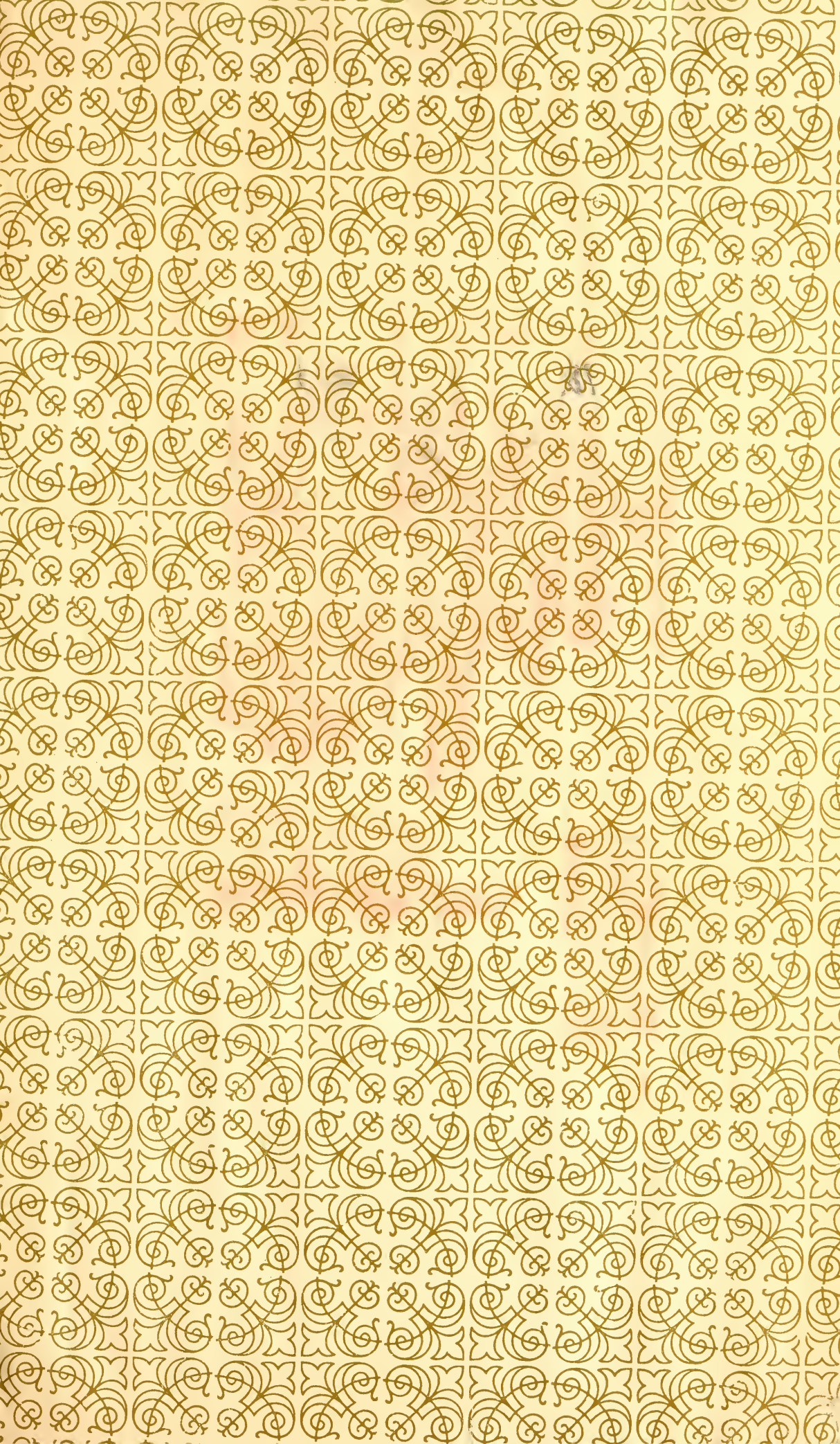


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KANSAS STATE AGRICULTURAL COLLEGE BULLETIN

VOLUME X

MARCH 1, 1926

NUMBER 2

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SIXTY-THIRD SESSION, 1925-'26



WITH ANNOUNCEMENTS FOR 1926-'27

MANHATTAN, KANSAS
Published by the College

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CALENDAR

1926														1927													
JANUARY							JULY							JANUARY							JULY						
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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17	18	19	20	21	22	23	18	19	20	21	22	23	24	16	17	18	19	20	21	22	17	18	19	20	21	22	23
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14	15	16	17	18	19	20	15	16	17	18	19	20	21	13	14	15	16	17	18	19	14	15	16	17	18	19	20
21	22	23	24	25	26	27	22	23	24	25	26	27	28	20	21	22	23	24	25	26	21	22	23	24	25	26	27
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14	15	16	17	18	19	20	12	13	14	15	16	17	18	13	14	15	16	17	18	19	11	12	13	14	15	16	17
21	22	23	24	25	26	27	19	20	21	22	23	24	25	20	21	22	23	24	25	26	18	19	20	21	22	23	24
28	29	30	31	..	..	..	26	27	28	29	30	..	..	27	28	29	30	31	..	..	25	26	27	28	29	30	..
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11	12	13	14	15	16	17	10	11	12	13	14	15	16	10	11	12	13	14	15	16	9	10	11	12	13	14	15
18	19	20	21	22	23	24	17	18	19	20	21	22	23	17	18	19	20	21	22	23	16	17	18	19	20	21	22
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2	3	4	5	6	7	8	7	8	9	10	11	12	13	8	9	10	11	12	13	14	6	7	8	9	10	11	12
9	10	11	12	13	14	15	14	15	16	17	18	19	20	15	16	17	18	19	20	21	13	14	15	16	17	18	19
16	17	18	19	20	21	22	21	22	23	24	25	26	27	22	23	24	25	26	27	28	20	21	22	23	24	25	26
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27	28	29	30	..	..	..	26	27	28	29	30	31	..	26	27	28	29	30	..	..	25	26	27	28	29	30	31
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The College Calendar

SUMMER SCHOOL, 1926

- June 7, Monday.—Registration of students for Summer School begins at 8 a. m.
June 7, Monday.—Examinations for students deficient in entrance subjects, 8 a. m. to 5 p. m.
June 7 to Aug. 7, Monday to Saturday.—Summer School in session, nine weeks.
June 22, Tuesday.—Preliminary reports on masters' theses are due.
July 22, Thursday.—Abstracts of masters' theses are due.
Aug. 2 to Aug. 28, Monday to Saturday.—Second session of Summer School, four weeks.
Aug. 4, Wednesday.—Masters' theses are due.
Aug. 6, Friday.—Commencement exercises for those graduating at end of Summer School.
Aug. 21, Saturday.—Reports of all grades for regular session of Summer School due in registrar's office.

FIRST SEMESTER, 1926-'27

- Sept. 10, Friday.—All members of the instructional force on duty.
Sept. 11, Saturday.—Meeting of assigners with committee on schedule at 2 p. m.
Sept. 11, Saturday.—Meeting of assigners with deans at 3 p. m.
Sept. 13, Monday.—Admission and registration of students begin at 8 a. m.
Sept. 13, Monday.—Examinations for students deficient in entrance subjects, 8 a. m. to 5 p. m.
Sept. 15, Wednesday.—Registration of students closes at 9:30 a. m.
Sept. 15, Wednesday.—Opening convocation, 11 a. m. to 12 m.
Sept. 15, Wednesday.—*All classes meet according to schedule, beginning at 1 p. m.
Sept. 15 and 16, Wednesday and Thursday.—†Mental tests for freshmen, 1 to 4:30 p. m.
Oct. 9, Saturday.—Examinations to remove conditions.
Oct. 16, Saturday.—Scholarship deficiency reports to students and deans are due.
Nov. 13, Saturday.—Midsemester scholarship deficiency reports to students and deans are due.
Nov. 24, Wednesday.—Thanksgiving vacation begins at 12 m.
Nov. 27, Saturday.—Thanksgiving vacation closes at 6 p. m.
Dec. 1, Wednesday.—Preliminary reports on masters' theses are due.
Dec. 21, Tuesday.—Winter vacation begins at 6 p. m.
Jan. 3, 1927, Monday.—Farmers' Short Course and Commercial Creamery Short Course begin.
Jan. 4, Tuesday.—Winter vacation closes at 6 p. m.
Jan. 7, Friday.—Abstracts of masters' theses are due.
Jan. 21, Friday.—Masters' theses are due.
Jan. 21 to 29, Friday to Saturday.—Examinations at close of semester.
Jan. 29, Saturday.—First semester closes at 11 a. m.

SECOND SEMESTER, 1926-'27

- Jan. 31, Monday.—Meeting of assigners with committee on schedule at 2 p. m.
Jan. 31, Monday.—Examinations for students deficient in entrance subjects, 8 a. m. to 5 p. m.
Feb. 1, Tuesday.—Admission and registration of students begin at 8 a. m.
Feb. 2, Wednesday.—Registration closes at 5 p. m.
Feb. 3, Thursday.—*All classes meet according to schedule, beginning at 8 a. m.
Feb. 7 to 12, Monday to Saturday.—Farm and Home Week.
Feb. 12, Saturday.—Reports of all grades for first semester due in registrar's office.
Feb. 22, Tuesday.—Holiday, Washington's Birthday.
Feb. 26, Saturday.—Examinations to remove conditions.
Feb. 26, Saturday.—Farmers' Short Course and Commercial Creamery Short Course close at 12 m.
Mar. 5, Saturday.—Scholarship deficiency reports to students and deans are due.
April 1, Friday.—Preliminary reports on masters' theses and professional theses are due.
April 2, Saturday.—Midsemester scholarship deficiency reports to students and deans are due.
April 14, Thursday.—Announcement of elections of seniors to Phi Kappa Phi.
April 14, Thursday.—Easter vacation begins at 6 p. m.
April 18, Monday.—Easter vacation closes at 6 p. m.
May 10, Tuesday.—Abstracts of masters' theses are due.
May 14, Saturday.—Professional theses are due.
May 17 to 24, Tuesday to Tuesday.—Examinations for seniors.
May 24 to June 1, Tuesday to Wednesday.—Examinations at close of semester.
May 25, Wednesday.—Masters' theses are due.
May 30, Monday.—Holiday, Memorial Day.
June 1, Wednesday.—Alumni Day. Business meeting at 2 p. m., banquet at 6 p. m.
June 2, Thursday.—Commencement Day.
June 3, Friday.—Semester deficiency reports to students and deans are due.
June 16, Thursday.—Reports of all grades for second semester due in registrar's office.

*Students must be present at the first meeting of each class or render a reasonable excuse. Failure to take out an assignment is not accepted as an excuse for absence from classes. A fee of five dollars is charged those who are assigned after the time set for close of registration unless an acceptable excuse is offered.

† Required of all freshmen on both days.

SUMMER SCHOOL, 1927

June 3, Friday.—Registration of students for Summer School begins at 8 a. m.
June 3, Friday.—Examinations for students deficient in entrance subjects, 8 a. m. to 5 p. m.
June 3 to Aug. 4, Friday to Thursday.—Summer School in session, nine weeks.
June 20, Monday.—Preliminary reports on masters' theses are due.
July 20, Wednesday.—Abstracts of masters' theses are due.
Aug. 3, Wednesday.—Masters' theses are due.
Aug. 4, Thursday.—Commencement exercises for those graduating at end of Summer School.
Aug. 4 to 31, Thursday to Wednesday.—Second session of Summer School, four weeks.
Aug. 20, Saturday.—Reports of all grades for regular session of Summer School due in registrar's office.

FIRST SEMESTER, 1927-'28

Sept. 12, Monday.—Admission and registration of students begin at 8 a. m.
Sept. 12, Monday.—Examinations for students deficient in entrance subjects, 8 a. m. to 5 p. m.
Sept. 14, Wednesday.—Registration of students closes at 9:30 a. m.

The State Board of Regents

W. Y. MORGAN
C. B. MERRIAM
W. J. TOD

CHARLES HARGER
GEORGE H. HODGES
EARLE W. EVANS

C. W. SPENCER
B. C. CULP
MRS. J. S. PATRICK

T. J. O'NEIL, *Business Manager*
G. W. MYERS, *Assistant Business Manager*
H. E. SHRACK, *Assistant Business Manager*

Administrative Officers of the College

President	F. D. FARRELL
Vice President, and Dean of the Division of General Science	J. T. WILLARD
Dean of the Division of Agriculture, and Director of the Agricultural Experiment Station.....	L. E. CALL
Dean of the Division of Engineering, and Director of the Engineering Experiment Station.....	R. A. SEATON
Dean of the Division of Home Economics.....	MARGARET M. JUSTIN
Dean of the Division of Veterinary Medicine.....	R. R. DYKSTRA
Dean of the Division of College Extension.....	H. J. UMBERGER
Chairman of the Graduate Council.....	J. E. ACKERT
Dean of Women.....	MARY P. VAN ZILE
Dean of the Summer School.....	E. L. HOLTON
Registrar	JESSIE McD. MACHIB
Librarian	ARTHUR B. SMITH
Custodian of Buildings and Grounds.....	G. R. PAULING

Officers of Instruction and Administration

PRESIDENT

FRANCIS DAVID FARRELL, Agr. D., President of the College (1918; May 5, 1925).
B. S., Utah Agricultural College, 1907; Agr. D., University of Nebraska, 1925.
** A 30; President's House, College Campus.

PROFESSORS

JOHN DANIEL WALTERS, M. S., A. D., Professor of Architecture, Emeritus (1877, 1917).

M. S., K. S. A. C., 1883; A. D., *ibid.*, 1908. E 214; 809 N. Eleventh.

JULIUS TERRASS WILLARD, M. S., Sc. D., Vice President of the College (1883, 1918); Dean of Division of General Science (1883, 1909); Professor of Chemistry (1883, 1901); Consulting Chemist, Agricultural Experiment Station (1888, 1918).

B. S., K. S. A. C., 1883; M. S., *ibid.*, 1886; Sc. D., *ibid.*, 1908. A 47; 1014 Houston.

BENJAMIN LUCE REMICK, Ph. M., Professor and Head of Department of Mathematics (1900).

Ph. B., Cornell College, 1889; Ph. M., *ibid.* 1892. E. 223; 613 Houston.

ALBERT DICKENS, M. S., Professor and Head of Department of Horticulture (1899, 1902); Horticulturist, Agricultural Experiment Station (1899, 1902).

B. S., K. S. A. C., 1893; M. S., *ibid.*, 1901. H 28; 1230 Fremont.

RALPH RAY PRICE, A. M., Professor and Head of Department of History and Civics (1903).

A. B., Baker University, 1896; A. M., University of Kansas, 1898. F 57; 615 Humboldt.

JULIUS ERNEST KAMMEYER, A. M., LL. D., Professor and Head of Department of Economics (1903, 1904).

A. B., Central Wesleyan College, 1886; A. M., *ibid.*, 1889; LL. D., Kansas City University, 1912. A 52; 1441 Laramie.

JOHN VANZANDT CORTELYOU, Ph. D., Professor and Head of Department of Modern Languages (1904, 1916).

A. B., University of Nebraska, 1897; A. M., *ibid.*, 1901; Ph. D., University of Heidelberg, 1904. A 71; 325 N. Fourteenth.

JOHN ORR HAMILTON, B. S., Professor and Head of Department of Physics (1901, 1908); Physicist, Engineering Experiment Station (1913).

B. S., University of Chicago, 1900. C 33; 331 N. Fourteenth.

* One date standing after the title shows when the office was assumed. In the case of two dates separated by a comma or a semicolon, the first date indicates when services with the College began, the second when present office was assumed. Dates separated by a dash indicate time of assumption and termination, respectively, of the duties indicated in the title.

** The College buildings are designated by letters, as follows:

A—Anderson Hall (Administration).
Ag—Waters Hall (Agriculture).
Bks—Barracks.
C—Denison Hall (Chemistry, Physics).
CH—College Hospital.
D—Chemistry Annex No. 2.
E—Engineering Hall.
F—Fairchild Hall (Library).
G—Education Hall.
H—Horticultural Hall.
I—Illustrations Hall.
K—Kedzie Hall (Printing).

L—Calvin Hall (Home Economics).
M—Auditorium.
MA—Music Annex.
N—Nichols Gymnasium.
R—Farm Machinery Hall.
S—Engineering Shops.
T—Thompson Hall (Cafeteria).
V—Veterinary Hall.
VH—Veterinary Hospital.
W—Chemistry Annex No. 1.
X—Maintenance Building.

MARY PIERCE VAN ZILE, Dean of Women (1908, 1918).

Diploma, Iowa State College, 1904.

A 40; 800 Houston.

LOWELL EDWIN CONRAD, M.S., Professor and Head of Department of Civil Engineering (1908, 1909); Civil Engineer, Engineering Experiment Station (1913).

B. S., Cornell College, 1904; C. E., *ibid.*, 1906; M. S., Lehigh University, 1908.

E 124; 317 N. Seventeenth.

EDWIN LEE HOLTON,¹ A.B., Professor and Head of Department of Education (1910, 1913); Dean of Summer School (1910, 1918).

A. B., Indiana University, 1904.

G 28A; 217 N. Fourteenth.

ROY ANDREW SEATON, M.S., Dean of Division of Engineering (1904, 1920); Director of the Engineering Experiment Station (1904, 1920).

B. S., K. S. A. C., 1904; M. S., *ibid.*, 1910; S. B., Massachusetts Institute of Technology, 1911.

E 115; 722 Humboldt.

ARTHUR BOURNE SMITH, Ph.B., B.L.S., College Librarian (1911).

Ph. B., Wesleyan University, 1900; B. L. S., University of Illinois, 1902.

F 32; 1733 Anderson.

LELAND DAVID BUSHNELL, Ph.D., Professor and Head of Department of Bacteriology (1909, 1912); Bacteriologist, Agricultural Experiment Station (1909, 1912).

