEY.

2f and w. VETERINARY MEDICINE AND SURGERY. (Minor course.) Prerequisite, course 1. Diagnosis and treatment of the common ailments of farm animals, simple surgical operations. (3) MR. CRISLER.

100f. VETERINARY MEDICINE. (Advanced course.) Continuation of course 2 in the more advanced study of the non-infectious diseases. (3) MR. CRISLER.

101f. STOCK FARM SANITATION AND DISEASE PREVENTION. Prerequisites, course 1 and general bacteriology. Infectious diseases of farm animals. A study of the causes, symptoms, pathology, special diagnostic methods, preventive measures, quarantine methods, disinfectants and their uses. Lectures, and demonstrations. (3) MR. ELDER.

102w. PARASITES OF DOMESTIC ANIMALS. Prerequisite, Course 1. A study of internal and external parasites of farm animals, their economic importance and control. (3) MR. ELDER.

103f. DISEASES OF POULTRY. Prerequisite, course 1. Diagnosis and treatment of the common ailments and infectious diseases of poultry and their prevention. (3) MR. DURANT.

104w. PARASITES OF POULTRY. Prerequisite, Course 1. A study of internal and external parasites of poultry, prevention and treatment. (3) MR. DURANT.

105f and 106w. SPECIAL PROBLEMS. Assignment of special problems for training in research in animal diseases. Prerequisite, course 101f, 102w, or 103w, according to problem assigned. These prerequisites waived in case of graduate veterinarians who desire instruction on some special problem. Hours by arrangement. MR. DURANT; MR. ELDER.

200f and 201w. SEMINAR. Study of researches in animal and poultry diseases. Open to advanced students specializing in animal, dairy and poultry husbandry. (1-2) MR. DURANT; MR. ELDER.

202f and 203w. RESEARCH. Experimental investigation of animal and poultry diseases and of measures of prevention and treatment. Open to graduate students who have the requisite preparation. The student may assist in Experiment Station projects now in progress or may be assigned a special problem. Proper credit is given toward an advanced degree. Hours by arrangement. MR. CONNAWAY; MR. DURANT; MR. ELDER.

ZOOLOGY

Seniors taking the course in General Zoology will receive only four hours credit. Courses Greek 13, Greek for Students of the Sciences, and Physics 150, Theory of the Microscope, are recommended to students of Zoology.

1f and w. General Zoology. The principles of zoological science. The three-hour section is open only to students enrolled in the College of Agriculture who have completed a course in General Botany of at least 3 hours. (3 or 5) Mr. Cameron; Mr. Curtis; Mr. Eastlick; Mr. Mazia.

2w. Theory of Evolution. Prerequisite, course 1. A study of organic evolution and the applications of evolutionary doctrines. Students who have taken 125f Genetics may not receive full credit for this course. (2) Mr. Curtis.

3f. Advanced General Zoology. Prerequisite, course 1. A continuation of the introductory course. (3) Mr. Bennitt.

4w. Comparative Anatomy of Vertebrates. Prerequisite, course 1. A comparative study of the structure of a series of vertebrates. (5) Mr. Cameron.

5w. Ornithology. Prerequisite, except in special cases, 5 hours in biological science. The structure, identification, habits, and importance of the birds of this region. Field work, supplemented by lectures and laboratory study. (2-3) Mr. Bennitt.

6w. Principles of Wildlife Conservation. Prerequisite, course 1 for 3 or 5 hours. A study of the biological principles involved in the conservation of animal life under natural conditions. (3) Mr. Bennitt.

100w. Animal Ecology. Prerequisites, Zoology 1, Botany 1, and either Botany 10 or 101; Zoology 3 is advised. A study of animals and animal communities in relation to their environment, with special reference to local fauna. Lectures and field projects. (3) Mr. Bennitt.

105f. Comparative Histology. Prerequisite, at least 8 hours in zoology. A comparative study of the microscopic structure of animal cells, tissues, and organs. (3) Mr. Cameron.

110w. Parasitology. Prerequisites, at least 8 hours in zoology. A study of animal parasites. (3) Mr. Cameron; Mr. Curtis.

116w. Cellular Physiology. Prerequisites, 10 hours in biological science, 15 hours in chemistry, 8 hours in physics. The physics and chemistry of protoplasm, and the exchanges of matter and energy between the cell and its environment. Lectures alone may be taken for 2 hours credit. (2-5) Mr. Mazia.

117w. Physiology of Development. Prerequisites, courses 116 and 120 or permission of instructor. Biochemical and biophysical phenomena in development. (3) Mr. Mazia.

120f. Embryology of Vertebrates. Prerequisite, at least 8 hours in zoology or consent of instructor. The development of vertebrates is discussed from a comparative point of view. Chick embryos constitute the laboratory material. (3) Miss Guthrie.

125f. Genetics. Prerequisite, at least 8 hours in zoology or its equivalent in other fields of biological science or 5 hours in zoology with a grade of S or better. A course dealing with the experimental study of heredity and variation. May be taken for 3 hours credit by graduate students with consent of instructor. (3-5) Miss Guthrie.

130f. PROTOZOOLOGY. Prerequisite, at least 8 hours in zoology or its equivalent in other biological lines. A general study of the protozoa. (3-5) MR. CURTIS.

135w. CYTOLOGY. Prerequisite, at least 8 hours in zoology or an equivalent in other fields of biological science. The morphology of cells with reference to the nature of protoplasm and the functions of cells in development and heredity. Cytological technique. May be taken for 3 hours credit by graduate students with consent of instructor. (3-5) MISS GUTHRIE.

150f and w. SPECIAL PROBLEMS. Individual work under supervision, designed to supplement regularly organized courses in zoology and as an introduction to research. (1-5) MR. BENNITT; MR. CAMERON; MR. CURTIS; MISS GUTHRIE; MR. MAZIA.

200f and w. SEMINAR. Presentation and discussion of zoological problems and investigations by instructors and students. (1) MISS GUTHRIE AND STAFF.

203f. ADVANCED CELLULAR PHYSIOLOGY. Prerequisite, course 116 or permission of instructor. Intensive discussion of special topics in continuation of course 116, according to the preparation. (3) MR. MAZIA.

205f. EXPERIMENTAL EMBRYOLOGY. Readings from the original literature and discussion of problems of fertilization and the effects of modification of internal and external environment on the course of development. (3) MISS GUTHRIE.

206f or w. THE REPRODUCTIVE CYCLE. Readings from the original literature and discussion of internal and external factors conditioning reproduction. (3) MISS GUTHRIE.

208f. PROTOZOOLOGY AND REGENERATION. Readings, reports and discussions from the original literature with emphasis upon the general biological problems involved. (2-3) MR. CURTIS.

215w. ADVANCED GENETICS. Prerequisite, Zoology 125f, or the equivalent. Lectures and readings from the original literature. Generally given in alternate years; offered in 1938-39. (3) MISS GUTHRIE; MISS MCCLINTOCK; MR. STADLER.

250f and w. SPECIAL STUDIES. Research not expected to terminate in a thesis, or advanced study in special subjects. (1-5) MR. BENNITT; MR. CAMERON; MR. CURTIS; MISS GUTHRIE; MR. MAZIA.