B. S., Michigan Agricultural College, 1905; M. S., University of Kansas, 1915; Ph. D., Harvard University, 1921.

V 54; 801 Osage.

LELAND EVERETT CALL, M.S., Dean, Division of Agriculture (1907; May 5, 1925); Director, Agricultural Experiment Station (1907; May 5, 1925).

B. S. in Agr., Ohio State University, 1906; M. S., *ibid.*, 1912.

Ag 112; 223 N. Fourteenth.

GEORGE ADAM DEAN, M.S., Professor and Head of Department of Entomology (1902, 1913); Entomologist, Agricultural Experiment Station (1902, 1913).

B. S., K. S. A. C., 1895; M. S., *ibid.*, 1905.

F 52; 1725 Poyntz.

ROBERT KIRKLAND NABOURS, Ph.D., Professor and Head of Department of Zoölogy (1910, 1913); Zoölogist, Agricultural Experiment Station (1910, 1913); Curator of the Natural History Museum (1910).

Ed. B., University of Chicago, 1905; Ph. D., *ibid.*, 1911.

F 54; 401 Denison.

RALPH RALPH DYKSTRA, D.V.M., Dean of Division of Veterinary Medicine (1911, 1919); Professor of Surgery and Head of Department of Surgery and Medicine (1911, 1913).

D. V. M., Iowa State College, 1905.

V 29; 607 Houston.

CLARENCE ERLE REID, B.S., Professor and Head of Department of Electrical Engineering (1914); Electrical Engineer, Engineering Experiment Station (1914).

B. S. in E. E., Purdue University, 1902.

E 119; 421 N. Sixteenth.

MICHAEL FRANCIS AHEARN, M.S., Professor and Head of Department of Physical Education, and Director of Athletics (1904, 1920).

B. S., Massachusetts Agricultural College, 1904; M. S., K. S. A. C., 1913.

N 35; 104 N. Juliette.

NELSON ANTRIM CRAWFORD,* A. M., Professor and Head of Department of Industrial Journalism and Printing (1910, 1915).

A. B., State University of Iowa, 1910; A. M., University of Kansas, 1914.

K 30; 1723 Leavenworth.

* Absent on leave May 1, 1925, to June 30, 1926; resigned.

1. Absent on leave, Sept. 1, 1925, to Aug. 31, 1926.

CHARLES MOSES SIEVER, Ph. G., M. D., College Physician (1916).

Ph. G., Trinity University, 1903; M. D., *ibid.*, 1903; M. D., University of Kansas, 1907.
A 65; 1719 Laramie.

WALTER WILLIAM CARLSON, B. S., M. E., Professor and Head of Department of Shop Practice (1910, 1917); Superintendent of Shops (1910, 1912); Industrial Engineer, Engineering Experiment Station (1913).

B. S., K. S. A. C., 1908; M. E., *ibid.*, 1916. S 62; 1722 Laramie.

SAMUEL CECIL SALMON, M. S., Professor of Farm Crops (1913, 1917).

B. S., South Dakota Agricultural and Mechanical College, 1907; M. S., K. S. A. C., 1923.
Ag 217; 1648 Leavenworth.

WALTER HORACE BURR, B. S., Professor of Sociology (1914, 1921).

B. S., K. S. A. C., 1920. A 74; 1811 Humboldt.

HARRY JOHN CHARLES UMBERGER,⁷ B. S., Dean of Division of College Extension (1911, 1919); Director of College Extension (1911, 1919).

B. S., K. S. A. C., 1905. A 33; 1412 Leavenworth.

HERBERT HIRAM KING, Ph. D., Professor and Head of Department of Chemistry (1906, 1918); Chemist, Agricultural Experiment Station (1918); Chemist, Engineering Experiment Station (1909, 1918).

B. S., Ewing College, 1904; A. M., *ibid.*, 1906; M. S., K. S. A. C., 1915; Ph. D., University of Chicago, 1918. C 30; 617 Houston.

CHARLES WILBUR McCAMPBELL, D. V. M., Professor and Head of Department of Animal Husbandry (1910, 1918); Animal Husbandman, Agricultural Experiment Station (1910, 1918).

B. S., K. S. A. C., 1906; D. V. M., *ibid.*, 1910; B. S., in Agr., *ibid.*, 1918.
Ag 15; 343 N. Fourteenth.

RAY IAMS THROCKMORTON, M. S., Professor and Head of Department of Agronomy (1911; May 5, 1925); Agronomist, Agricultural Experiment Station (1911; May 5, 1925).

B. S. in Agr., Pennsylvania State College, 1911; M. S., K. S. A. C., 1922.
Ag 214; 825 Houston.

JAMES EDWARD ACKERT, Ph. D., Professor of Zoölogy (1913, 1918); Parasitologist, Agricultural Experiment Station (1913).

A. B., University of Illinois, 1909; A. M., *ibid.*, 1911; Ph. D., *ibid.*, 1913.
F 58; 1923 Leavenworth.

ALFRED EVERETT WHITE,⁹ M. S., Professor of Mathematics (1909, 1918).

B. S., Purdue University, 1904; M. S., *ibid.*, 1909. A 72; 1743 Fairchild.

JAMES BURGESS FITCH, B. S., Professor and Head of Department of Dairy Husbandry (1910, 1918); Dairy Husbandman, Agricultural Experiment Station (1910, 1918).

B. S., Purdue University, 1910. Ag 151; 321 N. Sixteenth.

HALLAM WALKER DAVIS, A. M., Professor of English (1913, 1918); Head of Department of English (1913, 1921).

A. B., Indiana University, 1909; A. M., Columbia University, 1913.
K 52; 1727 Fairview.

ARAMINTA HOLMAN, B. S., Professor and Head of Department of Applied Art (1913, 1918).

Graduate, New York School of Fine and Applied Art, 1912; B. S., Columbia University, 1922. A 67; 327 N. Fifteenth.

VIVAN LEWIS STRICKLAND, Ph. D., Professor of Education (1917, 1922).

A. B., University of Nebraska, 1906; A. M., *ibid.*, 1915; Ph. D., *ibid.*, 1925.
G 28; 1512 Leavenworth.

7. In coöperation with the U. S. Department of Agriculture.

9. Absent on leave, year 1926-'27.

JAMES PARK CALDERWOOD, M.E., M.S., Professor and Head of Department of Mechanical Engineering (1918, 1922); Mechanical Engineer, Engineering Experiment Station (1918).

M. E., Ohio State University, 1908; M. S., Pennsylvania State College, 1916.
E 106; 321 N. Fourteenth.

JAMES HENRY BURT, D. V. M., Professor and Head of Department of Anatomy and Physiology (1909, 1919).

V. S., Ontario Veterinary College, 1895; D. V. M., Ohio State University, 1905.
V 32; 800 Poyntz.

LEO EDWARD MELCHERS, M.S., Professor and Head of Department of Botany and Plant Pathology (1914, 1919); Plant Pathologist, Agricultural Experiment Station (1914).

B. S., Ohio State University, 1912; M. S., *ibid.*, 1913. H 58; 1801 Leavenworth.

EDWIN CYRUS MILLER, Ph.D., Professor of Plant Physiology (1910, 1919).

A. B., Lebanon College, 1906; A. B., Yale University, 1907; Ph. D., *ibid.*, 1910.
H 56; 211 N. Eighteenth.

CYRUS VANCE WILLIAMS, B.S. (in Agr.), Ph.D., Professor of Vocational Education (1920).

B. Ed., (Peru) Nebraska State Normal School, 1909; A. M., University of Nebraska, 1910; B. S. in Agr., College of Agriculture, *ibid.*, 1919; Ph. D., *ibid.*, 1925.
G 29; 611 Humboldt.

WILLIAM HIDDLESON ANDREWS, Ph.D., LL. D., Professor of Education (1906, 1920); Acting Head of the Department of Education and Acting Dean of the Summer School (Sept. 1, 1925-Aug. 31, 1926).

A. B., University of Chicago, 1900; M. S., K. S. A. C., 1919; Ph. D., University of Chicago, 1923; LL. D., College of Emporia, 1921. G 28B; 630 Moro.

CHARLES OSCAR SWANSON, M. Agr., Ph. D., Professor and Head of Department of Milling Industry (1906, 1923).

A. B., Carleton College, 1899; M. Agr., University of Minnesota, 1905; Ph. D., Cornell University, 1922. Ag 119; 1640 Fairview.

IVOR VICTOR ILES, A. M., Professor of History and Civics (1911, 1920).

A. B., University of Kansas, 1905; A. M., *ibid.*, 1905. F 4; 1725 Fairchild.

JOSIAH SIMSON HUGHES, Ph. D., Professor of Chemistry (1910, 1920).

B. S., Ohio Wesleyan University, 1908; M. S., *ibid.*, 1910; A. M., Ohio State University, 1910; Ph. D., *ibid.*, 1917. C 41; 333 N. Fifteenth.

ROBERT WARREN CONOVER, A. M., Professor of English (1915, 1920).

A. B., Wesleyan University, 1911; A. M., *ibid.*, 1914. K 52; 1729 Fairchild.

JOHN CHRISTIAN PETERSON, Ph.D., Professor of Education (1917, 1920).

A. B., University of Utah, 1913; Ph. D., University of Chicago, 1917.
G 33; 1330 Laramie.

FREDERICK ERVING COLBURN, Professor and Head of Department of Illustrations (1919, 1920).

I; 322 N. Seventeenth.

HERBERT FREDERICK LIENHARDT, V. M. D., Professor and Head of Department of Pathology (1917, 1920).

V. M. D., University of Pennsylvania, 1916. V 58; 1118 Bertrand.

GEORGE ELLSWORTH RABURN, M.S., Professor of Physics (1910, 1920).

A. B., University of Michigan, 1907; M. S., *ibid.*, 1913. C 34; College Heights.

ROBERT JOHN BARNETT, M. S., Professor of Horticulture (1920).

B. S., K. S. A. C., 1895; M. S., *ibid.*, 1911. H 33; 1203 Thurston.

HARRY BRUCE WALKER, C.E., Professor and Head of Department of Agricultural Engineering (1914, 1921); Agricultural Engineer, Engineering Experiment Station (1921).

B. S. in C. E., Iowa State College, 1910; C. E., *ibid.*, 1920. E 216; 1728 Fairchild.

MARY THERESA HARMAN, Ph.D., Professor of Zoölogy (1912, 1921).

A. B., Indiana University, 1907; A. M., *ibid.*, 1909; Ph. D., *ibid.*, 1912.
F 76C; 1430 Poyntz.

FLOYD WAYNE BELL, B.S.A., Professor of Animal Husbandry, in Charge of Advanced Judging (1918, 1921).

B. S. A., Cornell University, 1911. Ag 5; 1736 Fairview.

EUSTACE VIVIAN FLOYD, B.S., Professor of Physics (1911, 1921).

B. S., Earlham College, 1903. C 34; 1451 Laramie.

WALDO ERNEST GRIMES, Ph.D., Professor and Head of Department of Agricultural Economics (1913, 1921).

B. S., K. S. A. C., 1913; Ph. D., University of Wisconsin, 1923.
Ag 350; 203 N. Delaware.

JOHN HUNTINGTON PARKER,¹ M.S., Professor of Crop Improvement (1917, 1921).

B. S. in Agr., University of Minnesota, 1913; M. S. in Agr., Cornell University, 1916.
Ag 302; 1728 Fairview.

HOWARD TEMPLETON HILL, J.D., Professor and Head of Department of Public Speaking (1920, 1922).

B. S., Iowa State College, 1910; J. D., University of Chicago, 1917.
G 55; 1020 Leavenworth.

ERIC ENGLUND, M. S., Professor of Agricultural Economics (1921, 1922).

B. S., Oregon Agricultural College, 1918; A. B., University of Oregon, 1919; M. S., University of Wisconsin, 1920.
Ag 351; 1212 Fremont.

NOBLE WARREN ROCKEY, A. M., Professor of English (1921).

A. B., Ohio State University, 1905; A. M., *ibid.*, 1916. K 52; 514 N. Manhattan.

EDWARD GUERRANT KELLEY,¹ M.S., Professor of Entomology, Division of College Extension (1918, 1922).

B. S., University of Kentucky, 1903; M. S., *ibid.*, 1904. F 52; 1621 Humboldt.

HOWARD W. BRUBAKER, Ph.D., Professor of Chemistry (1913, 1922).

B. S., Carleton College, 1899; Ph. D., University of Pennsylvania, 1904.
C 12; 1929 Leavenworth.

PERCY LEIGH GAINNEY, A. M., M. S., Professor of Bacteriology (1914, 1922); Soil Bacteriologist, Agricultural Experiment Station (1914).

B. Agr., North Carolina A. and M. College, 1908; M. S., *ibid.*, 1910; A. M., Washington University, 1911.
V 26; 1123 Houston.

FORREST FAYE FRAZIER, C. E., Professor of Civil Engineering (1911, 1922).

C. E., Ohio State University, 1910. E 123; 1815 Leavenworth.

ROYCE GERALD KLOEFFLER, B.S., Professor of Electrical Engineering (1916, 1922)

B. S. in E. E., University of Michigan, 1913. E 120; 1218 Kearney.

CLINTON ELLIOTT PEARCE, S.B., Professor and Head of Department of Machine Design (1917, 1922).

S. B., Massachusetts Institute of Technology, 1913. E 210; 615 N. Eleventh.

1. Absent on leave, year 1925-'26.

CHARLES HENRY SCHOLER, B.S., Professor and Head of Department of Applied Mechanics (1920, 1922); Engineer of Tests in the Roads Materials Laboratory (1920).

B. S., K. S. A. C., 1914.

E 11; 806 Bluemont.

LOYAL FREDERICK PAYNE, M.S., Professor and Head of Department of Poultry Husbandry (1921, 1922); Poultry Husbandman, Agricultural Experiment Station (1921, 1922).

B. S., Oklahoma A. and M. College, 1912; M. S., K. S. A. C., 1925.

Ag 245; 4 College Heights Road.

MARTHA S. PITTMAN, A. M., Professor and Head of Department of Food Economics and Nutrition (1919, 1922).

B. S., K. S. A. C., 1906; B. S., Columbia University, 1916; A. M., *ibid.*, 1918.

L 43; 112 S. Twelfth.

GEORGE GEMMELL, M.S., Professor of Education, in Charge of Department of Home Study Service, Division of College Extension (1918, 1922).

B. S., Kansas State Teachers College, Pittsburg, 1917; B. S., K. S. A. C., 1920; M. S., *ibid.*, 1922.

A 5; 411 N. Sixteenth.

CHARLES WILLIAM BACHMAN, LL.B., Professor of Physical Education (1920, 1922); Head Coach of Athletics (1920).

LL. B., Notre Dame University, 1917.

N 30; R. R. 1.

WILLIAM TIMOTHY STRATTON, A. M., Professor of Mathematics (1910, 1923).

A. B., Indiana University, 1906; A. M., *ibid.*, 1913.

E 223; R. F. D. 1.

ROY MONROE GREEN, M.S., Professor of Agricultural Economics (1920, 1923).

B. S. in Agr., University of Missouri, 1914; M. S., K. S. A. C., 1922.

Ag 345; 110 S. Seventeenth.

MARGARET M. JUSTIN, Ph.D., Dean of Division of Home Economics (1923).

B. S. in H. E., K. S. A. C., 1909; B. S. in Educ., Teachers' College, Columbia University, 1915; Ph. D., Yale University, 1923.

L 29; 531 N. Manhattan Ave.

AMY JANE LEAZENBY ENGLUND, A. M., Professor and Head of Department of Household Economics (1920, 1923).

B. S., University of Missouri, 1917; A. M., University of Chicago, 1920.

L 42; 1212 Fremont.

AMY KELLY, B.S., State Home Demonstration Leader, Division of College Extension (1923).

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

A 36; 1649 Fairchild.

HEMAN LAURITZ IBSEN, Ph.D., Professor of Genetics (1919, 1924).

B. S., University of Wisconsin, 1912; M. S., *ibid.*, 1913; Ph. D., *ibid.*, 1916.

Ag 15 A; 1116 Bluemont.

FRED WILLIAM BUGBEE, Lieut. Col. Inf., U. S. A., Professor and Head of Department of Military Science and Tactics (1924).

Graduate, Infantry and Cavalry School, 1903; Graduate, Infantry School, 1923; Graduate, Command and General Staff School, 1924.

N 26; 204 S. Juliette.

ELDEN VALORIOUS JAMES, A. M., Professor of History and Civics (1912; Sept. 1, 1924).

A. B., Marietta College, 1901; A. B., University of Michigan, 1905; A. M., Marietta College, 1908.

G 51A; 1723 Fairview.

PAUL WEIGEL, B. Arch., Professor and Head of Department of Architecture (1921, 1924).

B. Arch., Cornell University, 1912; Architect, University of State of New York, 1920; Graduate, Buffalo Normal School, 1921.

E 302; 1204 Fremont.

LILIAN CLARA WILLIAMS BAKER, A. M., Professor and Head of Department of Clothing and Textiles (1924).

B. S., K. S. A. C., 1914; A. M., University of Chicago, 1921.

L 56; 426 N. Seventeenth.

RALPH W. MORRISH,² B. S. A., Professor of Junior Extension, in Charge of Boys' and Girls' Club Work, Division of College Extension (1920, 1925).

B. S. A., Purdue University, 1920.

A 37; 1430 Humboldt.

WALTER GILLING WARD, B. S., Arch., Professor, in Charge of Rural Engineering, Division of College Extension (1920, 1925).

B. S. in Arch., K. S. A. C., 1912; Architect, *ibid.*, 1922.

E 130; 519 N. Manhattan.

CHARLES ELKINS ROGERS, A. B., Professor and Acting Head of Department of Industrial Journalism (1919, 1925).

A. B., University of Oklahoma, 1914.

K 30; 532 N. Fourteenth.

EDGAR TALBERT KEITH, B. S., Professor of Printing (1912; July 1, 1925).

B. S., K. S. A. C., 1912.

K 26; 1421 Poyntz.

HAROLD PARKER WHEELER, Professor and Head of Department of Music (1919; July 1, 1925).

M 30; 327 N. Fifteenth.

JAMES WALKER MCCOLLOCH, M. S., Professor of Entomology (1910; Sept. 1, 1925); Associate Entomologist, Agricultural Experiment Station (1910, 1918).

B. S., K. S. A. C., 1912; M. S., K. S. A. C., 1923.

F 76E; 1626 Leavenworth.

CHARLES WILLIAM COLVER, Ph. D., Professor of Organic Chemistry (1919; Sept. 1, 1925).

B. S., University of Idaho, 1909; M. S., *ibid.*, 1911; Ph. D., University of Illinois, 1919.

C 56; 1635 Fairchild.

CHARLES WALTON MATTHEWS, A. M., Professor of English (1920; Sept. 1, 1925).

B. S., Kansas State Teachers College of Pittsburg, 1918; A. M., University of Chicago, 1923.

K 51B; 1409 Anderson.

MARTHA MORRISON KRAMER, Ph. D., Professor of Food Economics and Nutrition (1922; Sept. 1, 1925).

B. S., University of Chicago, 1916; A. M., Columbia University, 1920; Ph. D., *ibid.*, 1922.

L 43; 1617 Leavenworth.

JULES HENRY ROBERT, B. S., Professor of Applied Mechanics (1916; Sept. 1, 1925).

B. S., University of Illinois, 1914.

E 112; 1409 Anderson.

MARGARET RUSSEL, Ph. D., Professor of English (1917; Sept. 1, 1925).

A. B., Washburn College, 1913; A. M., Columbia University, 1915; Ph. D., Yale University, 1923.

K 52; 5 Paddleford Apts.

JAMES GORDON EMERSON,⁴ J. D., Professor of Public Speaking (Sept. 1, 1925).

B. S., Iowa State College, 1912; J. D., Stanford University, 1915.

G 55; 1430 Poyntz.

ASSOCIATE PROFESSORS

GRACE EMILY DERBY, A. B., Associate Librarian (1911, 1918).

A. B., Western College for Women, 1905.

F 32; 1825 Leavenworth.

INA FOOTE COWLES, B. S., Associate Professor of Clothing and Textiles (1902, 1918).

B. S., K. S. A. C., 1901.

L 55; 1520 Leavenworth.

WILMER ESLA DAVIS, A. B., Associate Professor of Botany (1909, 1920).

Graduate, Ohio Normal University, 1894; A. B., University of Illinois, 1903.

H 76; 1203 Moro.

ADA RICE, M. S., Associate Professor of English (1899, 1920).

B. S., K. S. A. C., 1895; M. S., *ibid.*, 1912.

A 61; 917 Osage.

2. Absent on leave, Oct. 1, 1925, to Oct. 1, 1926.

4. Sept. 1, 1925, to Feb. 28, 1926.

- MALCOLM CAMERON SEWELL, Ph.D., Associate Professor of Soils (1914, 1920).
B. S., K. S. A. C., 1912; M. S., Ohio State University, 1914; Ph. D., University of Chicago, 1922. Ag 213; 315 N. Fifteenth.
- WILLIAM HENRY SANDERS,⁹ M. E., Associate Professor of Agricultural Engineering (1914, 1920).
B. S., K. S. A. C., 1890; M. E., *ibid.*, 1916. R 28; 1208 Kearney.
- HARRY WINFIELD CAVE, M.S., Associate Professor of Dairy Husbandry (1918, 1920).
B. S. A., Iowa State College, 1914; M. S., K. S. A. C., 1916. Ag 151; 1638 Osage.
- CARL G. ELLING, B.S., Associate Professor of Animal Husbandry, Division of College Extension (1918, 1921).
B. S., K. S. A. C., 1904. A 33; R. R. 1.
- ALONZO FRANKLIN TURNER,⁷ B.S., Associate Professor, Field Agent, Division of College Extension (1917, 1920).
B. S., K. S. A. C., 1905. A 2; 810 Moro.
- JAMES WALTER ZAHNLEY, B.S., Associate Professor of Farm Crops (1915, 1921).
B. S., K. S. A. C., 1909; B. S. in Agr., *ibid.*, 1918. Ag 314; R. R. 8.
- LOUIS HENRY LIMPER, A. M., Associate Professor of Modern Languages (1914, 1921).
A. B., Baldwin Wallace College, 1907; A. M., University of Wisconsin, 1914. A 70; 1324 Laramie.
- LOUIS COLEMAN WILLIAMS, B.S., Associate Professor of Horticulture, Division of College Extension (1915, 1921).
B. S., K. S. A. C., 1912; B. S., *ibid.*, 1922. A 34; 1109 Kearney.
- ROGER CLETUS SMITH, Ph.D., Associate Professor of Entomology (1920).
A. B., Miami University, 1911; A. M., Ohio State University, 1915; Ph. D., Cornell University, 1917. F 64; 1605 Leavenworth.
- HILMER HENRY LAUDE, M. S., Associate Professor of Agronomy (1920, 1921).
B. S., K. S. A. C., 1911; M. S., Texas A. and M. College, 1918. Ag 202; 326 N. Sixteenth.
- JOSEPH PRESTWICH SCOTT, D.V.M., Associate Professor of Pathology (1916, 1921).
B. S., Scientific Gymnasium, Lausanne, Switzerland, 1910; D. V. M., Ohio State University, 1914; M. S., K. S. A. C., 1924. V 2; 1626 Laramie.
- WILLIAM MAX MCLEOD, D. V. M., Associate Professor of Anatomy (1919, 1921).
D. V. M., Iowa State College, 1917. V 32; 413 Houston.
- EDWIN JACOB FRICK, D. V. M., Associate Professor of Medicine (1919, 1921).
D. V. M., Cornell University, 1917. VH 54; 319 N. Sixteenth.
- FRANK CALEB GATES, Ph.D., Associate Professor of Botany (1919, 1922).
A. B., University of Illinois, 1910; Ph. D., University of Michigan, 1912. H 57; 1515 Humboldt.
- FLOYD PATTISON, B.S., Associate Professor of Steam and Gas Engineering, Home Study Service, Division of College Extension (1919, 1922).
B. S., K. S. A. C., 1912. A 5; 805 Kearney.
- MANFORD W. FURR, C. E., Associate Professor of Civil Engineering (1917, 1922).
B. S. in C. E., Purdue University, 1913; C. E., *ibid.*, 1925. E 122; 1426 Humboldt.

7. In Coöperation with the U. S. Department of Agriculture.

9. Absent on leave, year 1926-'27.

ELSIE HARRIET SMITH,¹ Associate Professor of Piano (1917, 1922).

Graduate, Certificate Course, Chicago Musical College, 1909; Postgraduate Diploma, Institute of Musical Art, New York City, 1914. M 58; 535 N. Manhattan.

ALBERT JOHN MACK, M.E., Associate Professor of Mechanical Engineering (1917, 1922).

B. S., K. S. A. C., 1912; M. E., *ibid.*, 1921.

E 109; 1512 Poyntz.

ELLIS ADOLPH STOKDYK, M.S., Associate Professor of Agricultural Economics, Marketing Specialist, Division of College Extension (1921, 1924).

B. S., University of Wisconsin, 1920; M. S., K. S. A. C., 1924.

H 56; 1617 Leavenworth.

JACOB OLIN FAULKNER, A.M., Associate Professor of English (1922).

A. B., Washington and Lee University, 1907; A. M., Pennsylvania State College, 1920. K 52; 426 N. Seventeenth.

EDGAR LEMUEL TAGUE, A.M., Ph.D., Associate Professor of Chemistry (1914, 1923); Assistant in Protein Chemistry, Agricultural Experiment Station (1914).

A. B., University of Kansas, 1908; A. M., *ibid.*, 1909; Ph. D., *ibid.*, 1924.

C 3; 321 N. Delaware.

ROY WILLIAM KISER,³ Associate Professor of Animal Husbandry, Division of College Extension (1918, 1923-Feb. 28, 1926).

B. S., K. S. A. C., 1914.

A 34; 1715 Laramie.

BERNARD MARTIN ANDERSON, B.S. in Ag., Associate Professor of Animal Husbandry (1920, 1923).

B. S. in Ag., K. S. A. C., 1916, 1923.

Ag 24; 323 Yuma.

HARRY ERNEST REED, B.S. in Agr., Associate Professor of Animal Husbandry (1923).

B. S. in Ag., University of Missouri, 1914.

Ag 27; 1119 Laramie.

ARTHUR FREDERICK PEINE,³ A.M., Associate Professor of History and Civics (1916, 1923-May 31, 1926).

A. B., Illinois Wesleyan University, 1911; A. M., University of Illinois, 1913.

WILLIAM RAYMOND BRACKETT, A.B., Associate Professor of Physics (1919, 1923).

A. B., University of Colorado, 1905.

C 38; 1824 Humboldt.

EDWARD CHAPMAN CONVERSE, A.M., Associate Professor of Physics (1919, 1923).

A. B., University of Illinois, 1904; A. M., *ibid.*, 1909.

C 57; College Hill.

HERBERT HENLEY HAYMAKER, M.S., Associate Professor of Botany (1917, 1923).

B. S., K. S. A. C., 1915; M. S., University of Wisconsin, 1916.

H 54; 315 N. Sixteenth.

GABE ALFRED SELLERS, B.S., Associate Professor of Shop Practice (1919, 1923).

B. S., K. S. A. C., 1917.

S 62; 927 Moro.

PEARLE ETHEL RUBY, M.S., Associate Professor of Food Economics and Nutrition (1921, 1923).

A. B., Drake University, 1915; M. S., University of Chicago, 1920.

L 35; 426 N. Seventeenth.

1. Absent on leave, year 1925-'26.

3. Resigned.

HENRY ARTHUR SHINN¹, A. B., Associate Professor of Public Speaking (1923)
A. B., University of Kansas, 1916. G 55; Paddleford Apts. 5.

HARRISON BOYD SUMMERS, A. M., Associate Professor of Public Speaking (1923).
A. B., Fairmont College, 1917; A. M., University of Oklahoma, 1921.
G 55; 1011 Kearney.

DON CAMERON WARREN, Ph. D., Associate Professor of Poultry Husbandry (1923).
A. B., Indiana University, 1914; A. M., *ibid.*, 1917; Ph. D., Columbia University, 1923.
Ag 249; 1616 Osage.

EARL BOOTH WORKING, Ph. D., Associate Professor of Milling Industry (1923).
A. B., University of Denver, 1917; A. M., *ibid.*, 1919; Ph. D., University of Arizona, 1922.
Ag 120; R. R. 8.

ERNEST BLAINE WELLS, M. S., Associate Professor of Soils, Division of College Extension (1920, 1924).
B. S. A., West Virginia University, 1917; M. S., K. S. A. C., 1922.
Ag 59; 1615 Leavenworth.

ALFRED LESTER CLAPP, B. S., Associate Professor of Agricultural Extension (1920, 1924); District Agent, Division of College Extension (1920, 1924).
B. S., K. S. A. C., 1914. A 2; 930 Kearney.

GEORGE EDWIN JOHNSON, Ph. D., Associate Professor of Zoölogy (1924); Mammalogist, Agricultural Experiment Station (1924).
B. S., Dakota Wesleyan University, 1913; M. S., University of Chicago, 1916; Ph. D., Harvard University, 1923. F 54A; 1506 Poyntz.

PAUL PORTER BRAINARD, A. M., Associate Professor of Psychology (1919, 1924).
B. L., Whitman College, 1909; A. M., Columbia University, 1913.
G 33A; 1224 Thurston.

ALLAN PARK DAVIDSON, M. S., Associate Professor of Vocational Education (1919; Sept. 1, 1924).
B. S., K. S. A. C., 1914; M. S., *ibid.*, 1925. G 29; 1221 Laramie.

FLORIAN ARTHUR KLEINSCHMIDT, M. Arch., Associate Professor of Architecture (1923, 1924).
B. S. in Arch., University of Minnesota, 1920; M. Arch., Harvard University, 1922; diploma, Ecole des Beaux Arts Americain-Fontainebleau. E 304; 414 Pierre.

CHRISTOPHER DUDLEY PEIRCE, Major C. A. C., U. S. A., Associate Professor of Military Science and Tactics (1924).
N 26; 202 S. Seventeenth.

BEATTY HOPE FLEENOR, M. S., Associate Professor of Education, Home Study Service, Division of College Extension (1923, 1924).
B. S., K. S. A. C., 1919; M. S., *ibid.*, 1923. A 5; 1612 Osage.

GEORGE W. SALISBURY, B. S., Associate Professor of Agricultural Extension (1919; July 1, 1925); District Agent, Division of College Extension (1919, July 1, 1924).
B. S., University of Illinois, 1915. A 2; 312 N. Sixteenth.

IRA NICHOLS CHAPMAN, B. S., Associate Professor of Agricultural Economics, Division of College Extension (1922; July 1, 1925).
B. S., K. S. A. C., 1916. Ag 345; 1210 Thurston.

WILLARD HUNGATE MARTIN, M. S., Associate Professor of Dairy Husbandry (Aug. 1, 1925).
B. S., Purdue University, 1918; M. S., Pennsylvania State College, 1922.
Ag 152; 1728 Fairview.

1. Absent on leave, Sept. 1, 1925, to March 31, 1926.

IGNATIUS ALBERT WOJTASZAK,⁵ B.S., Associate Professor of Applied Mechanics (1920; Sept. 1, 1925).

B. S., University of Michigan, 1920.

E 113; 1115 Bluemont.

FLOYD ALONZO SMUTZ, B.S., Associate Professor of Machine Design (1918; Sept. 1, 1925).

B. S. in Arch., K. S. A. C., 1914.

S 51; 1530 Pierre.

MERRILL AUGUSTUS DURLAND, M.S., M.E., Associate Professor of Mechanical Drawing (1919; Sept. 1, 1925).

B. S., K. S. A. C., 1918; M. E., *ibid.*, 1922; M. S., *ibid.*, 1923. E 209; 1715 Houston.

RUTH MORRIS, A.M., Associate Professor of Physical Education for Women (1923; Sept. 1, 1925).

A. B., University of Wisconsin, 1915; A. M., Columbia University, 1920.

N 3; 1715 Anderson.

CHARLES WINSHIP JONES, Capt. Inf., U. S. A., Associate Professor of Military Science and Tactics (1923; Sept. 1, 1925).

B. S., Purdue University, 1915; Graduate, U. S. Infantry School, 1921.

N 26; 617 Houston.

ARTHUR BRADLEY SPERRY, B.S., Associate Professor of Geology (1921; Sept. 1, 1925).

B. S., University of Chicago, 1919.

F 61; 1020 Leavenworth.

HARRY KING LAMONT, Associate Professor of Violin (1922; Sept. 1, 1925).

M 52; 624 Houston.

FRANK LESLIE DULEY, Ph.D., Associate Professor of Soils (Sept. 1, 1925).

B. S., University of Missouri, 1914; A. M., *ibid.*, 1915; Ph. D., University of Wisconsin, 1923.

Ag 216; 1613 Humboldt.

WILLIAM LINDQUIST, B.M., Associate Professor of Voice (Sept. 1, 1925).

B. M., Cosmopolitan School of Music and Dramatic Art, Chicago, 1925.

M 54; 1531 Leavenworth.

ASSISTANT PROFESSORS

WALTER LEROY LATSHAW, M.S., Assistant Professor of Chemistry (1914, 1918).

B. S., Pennsylvania State College, 1912; M. S., K. S. A. C., 1922. C 3; 927 Fremont.

DANIEL EMMETT LYNCH, Assistant Professor of Forging (1914, 1920); Foreman of Blacksmith Shop (1914).

S 38; 1528 Pierre.

EDWARD C. JONES, M.E., Assistant Professor of Shop Practice (1916, 1920).

B. M. E., Iowa State College, 1905; M. E., *ibid.*, 1922.

S 32; 1031 Kearney.

LEON VINCENT WHITE, C.E., Assistant Professor of Civil Engineering (1918, 1920).

B. S., K. S. A. C., 1903; C. E., *ibid.*, 1918.

E 122; R. R. 1.

CLIFF ERRETT AUBEL, M.S., Assistant Professor of Animal Husbandry (1919, 1920).

B. S., Pennsylvania State College, 1915; M. S., K. S. A. C., 1917.

Ag 13; 530 N. Fourteenth.

ELIZABETH HAMILTON DAVIS, A.B., B.L.S., Reference Librarian (1920).

A. B., Illinois Women's College, 1909; B. L. S., University of Illinois, 1914.

F 35; 525 N. Manhattan.

LAWRENCE WILLIAM HARTEL,¹ M.S., Assistant Professor of Physics (1920).

A. B., Central Wesleyan College, 1911; B. S., *ibid.*, 1912; B. S. in Ed., University of Missouri, 1915; M. S., K. S. A. C., 1924.

C 34; 1026 Vattier.

1. Absent on leave, year 1925-'26.

5. Absent on leave after Nov. 1, 1925.

ERVIN ARTHUR KNOTH,³ G. G., Assistant Professor of Physical Education (1920-Jan. 31, 1926).

Graduate Gymnast, Normal College of America Gynmnastic Union, 1917.

JESSE LAMAR BRENNEMAN, E. E., Assistant Professor of Electrical Engineering (1920).

B. S., University of Chicago, 1908; E. E., University of Wisconsin, 1913.
E 120; R. R. 8.

EARLE REED DAWLEY, B. S., Assistant Professor of Applied Mechanics, and Assistant Engineer of Tests (1920).

B. S., University of Illinois, 1919. E 14; 1200 Kearney.

WILLIAM FRANCIS PICKETT, M. S., Assistant Professor of Horticulture (1917, 1921).