290f and w. RESEARCH. Investigation of unsolved problems in zoology, undertaken with the expectation that the work will terminate in a thesis. MR. BENNITT; MR. CAMERON; MR. CURTIS; MISS GUTHRIE; MR. MAZIA.

SECTION IV

DEGREES AND CERTIFICATES—COMMENCEMENTS, 1938

AT COLUMBIA
June 7, 1938

DEGREES

COLLEGE OF ARTS AND SCIENCE

Degree of Bachelor of Arts (A. B.) with Distinction

In Chemistry
Arthur Morton Squires

In Economics
Robert James Fowks

In English
George Allan Cook

In Geology
Albert Edward John Engel
Mary Louise Rhodes
William Calhoun Smith

In Psychology
Alvin Meyer Liberman
George B. Strother

In Sociology
Harold Frederick Kaufman
Joyce Evelyn LaRue
Dorothy Sophie Otis

In Spanish
Willie Mae Barron

Degree of Bachelor of Arts (A. B.)

Eugene Field Agee, Jr.
Berneil Walter Andrews
Stuart Awbrey
Mabel Bernece Bailey
Nancy Ruth Barnes
Helen Margaret Bayne
Betty Pauline Bean
Lola Ruth Benson
Jane Birkhead
Jane Grace Bischoff
Karl Wilson Blanchard
Ralph Randale Bloodworth
Walter Henry Bohling, Jr.
Stephen Fish Bonney, Jr.
Vaughn Motley Bryant
Richard Herman Buell
Mary Margaret Burge
James Wagner Cameron
Gertrude Campbell
Emerson M. Carpenter
John Martin Cave
Mary Curtis Chenoweth
Max Cole, B. J.
Mable Coleman
George Albert Daman
Helen Alice Darragh
Robert William Davis
Mary Celeste Denman
Joseph Newton Dills
John Joseph Dobson, Jr.

John Anthony Eigel
Milton Tate English, Jr.
Lisette Eschenheimer
Ambrose Carleton Estes
Cordelia Margaret Evans
Arnold Gray Fawks
Margaret Agnes Flynn
Cecil Vernon Francis
Tobias Funt
Dorothy Anne Fuqua
John Albert Gallaher
Lillian Pearl Genre
Margaret Ann Gillham
Georgina Louise Gloeser
Stanley Lyle Goldman
William Oliver Good
Margaret Anne Green
Roy Lee Griggs
Mary Buckingham Gulick
Frances La Belle Hall
Frank Benton Harvey
Thomas Ritchie Hayward
Roy Karl Heintz
Dorothy Adeline Heitmann
Hugh Raymond Hembree
Christina Marie Hentschel
Max Murphy Hibbs
William Hughes Hickerson
Mildred Cornelia Horton
Joan Howe
Helen Margaret Hudgings
Mildred Ruth Ice
Hans Ferdinand Jacoby
Lucena Elnora Jaeger
Jane Llewellyn Jones
Glen Parnell Kallenbach
John Louis Keersemaker
Frederick William Klinge
Leonard Victor Kornblee
Carl Henry Langknecht, Jr.
Arthur Louis Levy
James Eugene Lewis, Jr.
Annabeth Limbaugh
Rush Hudson Limbaugh, Jr.
Harold Clinton Lindley
Mary Marjorie Lipp
Loren George Logan
Nancy Jean Lupfer
Jack Mason Lyons
Florence Louise Mairs
Mary Marjorie Mann
Frederick Paul Margolis
Mary Louise Martin
William Joseph Martin
John Charles Martz
Frances Helena Marx
Helen Emma Meding
Mary Martha Meier
Joseph Edgar Meritt, Jr.
Elisabeth Marie Miller
Harold Oswald Miller
Paul Christian Miltenberger
William Duane Moffett
Denis William Naylor
Thelma Virginia Neff
Helen Ruth Nichols
Paul Frederic Niedner
Cedric Axel Nielsen
Joseph William Noah
Nancy Elizabeth Noggle
Jack Leachman Oliver
Arthur August Ott
Virginia Correll Patrick
Sam Congram Pearson, Jr.
Margaret Cleary Pigg
Walter Ivan Pope
Virginia Lee Porth
Whitney Warfield Potter
Eugene Loren Powell
Norman Bauer Powell
William Henry Prehn
Virginia Blanche Pulliam
George Kendrick Reeves
Virginia Ruth Robinson
Lucy Evelyn Rogers
Herman Rothschild
Robert Amos Ryan, Jr.
William Paul Sanford
Julius Savanovsky
Gideon Henry Schiller
Charles Walsh Schwartz
Lovina Vivian Scott
George Armor Sentman, B. J.
LaVega Robert Shelton, Jr.
Florrilla Louise Sides
Samuel Cedric Siegfried
Edith Ella Smarr
Herbert Wayne Smelser
Barclay Frank Smith
David Kiah Smith
Mildred Forrestine Smith
Elizabeth Ellen Steele
Hazel Powers Steele
William Edwards Suddath, Jr.

Joseph Swartz
Victor Frank Swyden
Dorothy Dean Thomas
Anna Elizabeth Trefts
Ralph Joseph Tucker
Charles Dorsey Tudor
Jean Morris Unterberger
Jonathan Mountjoy Walborn
Harold Lee Walter
Helen Elizabeth Walton
Frances Warbritton
Alexander Hamilton Warner
James Dudley Watkins
Berry Allen Watson
Charles Perry Weaver
Jessie Elizabeth Welsh
Edwin Henry White
Helen Darr Wilson
John Woodrow Wilson
Lee Monroe Wittwer
Mary Elizabeth Woolsey
Charles Henton Wright
Marye Yater
Houston Jackson Zinn

School of Medicine

Degree of Bachelor of Science in Medicine (B. S. in Med.) with Distinction

Ralph Thomas Harsh, A. B.

Degree of Bachelor of Science in Medicine (B. S. in Med.)

J. D. Ashley, Jr., A. B.
Fred Joseph Biggs, Jr., A. B.
Charles Gordon Blauw, A. B.
Bernard Capes, A. B.
Horace Woodward Carle, Jr., A. B.
John Arliss Carrier, B. S.
Arthur Rex Dalton
David Russell Edwards, A. B.
Ralph Lester Eslick, A. B.
Gene William Farthing, A. B.
Robert Edgar Forbis, A. B.
John Albert Gallaher
Elvin Doris Imes, A. B.
Charles Henry Johnson, A. B.
Mary Bear Johnson
Benjamin Newton Jolly, A. B.
Glen Parnell Kallenbach
Jerome Jesse McCullough, A. B.
Louis George Neudorff, A. B.
Frederick Chapman Robbins, A. B.
George Will Robertson III, A. B.
Arch Somerville Russell, Jr., A. B.
Carl DeHaven Siegel, A. B.
Joseph Stewart Summers, Jr., A. B.
Jack Viscofsky, A. B.
Marion Foster Whitten, A. B.

Degree of Graduate Nurse (G. N.)

Lela Fern Belden
Dora Pearl Copenhaver
Ernestine Mildred Saltz
Elizabeth Caroline Waltenspiel
Gertrude Martha Welsh

College of Agriculture

Degree of Bachelor of Science in Agriculture (B. S. in Agr.) with Distinction

John Estil Herlinger
Albert H. Mussman

Degree of Bachelor of Science in Agriculture (B. S. in Agr.)