B. S., K. S. A. C., 1917; M. S., *ibid.*, 1923. H 30; 923 Laramie.

CHARLES HOWARD KITSELMAN, V. M. D., Assistant Professor of Pathology (1919, 1921).

V. M. D., University of Pennsylvania, 1918. V 28; 1417 Pierre.

RUDOLPH H. DRIFTMIER, B. S., Assistant Professor of Agricultural Engineering (1920, 1921).

B. S. in A. E., Iowa State College, 1920. E 216; 335 N. Fifteenth.

HELEN ELIZABETH ELCOCK, A. M., Assistant Professor of English (1920, 1921).

A. B., College of Emporia, 1907; A. M., University of Chicago, 1921.
A 55; 1641 Fairchild.

EMMA HYDE, A. M., Assistant Professor of Mathematics (1920, 1921).

A. B., University of Kansas, 1912; A. M., University of Chicago, 1916.
A 62A; 320 N. Fifteenth.

CLARENCE FLAVIUS LEWIS, M. S., Assistant Professor of Mathematics (1920, 1921).

A. B., University of Denver, 1913; M. S., K. S. A. C., 1925. E 223; 808 N. Juliette.

ANNA MARIE STURMER, A. M., Assistant Professor of English (1920, 1921).

A. B., University of Nebraska, 1917; A. M., *ibid.*, 1920. A 53; 1636 Fairchild.

ROBERT GORDON, Assistant Professor of Music (1921).

Diploma in Theory and Band Instruments, School of Music, University of Michigan, 1920.
MA 5; 227 Houston.

NATHAN DANIEL HARWOOD, D. V. M., Assistant Professor, Department of Vaccine Laboratories (1918, 1921).

D. V. M., K. S. A. C., 1918. V 32; 1531 Leavenworth.

CHARLES DEFOREST DAVIS, B. S., Assistant Professor of Farm Crops (1921).

B. S., K. S. A. C., 1921. Ag 79; 609 N. Ninth.

EUGENE SIDNEY LYONS, M. S., Assistant Professor of Soils (1920, 1922).

B. S., K. S. A. C., 1921; M. S., *ibid.*, 1925. Ag 216; 1116 Bluemont.

DAVID LESLIE MACKINTOSH, B. S., Assistant Professor of Animal Husbandry (1921, 1922).

B. S., University of Minnesota, 1920. Ag 13; 1425 Humboldt.

LUTHER EARL WILLOUGHBY, B. S., Assistant Professor of Farm Crops, Division of College Extension (1917, 1922).

B. S., K. S. A. C., 1912; B. S. in Agr., *ibid.*, 1916. Ag 59; 918 Thurston.

3. Resigned.

HELEN ADELIA BISHOP, A. M., Assistant Professor of Household Economics (1922).

B. S., James Millikin University, 1909; A. M., Columbia University, 1922.
T 52; 1641 Laramie.

CHARLES MECLAIN CORRELL, Ph. M., Assistant Professor of History and Civics (1922).

B. S., K. S. A. C., 1900; Ph. B., University of Chicago, 1907; Ph. M., *ibid.*, 1908.
Ag 253; 1621 Fairchild.

JAMES HENDRIX McADAMS, B. S., Assistant Professor of Poultry Husbandry, Division of College Extension (1922).

B. S., K. S. A. C., 1916. Ag 250; 1507 Leavenworth.

DELBERT JACOB TAYLOR,³ B. S., Assistant Professor of Poultry Husbandry, Division of College Extension (1922-Jan. 31, 1926).

B. S. in Agri., Purdue University, 1914. Ag 38A; 600 N. Manhattan.

HARLAN RANDOLPH SUMNER, A. M., Assistant Professor of Crops, Division of College Extension (1923).

B. S., K. S. A. C., 1916; A. M., University of Missouri, 1917. Ag 215; 1005 Vattier.

IZIL ISABEL POLSON,³ Assistant Professor of Industrial Journalism (1918, 1923-Nov. 30, 1925).

B. S., K. S. A. C., 1914; B. S. in Journalism, *ibid.*, 1914; M. S., Medill School of Journalism, Northwestern University, 1924.

MORRIS EVANS, M. S., Assistant Professor of Agricultural Economics (1920, 1923).

B. S. in Agr., K. S. A. C., 1920; M. S., *ibid.*, 1925. Ag 348; 1601 Poyntz.

CHAUNCEY ELIAS SAWYER,³ D. V. M., Assistant Professor of Pathology (1921, 1923-Sept. 30, 1925).

D. V. M., K. S. A. C., 1921. V 55A; 628 Fremont.

ARTHUR CECIL FAY, M. S., Assistant Professor of Bacteriology (1921, 1923).

B. S., University of Missouri, 1920; M. S., University of Wisconsin, 1921.
V 28; 1621 Leavenworth.

WILLIAM ALEXANDER VAN WINKLE, Ph. D., Assistant Professor of Chemistry (1922, 1923).

B. S., University of Michigan, 1911; M. S., University of Illinois, 1917; Ph. D., *ibid.*, 1920.
D 30; 812 Laramie.

JOSEPH LOWE HALL, Ph. D., Assistant Professor of Chemistry (1922, 1923).

B. S., University of Illinois, 1919; M. S., *ibid.*, 1921; Ph. D., *ibid.*, 1922.
C 10; 1409 Anderson.

NORA ELIZABETH DALBEY, A. M., Assistant Professor of Botany and Plant Pathology (1918, 1923).

A. B., University of Kansas, 1913; A. M., *ibid.*, 1914. H 54; 1424 Fairchild.

GRACE ROBERTA HESSE, A. M., Assistant Professor of Modern Languages (1917, 1923).

A. B., University of Michigan, 1917; A. M., *ibid.*, 1924. A 70; 830 Bertrand.

THOMAS JOEL ANDERSON, JR., A. M., Assistant Professor of Economics (1922, 1923).

B. S., University of Missouri, 1922; A. M., *ibid.*, 1923. A 74; 1420 Laramie.

GRACE LOUISE ELIZABETH BISCHOF, B. L. S., Head of Circulation Department, College Library (1923).

A. B., Colorado College, 1920; B. L. S., University of State of New York, 1922.
F 27; 1723 Leavenworth.

FRANK JACOBS CHEEK, JR., C. E., Assistant Professor of Architecture (1923).
A. B., Center College, 1914; C. E., Rensselaer Polytechnic Institute, 1919.
E 304; 1209 Vattier.

CHARLES WILLIAM CORSAUT, Assistant Professor of Physical Education (1923).
Graduate, Y. M. C. A. College, 1917. N 36; 1601 Humboldt.

VERNE RUSSELL HILLMAN, B.S., A.E., Assistant Professor of Agricultural Engineering (1923).
B. S., A. E., Iowa State College, 1920. E 216; 918 N. Tenth.

IRA KAULL LANDON, B.S. in Agr., Assistant Professor of Agronomy (1923).
B. S. in Agr., K. S. A. C., 1921. Ag 201; 1717 Morgan, Parsons, Kan.

GEORGE HELMICK ROSS, M.D., Assistant Physician, Department of Student Health (1923).
M. D., Kansas City University Medical College, 1913. A 64; 624 Poyntz.

LESSLEY EUGENE SPENCER, Capt., C. A. C., U. S. A., Assistant Professor of Military Science and Tactics (1923).
Graduate, Coast Artillery School, 1922. N 26; 1505 Humboldt.

WELCOME PORTER WALTZ, Capt. Inf., U. S. A., Assistant Professor of Military Science and Tactics (1923).
Graduate, Infantry School, 1922. N 26; 621 N. Juliette.

FRANK OTTO BLECHA, B.S., Assistant Professor of Agricultural Extension; District Agricultural Agent, Division of College Extension (1919, 1923).
B. S., K. S. A. C., 1918. A 2; 1422 Poyntz.

CHARLES RANGER ENLOW, B.S. in Agr., Assistant Professor of Coöperative Experiments, Department of Agronomy (May 26, 1924).
B. S. in Agr., K. S. A. C., 1920. Ag 202; 613 N. Sixteenth.

RUTH HARTMAN, Assistant Professor of Music (June 1, 1924).
Graduate, Department of Public School Music, Iowa State Teachers' College, 1912; Two-year Certificate, Northwestern University, 1923. M 53; 830 Bertrand.

WALTER BUSWELL BALCH, M.S., Assistant Professor of Horticulture (1921, 1924); Greenhouse Foreman (1921).
B. S., Cornell University, 1919; M. S., K. S. A. C., 1925. H 33; 1734 Fairchild.

HOWARD HAROLD STEUP, M.S., Assistant Professor of Poultry Husbandry (1922, 1924).
B. S., Purdue University, 1919; M. S., K. S. A. C., 1925. Ag 252; 1116 Bluemont.

RICHARD PEREGRINE WHITE, B.S., Assistant Professor of Botany and Plant Pathology (1921, 1924); Assistant Plant Pathologist, Agricultural Experiment Station (1921).
B. S., Dartmouth College, 1918. H 56; 1819 Leavenworth.

ARTHUR HERSCHEL HELDER, M.L.A., Assistant Professor of Landscape Gardening (1924).
B. S., K. S. A. C., 1904; M. S., *ibid.*, 1908; M. L. A., Massachusetts Agricultural College, 1918; M. L. A., Harvard University, 1920. H 33; 901 Osage.

ERNEST BAKER KEITH, Ph.D., Assistant Professor of Chemistry (1918, 1924).
B. S., K. S. A. C., 1913; Ph. D., University of Chicago, 1924. W 27; 1215 Vattier.

EDGAR MCCALL AMOS, B.S., Assistant Professor of Industrial Journalism and Printing (1920, 1924).
B. S., K. S. A. C., 1902. K 31; 1015 Leavenworth.

ERIC ROSS LYON, M.S., Assistant Professor of Physics (1921, 1925).
A. B., Phillips University, 1911; M. S., *ibid.*, 1923. C 61; 823 Bluemont.

WILHELMINA BATES, A. M., Assistant Professor of Household Economics (1922, 1924), in Charge of Cafeteria (1922, 1924).

Ph. B., Stetson University, 1919; A. M., *ibid.*, 1921.

T 29; 1617 Leavenworth.

EUGENE CLAYTON GRAHAM, B. S., Assistant Professor of Shop Practice (1922, 1924).

B. S., Carleton College, 1898; B. S. in M. E., University of Minnesota, 1902.

S 36; R. R. 1.

MINNA ERNESTINE JEWELL, Ph. D., Assistant Professor of Zoölogy (1922, 1924).

A. B., Colorado College, 1914; A. M., University of Illinois, 1915; Ph. D., *ibid.*, 1918.

F 62; 312 N. Sixteenth.

GERALD WOODWARD FITZGERALD, D. V. M., Capt. V. C., U. S. A., Assistant Professor of Military Science and Tactics (1924).

D. V. M., K. S. A. C., 1916.

V 27; 625 Houston.

ALENE THERESA HINN DeROSE, A. M., Assistant Professor of Clothing and Textiles (1924).

B. S., University of Wisconsin, 1915; A. M., Columbia University, 1924.

L 64; 1649 Fairchild.

WALDO HIRAM LYONS, A. M., Assistant Professor of Mathematics (1924).

A. B., University of Denver, 1912; A. M., *ibid.*, 1916.

E 223; 820 Moro.

CLARICE MARIE PAINTER, Assistant Professor of Piano (1924).

Diploma in Piano, Hardin College, 1919; Diploma, New England Conservatory of Music, 1922.

M 51; 319 N. Sixteenth.

FRANK PLETCHER ROOT, M. S., Assistant Professor of Physical Education and Athletics (Sept. 1, 1924).

B. S., K. S. A. C., 1914; M. S., *ibid.*, 1924.

N 35; 910 Bluemont.

RILEY EDWARD McGARRAUGH, B. S., First Lieut. C. A. C., U. S. A., Assistant Professor of Military Science and Tactics (1924).

B. S., K. S. A. C., 1917.

N 26; 831 Bluemont.

WILLIAM WARREN WERTZ, A. B., Capt. C. A. C., U. S. A., Assistant Professor of Military Science and Tactics (1924).

A. B., Doane College, 1916; Graduate, U. S. Coast Artillery School, 1924.

N 26; 1605 Pierre.

CLAUDE KEDZIE SHEDD, B. S. in A. E., Assistant Professor of Rural Engineering, Division of College Extension (Jan. 20, 1925).

B. S., in Agr., University of Nebraska, 1909; B. S. in Ag. Engrg., Iowa State College, 1914.

E 131; 1331 Poyntz.

ALFRED THOMAS PERKINS, Ph. D., Assistant Professor of Chemistry (1925).

B. S., Pennsylvania State College, 1920; M. S., Rutgers College, 1922; Ph. D., *ibid.*, 1923.

C 4; 1424 Houston.

DONALD R. PORTER,³ B. S., Assistant Professor of Plant Pathology, Division of College Extension (1925-Mar. 8, 1926).

B. S., Iowa State College, 1923.

H 53; 914 N. Manhattan.

HARRY WORKMAN AIMAN, A. B., Assistant Professor of Woodwork (1918; July 1, 1925); Foreman of Wood Shops (1916, 1919).

A. B., Oskaloosa College, 1921.

S 29B; 1116 Thurston.

HAROLD ALLEN, B. S., Assistant Professor of Applied Mechanics (1921; July 1, 1925); Assistant Engineer of Tests (1924).

B. S. in C. E., University of Colorado, 1920.

E 16; 1712 Poyntz.

3. Resigned.

ADA GRACE BILLINGS, B.S., Assistant Professor of History and Civics, Home-study Service, Division of College Extension (1921; July 1, 1925).

B. S., K. S. A. C., 1916.

A 5; 714 Moro.

MARCIA HALL, A.B., Assistant Professor of English, Home-study Service, Division of College Extension (1923; July 1, 1925).

A. B., University of Wisconsin, 1914.

A 5; 1610 Laramie.

ROBERT HENRY LUSH, M.S., Assistant Professor of Dairy Husbandry (1923; July 1, 1925).

B. S., K. S. A. C., 1921; M. S., University of Minnesota, 1923.

Ag 165; 1616 Osage.

JAMES WALTER LINN, B.S., Assistant Professor of Dairy Husbandry, Division of College Extension (1924; July 1, 1925).

B. S., K. S. A. C., 1915.

Ag 147; R. R. 2.

EARL MILO LITWILLER, B. S., Assistant Professor of Horticulture, Home-study Service, Division of College Extension (1924; July 1, 1925).

B. S., K. S. A. C., 1924.

A 5; 1001 Bluemont.

STANLEY PAUL HUNT, B.S., Assistant Professor of Machine Design (1920; Sept. 1, 1925).

B. S., K. S. A. C., 1919.

E 209; 522 Vattier.

MARY ELIZABETH POLSON, A. M., Assistant Professor of Clothing and Textiles (1920; Sept. 1, 1925).

B. S., K. S. A. C., 1916; A. M., University of Chicago, 1924.

L 53; 830 Bertrand.

RUSSELL MARION KERCHNER, B.S., Assistant Professor of Electrical Engineering (1922; Sept. 1, 1925).

B. S., University of Illinois, 1922.

E 24; 1116 Bluemont.

GEORGE DAVID PALMER, JR., Ph.D., Assistant Professor of Organic Chemistry (1924; Sept. 1, 1925).

B. S., Clemson College, 1919; A. M., Johns Hopkins University, 1921; Ph. D., *ibid.*, 1924.

C 56; 1116 Bluemont.

SUZANNE PASMORE, Assistant Professor of Piano (1924; Sept. 1, 1925).

Certified Pupil of Prof. Xaver Scharwenka, Berlin, Germany.

MA 6; 1318 Fremont.

GENEVA GRACE WATSON, B.S., Assistant Professor of Physical Education for Women (1923; Sept. 1, 1925).

B. S., University of Chicago, 1921.

N 8; 1715 Anderson.

LUCILE OSBORN RUST, B.S., Assistant Professor of Education (1924; Sept. 1, 1925).

B. S., Kansas State Teachers College, Pittsburg, 1921; M. S., K. S. A. C., 1925.

G 29; 908 Leavenworth.

ARTHUR FREMONT BOWEN, Capt. Inf., U. S. A., Assistant Professor of Military Science and Tactics (July 3, 1925).

N 26; 1621 Humboldt.

MAYNARD WILSON BROWN,⁴ M.S., Assistant Professor of Industrial Journalism (Sept. 1, 1925).

B. S. in Agr. Jour., University of Wisconsin, 1923; M. S., *ibid.*, 1924.

K 30; 814 Leavenworth.

LEILA ELISABETH DUNTON, M.S., Assistant Professor of Food Economics and Nutrition (Sept. 1, 1925).

B. S., K. S. A. C., 1910; M. S., *ibid.*, 1912; M. S., University of Wisconsin, 1922.

L 28; 1718 Fairview.

4. Appointed for the year, 1925-'26.

HAZLEY THOMAS GROODY, M.D., Assistant Physician, Department of Student Health (Sept. 1, 1925).

B. Sc., Valparaiso University, 1909; M. D., Chicago College of Medicine and Surgery, 1913. A 59; 514 N. Juliette.

RALPH LANGLEY PARKER, Ph.D., Assistant Professor of Apiculture and Entomology (Sept. 1, 1925).

B. S., Rhode Island State College, 1915; Sc. M., Brown University, 1917; M. S., Iowa State College, 1922; Ph. D., Cornell University, 1925. F 76D; 1203½ Moro.

EDWIN DONALD SAYRE, M. B., Assistant Professor of Voice (Sept. 1, 1925).

A. B., De Pauw University, 1923; M. B., School of Music, *ibid.*, 1925. MA 9; 322 N. Seventeenth.

JULES V. SIMS, First Lieut., Inf., U. S. A., Assistant Professor of Military Science and Tactics (Sept. 1, 1925).

N 26; 431 Leavenworth.

MARY ABIGAIL WORCESTER, M.S., Assistant Professor of Home Economics, in Charge of Specialists in Home Economics, Division of College Extension (Dec. 1, 1925).

B. S., University of New Hampshire, 1917; M. S., K. S. A. C., 1924. A 36; 830 Bertrand.

BENJAMIN SPIETH, M.E., Assistant Professor of Applied Mechanics (Jan. 1, 1926).

B. Sc. in M. E., University of Nebraska, 1916; M. E., University of Wisconsin, 1921. E 208; 719 Osage.

LOUIS PIERCE WASHBURN, B.P.E., Assistant Professor of Physical Education for Men (Feb. 1, 1926).

B. S., Carleton College, 1907; B. P. E., International Y. M. C. A. College, Springfield, Mass., 1911. N 36; 1116 Bluemont.

ASSOCIATES

HOWARD ROBERT DEROSE, Associate in Food Analysis (1919).

W 26; 1409 Anderson.

ROLLA WILLIAMS TITUS, A.M., Associate in Feed-stuffs Analysis (1923).

A. B., Washburn College, 1909; A. M., University of Kansas, 1914. C 14; 1230 Pierre.

ARTHUR MAXWELL BRUNSON,⁷ Ph.D., Associate in Plant Breeding, Agricultural Experiment Station (1923); Associate Professor of Plant Breeding (Feb. 1, to May 1, 1926).

B. S., University of Illinois, 1913; M. S., *ibid.*, 1919; Ph. D., Cornell University, 1923. Ag 302; 1730 Fairview.

INSTRUCTORS

EDWARD GRANT, Instructor in Molding (1913); Foreman of Foundry (1913).

S 42; 1733 Laramie.

INA EMMA HOLROYD, B.S., Instructor in Mathematics (1900, 1904).

B. S., K. S. A. C., 1897; B. S., Kansas State Teachers College, Emporia, 1916. A 62A; 1001 Moro.

EMMA FLORA FECHT, Instructor in Clothing and Textiles (1913, 1914).

Graduate, Bradley Polytechnic Institute, 1912. L 55; 315 N. Sixteenth.

STELLA MAUDE HARRISS, M.S., Instructor in Chemistry (1917, 1918).

B. S., K. S. A. C., 1917; Graduate, (Peru) Nebraska State Normal School, 1908; M. S., K. S. A. C., 1919. W 26; 1637 Osage.

7. In coöperation with the U. S. Department of Agriculture.

- KATHERINE MAXWELL BOWER, A. M., Instructor in English (1918, 1919).
B. S., K. S. A. C., 1915; A. M., University of Kansas, 1924. A 54; 817 Poyntz.
- W. PEARL MARTIN, R. N., Instructor in Home Health and Sanitation, Division of College Extension (1919).
Graduate, Christ's Hospital, Topeka. A 36; 930 Osage.
- S. FRED PRINCE, Biological Artist (1918, 1919).
Ag 363; 925 Thurston.
- MARY FIDELIA TAYLOR,¹ B. S., Instructor in Physics (1919).
B. S., K. S. A. C., 1919. C 36; 350 N. Sixteenth.
- LOUISE HELEN EVERHARDY,¹ A. M., Instructor in Applied Art (1919, 1920).
Graduate, New York School of Fine and Applied Art, 1916; B. S., Columbia University, 1925; A. M., *ibid.*, 1926. A 67B; 1109 Kearney.
- ANNABEL ALEXANDER GARVEY, A. M., Instructor in English (1920).
A. B., Wellesley College, 1912; A. M., University of Kansas, 1914. A 54; 1605 Leavenworth.
- HELEN DOROTHY RUSHFELDT, A. M., Instructor in English (1920).
A. B., University of Minnesota, 1915; A. M., Columbia University, 1920. A 61; 513 N. Sixteenth.
- MARION COFFEE, First Sergt., U. S. A., Instructor in Military Training (1920).
N 26; R. R. 8.
- ESTHER BRUNER, M. S., Instructor in Chemistry (1920).
B. S., K. S. A. C., 1920; M. S., *ibid.*, 1921. W 26; 311 Denison.
- HARRIET WRIGHT ALLARD,³ B. S., Instructor in Household Economics, Division of College Extension (1917, 1921-Dec. 31, 1925).
B. S., K. S. A. C., 1923. A 36; 1005 Vattier.
- DOROTHY JOSEPHINE CASHEN, M. S., Instructor in Botany (1919, 1921).
B. S., Carthage College, 1917; M. S., K. S. A. C., 1920. H 57; 1605 Leavenworth.
- HENRY WHITE MARSTON, M. S., Instructor in Animal Husbandry (1919, 1921).
B. S. A., Delaware State College, 1919; M. S., K. S. A. C., 1921. Ag 18; 1638 Laramie.
- ALBERT JOSEPH SCHOTH, B. S., Instructor in Garden and Farm Crops, Division of College Extension (1921).
B. S., Oregon Agricultural College, 1918. Ag 215; 1115 Bluemont.
- NELLIE ABERLE, M. S., Instructor in English (1921).
B. S., K. S. A. C., 1912; M. S., *ibid.*, 1914. A 56; 1442 Fairchild.
- CLARA BOGUE, A. M., Instructor in English (1921).
B. S. in Ed., Kansas State Teachers College, Emporia, 1919; A. M., University of Chicago 1921. A 56; 1445 Laramie.
- CECIL AGUILA GUNNS, Instructor in Zoölogy (1921).
F 76B; 926 Vattier.
- CHARLES NITCHER,² B. S., Instructor in Animal Husbandry, Home-study Service, Division of College Extension (1921).
B. S., K. S. A. C., 1921. A 5; 415 N. Sixteenth.
- JESSE EARL SELLERS, B. S. in Ch. E., Instructor in Chemistry (1921).
B. S. in Ch. E., University of Colorado, 1921. W 30; 1116 Bluemont.

1. Absent on leave, year 1925-'26.

2. Absent on leave, Oct. 1, 1925, to Sept. 30, 1926.

3. Resigned.

ELLEN MARGARET BATCHELOR, B.S., Assistant State Home Demonstration Leader, Division of College Extension (1917, 1921).

B. S., K. S. A. C., 1911.

A 36; 1649 Fairchild.

MAYNARD HENRY COE, B.S., Instructor in Animal Husbandry, Division of College Extension (1922); Acting State Club Leader, Division of College Extension (Oct. 1, 1925).

B. S., University of Minnesota, 1917.

A 35; 336 N. Sixteenth.

COMMODORE FOOTE COOL, A.B., Instructor in Carpentry (1922).

Graduate, Kansas State Teachers College, Emporia, 1893; A. B., Kansas Normal College, 1897; B. O., *ibid.*, 1897.

S 29; 1006 Bluemont.

MATTHEW JOSEPH CONNOLLY, Sergt. Inf., U. S. A., Instructor in Military Science and Tactics (1921, 1922).

N 26; 400 Leavenworth.

HOWARD PINKERTON,³ Instructor in Shop Practice (1922-Jan. 31, 1926).

WILLIAM CHARLES JANES, A.M., Instructor in Mathematics (1922).

B. S., Northwestern University, 1919; A. M., University of Nebraska, 1922.

S 55; 1126 Laramie.

MENDEL ELMER LASH, M.S., Instructor in General Chemistry (1922).

A. B., Ohio State University, 1920; M. S., *ibid.*, 1922.

C 10; 1116 Bluemont.

THIRZA ADALINE MOSSMAN, A.M., Instructor in Mathematics (1922).

A. B., University of Nebraska, 1916; A. M., University of Chicago, 1922.

A 62A; 1700 Laramie.

WILLIAM HOBSON ROWE, A.B., Instructor in Mathematics (1922).

A. B., University of Michigan, 1922.

S 56; 1809 Leavenworth.

NAOMI BERTHA ZIMMERMAN, M.S., Instructor in Zoölogy (1922).

B. S., University of Nebraska, 1919; M. S., *ibid.*, 1922.

F 62; 1433 Anderson.

ROY WILSON WAMPLER, M.S., Instructor in Chemistry (1921, 1922).

A. B., McPherson College, 1920; M. S., K. S. A. C., 1921.

C 10; 819 Kearney.

WILLIAM RUSSELL HINSHAW, D. V. M., Instructor in Bacteriology (1923).

D. V. M., Michigan Agricultural College, 1923.

V 53; 1416 Humboldt.

ELIZABETH AUSTIN, B.S., Assistant Reference Librarian (1923).

B. S., Simmons College, 1923.

F 27; 1723 Leavenworth.

JOHN FLOWER BULLARD,³ D. V. M., Instructor in Surgery and Medicine (1923; Jan. 31, 1926).

D. V. M., Cornell University, 1922.

JULIAN ADAIR HODGES, M.S., Instructor in Agricultural Economics (1923).

B. S. Agr., University of Kentucky, 1917; M. S. in Agr. Ec., *ibid.*, 1923.

Ag 348; 1718 Houston.

JESSIE GULICK, Acting Head Cataloguer in Library (1907, 1923).

F 27; 421 N. Sixteenth.

ETHEL MAY ARNOLD, A.M., Instructor in Applied Art (1922, 1923).

B. S., K. S. A. C., 1918; Graduate, French-American School of Costume Designing, Los Angeles, 1921; A. M., University of Chicago, 1925.

A 68; College Hill.

INEZ GERTRUDE ALSOP, M.S., Instructor in History and Civics (1923).

B. S., Kansas State Teachers College, Emporia, 1916; M. S., University of Kansas, 1920.

F 1; 1610 Laramie.

BOYD BERTRAND BRAINARD, B.S., Instructor in Mechanical Engineering (1923).

B. S. in M. E., University of Colorado, 1922.

E 109; 915 Bluemont.

3. Resigned.

ERNEST KNIGHT CHAPIN, M.S., Instructor in Physics (1923).

A. B., University of Michigan, 1918; M. S., *ibid.*, 1923. C 57; 1208 Bluemont

WILLIAM WESLEY CRAWFORD, M. Di., Instructor in Civil Engineering (1923).

A. B., State University of Iowa, 1912; B. S. in C. E., Iowa State College, 1917; M. Di., Iowa State Teachers College, 1905. E 220; 715 Poyntz.

JEAN SWIFT DOBBS, M. S., R. N., Instructor in Household Economics (1923).

B. S., Northwestern University, 1923; R. N., Evanston Hospital, 1922; M. S., K. S. A. C., 1925. L 40; 318 N. Fifth.

RANDOLPH FORNEY GINGRICH, B.S.C.E., Instructor in Machine Design (1923).

B. S. C. E., University of Nebraska, 1923. S 51; 920 Pierre.

ORVILLE DON HUNT, B.S. in E. E., Instructor in Electrical Engineering (1923).

B. S. in E. E., Washington State College, 1923. E 24; 1822 Poyntz.

REED FRANKLIN MORSE, B.S., Instructor in Civil Engineering (1923).

A. B., Cornell College, 1821; B. S., Iowa State College, 1923. E 220; 358 N. Fifteenth.

EDNA MARIE WILLMANN, A. B., Instructor in Modern Languages (1923).

A. B., University of Kansas, 1917. A 70; 900 Leavenworth.

PHILIP ANTON WILLIS, B. S., Instructor in Mechanical Engineering (1923).

B. S. in M. E., Montana State College, 1922. E 109; 1116 Bluemont.

ARTHUR WEBER, B. S., Instructor in Animal Husbandry (1923).

B. S., K. S. A. C., 1922. Ag 19; 359 N. Fifteenth.

WILLIAM REDMOND MARTIN, JR., B. S., Instructor in Horticulture, Division of College Extension (1924).

B. S., K. S. A. C., 1917. H; 1116 Bluemont.

LEONARD HUGHES CHURCH, B. S. in E. E., Instructor in Electrical Engineering (Jan. 1, 1924).

B. S. in E. E., Purdue University, 1923. E 24; 1116 Bluemont.

LORETTA McELMURRY, B. S., Instructor in Clothing and Textiles, Division of College Extension (1924).

B. S., South Dakota State College, 1901. A 26; 406 Leavenworth.

CHARLOTTE ELIZABETH BIESTER,¹⁰ B. S., Assistant State Club Leader, Division of College Extension (1924).

B. S., University of Illinois, 1921. A 35; 1212 Fremont.

CONIE CAROLINE FOOTE, B. S., Specialist in Foods and Nutrition, Division of College Extension (1924).

B. S., K. S. A. C., 1921. A 36; 513 N. Sixteenth.

JOHN WALLACE LUMB, D. V. M., Instructor in Veterinary Medicine, Division of College Extension (July 1, 1924).

D. V. M., K. S. A. C., 1910. V 31; 1026 Poyntz.

HENRY EVERT WICHES, M. S., Instructor in Rural Architecture (July 1, 1924).

B. S. in Arch., K. S. A. C., 1924; M. S. in Arch., *ibid.*, 1925. E 224; 1501 Humboldt.

EMILY MAY BENNETT, M. S., Instructor in Food Economics and Nutrition (1922; Sept. 1, 1924).

A. B., University of Illinois, 1921; M. S., K. S. A. C., 1924. L 47; 830 Bertrand.

MILDRED HAZEL THORNBURG, B. M., Instructor in Piano (1923; Sept. 1, 1924).

B. M., K. S. A. C., 1923. M 55; 920 Moro.

10. Transferred to home demonstration service, Jan. 1, 1926.

MARGARET AHLBORN, M. S., Instructor in Food Economics and Nutrition (1923, 1924).

A. B., University of Kansas, 1906; M. S., K. S. A. C., 1924. L 47; 315 N. Fifteenth.

MADALYN AVERY, B. S., Instructor in Physics (Sept. 1, 1924).

B. S., K. S. A. C., 1924. C 36; 601 N. Sixteenth.

JOHN MACDONALD BARSTOW, M. S., Instructor in Physics (Sept. 1, 1924).

B. S., Washburn College, 1923; M. S., University of Kansas, 1924. C 57; 1223 Poyntz.

MARY BIGELOW BROWNELL, A. M., Instructor in Modern Languages (Sept. 1, 1924).

A. B., University of Nebraska, 1921; A. M., University of Illinois, 1924. A 71; 1605 Leavenworth.

JAMES PHILIP CALLAHAN, B. S., Instructor in English (Sept. 1, 1924).

B. S., Kansas State Teachers College, Hays, 1919. A 64; 715 Houston.

WILLARD BRYANT HAFFORD, M. S. M. E., Instructor in Machine Design (Sept. 1, 1924).

B. S. M. E., Ohio State University, 1920; M. S. M. E., Purdue University, 1924. E 209; 1116 Bluemont.

JOHN FREDERICK HELM, JR., B. D., Instructor in Free-hand Drawing (Sept. 1, 1924).

B. D., Syracuse University, 1924. E 308; 1204 Fremont.

BENJAMIN WILLIAM LAFENE, B. S., Instructor in Bacteriology (Sept. 1, 1924).

B. S., Michigan Agricultural College, 1923. V 52; 1416 Humboldt.

ETHEL JUSTIN MARSHALL, B. S., Instructor in Home Economics, Home-study Service, Division of College Extension (1924).

B. S., K. S. A. C., 1910. A 5; 1529 Humboldt.

OLIVER MASSENGALE, M. S., Instructor in Chemistry (1924).

B. S., Alabama Polytechnic Institute, 1918; M. S., Iowa State College, 1924. W 29; 1116 Bluemont.

HARRIET SHIPLEY PARKER, A. M., Instructor in English (Sept. 1, 1924).

A. B., University of Kansas, 1909; A. M., Washington University, 1912. A 53; 1424 Fairchild.

WILLIAM HUGH RIDDLE, B. S. A., Instructor in Dairy Husbandry (Sept. 1, 1924).

B. S. A., University of British Columbia, 1922; M. S., University of Minnesota, 1924. Ag 145; 1116 Bluemont.

LEO SPURRIER, A. M., Instructor in Economics (1924).

A. B., University of Kansas, 1923; A. M., *ibid.*, 1924. A 74; 1923 Leavenworth.

HELEN IRENE BROWN, B. S., Loan Assistant in Library (1924).

B. S., Simmons College, 1924. F 26; 315 Denison.

GEORGIANA SMURTHWAITE, B. S., Instructor in Foods and Nutrition, Division of College Extension (Dec. 12, 1924).

B. S., Utah Agricultural College. A 36; 1715 Anderson.

MAUD ELIZABETH DEELEY, B. S., Instructor in Clothing and Textiles, Division of College Extension (1923, 1925).

B. S., K. S. A. C., 1923. A 36; 618 N. Eleventh.

FRANCIS DALE PUGH, Sergt. Inf., U. S. A., Instructor in Military Science and Tactics (1925).

N 26; 826 Vattier.

IRVIN CECIL BROWN, M. S., Instructor in Chemistry (1925).

B. S., Tarkio College, 1920; M. S., University of Iowa, 1921. D 30; 1116 Bluemont.

KENNETH MILLER RENNER, B.S., Instructor in Dairy Husbandry (1921; July 1, 1925).

B. S., Iowa State College, 1921.

Ag 147; 1127 Kearney.

HARRY RAY BRYSON, M.S., Instructor in Entomology (1924; July 1, 1925).

B. S., K. S. A. C., 1917; M. S., *ibid.*, 1924.

F 79C; 1821 Leavenworth.

MORSE HENDERSON SALISBURY, B.S., Instructor in Industrial Journalism and Printing, (1924; July 1, 1925).

B. S., K. S. A. C., 1924.

K 27; 1116 Bluemont.

HAZEL THOMPSON, Supervisor of Vocational Home Making, Department of Education (July 1, 1925).

MYRA ISABELLA WADE, A. B., Instructor in Physical Education for Women (1922; Sept. 1, 1925).

A. B., Oberlin College, 1917.

N 1; 315 Denison.

ELMA RUTH STEWART, M.S., Instructor in Household Economics (1924; Sept. 1, 1925).