Denver Irving Allen
Varsus Lee Baltz
Cecil Edwin Barger
(*In Agricultural Journalism*)
Arthur Martin Baugher
Roland Ralph Beeler
Francis Elmer Best
Frank Porter Blakemore
Cleo Allison Brock
William Clyde Brown
David Royal Browning
Raymond Ragar Burditt

Miller Wise Buren
Glen E. Burk
Charles Miller Coon
Harold Elvis Costigan
Arthur Hugh Denney
John David Dorrill
Charles Henderson Dunn
Albert Irvin Eads
John Monroe Edwards
Leslie Bruce Edwards
Thomas Henry Ehrhardt
John Lee Fergason
Charles Leonard Ferguson
Garland Lee Francis
Charles Luther Frazier
John James Fuhr
James Harry Gholson
John H. Gibson
James Harold Goode
William Mortimer Gordon
Walter John Gross
Ewen Paul Hagans
Marshall Conrad Heck
Houston Leroi Herndon
Arla Frank Hilgedick
Roy Franklin Hill
Floyd B. Houghton
Hubert Earl Hudgings
William Lowell Johnson
Walter Woodrow Kibler
Walter Christopher Kish
Arthur Preston Lang
Joseph Meites
Ralph Edwin Mercer
Albert Lavern Mix
Vencil Geoffrey Mount
Ralph Joseph Mutti
Robert Barclay McClurg
William Clarence Newland
Robert Darwin Partridge
Aubrey Loyd Pulliam
Allan Walker Purdy
Noel Printiss Ralston
James Randolph Rash, Jr.
John Riggs
Clarence Verl Ross
Harold Cook Rowland
Leland Lester Ruffin
Frank Willard Sanders
Edwin Simon Schake
George Henry Schmitt
Edward Jacob Schmitz
Vincil Percy Schwarzenbach
Harold Weakley Smith
Newcomb Carlton Smith
Loren Archer Spilman
Norman St. John
Arthur Summers
Charles William Talbot
J. Howard Teter
James Virgil Thompson
Ralph Mellor Vorhies
Daniel Francis Watts
Warren Willard Westbrook
David Grammer White

Degree of Bachelor of Science in Home Economics (B. S. in Home Ec.)

Nina Boneita Buck
Mary Frances Cook
Elizabeth Batterton Douglass
Frances Gillespie
Anna Margaret Griffin
Estelle DeBord Jacob
Lillian Helen Petersen
Elinor Elizabeth Roth
Wilma Roy Wightman

School of Law

Degree of Bachelor of Laws (LL. B.)

Carl Edwin Accola
Ralph Edward Baird
Theodore Beezley
Charles Robinson Bell, A. B.
James Hancock Boyle, A. B.
Alfred William Brooks, A. B.
Herbert Shanklin Brown
John Roger Buck
Lonnie Guy Byrd, Jr.
Donald Herbert Chisholm
Clyde Edwin Combs
John Wilbur Daley, A. B.
William Charles Dannevik, Jr.
Jerome Timothy Duggan, A. B.

Lipman Goldman Feld, S. B.
Elmo Bolton Hunter, A. B.
Clifford Aaron Jones
Charles Ford Kendall
Ralph Steele Latshaw, Jr., A. B.
Morton Meyer Leibowitz
Henry Lambert Lisle
Robert Alan MacGregor, A. B.
Eugene Mayfield
Vincent Stone Moody
Elmo Lindley McClintock, Jr.
William Goodwin McNeel, A. B.
Paul Frederic Niedner
Paul Maloney Owen
Philip Schifflin Pollock
Nathan George Rochman
Jack Harris Rothschild, A. B.
William David Russell, A. B.
Edward Rolland Scott
(*As of the class of 1937*)
Eugene Taxman, A. B., M. B. A.
(*As of the class of 1937*)
Marion Foster Thurston, Jr., A. B.
Samuel David Trusty, A. B.
William Wayne VanMatre, Jr.
Paul VanOsdol, Jr., A. B.
Homer Dan Wampler, Jr.
William Samuel Warden
Earl Edward Wasserman
John August Weiss, Jr.
John Tobias Zakrzewski

College of Engineering

Degree of Bachelor of Science in Agricultural Engineering (B. S. in Agr. E.)

Herman James Hall
Francis Xavier Olney

Degree of Bachelor of Science in Chemical Engineering (B. S. in Chem. E.)

Charles Theodore Axelberg
Leon George Babb
Herman Greene Boucher
William Lee Brewster
Marvin H. Carl
Donald Phillip Doll
Earl Augustus Fallin
William Walker Farris
Marvin Edward Fawks, Jr.
John Magee Jackson
George Frank Klein, Jr.
John Elmer Landfried
Harold Louis Pearlstein
(*As of the class of 1937*)
William Lawrence Porter
Joseph William Romberg
Joseph Edward Rood
Virgil Elmer Sohns
Walter Joseph Strattman

Degree of Bachelor of Science in Civil Engineering (B. S. in C. E.)

Charles Elard Carl
Frank Morgan Cortelyou, Jr.
Arch Dawson
Earl Edgar Ebbe
Otto Emerson Fort
Ulrich Schneider Hessler
George Edgar LaRue
Donald George Marshall
John Harold Meyer
Harvey Middleton
Raymond McCann
Earl George Peacock
Roy Edward Preusser
Henry Washington Reno
Robert Reynolds Rising
Ernest Henry Schaper
Bernard Daniel Simon, Jr.
Harry Paul Wheeler

Degree of Bachelor of Science in Electrical Engineering (B. S. in E. E.)

John Allen Campbell
Clarence Albert Fish
William Gordon Jeffries
Henry Paul Roberts
Charles Henry Robinson
Preston Theodore Sumner
Lee Charles Van Hooser
Paul Bascom Westover, Jr.

Degree of Bachelor of Science in Mechanical Engineering (B. S. in M. E.)

Herbert Hill Baugh
James Kiah Harper
Melvin Yedlin

SCHOOL OF EDUCATION

Degree of Bachelor of Science in Education (B. S. in Ed.) and Life Certificate to Teach.

Opal Nadine Adkison
Dorothy Gene Bailey
Jonelle Baker
Betty Kirk Barhydt
Alma Jean Bassman
Howard Cecil Bearce
Mary Elizabeth Berry
Bailey Elston Birkhead
Wilba Lee Bowden
Homer Hewins Bowman, B. J.
Dorothy Nelms Brinkerhoff
Doris Virginia Burnham
Dorothy Mable Cannady
Alice Louise Capps
Ruth Ann Carroll
William Alamath Carter
Anna Boswell Castleman
Ruth Cates
George Allan Cook
Mary Frances Cook
Eva Frances Craghead
Mary Josephine Craig
Mildred Rogene Crick
Hugo John David
Helen Margaret Davis
Ora Beatrice DeVilbiss
Shirley Caroline Drew
Margaret Lyons Dysart
Ferol June Eierman
Frances June English
Dorothy Elizabeth Fair
William Eugene Ferguson
Theodore Banta Fitzwater
James Crawford Fox
Helen Ernestine Frakes
Bernice Dorothea Freise
Catherine Hunt Gates
Helen Virginia Gill
Mary Jean Glasgow
Esther Juanita Goslin
Edith May Green
Wilma Jansen Grund
Dorothy Melinda Gunter
Helen Margueriete Haines
Hannah Elizabeth Hanley
Dorothy Harman
Geraldine Leora Harrington
Evelyn Louise Harrison
Dorothy Frances Head, A. B.
Martha Elizabeth Henderson
Dorothy Irene Henson
Mary Katherine Hess
Edna Gertrude Hesse
Elizabeth Elkins Hickman
Marion Haley Hill
Joyce Catherine Holmes
Alice Louise Hudson
Laura Elizabeth Hunt
Elizabeth Jean Ives
Inez Jane James
Claudia Dell Johnson
Stanley Lieutellis Kemp
Frances Roberta Koch
Jane Rodney Kochtitzky
Anna Ozelle Krohm
Margaret Nelligan Kruger
Gladys Evelyn Kruse
Charlotte Cornelia Krusekopf
Margaret Erville LeMire
Mary Louise Lewis
Hazel Tutt Long
Mary Alicia Megede
Jean Frances Miller
Lois Pauline Miller
Alice Grimm Mullen
Mary Allene Muncey
Virginia Ann Myer
Dimple Clair Myers
Ruth Marie Myers
Neva Pauline McCracken
Gladys Elizabeth McIntyre
Eunice Kathryn Nahm
Lonita Adeline Osborne
Virginia Ruth Robinson
Georganne Roth
Ruth Mayme Sanders
Elizabeth Floris Sapp
Virginia Anne Scott

Elizabeth Alice Shields
Sara Virginia Smith
Paul William Sturm
Dorothy Margaret Sullivan
Virginia Field Sylvester
Donald Gentry Tarbet
Isabella Taylor
Alvin William Tidrow
Amy Christine Tucker
Esther Glenne Tyrer
Virginia Ann Vinyard
Vinita Eunice Voigt
Roberta Frances Walker
Martha Katherine Warnick
Gertrude Cecilia Wessling
Robert Franklin Whaley
Louise Thaxter Wright
Alice Sarah Zumwalt

School of Journalism

Degree of Bachelor of Journalism (B. J.)

Aylene Adams
Jean Rae Adams
Thomas Burns Aden, Jr., A. B.
Ray Baker Alexander
Ralph Blaine Anderson
(As of the class of 1936)
Jane Arcularius
Emilie Louise Basel
William Andrew Bates
(As of the class of 1937)
Horace King Basinger
John Frederic Beck
Peggy Ann Bell
Marjorie Berry
Charles Henry Bond
John Samuel Booth
(As of the class of 1937)
Harry Bortin, Jr.
Jane Bradford
Ernest E. Brashear, Jr.
Marjorie Jane Briggs
Robert Wettermark Briggs
William Joseph Brittain
Paul Brown
Vaughn Motley Bryant
Helen Lucille Bullock
Vernon Henry Castle
James Preston Charles, Jr., A. B.
(As of the class of 1937)
Louis Shirley Clapper
Mary Catherine Clinch
Alexander Cohen
Dorothy Jane Crisp
Alyce Irene Cunningham
Carol Elizabeth Davis
George Edward DeBoer
Martha Win Dent
Herbert Hadley Dickson
Jane Doran
(As of the class of 1937)
Robert Montgomery Dungan
Lois Madeline Evans
Jack H. Fern, B. S. in Com.
Stanley Nelson Foged
Elaine Ford
John Henry French
(As of the class of 1937)
Louisa Carter Frost
Burke Montrose Gillespie
Herbert Carr Gore
Richard Roselle Gorton
Mary Evelyn Gregory
Zella Mary Hanes
George Lee Hawkins
William Dimmitt Hayes
Ernest Paul Helm
Beth Hodgson
Mary Nell Holmes
Paul Clayton Hood
Leonard James Howe
Edward Thomas Hughes, Jr.
Leonard Frederick Jaeger
George Thomas Jones
Ruth Elizabeth Kinyon
Max Howard Koerner
Helen Elaine Kramer, A. B.
David Lawrence Kreiter
Mary Berrey Kuhne
Robert Nathan Lando
Russell James Le Fevre
Elliott Adrian Levand
Elinor Frances Liebowits
William Hoyt Luithly
Maxwell Lynch
Gayle Wilson Maile
John Judy Middagh, Jr.

Lucile Marie Mindeman
William Embry Misselwitz
Joseph Grant Mitchell
Gordon Gould Moffitt
Harry Stanley Morehead, A. B.
Raymond Luther Moss
Stephen Edward McCallum
Earl Dean Francis McKenna
Marjorie La Dona McVey
Helen Worthy Niedner
Robert Bert Nymeyer
Harvey Lemoine Patton
Joseph Paul
Morris Benjamin Penner
Emily Ann Price
Esther Priwer
Willard Calvin Rand
Doris Laverne Reager
Margaret E. Reeves
Harold Clifton Reger, Jr., B. S. in Ed.
Ruth Regnery
de Lafayette Reid, Jr.
Paul W. Ricks
Arline Mildred Robben
Betty Sue Roberson
Clyde Sterling Roberts
Hildred Gertrude Sampson
Morris John Schroeter
Fred Barlow Schulenberg
George John Schulte, Jr.
Burgess Henry Scott
(As of the class of 1937)
Mina Eleanor Sennott
David Darden Shanks, Jr.
Milton Irwin Sharp
Earl Eugene Shaw
Hugh Frank Smith, A. B.
Robert William Smith
Harold Handshue Sours
Diana Romaine Spaulding
Fern Virginia Stadler
Howard Reynolds Stentz
Ethyl Edythe Sterneck
Pamela Biddle Switzler
William Howard Taft, A. B.
Clifford Forest Taylor, Jr.
Glenn Clark Taylor
Herbert Otto Taylor, Jr.
Andrew Yount Thornell, B. S.
Laura Louise Tipton, A. B.
Wei Tsong
Ivan Tweedie
Reba Frances Twyman
Paul B. Ullman, Jr.
Eleanore Francis Ulmer
Lawrence Raymond Wallar
Althea Weinbach
Mary Virginia Wertman
Mary Frances Whaley
Florence Mae Whitefoot, B. A.
Leland Lynwood Wilder
Helen Roberta Williams
Mary Kathryn Williams
Oscar Waldo Williams
Mildred Mabel Winters
Freda Lucille Withers
Inez Stansbury Woodward
Marguerite Hare Young
Mary Florence Young

School of Business and Public Administration

Degree of Bachelor of Science in Business Administration (B. S. in Bus. Admin.)