B. S., K. S. A. C., 1921; M. S., *ibid.*, 1925.

T 30; 613 N. Sixteenth.

ORPHA MAUST, M.S., Instructor in Psychology (Feb. 1, 1925; Sept. 1, 1925).

B. S., K. S. A. C., 1922; M. S., *ibid.*, 1923.

G 28; 1743 Fairchild.

OSCEOLA HALL BURR, M.S., Instructor in Public Speaking (1923; Sept. 1, 1925).

B. S., K. S. A. C., 1923; M. S., *ibid.*, 1925.

G 55; 1811 Humboldt.

VERNON EVERETT BUNDY, B.S., Instructor in English (Sept. 1, 1925).

B. S., K. S. A. C., 1920.

A 64; 510 N. Eighth.

OSCAR MILES CHILCOTT,⁶ Instructor in Mathematics (Sept. 1, 1925).

S 55; 1318 Laramie.

MAURINE SMITH CONOVER, Instructor in Voice (Sept. 1, 1925).

Graduate in Music, Kansas State Teachers College, Emporia, 1917. MA 13; 1203 Moro.

ARTHUR GRAHAM, Instructor in Piano (Sept. 1, 1925).

Artists' Diploma, College of Music and Fine Arts, Indiana University, 1923.

MA 1; 322 N. Eleventh.

HENRY MILES HEBERER, A.B., Instructor in Public Speaking (Sept. 1, 1925).

A. B., University of Illinois, 1922.

G 55; 512 N. Denison.

DONALD DAVID HILL,⁴ B.S., Instructor in Crop Improvement (Sept. 1, 1925).

B. S., Oregon Agricultural College, 1925.

Ag 102; 1106 Laramie.

HAROLD HOWE, M.S., Instructor in Agricultural Economics (Sept. 1, 1925).

B. S., K. S. A. C., 1922; M. S., University of Maryland, 1923.

Ag 345; 1929 Leavenworth.

ALICE CLAYPOOL JEFFERSON,⁴ Instructor in Piano (Sept. 1, 1925).

Graduate, American Conservatory of Music, 1921.

MA 2; 1517 Leavenworth.

LOUIS MARK JORGENSEN, B.S., Instructor in Electrical Engineering (Sept. 1, 1925).

B. S., K. S. A. C., 1905.

E 25; 927 Humboldt.

ELBERT WILLARD LARSON,⁴ M.S., Instructor in Physics (Sept. 1, 1925).

A. B., Bethany College, 1919; B. S., K. S. A. C., 1925; M. S., *ibid.*, 1925.

C 34; 1001 Kearney.

KATHLEEN ANNE MCKITRICK, B. Mus., Instructor in Piano (Sept. 1, 1925).

B. Mus., Northwestern University, 1925.

MA 52; 1201 Moro.

4. Appointed for the year 1925-'26.

6. Temporary appointment.

- HUBERT WHATLEY MARLOW, B.S., Instructor in Chemistry (Sept. 1, 1925).
B. S., North Texas Teachers College, 1925. W 31; 913 Humboldt.
- RICHARD LAWRENCE PYCHA, B.S., Instructor in Chemistry (Sept. 1, 1925).
B. S., K. S. A. C., 1925. D 28; 412 N. Eighth.
- VIVIAN GORDON REYNOLDS, A.B., General Assistant in Library (Sept. 1, 1925).
A. B., University of West Virginia, 1921. F 27; 1449 Laramie.
- MARJORIE KATHERINE SCHOBEL, Instructor in Voice (Sept. 1, 1925).
Graduate, Monticello Seminary, 1916. MA 10; 1210 Moro.
- IRMA SMITH, B. Mus., Instructor in Piano (Sept. 1, 1925).
B. Mus., Illinois Wesleyan College of Music, 1925. MA ; 326 N. Sixteenth.
- RAYMOND COFFEY STALEY, A.B., Instructor in Mathematics (Sept. 1, 1925).
A. B., University of Colorado, 1916. A 64; 617 Poyntz.
- HANZ URBAN WAKEFIELD, JR.,³ M.S., Instructor in Chemistry (Sept. 1, 1925-Dec. 31, 1925).
B. S., Vanderbilt University, 1924; M. S., Iowa State College, 1925.
- ESTHER STONEBERG ZERBY,⁴ Instructor in Mathematics (Sept. 1, 1925).
Graduate, Paris Institute, Big Rapids, Mich., 1916. Wareham Apts.
- HARRY STEPHEN BUECHE, B.S., Instructor in Electrical Engineering (Sept. 26, 1925).
B. S. in E. E., Villanova College, 1922; E. E., *ibid.*, 1924. E 19; 1116 Bluemont.
- GEORGE MONTGOMERY,⁴ B.S., Instructor in Animal Husbandry, Home-study Service, Division of College Extension (Oct. 1, 1925).
B. S., K. S. A. C., 1925. A 5; 411 N. Sixteenth.
- CHESTER D. TOLLE, B.S., Instructor in Chemistry (Oct. 5, 1925).
B. S., K. S. A. C., 1924. W 30; 918 Bertrand.
- PRESTON MAYNE HARRIS, A. M., Instructor in Chemistry (Oct. 6, 1925).
A. B., Wittenberg College, 1924; A. M., Ohio State University, 1925. D 30; 931 Leavenworth.
- ROSE FINLEY MACK, B.S., Instructor in Clothing and Textiles, Division of College Extension (Oct. 15, 1925).
B. S., Kansas State Teachers College, Emporia, 1924.
- JOSEPHINE FRANCES HEMPHILL, B.S., Instructor in Industrial Journalism (Dec. 1, 1925).
B. S., K. S. A. C., 1924. K 27; 1212 Fremont.
- EDWARD AMIN ABDUN-NUR, B.S., Instructor in Applied Mechanics (Jan. 1, 1926).
A. B., American University of Beirut, 1922; B. S., Massachusetts Institute of Technology, 1924. E 113; 1116 Bluemont.
- ARTHUR CLINTON ANDREWS, B.S., Instructor in Chemistry (Feb. 1, 1926).
B. S., University of Wisconsin, 1924. D 30; 1116 Bluemont.
- ELDEN EMANUEL LEASURE, D. V. M., Instructor in Pathology (Feb. 1, 1926).
D. V. M., K. S. A. C., 1923. V 55A; 1711 Fairchild.
- LINUS BURR SMITH,⁶ B.S., Instructor in Architecture (Feb. 1, 1926-June 30, 1926).
B. S., K. S. A. C., 1926.

3. Resigned.

4. Appointed for the year 1925-'26.

6. Temporary appointment.

EDITH TITUS TOLLE,⁸ A. B., Instructor in Modern Languages (Feb. 1, 1926).
A. B., Washburn College, 1915. A 71; 918 Bertrand.

EDWARD RAYMOND FRANK, D. V. M., Instructor in Surgery and Medicine (Mar. 1, 1926).
B. S. in Agr., K. S. A. C., 1918; D. V. M., *ibid.*, 1924. VH 53; 930 Fremont.

ASSISTANTS

FRANK ANDREW DAWLEY,³ B. S., Field Supervisor of Federal Vocational Trainees, Division of College Extension (1917-Jan. 31, 1926).
B. S., K. S. A. C., 1895.

ALANSON LOLA HALLSTED, B. S., Assistant in Dry Farming, Fort Hays Branch Agricultural Experiment Station (1910).
B. S., K. S. A. C., 1903. Hays, Kan.

NELLIE MAY, Postmistress (1911).
A 44; R. F. D. 2.

HATTIE HELEN WHITE, Secretary, Business Office (1912).
A 27; 717 Laramie

ROBERT GETTY,⁷ B. S. A., Assistant in Forage Crops, Fort Hays Branch Agricultural Experiment Station (1913).
B. S. A., University of Nebraska, 1913. Hays, Kan.

HUGH DURHAM, A. M., Assistant to the Dean, Division of Agriculture (1915); Assistant to the Director, Agricultural Experiment Station (1915, 1918).
Graduate, Kansas State Normal School, 1901; A. B., University of Kansas, 1909; A. M., *ibid.*, 1915. Ag 30; 730 Osage.

MABEL GERTRUDE BAXTER, Assistant in Charge of Continuations, College Library (1916, 1918).
F 31; 1624 Fairchild.

LESTER HENRY DRAYER, Engineer, Heat and Power Department (1916; July 1, 1925).
E 3; 1735 Laramie.

ELISABETH PERRY HARLING, Seed Analyst (1912, 1917).
Ag 77; 628 Fremont.

HENRY JAMES ALLEN, Assistant in Heat and Power (1914, 1917).
E 27; 330 Vattier.

GEORGE HERBERT PHINNEY, Assistant in Agronomy (1917); Foreman of Agronomy Farm (1917).
Graduate, Topeka Business College, 1903. Agronomy Farm.

MARY KIMBALL, B. S., Assistant to the Registrar (1918).
B. S., K. S. A. C., 1907. A 29; 1311 Laramie.

MYRTLE EVELYN ZENER, Secretary to the Vice President (1918).
A 49; 1423 Fairchild.

CHESTER WILLIS OAKES, Miller, Department of Milling Industry (1918).
Ag 198A; 1326 Houston.

LOUISE SCHWENSEN, Secretary to the Dean, Division of Engineering (1915, 1918).
E 115; 1800 Fairchild.

3. Resigned.

7. In coöperation with the U. S. Department of Agriculture.

8. Appointed for the second semester, 1925-'26.

- BRUCE BUNYAN SMITH, Assistant in Agricultural Engineering (1918).
Bks. 2; 830 Laramie.
- ALICE MAUDE MELTON, B.S., Secretary to the Dean, Division of General Science (1900, 1919).
B. S., K. S. A. C., 1898. A 49; 907 Osage.
- JOHN VICTOR ROLANDER, Assistant in Heat and Power (1919).
E 27; 517 Kearney.
- EDWARD L. CLAEREN, Major, U. S. R., Supply Officer, Department of Military Science and Tactics (1910, 1919).
N 27; 900 Pierre.
- MARY ELVA CROCKETT, Secretary to the Dean, Division of Home Economics (1919).
L 29; 1418 Colorado.
- GRACE ELLEN UMBERGER, B.S., R.N., Head Nurse, Department of Student Health (1919).
B. S., K. S. A. C., 1905; R. N., Illinois Training School for Nurses, 1909.
A 65; 1412 Leavenworth.
- ARTHUR FRITHIOF SWANSON, B.S., Assistant in Cereal Investigations, Fort Hays Branch Agricultural Experiment Station (1919).
B. S., K. S. A. C., 1919. Hays, Kan.
- DELFA MARY HAZELTINE, Secretary to the Dean, Division of College Extension (1920).
Graduate, Lawrence Business College. A 33; 817 Poyntz.
- CHARLES OTIS JOHNSON,⁷ M.S., Assistant Plant Pathologist, Agricultural Experiment Station (1920).
B. S., K. S. A. C., 1918; M. S., K. S. A. C., 1923. H 53; 1323 Laramie.
- CLARENCE OSBORN PRICE, Assistant to the President (1920).
A 32; 412 Moro.
- RALPH DALE NICHOLS, B.S., Research Assistant in Agricultural Economics (1920).
B. S., K. S. A. C., 1920. Fort Scott, Kan.
- DONALD DEWITT WILSON, Nurseryman, Fort Hays Branch Agricultural Experiment Station (1921).
Hays, Kan.
- JOSEPH FARRINGTON MERRILL, B.S., Assistant Chemist, Agricultural Experiment Station (1921).
B. S., University of Maine, 1907. C 3; 318 N. Sixteenth.
- SARAH ELIZABETH TRACY, Secretary to the President (1922).
A 30; 7 Paddleford Apts.
- FLOYD JOSEPH HANNA, Assistant in Department of Illustrations (1922).
I; 1612 Leavenworth.
- EMBERT HARVEY COLES,⁷ B.S., Assistant in Dry-land Agriculture Investigations, Garden City Branch Agricultural Experiment Station (1922).
B. S., K. S. A. C., 1922. Garden City, Kan.
- KATHERINE FAULCONER, Assistant to Registrar (1922).
A 29; 1016 Pierre.
- CLARA LISSETTE OTT, Assistant to Registrar (1922).
A 29; 931 Laramie.

7. In coöperation with the U. S. Department of Agriculture.

SAMUEL PICKARD,³ B.S., Extension Editor (1923-Dec. 31, 1925).

B. S., K. S. A. C., 1923.

JAY WEBSTER STRATTON,³ B.S., Field Supervisor of Vocational Trainees (1924-Jan. 31, 1926).

B. S., K. S. A. C., 1916.

A 2; 914 N. Manhattan.

MURRAY ALDERSON WILSON,⁷ B.S. in C.E., Research Assistant in Coöperative Investigations on Atmospheric Resistance to Movement of Motor Vehicles (1924).

A. B., Baker University, 1916; B. S. in C. E., K. S. A. C., 1922. E 14; 1745 Laramie.

WALTER JOHN BURTIS,³ B.S., Field Supervisor of Federal Vocational Trainees, Division of College Extension (1924-Jan. 31, 1926).

B. S., K. S. A. C., 1887.

Ã 2; R. R. 1.

CLARA MAGDALENE SIEM, Financial Secretary, Division of College Extension (1920, 1924).

A 33; 601 N. Sixteenth.

WALTER HENRY VON TREBRA, B.S., Scientific Assistant, Colby Branch Agricultural Experiment Station (1924).

B. S., K. S. A. C., 1924.

Colby, Kan.

VIDA AGNES HARRIS, B.S., Assistant in Applied Art (1924).

B. S., K. S. A. C., 1914.

A 68; R. R. 1.

ANDREW EDWARD OMAN,⁷ M. F., Specialist in Rodent Control, Division of College Extension (1923).

B. S., K. S. A. C., 1900; M. F., Yale University, 1906.

A 34; 1207 Houston.

FLORENCE LILLIAN DIAL, B.S., Class Reserves Assistant in Library (1923).

B. S., K. S. A. C., 1919.

F 3; 1030 Moro.

FRED FOSTER GREELEY, Assistant in Shop Practice (1923).

S 30; 1010 Fremont.

WILLIAM HENRY IRWIN, Assistant in Shop Practice (1923).

S 29; R. R. 2.

REBECCA SALOME MEYER, R. N., Nurse in College Hospital (1923).

Graduate, Mary Thompson Hospital, Chicago, 1900.

College Hospital.

ROY MOORE, Specialist in Rodent Control Work, Division of College Extension (1923).

A 34A; 913 Leavenworth.

CARRIE ISABEL POTTER, M. S., Assistant in Genetics, Department of Zoölogy (1924).

B. S., Ottawa University, 1922; M. S. University of Iowa, 1924.

Insectary; 930 Laramie.

WALTER R. WEAVER, Assistant to Superintendent, Fort Hays Branch Agricultural Experiment Station (1925).

Hays, Kan.

MARIA MORRIS, B.S., Assistant in Applied Art (1925).

B. S., K. S. A. C., 1911; Graduate, New York School of Fine and Applied Art, 1924.

A 67; 816 N. Juliette.

FRANK HAROLD COLLINS, M. S., Assistant Chemist, Agricultural Experiment Station (Feb. 9, 1925).

B. S., K. S. A. C., 1920; M. S., University of Idaho, 1925.

C 4, 1031 Humboldt.

3. Resigned.

7. In coöperation with the U. S. Department of Agriculture.

GERALD LESLIE TAYLOR, Radio Operator, Division of College Extension (July 1, 1925).

N 83; 1215 Thurston.

JOHN G. WILLIER,⁷ Assistant Agronomist, Agricultural Experiment Station (July 3, 1925).

Ag 302; 1738 Fairchild.

HAZEL ELIZABETH TAYLOR, Secretary, Department of Education (Aug. 1, 1925).

G 28; 312 N. Fifteenth.

LUCILE BRICKNER, B.S., Assistant to the Dean of Women (Aug. 15, 1925).

B. S., Iowa State College, 1925.

A 61A; 1449 Laramie.

MARTIN F. FRITZ,⁴ M.S., Assistant in Education (1924; Sept. 1, 1925).

B. S., K. S. A. C., 1924; M. S., *ibid.*, 1925.

G 34; 515 N. Ninth.

ELLA CARNEY BARND, R.N., Nurse, Department of Student Health (Sept. 1, 1925).

R. N., Hahneman Hospital, Chicago, 1911.

A 64; College Hospital.

VERRAL JANICE CRAVEN, B.S., Graduate Assistant in the Department of Food Economics and Nutrition (Sept. 1, 1925).

B. S., K. S. A. C., 1915.

L 64; Erie, Kan.

ELLA JANET KEYS, R.N., Nurse, Department of Student Health (Sept. 1, 1925).

R. N., Research Hospital, Kansas City, Missouri, 1914.

College Hospital.

JEANNE MACBRIDE, Housekeeper in College Hospital, Department of Student Health (Sept. 1, 1925).

College Hospital.

RUTH EMMA TUCKER, M.S., Assistant in Food Economics and Nutrition (Sept. 1, 1925).

A. B., University of Illinois, 1923; M. S., *ibid.*, 1925.

L 69; 1641 Fairchild.

GRACE ELEANOR GIVIN,⁴ A.M., Assistant in History and Civics (Sept. 16, 1925).

A. B., University of Kansas, 1914; B. S. in Education, *ibid.*, 1916; A. M., University of Chicago, 1919.

F 1; 1503 Leavenworth.

PEARL MARIE MAUS, B.S., Assistant in Botany and Plant Pathology (Oct. 5, 1925).

B. S., Kansas State Teachers College, Emporia, 1924.

H 76B; 901 Fremont.

FLORENCE CLARKE SEWELL, A.B., Assistant in Research, Department of Clothing and Textiles. (Nov. 1, 1925).

A. B., University of Washington, 1916.

L 55; 315 N. Fifteenth.