Charles Harry Apple
John Gregory Bartels
William Louis Berlau
Ray Homer Bezoni
Isadore Bernard Brody
Anna Eleanor Charlton
Caryll Eugene Cline, Jr.
Paul Frost Cole
John Proctor Craig
Edgar William Crail
Preston Low Cunningham
Virgil Lowe Dann
Margaret Blair Davis
William Stewart DeJarnette
Marcella Ruth Dobson
Richard Allan Eichenberger
Robert Francis Emmons
Charles Sumner Estep, Jr.
David Callaway Flanigan
Frances Fulkerson
Edward Frederick Gaebler
John G. Harris, Jr.
William Patrick Hawkins
George Ingalls Hilliard
Arthur Koppel Hirsch
Raymond Emil Jansen

Edgar Russell Johnson
Martha Keene
John Holroyd Kempster
Lawrence Marion Kirk
Maurice DeWitt Kirk
Sidney Lefkovitz
Robert Milton Lewin
James Lyman Lindsey
James Claude Mann, Jr.
Mary Katherine Maurer
Roswell Messing, Jr.
Elmer Paul Montag
Joseph Edward Moran
Aurelius Morgner
Vance Gleed Morris
James Buchanan Morrow
George Laverty McElroy, Jr.
Denis William Naylor
Harold Arthur Nelson
Robert Eugene Peterson
Robert Vincent Prichard
Sidney Rainen
Robert Elmer Rasch
Catherine Fremon Rippey
John Frank Robertson
Charles B. Ross
Valton Louis Rowe
Richard Landon Schweitzer
Charles Edwin Smith
Richard Yeater Stafford
Richard A. Strafer
Robert Bland Thomas
James Vernon
Wade Edsel Walker
Glenn Armoredale Welsh
Harold Dysart Williams
Chandis Rinier Wilson
Ezra Dawson Woodbury
Clyde William Wright

Degree of Bachelor of Science in Public Administration (B. S. in Pub. Admin).

Robert Owen Brenner
Virginia Margaret Forsythe
Alfred Lee Thorell

GRADUATE SCHOOL

Degree of Master of Arts (A. M.)

Leo John Alilunas, B. J.
Thomas Everett Ashley, B. S. in Agr., *Mississippi State College*
Helena Isabel Tufts Bailie, A. B. *Radcliffe College*
Floyd K. Baskette, B. J.
Abe Blanar, B. S. in Bus. Admin.
James Houston Brand, B. S. in Ed.
Adam Carlyle Breckenridge, A. B. *Northwest Missouri State Teachers College*
Herbert Bunker, A. B.
Gertrude Irene Burnley, A. B. *University of Kansas City*
Bonham Monroe Chancellor, B. S. in Ed., *Central College*
Richard Eugene Chandler, A. B.
Dean Wallace Colvard, B. S. in Agr., *Berea College*
Robert Doyle, B. S. in Ed. *Northeast Missouri State Teachers College*
Ray Jennings Drew, B. S. in Agr.
Armel Dyer, B. S. in Ed.
Samuel P. Ellison, Jr. A. B. *University of Kansas City*
Howard J. Evans, B. S. in Ed. *Central Missouri State Teachers College*
John Henry French, B. Ed. *Illinois State Normal University*
Robert Taylor Gallagher, B. S. *Pennsylvania State College*
Carl Christian Gamertsfelder, Jr., B. A., *North Central College*
Hugh Richard Gault, A. B. *De Pauw University*
Forrest Francis Greer, B. S. in Ed., *Central Missouri State Teachers College*
James Ross Gunnell, B. S. in Ed. *Northeast Missouri State Teachers College*
Robert Snowden Hackett, A. B.

Amos Owen Hardy, B. S. in Ed.
Southeast Missouri State Teachers College
Ralph Thomas Harsh, A. B.
Orlana Hensley, B. S. in Ed.
Northeast Missouri State Teachers College
Kenneth L. Husbands, A. B.
University of Kansas City
Robert E. Jackson, B. S. in Ed.
Central Missouri State Teachers College
Edwin Hennessy Johnson, B. A.
University of Colorado
Anna Sue Kennedy, B. S. in Ed.
Audrey Nell Kittel, A. B.
Ann Ahdean Lowman, B. S. in Ed.
Central Missouri State Teachers College
Clarence Wells Mackey, B. A.
Culver-Stockton College
William David Mitchell, B. Ed.
Western Illinois State Teachers College
George Emerson Moore, Jr., A. B.
Huber Vernon Moore, B. S. in Ed.
Southwest Missouri State Teachers College
Raymond Gerald McCarty, B. Sc. in Agr., *University of Nebraska*
Sadie Finkeldey McCoy, B. Ed.
Southern Illinois State Normal University
Xzin McNeal, B. S. in Ed.
Arkansas State Teachers College
Vincent Everett Peterson, B. S.
Buena Vista College
Esther Replogle, B. S. in Ed.
Charles Vernon Robinson, A. B.
Lyndon Travis Rodgers, B. S. in Ed.
Felix Guy Sappington, B. S. in Ed.
Elbert Ellsworth Schmid, B. S. in Agr.
Prithvi Pal Singh, B. A., LL.B.
University of Lucknow
Edward Mortimer Snider, A. B.
Southwest Missouri State Teachers College
John Jerome Sperry, A. B.
University of Nebraska
Fern Ellen Staggs, B. S. in Home Ec., *Baker University*
Viola May Stanway, B. S. in Ed.
Hazel Christine Steward, B. A.
Culver-Stockton College
Kathleen Brock Stott, A. B.
Birmingham-Southern College
Anna Viola Sturges, A. B.
William Jewell College
Howard M. Terry, A. B.
Drury College
John Wesley Turner, B. S. in Ed.
Southwest Missouri State Teachers College
M. Ruth Vance, A. B.
Theodore Brantner Wilson, A. B.
University of Kansas City
Woodrow Pitkin Wilson, B. S.
Utah State Agricultural College
Hiram Budd Wood, A. B.

Degree of Master of Education (M. Ed.)

Muhittin Suleyman Akdik, Diploma, *Normal School of Istanbul*
Robert Elzy Breckenridge, B. S. in Phys. Ed., *Washburn College*
Joseph Lloyd Foley
A. B., *Ottawa University*
B. D., *Kansas City Baptist Theological Seminary*
Gilbert Cleveland Goza, B. S. in Ed., *Southeast Missouri State Teachers College*
Noah Clinton Heller
A. B., B. S., *Central Missouri State Teachers College*
A. M., *University of Missouri*
Virginia Dunham Henwood, B. S. in Ed.
Omer Hilmi, B. S. in Ed.
Grace Ernest Hodge, B. S. in Ed.
Central Missouri State Teachers College
Bonnie Jean Lewis, B. S. in Ed.
Central Missouri State Teachers College
Martha Erkalene McCormack, B. S. in Ed., *Central Missouri State Teachers College*
Gordon Ray Renfrow, B. S. in Ed.
Central Missouri State Teachers College

Leonard Theodore Rollins, B. S. in Ed., *Central Missouri State Teachers College*

Fred L. Spees, B. S. in Ed. *Northeast Missouri State Teachers College*

Mary Naomi Smith, B. S. in Ed. *Miami University*

Edwin Joy Sylvester, B. S. in Ed.

Degree of Doctor of Philosophy (Ph. D.)

Victor DeWitt Brannon
B.A. in Ed., M.A., *University of Arizona*
Dissertation: State Auditor and Fiscal Control in Missouri

Eliphalet Marion Brown
B.S. in Agr., A.M., *University of Missouri*
Dissertation: Some Effects of Temperature on the Growth and Chemical Composition of Certain Pasture Grasses

Dennis Thomas Mayer
A.B., A.M., *University of Missouri*
Dissertation: The Nature of the Protein of Cellular Nuclei

Roland Elmer Miller
B.S., M.S., *University of Pittsburgh*
Dissertation: The Reproductive Cycle in Male Bats of the Species Myotis Lucifugus Lucifugus and Myotis Grisescens

Jesse Harold Neal
B.S. in Agr. Eng., *Kansas State Agricultural College*
M.S. in Soils, Agr. Eng., *University of Minnesota*
Dissertation: The Effect of the Degree of Slopes and Rainfall Characteristics on Runoff and Soil Erosion

Elizabeth Morrow Reeder
B.A., *Ohio State University*
A.M., *Columbia University*
Dissertation: Cytology of the Reproductive Tract of the Female Bat Myotis Lucifugus Lucifugus

Mary Bartley Schmidt
B.S. in Ed., A.M., *University of Missouri*
Dissertation: Studies on Excised Tomato Roots in Pure Culture

Frank Henshaw Trimble
A.B., *William Jewell College*
A.M., *University of Missouri*
Dissertation: The Effect of Temperature on the Atomic Distribution in Liquid Sodium

Raymond Maxwell Trowbridge
A.B., A.M., *University of Missouri*
Dissertation: Pleistocene Glacial Deposits and Preglacial Drainage Pattern of Northwestern Missouri

Bertis Alfred Westfall
A.B., A.M., *University of Missouri*
Dissertation: Comparative Toxicity of Selenium in the Presence of Various Sulphur Compounds

HONORARY DEGREES

The Honorary Degree of Doctor of Laws (LL. D.)

Bennett Champ Clark
William Gerig
Frederick Lee Hisaw

School of Education

Certificate to Teach for Two Years

Lillie Icy Doubikin
Hugh Raymond Hembree
Golden June March
Jack Carleton Pollock
Herbert Wayne Smelser

August 5, 1938

DEGREES

College of Arts and Science

Degree of Bachelor of Arts (A. B.)

Ruth Norman Adams
Claudia Colleen Armantrout
Eliza Mary Hutchison Ball
William Patterson Bancroft
Lela Fern Belden
Robert Winslow Black
Thomas Colmore Brammer, Jr.
Edwin Forsythe Bridgford
William Harvey Burlage
Herbert Franklin Dyer Butterfield
Mary Dot Colhoun
George Asa Crowe, Jr.
Carolyn Jane Deutman
John Holmes Edwards
Helen Maxine Enlow
Evelyn Ann Foreman
Philip Avory Grimes
George Warren Hall
Lois Virginia Langenbach
Charles Holloway Lewellen
Marjorie Freddie Lockett
Donald Karl McReynolds
Robert Bert Nymeyer
Sarah Rosemary Ostner
Erston Robison Poor
Martha Richardson
Ruth Dora Senesac
Richard Michau Smith
Clelle William Upchurch
Jane Elizabeth van Herwynen

College of Agriculture

Degree of Bachelor of Science in Agriculture (B. S. in Agr.)

Virgil William Brakemeyer
Burr Oscar Brown
Robert Henderson Burns
Edward Francis Conrey
Muriel Eugene Crawford
Theo Max Dean
Elvis Roger Doll
Ralph Marvin Dowler
Eldread J. Franklin Early
Harold Bickel Ellwood
Harold Wiley Estes
Marshall Dee Farrell
Carl Edwin Ferguson
Wayne Dwight French
Roy Benjamin Gee
William French Harrison
Daniel Joseph Hawkins
Robert Lee Hayward
Bailey Vincent Hunt
John Foster Lasley
Frank Lee, Jr.
Leon Marshall McCorkle
Leon Leslie McHoney
Brown Roberts Rawlings, Jr.
Karl William Schoenebeck
Elmo Buford Shipley
Nile Thomas Withers
James Monroe Wormsley
Harold Bell Wright

Degree of Bachelor of Science in Home Economics (B. S. in Home Ec.)

Pearl Jewette Steele
Velma Adalene Wagner

COLLEGE OF ENGINEERING

Degree of Bachelor of Science in Civil Engineering (B. S. in C. E.)

Frank John Schuske
Maxwell Everett Vaughan

Degree of Bachelor of Science in Electrical Engineering (B. S. in E. E.)

Masaji Irie
Charles Gentry Philpott

SCHOOL OF EDUCATION

Degree of Bachelor of Science in Education (B. S. in Ed.) and Life Certificate to Teach

Amber Dot Alley
Helen Gertrude Allgeyer
Mildred Virlea Stone Arnold
Stella Mary Batten
Esther Roberta Bauslin
Mary Limerick Burton
Mary Ruth Choplin
Viola Hannah Coe
Paolo Enrico Coletta
Norman Cornealus Crouch
Susan Katherine Crump
Caroline Oleta Cunio
John Floyd Deardorff
Gladys Elizabeth Eaton
Mabel Muir Edelen
Rowena Lucille Farmer
Alice Irene Fitzgerald
Virginia Lee Gardner
Una Fay Gary
Edna Mae Gibbins
Anna Louise Goodson
Marion Margaret Guenther
Mary Pauline Gum
Clarence Walter Hatfield
Ruth Adeline Hines
Edith Sailer Holmes
Edna Lucille Housden
Marguerite Frances Hutchison
Frederick Anderson Indorf
Margaret Jane Indorf
Mary Sue James
Aldyth Lola Keeth
Pauline Gastian Key
Irma Martha Kiesling
Jewel Hannah Kruse
Emma Lou Lennox
Mary Esther Loucks Linville
Leta Yowell Loren
Margaret Ellen Matlock
Alma Kallenbach Mayfield
Fern Nadine Miller
William Austin Miller
William Edgar Montgomery
Marguerite Musgrave
Kathleen Nichols
Rebecca Louise Niehoff
Eloise Norman, A. B.
Ralph Edward Palmer
Kathryn Adams Penney
Minnie Claire Phillips
Jack Carleton Pollock, A. B.
Kenneth Clayton Randolph
Maynard Gregg Redfield
Rhoda A. Reinhold
Ruth Arvesta Rice
Charles William Roy
Goldie Irene Goon Schroff
Sarah Pauline Shoemaker
Cleone Stephens Skouby
Ralph Emerson Smith
Sarah Virginia Smith
Ruby Stecker
Edith Opal Stewart
Bess Marie Sutton
Jewell Lois Thompson
Mary Elizabeth Tompkins
Elizabeth Jeanette Trice
Mary Louise Weilacher
Edna Williams
Marian Watson Williams
Frances Marsh Wilson
Shelton Craig Wilson
Robert Devereaux Yeargain, B. J.
Etta Ivaloo Yetter
Frieda Viola Zimmermann

School of Journalism

Degree of Bachelor of Journalism (B. J.)