SUPERINTENDENTS

LOUIS C. AICHER, B.S., Superintendent, Fort Hays Branch Agricultural Experiment Station (1921).

B. S. in Agr., K. S. A. C., 1910.

Hays, Kan.

JACOB LUND, M.S., Superintendent of Heat and Power, Emeritus (1893; July 1, 1925); Custodian of Buildings and Grounds (1893; July 1, 1925).

B. S., K. S. A. C., 1883; M. S., *ibid.*, 1886.

E 26B; 1414 Fairchild.

HAROLD BAYLISS MUGGLESTONE,³ Superintendent of Poultry Farm (1918-May 31, 1926).

Poultry Farm.

3. Resigned.

4. Appointed for the year 1925-'26.

7. In coöperation with the U. S. Department of Agriculture.

CHARLES WESLEY HOBBS, D.V.S., Superintendent of Vaccine Laboratories (1913, 1919).

D. V. S., Western Veterinary College, 1901.

V 31; 1328 Fremont.

GEORGE RICHARD PAULING, Superintendent of Maintenance, in Charge of Building and Repair, Custodian, and Heat and Power Departments (1916; July 1, 1925).

X 26; 1030 Humboldt.

FAY ARTHUR WAGNER, B.S., Superintendent, Garden City Branch Agricultural Experiment Station (1919).

B. S. in Agr., New Mexico Agricultural College, 1916.

Garden City, Kan.

BENJAMIN FRANCIS BARNES, B.S., Superintendent, Colby Branch Agricultural Experiment Station (1921).

Colby, Kan.

THOMAS BRUCE STINSON, B.S., Superintendent, Tribune Branch Agricultural Experiment Station (1924).

B. S., K. S. A. C., 1924.

Tribune, Kan.

AGRICULTURAL AGENTS ⁷

EVEREST JOHN MACY,³ B.S., Sedgwick County Agricultural Agent, Division of College Extension (1913, 1918-Dec. 31, 1925).

B. S., Earlham College, 1904.

Wichita, Kan.

FLOYD JOE ROBBINS, B.S., Franklin County Agricultural Agent, Division of College Extension (1917).

B. S., K. S. A. C., 1913.

Ottawa, Kan.

CHARLES D. THOMPSON, B.S.D., Neosho County Agricultural Agent, Division of College Extension (1918).

B. S. D., Warrensburg (Mo.) State Normal School, 1895.

Erie, Kan.

EDWARD H. LEKER, B.S.A., Leavenworth County Agricultural Agent, Division of College Extension (1918, 1922).

B. S. A., University of Missouri, 1917.

Leavenworth, Kan.

HERBERT LYNNE HILDWEIN, B.S., Sedgwick County Agricultural Agent, Division of College Extension (1917; Feb. 1, 1926); Kingman County Agricultural Agent, Division of College Extension (1917, 1918-Jan. 31, 1926).

B. S., K. S. A. C., 1914.

Wichita, Kan.

HAYS MARION COE, Montgomery County Agricultural Agent, Division of College Extension (1918).

Independence, Kan.

JOE MYRON GOODWIN, Atchison County Agricultural Agent, Division of College Extension (1919, 1923).

Effingham, Kan.

CHARLES ELMER CASSEL, B.S., Butler County Agricultural Agent, Division of College Extension (1912, 1923).

B. S., K. S. A. C., 1910.

Lyndon, Kan.

ALBERT BARNEY KIMBALL, B.S., Smith County Agricultural Agent, Division of College Extension (1918; May 1, 1925).

B. S., K. S. A. C., 1889.

Smith Center, Kan.

ROBERT ELLIOTT CURTIS, B.S., Ottawa County Agricultural Agent, Division of College Extension (1919, 1924).

B. S., K. S. A. C., 1916.

Minneapolis, Kan.

3. Resigned.

7. In cooperation with the U. S. Department of Agriculture.

- HERMAN FREDERICK TAGGE, B.S., Jackson County Agricultural Agent, Division of College Extension (1920, 1923).
B. S., K. S. A. C., 1914. Holton, Kan.
- JOHN ALBERT HENDRIKS, B.S.A., Anderson County Agricultural Agent, Division of College Extension (1920, 1924).
B. S. A., Iowa State College, 1913. Garnett, Kan.
- ERNEST LEE MCINTOSH, B.S., Osage County Agricultural Agent, Division of College Extension (1920, 1923).
B. S., K. S. A. C., 1920. Lyndon, Kan.
- HARRY CHARLES BAIRD, B.S., Ford County Agricultural Agent, Division of College Extension (1920).
B. S., K. S. A. C., 1914. Dodge City, Kan.
- CLARENCE OWEN GRANFIELD, B.S., Bourbon County Agricultural Agent, Division of College Extension (1920, 1923).
B. S., K. S. A. C., 1917. Fort Scott, Kan.
- ARTHUR I. GILKISON, Rice County Agricultural Agent, Division of College Extension (1920, 1923).
Lyons, Kan.
- CARL CARLSON,³ A.B., Rawlins County Agricultural Agent, Division of College Extension (1920, 1922-Jan. 4, 1926).
A. B., Southwestern College, 1914. Atwood, Kan.
- CARL LEWIS HOWARD, B.S., Pawnee County Agricultural Agent, Division of College Extension (1920, 1922).
B. S., K. S. A. C., 1920. Larned, Kan.
- CECIL LYMAN MCFADDEN, B.S., Lyon County Agricultural Agent, Division of College Extension (1920).
B. S., K. S. A. C., 1918. Emporia, Kan.
- ROY ELMER GWIN, B.S., Allen County Agricultural Agent, Division of College Extension (1921, 1924).
B. S., K. S. A. C., 1914. Iola, Kan.
- JOHN VERN HEPLER, B.S., Washington County Agricultural Agent, Division of College Extension (1921).
B. S., K. S. A. C., 1916. Washington, Kan.
- PAUL BERNARD GWIN, B.S., Geary County Agricultural Agent, Division of College Extension (1921; Oct. 1, 1925); Morris County Agricultural Agent, Division of College Extension (1921-Sept. 30, 1925).
B. S., K. S. A. C., 1916. Junction City, Kan.
- CHESTER EUGENE GRAVES, B.S., Wyandotte County Agricultural Agent, Division of College Extension (1921, 1923).
B. S., K. S. A. C., 1920. Kansas City, Kan.
- WILLIAM LOUIS TAYLOE, B.S.A., Crawford County Agricultural Agent, Division of College Extension (1921).
B. S. A., University of Missouri, 1917. Council Grove, Kan.
- JOHN JERRY INSKEEP, B.S., Sumner County Agricultural Agent, Division of College Extension (1921, 1923).
B. S., Purdue University, 1921. Wellington, Kan.
- ROLLA WADE MCCALL, B.S., Reno County Agricultural Agent, Division of College Extension (1921; Sept. 22, 1924).
B. S., K. S. A. C., 1921. Hutchinson, Kan.

- CHARLES HAROLD STINSON, B.S., Pratt County Agricultural Agent, Division of College Extension (1921, 1923).
B. S., K. S. A. C., 1921. Pratt, Kan.
- CLARENCE ROY JACCARD, B.S., Clay County Agricultural Agent, Division of College Extension (1922, 1924).
B. S., K. S. A. C., 1914. Clay Center, Kan.
- ROBERT E. WILLIAMS, B.S., Barton County Agricultural Agent, Division of College Extension (1922).
B. S., K. S. A. C., 1907. Great Bend, Kan.
- JOHN B. PETERSON, Johnson County Agricultural Agent, Division of College Extension (1922, 1924).
Olathe, Kan.
- HARRY CLIFFORD COLGLAZIER, B.S., Douglas County Agricultural Agent, Division of College Extension (1922).
B. S., K. S. A. C., 1918. Lawrence, Kan.
- WILLIAM HERBERT ROBINSON, B.S., Jefferson County Agricultural Agent, Division of College Extension (1923).
B. S., K. S. A. C., 1916. Oskaloosa, Kan.
- CLARENCE EUGENE AGNEW, B.S., Wilson County Agricultural Agent, Division of College Extension (1923, 1924).
B. S., K. S. A. C., 1923. Fredonia, Kan.
- LOUIS MEYERS KNIGHT, B.S., Gray County Agricultural Agent, Division of College Extension (1923).
B. S., K. S. A. C., 1923. Cimarron, Kan.
- CHARLES ENOCH LYNESS, B.S., Doniphan County Agricultural Agent, Division of College Extension (1923).
B. S., K. S. A. C., 1912. Troy, Kan.
- FRED WALLACE CALDWELL,³ D. V. M., Finney County Agricultural Agent, Division of College Extension (1923-Oct. 31, 1925).
D. V. M., K. S. A. C., 1907. Garden City, Kan.
- E. BRUCE BRUNSON, M. S. A., Cheyenne County Agricultural Agent, Division of College Extension (1923).
B. S., Hobart College, 1911; M. S. A., Cornell University, 1914. St. Francis, Kan.
- RAY LEIGHTON GRAVES, B.S., Harvey County Agricultural Agent, Division of College Extension (1923; May 1, 1925).
B. S., K. S. A. C., 1912. Newton, Kan.
- GEORGE W. SIDWELL, A.B., Ness County Agricultural Agent, Division of College Extension (1918, 1923).
A. B., Fairmount College, 1915. Ness City, Kan.
- WILLIAM HAROLD METZGER, B.S., Shawnee County Agricultural Agent, Division of College Extension (1923, 1924).
B. S., Purdue University, 1922. Topeka, Kan.
- SAMUEL DAVID CAPPER, B.S., Riley County Agricultural Agent, Division of College Extension (1923; Oct. 15, 1925); Lincoln County Agricultural Agent, Division of College Extension (1923-Oct. 14, 1925).
B. S., K. S. A. C., 1921. Manhattan, Kan.
- DONALD BRYAN IBACH, B.S., Rush County Agricultural Agent, Division of College Extension (1923).
B. S., K. S. A. C., 1923. La Crosse, Kan.

3. Resigned.

MOTT LUTHER ROBINSON, B.S., McPherson County Agricultural Agent, Division of College Extension (1923).

B. S., K. S. A. C., 1923.

McPherson, Kan.

HERMAN ALBERT BISKIE, B.S., Nemaha County Agricultural Agent, Division of College Extension (1923).

B. S., University of Nebraska, 1917.

Seneca, Kan.

JUNIUS WARREN FARMER, B.S., Greenwood County Agricultural Agent, Division of College Extension (1923).

B. S., K. S. A. C., 1923.

Eureka, Kan.

GILBERT LYNN CLELAND,³ B.S., Sherman County Agricultural Agent, Division of College Extension (1923-Mar. 4, 1926).

B. S., K. S. A. C., 1914.

Goodland, Kan.

WILLIAM O'CONNELL, B.S., Marshall County Agricultural Agent, Division of College Extension (1924).

B. S., K. S. A. C., 1916.

Marysville, Kan.

HORATIO WILLIAM KING, B.S.A., Dickinson County Agricultural Agent, Division of College Extension (1924).

B. S. A., Purdue University, 1920.

Abilene, Kan.

DANIEL MATTHEW BRAUM, B.S. in Agr., Coffey County Agricultural Agent, Division of College Extension (1924).

B. S. in Agr., K. S. A. C., 1924.

Burlington, Kan.

RALPH REUBEN McFADDEN, B.S. in Agr., Clark County Agricultural Agent, Division of College Extension (1924).

B. S. in Agr., K. S. A. C., 1921.

Ashland, Kan.

JOSEPH DANIEL BUCHMAN, B.S. in Agr., Miami County Agricultural Agent, Division of College Extension (1924).

B. S. in Agr., K. S. A. C., 1924.

Paola, Kan.

HOWARD LORAIN GIBSON, B.S., Cherokee County Agricultural Agent, Division of College Extension (1924).

B. S., Iowa State College, 1923.

Columbus, Kan.

CLARENCE GLADFELTER, B.S. in Agr., Chase County Agricultural Agent, Division of College Extension (1924).

B. S. in Agr., K. S. A. C., 1924.

Cottonwood Falls, Kan.

DWIGHT ELLSWORTH HULL, B.S. in Agr., Jewell County Agricultural Agent, Division of College Extension (1924).

B. S. in Agr., K. S. A. C., 1917.

Mankato, Kan.

LEONARD NEFF, B.S. A., Cloud County Agricultural Agent, Division of College Extension (1925).

B. S. A., Purdue University, 1922.

Concordia, Kan.

JOHN EVANS NORTON, B.S. in Agr., Meade County Agricultural Agent, Division of College Extension (1925).

B. S. in Agr., K. S. A. C., 1925.

Meade, Kan.

HARRY ELIJAH RATCLIFFE, M.S., Comanche County Agricultural Agent, Division of College Extension (1925).

B. S., K. S. A. C., 1923; M. S., *ibid.*, 1925.

Coldwater, Kan.

EDWARD AICHER, D. V. S., Harper County Agricultural Agent, Division of College Extension (1925).

D. V. S., Colorado State College, 1910.

Anthony, Kan.

3. Resigned.

JEPHTHA JERRY MOXLEY, B.S., Brown County Agricultural Agent, Division of College Extension (Apr. 7, 1925).

B. S., in Agr., K. S. A. C., 1922.

Hiawatha, Kan.

JAMES LYSTER FARRAND,³ B.S., Hodgeman County Agricultural Agent, Division of College Extension (May 15, 1925-Oct. 19, 1925).

B. S., K. S. A. C., 1924.

HARRY FORREST MOXLEY, B.S., Labette County Agricultural Agent, Division of College Extension (May 15, 1925).

B. S., K. S. A. C., 1925.

Altamont, Kan.

EARL C. SMITH, B.S., Marion County Agricultural Agent, Division of College Extension (June 16, 1925).

B. S. in Agr., K. S. A. C., 1925.

Marion, Kan.

DEWEY ZOLLIE McCORMICK, B.S., Morris County Agricultural Agent, Division of College Extension (Oct. 1, 1925); Geary County Agricultural Agent, Division of College Extension (July 1, 1925-Oct. 1, 1925).

B. S., K. S. A. C., 1921.

Council Grove, Kan.

WALTER JONES DALY, B.S., Lincoln County Agricultural Agent, Division of College Extension (Oct. 19, 1925).

B. S., in Agr., K. S. A. C., 1925.

Lincoln, Kan.

DUKE DANIEL BROWN, B.S., Hodgeman County Agricultural Agent, Division of College Extension (Oct. 20, 1925).

B. S. in Agr., K. S. A. C., 1921.

Jetmore, Kan.

GLEN MCKINLEY REED, B.S., Finney County Agricultural Agent, Division of College Extension (Nov. 1, 1925).

B. S., K. S. A. C., 1925.

Garden City, Kan.

WILLIAM SCOTT SPEER, B.S., Kingman County Agricultural Agent, Division of College Extension (Feb. 1, 1926).

B. S., K. S. A. C., 1925.

Kingman, Kan.

CHARLES LEONARD ZOLLER, B.S., Rawlins County Agricultural Agent, Division of College Extension (Mar. 1, 1926).

B. S., K. S. A. C., 1910.

Atwood, Kan.

NEIL LEWIS RUCKER, B.S., Sherman County Agricultural Agent, Division of College Extension (Mar. 4, 1926).

B. S., K. S. A. C., 1913.

Goodland, Kan.

HOME DEMONSTRATION AGENTS⁷

ETHEL McDONALD, B.S., Bourbon County Home Demonstration Agent, Division of College Extension (1919, 1925).

B. S., K. S. A. C., 1907.

Fort Scott, Kan.

MAUDE MILDRED COE, B.S., Butler County Home Demonstration Agent, Division of College Extension (1922; Aug. 1, 1925).

B. S., K. S. A. C., 1902.

Lyndon, Kan.

EDITH ANTONETTE HOLMBERG, B.S., Reno County Home Demonstration Agent, Division of College Extension (1922, 1924).

B. S., K. S. A. C., 1908.

Hutchinson, Kan.

LILA SPENCER COE, Montgomery County Home Demonstration Agent, Division of College Extension (1923).

Independence, Kan.

3. Resigned.

7. In coöperation with the U. S. Department of Agriculture.

- NINA ELOISE HURLBERT,³ Wyandotte County Home Demonstration Agent, Division of College Extension (1924; Sept. 16, 1925-Feb. 12, 1926).
- HATTIE ABBOTT,³ B.S., Pratt County Home Demonstration Agent, Division of College Extension (1924-Dec. 5, 1925).
B. S., K. S. A. C., 1913.
- SARAH FRANCES SMITH, B.S., Cherokee County Home Demonstration Agent, Division of College Extension (1924).
B. S., K. S. A. C., 1923. Columbus, Kan.
- ELIZABETH QUINLAN, M.S., Clay County Home Demonstration Agent, Division of College Extension (1925).
B. S., K. S. A. C., 1917; M. S., Columbia University, 1924. Clay Center, Kan.
- MABEL ELLEN HINDS, B.S., Labette County Home Demonstration Agent, Division of College Extension (1925).
B. S. in H. E., K. S. A. C., 1917. Altamont, Kan.
- MILDRED SMITH,³ B.S., Douglas County Home Demonstration Agent, Division of College Extension (Jan. 15, 1925-Dec. 31, 1925).
B. S., K. S. A. C., 1923.
- LAURA WINTER, Sedgwick County Home Demonstration Agent, Division of College Extension (1925).
Wichita, Kan.
- MABEL McMAHON, B.S., Meade County Home Demonstration Agent, Division of College Extension (1925).
B. S., University of Missouri, 1924. Meade, Kan.
- FLORENCE DRESSER SYVERUD, B.S., Allen County Home Demonstration Agent, Division of College Extension (1925).
B. S., K. S. A. C., 1908. Iola, Kan.
- HELEN DUNLAP, B.S., Leavenworth County Home Demonstration Agent, Division of College Extension (Feb. 11, 1924).
B. S., K. S. A. C., 1924. Leavenworth, Kan.
- ESTHER MAE HUYCK, B.S., Rawlins County Home Demonstration Agent, Division of College Extension (Sept. 20, 1925).
B. S., South Dakota State College, 1925. Atwood, Kan.
- MABEL McCOMB, B.S., Shawnee County Home Demonstration Agent, Division of College Extension (Oct. 1, 1925).
B. S., K. S. A. C., 1925. Topeka, Kan.
- ELLA M. MEYER, B.S., Franklin County Home Demonstration Agent, Division of College Extension (Nov. 9, 1925).
B. S., K. S. A. C., 1907. Ottawa, Kan.
- ELIZABETH RANDLE, B.S., Douglas County Home Demonstration Agent, Division of College Extension (Jan. 10, 1926).
B. S., K. S. A. C., 1907. Lawrence, Kan.
- GRACE HERR, Pratt County Home Demonstration Agent, Division of College Extension (Jan. 15, 1926).
B. S., K. S. A. C., 1922. Pratt, Kan.
- CHARLOTTE ELIZABETH BIESTER, B.S., Johnson County Home Demonstration Agent, Division of College Extension (1924; Feb. 1, 1926).
B. S., University of Illinois, 1921. Olathe, Kan.