Margaret Wallace Bailey, A. B.
Alexander Stephen Body
Irvin Burnstein
Joan Campbell
Mary Catherine Carrington, A. B.
William Ray Denslow, A. B.
Howard Andrew Dovin
Lawrence Farrant, B. S.
Robert Charles Glenn
Charles Blaine Gorham, B. A.
Herbert Henry Kraushaar
Robert Warnes Leach
Milton Mangum, B. S.
Mary Elizabeth McLaurin, B. A.
John Clifford Reick
John Winston Roth, B. S. in Bus. Admin.
Edd Ellsworth Rountree, B. A.
Rachel Elizabeth Swain
Marvin Edwin Sykes, A. B.
Daniel Lincoln Thrapp
William Harvey Wasson

School of Business and Public Administration

Degree of Bachelor of Science in Business Administration (B. S. in Bus. Admin.)

Frederick Cabell Brown, Jr.
Edgar William Franklin
Joe Hudson Goodman
David Harry Lichtenfeld
James Francis Menown
James Clayton Nanson
Lee Andrew Pickard, Jr.
Reuben Armold Reeder
K. Kalvin Schopp
Roy Milton Schuette
Barclay Frank Smith
John Felix Staggs
Virdon Washington Taylor
John Frank Thompson
Julius Voges Vasterling
Frank Thomas Walker

Graduate School

Degree of Master of Arts (A. M.)

H. Berle Adams, B. S. in Ed.
Northeast Missouri State Teachers College
Sydney Edward Alkire, B. Ed.
Western Illinois State Teachers College
Mary Agnes Anderson, B. S. in Ed.
Central Missouri State Teachers College
Claude Wright Arner, B. S. in Ed.
Southwest Missouri State Teachers College
Peter August Baechle
B. S. in Ed., *Southeast Missouri State Teachers College*
B. S. in Agr., *University of Missouri*
Nannie Elizabeth Ball, B. S. in Ed.
Sarah Louise Beasley, B. S. in Ed.
Southwest Missouri State Teachers College
Henry Marvin Belden, Jr. A. B.
Clifton Reed Bell, B. S. in Ed.
Southeast Missouri State Teachers College
Elizabeth Cora Boehm, B. S. in Ed.
Central Missouri State Teachers College
Harry West Bowles, B. S. in Ed.
Northeast Missouri State Teachers College
Ruth Mildred Brandes, B. S. in Ed.,
Central Missouri State Teachers College
Walter Joshua Britton, B. S.
Kansas State Teachers College, Pittsburg
Francis Harlan Bryant, B. S. in Ed.,
Southwest Missouri State Teachers College
George Vincent Burnett, B. S. in Ed.,
Northeast Missouri State Teachers College

Maud Bell Burton, B. S.
Teachers College of Kansas City
Loren Woodrow Cammon, A. B.
Illinois College
Helen Elizabeth Selvidge Campbell, A. B., *University of Southern California*
Virginia Maude Carpenter, B. S. in Ed.
Paul Jennings Chappell, A. B., B. S. in Ed., *Northwest Missouri State Teachers College*
Orrine Zoe Conard, B. S.
Iowa State College of Agriculture and Mechanic Arts
Densil Martin Cooper, B. S. in Ed.
Northwest Missouri State Teachers College
George Edward Cox, B. A.
Culver-Stockton College
John Durlan Craven, B. S. in Ed.
Des Moines University
Helen Patricia McLoon Cunningham, B. S. in Ed., *Southeast Missouri State Teachers College*
Harvey Davis, B. S. in Ed.
Southwest Missouri State Teachers College
Benjamin DeBoer, A. B.
Calvin Colllege
Laura Greer Decker, B. S. in Ed., A. B.
Jennie Vea Downing, B. S. in Ed.
Dorothy Evelyn Dunlop, B. S. in Ed., *Central College*
Wilbur Dixon East, B. S.
Missouri School of Mines and Metallurgy
Miles Wallace Eaton, B. S. in Ed.
Northeast Missouri State Teachers College
Fred Edward Eberwein, A. B.
Bethany College
William Loren Eckelberry, B. J.
Dorathy Anne Eckelmann, B. S. in Ed., *Southeast Missouri State Teachers College*
Jesse Clifford Edwards, B.S. in Ed., *Central Missouri State Teachers College*
Warren Herbert Eliason, B. S.
Kansas State Teachers College, Pittsburg
Katherine Elliott, B. Ed.
Western Illinois State Teachers College
Walter Eugene Elmore, B. S. in Ed.
Gladys Faye Moss Eslick, A. B.
George Wayland Evans, A. B.
Drury College
Frederick Winslow Faurot, Jr.
B. S. in Agr., *University of Missouri*
B. S. in Ed., *Northeast Missouri State Teachers College*
Sister Mary Annetta Flynn, A. B.
Elmer Gilbert Gahley, B. S.
University of Wyoming
Harold Elmer Gibson, A. B.
Illinois College
Charles Lilburn Gottmann, A. B.
McPherson College
Carolyn Susan Gray, A. B., B. S. in Ed.
David Francis Gray, A. B.
Cecil Lee Gregory, B. S. in Bus. Admin.
Mayme Lucille Hamlett, A. B., B. S. in Ed.
Philip Carty Hartman, B. S. in Ed., *Southeast Missouri State Teachers College*
Sarah Katherine Harvey, A. B.
Central College
Paul George Hausman, B. S. in Ed.
Kansas State Teachers College, Pittsburg
Otto Hawkins Hayward, B. S. in Ed.
Southwest Missouri State Teachers College
Peter Herman Heinze, B. S. in Ed.
Northeast Missouri State Teachers College
William Taft Henry, B. A.
Harding College
Twyman Vernard Hilt, A. B.
Central College
Dorothy Elizabeth Hoffman, A. B.
Ruby Verdetta Holt, B. S. in Ed.
Central Missouri State Teachers College
Maude Hook, B. S. in Ed.
Central Missouri State Teachers College
Raymond Earl Houston, B. S. in Ed.
Northwest Missouri State Teachers College
Charles Harra Huhn, B. S. in Ed.

Cleora Jewell Hutchison, B. S. in Ed.
Central Missouri State Teachers College
Ernest Theodore Itschner, B. S. in Agr.
Mildred Ethlyn Jacks, A. B. in Ed.
University of Arizona
Robert Wilton Jennings, B. S. in Ed.
Ivan C. Johnson, A. B.
Central Wesleyan College
R. T. Jones
B. A., *Culver-Stockton College*
B. S. in Ed., *Northeast Missouri State Teachers College*
Mildred Benita Karsch, B. S. in Ed.
Homer Clay Kinder, B. S. in Ed.
Southeast Missouri State Teachers College
Mary Margaret Knoop, A. B., B. S. in Ed., *Lindenwood College*
Alvin Martin Koerber, B. S. in Ed.
Southeast Missouri State Teachers College
Edwin William Koerber, B. S. in Ed.
Southeast Missouri State Teachers College
Mary Frances Patton Landen, B. J.
Ules Lawson, B. S. in Ed.
Southwest Missouri State Teachers College
Harriet Emma Layman, B. S. in Ed.
Harold Clarkeston Lee, B. S. in Ed.
Southwest Missouri State Teachers College
Gregory Lefever, B. S. in Ed.
Central Missouri State Teachers College
Heng-yu Li, B. A.
Yenching University
James Douglas Lockett, B. S. in Ed.
Northeast Missouri State Teachers College
Victor Louis Lohmann, B. S. in Ed.
Southeast Missouri State Teachers College
Delbert E. Maddox, B. S. in Ed.
Northeast Misouri State Teachers College
John Murwyn Mason, A. B.
Drury College
Arthur Thomas Jack Matthews, B. S. in Ed.
Ruth Augusta Morgan, B. S. in Ed.
Clarence Leonidas Murphy, B. S. in Ed., *Northeast Missouri State Teachers College*
Nellie Leone Starbuck McKanna, B. S. in Ed., *Northeast Missouri State Teachers College*
Donald Karl McReynolds, A. B.
Jerome Ray Needy, B. S. in Ed.
University of Oklahoma
John Wesley Neville, Jr., B. Ed.
Southern Illinois State Normal University
Donald Gilbert Nibeck, B. S. in Ed.
Russell Charles Nix, B. S. in Ed.
Central College
John Joseph O'Mara, B. J.
Raymond Charles Oth, B. S. in Ed.
Charline Pennell, A. B.
Nellie Lee Bryan Piburn, B. S.
Missouri Valley College
Hortense Martha Pitton, A. B.
William Jewell College
Ben Howard Poe, B. S. in Ed.
Southeast Missouri State Teachers College
Russell Roscoe Pontius, B. S. in Ed.
Northeast Missouri State Teachers College
Alice Margaret Reinbold, B. S. in Ed.
Southwest Missouri State Teachers College
Tony Marcus Robinson, B. S. in Ed.
Central Missouri State Teachers College
Walter Julius Robinson, B. S. in Ed.
Central Missouri State Teachers College
Nathan Roitman A. B.
Missouri Valley College
William Edwin Roland, B. S. in Agr.
Helen Josephine Roman, B. S. in Ed.
Southwest Missouri State Teachers College
Charles Lorenzo Rupert, B. S. in Ed.
Northwest Missouri State Teachers College
Norval Paul Schaefer, B. S. in Ed.
Southwest Missouri State Teachers College
John Wesley Schroeder, B. S. in Agr.
Dilip Sengupta, B. A.
University of Calcutta

Mary Thompson Warmoth Shawver, B. S., *Teachers College of Kansas City*
Raymond Lee Sheets, B. S. in Ed. *Southeast Missouri State Teachers College*
Aaron Glasser Shiffman, A. B., B. J.
Frank Raymond Siefferman B. Ed. *Eastern Illinois State Teachers College*
Ross Jacob Silkett, B. S. in Agr. *Kansas State Agricultural College*
Walter Meriwether Simpson, B. S. *Culver-Stockton College*
Frank Benjamin Slobetz, B. S. in Ed. *Kansas State Teachers College, Pittsburg*
Lloyd Nathaniel Smith, B. S. in Ed. *Central Missouri State Teachers College*
William Lysander Smith, B. S. in Ed. *Southwest Missouri State Teachers College*
Isabel Smock, B. S. in Ed. *Kansas State Teachers College, Emporia*
Rommy Steensma, B. S. A. *Ontario Agricultural College*
Goldia Alice Stephens, B. S. in Ed. *Central Missouri State Teachers College*
Jesse Harold Stinson, B. S. in Ed. *Northeast Missouri State Teachers College*
Roy Fitzgerald Sutherlin, B. S. in Ed. *Southeast Missouri State Teachers College*
Ada Cordelia Taylor, B. S. *Kansas State Teachers College, Pittsburg*
William Miles Thomas, B. S. in Ed. *Central Missouri State Teachers College*
Frank William Thompson, B. S. in Ed. *Central Missouri State Teachers College*
Theodore Cordell Thompson, B. S. in Ed., *Northeast Missouri State Teachers College*
John Francis Timmons, B. S. in Agr.
Carl Augustus Troester, Jr. B. S. in Ed. *Northeast Missouri State Teachers College*
Allen Reed Twichell, A. B. *Wabash College*
Joseph Heffley Van Trump, A. B. *William Jewell College*
Nolan Adrian Walker, B. S. in Agr.
Helen Louise Wallace, B. S. in Ed.
Frank Judson Webb, B. S. in Ed. *Central Missouri State Teachers College*
Frank Thomas Ewing Weber, A. B. *William Jewell College*
Carl Venson West, A. B. *Drury College*
David Grammer White, B. S. in Agr.
Homer Donald Williams, B. S. in Ed. *Northwest Missouri State Teachers College*
Marie Frances Willis, A. B. *Baylor University*

Degree of Master of Education (M. Ed.)

Clarence Eugene Amen, B. S. in Ed. *Northeast Missouri State Teachers College*
Edna Myrtle Ball, B. A. *Northwestern University*
Otho Lathel Barnett, B. S. in Ed. *Northeast Missouri State Teachers College*
Elizabeth Botts, B. S. in Ed.
Virginia Elnora Botts, B. S. in Ed.
Thomas Gwyn Bratton, A. B. *Hendrix College*
Grace Pauline Wright Camp, B. S. *Tarkio College*
William Harvey Coulter, B. S. in Agr.
James Thomas Craig, B. S. in Ed. *Northeast Missouri State Teachers College*
Harriett Webb Cravens, B. S. in Ed.
Mary Elizabeth Davis, B. S. in Ed. *Southwest Missouri State Teachers College*
Oscar Wilbur Duncan, A. B. *Baker University*
Delbert Edison Dunkin, B. S. in Ed.
Ray Theo Evans, B. S. in Ed. *Central Missouri State Teachers College*

Wilbur Hampton Finley, B. S. in Ed.
Central Missouri State Teachers College

Myra Belle Gibson, B. S. in Ed.
Northeast Missouri State Teachers College

Earl Lankford Gray, B. S. in Ed.
Central Missouri State Teachers College

Frank Heagerty, B. S. in Ed.
Southwest Missouri State Teachers College

Samuel Parker Hewitt, B. S. in Ed.
Northeast Missouri State Teachers College

Adalene Drew Hoke, B. S. in Ed.

William Frans Holtrop, B. S. in Ed.
Nebraska State Teachers College, Kearney

Lucy Mary Lee Hook, B. S. in Ed.
Central Missouri State Teachers College

Charles Austin Huffman, B. S. in Ed.
Southwest Missouri State Teachers College

Louise Wilhelmina Kansteiner, B. S. in Ed., *Northeast Missouri State Teachers College*

James Barber King, B. S.
Baker University

Frederick William Kloha, B. S. in Ed.
Kent State College

Clarence Keith Leonard, B. S. in Ed.
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Freshman Prose	(First)	Marion Elinor David
	(Second)	Paul Leslie Fisher, Jr.
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Elizabeth Amanda Crow

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General Series

The General Series of the University of Missouri Bulletin consists of the University Catalog and the announcements of the various colleges and schools which make up the University. These announcements will be sent free, upon request to the Registrar, University of Missouri, Columbia, Missouri.

Published by

UNIVERSITY OF MISSOURI

Columbia, Missouri

The University of Missouri Bulletin—Issued two times monthly; entered as second-class matter at the postoffice Columbia, Missouri—20,000

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Format	Book
Content type	Text
Notes	Digitized duplicate copy not retained in collection.

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Date captured	2018 July
Scanner manufacturer	Ricoh
Scanner model	MP C4503
Scanning software	
Optical resolution	600 dpi
Color settings	Grayscale
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