3. Resigned.

GRACE MILDRED HENDERSON, B.S., Ford County Home Demonstration Agent,
Division of College Extension (Mar. 1, 1926).

B. S., University of Nebraska, 1924.

Dodge City, Kan.

GRADUATE ASSISTANTS

MARY MARGARET SHAW,³ A.B., Graduate Assistant in Food Economics and
Nutrition (1924-Jan. 31, 1926).

A. B., Fairmount College, 1918.

GLADYS VIRGINIA ADDY, B.S., Graduate Assistant in Household Economics
(Sept. 1, 1925).

B. S., K. S. A. C., 1921.

T 31; 906 Fremont.

SUMNER OTHNIEL BURHOE, B.S., Graduate Assistant in Animal Husbandry
(Sept. 1, 1925).

B. S., Massachusetts Agricultural College, 1925.

Ag 15A; 1000 Ratone.

WALTER CARL FARNER, B.S.A., Graduate Assistant in Dairy Husbandry (Sept.
1, 1925).

B. S. A., University of Wisconsin.

Ag 155; 1425 Laramie.

CHRISTOPHER HENRY FICKE, B.S., Graduate Assistant in Botany and Plant
Pathology (Sept. 1, 1925).

B. S., Iowa State College, 1925.

H 53; 1200 Kearney.

MARION LOUISE FISHER, A. B., Graduate Assistant in Zoölogy (Sept. 1, 1925).

A. B., Oberlin College, 1925.

F 59; 312 N. Sixteenth.

MARTHA ELIZABETH FOSTER,³ A.B., Graduate Assistant in Zoölogy (Sept. 1,
1925-Jan. 31, 1926).

A. B., Southwestern College, 1924.

HARRY LUDWIG GUI, B.S., Graduate Assistant in Entomology (Sept. 1, 1925).

B. S., K. S. A. C., 1925.

F 59; 318 Vattier.

IRWIN LLOYD HATHAWAY, B.S., Graduate Assistant in Bacteriology (Sept. 1,
1925).

B. S., K. S. A. C., 1923.

V 53; 1419 Laramie.

KATHARINE JANE HESS, B.S., Graduate Assistant in Clothing and Textiles
(Sept. 1, 1925).

B. S., K. S. A. C., 1900.

L 64; 601 Fremont.

EVERETT HAROLD INGERSOLL, B.S., Graduate Assistant in Zoölogy (Sept. 1, 1925).

B. S., K. S. A. C., 1925.

F 59; 411 N. Sixteenth.

GAY TETLEY KLEIN, B.S.A., Graduate Assistant in Poultry Husbandry (Sept.
1, 1925).

B. S. A., University of Missouri, 1923.

Ag 252; 831 Leavenworth.

RAY CLINTON LANGFORD, B.S., Graduate Assistant in Education (Sept. 1, 1925).

B. S., K. S. A. C., 1925.

G 34; 411 N. Sixteenth.

BENJAMIN HARRISON LUEBKE, B.S., Graduate Assistant in Agricultural Eco-
nomics (Sept. 1, 1925).

B. S., Oregon Agricultural College, 1925.

Ag 347; 1025 Bluemont.

HAROLD PAUL MORRIS, B.S., Graduate Assistant in Animal Husbandry (Sept. 1,
1925).

B. S., University of Minnesota, 1925.

Ag 95; 1000 Ratone.

3. Resigned.

- MARGARET ALICE NEWCOMB, B.S., Graduate Assistant in Botany and Plant Pathology (Sept. 1, 1925).
B. S., K. S. A. C., 1925. H 77; 1318 Fremont.
- KATE MARIA PENN,³ B.S., Graduate Assistant in Office of Dean of Division of Home Economics (Sept. 1, 1925-Jan. 31, 1926).
B. S., K. S. A. C., 1911. L 28; 1219 Poyntz.
- RUTH MARY TRANT, A.B., Graduate Assistant in Physical Education for Women (Sept. 1, 1925).
A. B., University of Kansas, 1920. N 3; 1649 Fairchild.
- HEWITT MERLIN TYSDALE, B.S. A., Graduate Assistant in Agronomy (Sept. 1, 1925).
B. S. A., University of Sask., 1924. Ag 217; 1230 Vattier.
- HARRY G. WALKER, A.B., Graduate Assistant in Zoölogy (Sept. 1, 1925).
A. B., Southwestern College, 1925. F 59; 1020 Bluemont.
- EMILY WILSON, B.S., Graduate Assistant, Division of Home Economics (Sept. 1, 1925).
B. S., Kansas State Teachers College, Pittsburg, 1917; Ph. B. University of Chicago, 1918. L 64; 1515 Leavenworth.
- PEARL ARTENA CROSS, B.S., Graduate Assistant in Household Economics (Oct. 10, 1925).
B. S., K. S. A. C., 1915. T 52; 900 Leavenworth.
- MARY SISSON DEY, B.S., Graduate Assistant in Food Economics and Nutrition (Sept. 1, 1925; Feb. 1, 1926).
B. S., K. S. A. C., 1925. L 69; 906 Fremont.
- GILBERT FRED OTTO, A.B., Graduate Assistant in Zoölogy (Feb. 1, 1926).
A. B., Kalamazoo College, 1926. F 59; ———
- HERBERT HENRY SCHWARDT, B.S., Graduate Assistant in Entomology (Feb. 1, 1926).
B. S., K. S. A. C., 1926. ———; 617 Bluemont.
- CHARLES WEST TOZZER, B.S., Graduate Assistant in Horticulture (Mar. 1, 1926).
B. S., Ohio State University, 1926. H 33; 1000 Kearney.

OTHER OFFICERS

- JESSIE McDOWELL MACHIR, College Registrar (1913).
A 29; 1641 Fairchild.
- RALPH LEON FOSTER, B.S., Alumni Secretary (1924).
B. S., K. S. A. C., 1922. A 38A; 1023 Laramie.
- ADRIAN AUGUSTUS HOLTZ, Ph. D., Men's Adviser and Secretary of Young Men's Christian Association (1919).
A. B., Colgate University, 1909; Ph. M., University of Chicago, 1910; B. D., *ibid.*, 1911; Ph. D., *ibid.*, 1914. A; 520 N. Manhattan.
- LOIS WILDY, A.B., Secretary of the Young Women's Christian Association (1923).
A. B., University of Colorado, 1923. L 39; 315 Denison.
- STEPHEN ARNOLD GEAUQUE, Assistant Custodian (1918, 1919).
G 1; 1014 Laramie.

3. Resigned.

Standing Committees of the Faculty

ADMISSION: Jessie McD. Machir, J. V. Cortelyou, B. L. Remick, Ina Holroyd, J. O. Hamilton, W. H. Andrews, H. L. Ibsen, Geo. A. Dean.

ADVANCED CREDIT: R. R. Price, H. H. King, J. T. Willard, H. W. Davis, R. R. Dykstra, Martha Pittman, L. D. Bushnell, L. F. Payne.

ASSIGNMENT: Jessie McD. Machir, A. E. White, Araminta Holman, C. V. Williams, C. H. Scholer, W. E. Grimes.

ATHLETICS: F. D. Farrell, H. H. King, M. F. Ahearn, E. L. Holton, R. A. Seaton, R. I. Throckmorton.

CALENDAR: Mary P. Van Zile, J. C. Peterson, H. P. Wheeler, M. F. Ahearn, H. T. Hill, J. T. Willard, Helen Elcock, Maynard Brown.

CATALOGUE: J. V. Cortelyou, J. T. Willard, H. W. Davis.

COMMUNITY CHEST, EXECUTIVE: H. W. Andrews, Mary P. Van Zile, Lois Wildy, Dorothy Rosebrough, Paul Pfuetze, A. A. Holtz, Fred Shideler, Margaret Burtis.

CONTROL: I. V. Iles, Albert Dickens, Margaret M. Justin, R. A. Seaton, R. R. Dykstra, Mary P. Van Zile.

FACULTY LOAN FUND: J. V. Cortelyou, Mary P. Van Zile, R. R. Dykstra, L. E. Call, R. A. Seaton, Jessie McD. Machir.

GRADUATE STUDY: J. E. Ackert, L. E. Conrad, L. E. Call, H. H. King, L. D. Bushnell, J. H. Burt, Margaret M. Justin.

MAJOR MUSICAL AND DRAMATIC ENTERTAINMENTS: J. C. Peterson, Helen Elcock, H. P. Wheeler, H. T. Hill, George Clammer.

PUBLIC EXERCISES: J. E. Kammeyer, J. V. Cortelyou, H. W. Davis, E. L. Holton, W. H. Andrews.

SCHEDULE OF CLASSES: A. E. White, J. T. Willard, W. T. Stratton, L. E. Conrad, W. E. Grimes, Martha Pittman.

STUDENT AFFAIRS: Mary P. Van Zile, H. W. Davis, Albert Dickens, A. A. Holtz, M. F. Ahearn, Lois Wildy, Grace R. Hesse, Margaret Russel, Geneva Watson, C. D. Peirce, C. V. Williams, H. T. Hill.

STUDENT HEALTH: L. E. Conrad, L. D. Bushnell, Mary P. Van Zile, C. M. Siever, M. F. Ahearn.

STUDENT HONORS: J. O. Hamilton, C. E. Reid, R. W. Conover, B. L. Remick.

VOCATIONAL GUIDANCE: Mary P. Van Zile, J. T. Willard, R. A. Seaton, R. R. Dykstra, E. L. Holton, Margaret M. Justin, L. E. Call.

Agricultural Experiment Station

OFFICERS OF THE STATION

F. D. FARRELL, President of the College

ADMINISTRATION—

L. E. CALL, Director

T. J. O'NEIL, Business Manager

HUGH DURHAM, Assistant to Director

AGRICULTURAL ECONOMICS—

W. E. GRIMES, Farm Organization, in Charge

ERIC ENGLUND, Land Economics

R. M. GREEN, Marketing

MORRIS EVANS, Farm Organization

J. A. HODGES, Farm Organization

HAROLD HOWE, Marketing

AGRONOMY—

R. I. THROCKMORTON, in Charge

S. C. SALMON, Crops

*J. H. PARKER, Plant Breeding

F. L. DULEY, Soils

M. C. SEWELL, Soils

J. W. ZAHNLEY, Crops

H. H. LAUDE, Coöperative Experiments

CHARLES R. ENLOW, Coöperative Experiments

G. H. PHINNEY, Farm Foreman

ELISABETH HARLING, Seed Analyst

ANIMAL HUSBANDRY—

C. W. McCAMPBELL, in Charge

H. L. IBSEN, Animal Genetics

B. M. ANDERSON, Cattle Investigations

H. E. REED, Sheep Investigations

D. L. MACKINTOSH, Horse Investigations

A. D. WEBER, Swine Investigations

H. W. MARSTON, Animal Nutrition

C. E. AUBEL, Pasturing Experiments

BACTERIOLOGY—

L. D. BUSHNELL, in Charge

A. C. FAY, Dairy Bacteriology

P. L. GAINES, Soil Bacteriology

W. R. HINSHAW, Poultry Disease Investigations

BOTANY—

L. E. MELCHERS, Plant Pathology, in Charge

E. C. MILLER, Plant Physiology

R. P. WHITE, Plant Pathology

*On leave.

CHEMISTRY—

H. H. KING, in Charge
J. T. WILLARD, Consulting Chemist
W. L. LATSHAW, in Charge Analytical Laboratory
E. L. TAGUE, Protein Investigations
J. S. HUGHES, Animal Nutrition
R. W. TITUS, Feeding Stuffs Analysis
J. F. MERRILL, Fertilizer Analysis

DAIRY HUSBANDRY—

J. B. FITCH, in Charge
H. W. CAVE, Dairy Production
W. H. MARTIN, Dairy Manufactures
W. H. RIDDELL, Official Testing

ENTOMOLOGY—

G. A. DEAN, in Charge
RALPH L. PARKER, Apiculture, Fruit Insects.
J. W. MCCOLLOCH, Staple Crop Insect Investigations
ROGER C. SMITH, Staple Crop Insect Investigations

HOME ECONOMICS—

MARGARET M. JUSTIN, in Charge
VERRAL CRAVEN, Food Economics and Nutrition
MARTHA KRAMER, Food Economics and Nutrition
PEARLE RUBY, Food Economics and Nutrition
LILIAN BAKER, Clothing and Textiles
AMY JANE LEAZENBY ENGLUND, Household Economics

HORTICULTURE—

ALBERT DICKENS, in Charge
R. J. BARNETT, Pomology
W. F. PICKETT, Orchard Investigations
ARTHUR H. HELDER, Landscape Gardening
W. B. BALCH, Floriculture and Vegetable Gardening.

MILLING INDUSTRY—

C. O. SWANSON, in Charge
EARL B. WORKING, Wheat and Flour Investigations
C. W. OAKES, Milling

POULTRY HUSBANDRY—

L. F. PAYNE, in Charge
D. C. WARREN, Genetics
H. H. STEUP, Poultry Production
H. B. MUGGLESTONE, Superintendent of Poultry Plant

VETERINARY MEDICINE—

R. R. DYKSTRA, in Charge
C. W. HOBBS, Field Veterinarian
H. F. LIENHARDT, Pathology
J. P. SCOTT, Blackleg Investigations
N. D. HARWOOD, Vaccine Production
C. A. KITSELMAN, Abortion Disease Investigations

ZOOLOGY—

R. K. NABOURS, in Charge
J. E. ACKERT, Parasitology
ISABEL POTTER, Genetics
G. E. JOHNSON, Injurious Mammals

BRANCH EXPERIMENT STATIONS

FORT HAYS—

L. C. AICHER, Superintendent
A. L. HALLSTED, Dry-farming Investigations¹
R. E. GETTY, Forage Crop Investigations¹
A. F. SWANSON, Cereal Crops¹
D. D. WILSON, Forest Nurseryman

GARDEN CITY—

F. A. WAGNER, Superintendent
E. H. COLES, Dry-land Agriculture Investigations¹

COLBY—

B. F. BARNES, Superintendent¹

TRIBUNE—

T. B. STINSON, Superintendent

1. In coöperation with the U. S. Department of Agriculture.

Engineering Experiment Station

OFFICERS OF THE STATION

F. D. FARRELL, President of the College

ADMINISTRATION—

R. A. SEATON, Director

LOUISE SCHWENSON, Secretary

APPLIED MECHANICS—

C. H. SCHOLER, in Charge

J. H. ROBERT, Hydraulic Machinery

E. R. DAWLEY, Materials of Construction

HAROLD ALLEN, Road Materials

BENJAMIN SPIETH, Road Materials

AGRICULTURAL ENGINEERING—

H. B. WALKER, in Charge

W. H. SANDERS, Tractors

R. H. DRIFTMIR, Farm Machinery

V. R. HILLMAN, General Investigations

H. F. HINRICHS, Field Engineer

ARCHITECTURE—

PAUL WEIGEL, in Charge

J. D. WALTERS, General Investigations

H. E. WICHERS, Rural Architecture

CHEMICAL ENGINEERING—

H. H. KING, in Charge

W. A. VAN WINKLE, General Investigations

CIVIL ENGINEERING—

L. E. CONRAD, in Charge

F. F. FRAZIER, General Investigations

M. W. FURR, Highway Engineering

*M. A. WILSON, Highway Engineering.

ELECTRICAL ENGINEERING—

C. E. REID, in Charge

R. G. KLOEFFLER, General Investigations

R. M. KERCHNER, General Investigations

L. H. CHURCH, General Investigations

H. S. BUECHE, Radio Investigations

MACHINE DESIGN—

C. E. PEARCE, in Charge

M. A. DURLAND, General Investigations

MECHANICAL ENGINEERING—

J. P. CALDERWOOD, in Charge

A. J. MACK, General Investigations

B. B. BRAINARD, Assistant

* In coöperation with the Bureau of Public Roads, U. S. Department of Agriculture.

PHYSICS—

J. O. HAMILTON, in Charge
G. E. RABURN, General Investigations
E. C. CONVERSE, General Investigations

SHOP PRACTICE—

W. W. CARLSON, in Charge
G. A. SELLERS, General Investigations
E. C. JONES, Machine Tools
D. E. LYNCH, Forging Practice
——— Automotive Engineering
E. C. GRAHAM, Shop Problems

Bureau of Research in Home Economics

OFFICERS OF THE BUREAU

F. D. FARRELL, President of the College.

MARGARET M. JUSTIN, Director.

CLOTHING AND TEXTILES—

LILIAN BAKER, in Charge.

KATHARINE HESS, Assistant.

FOOD ECONOMICS AND NUTRITION—

MARTHA S. PITTMAN, in Charge.

MARTHA KRAMER, Nutrition.

PEARLE E. RUBY, Applied Nutrition.

LEILA DUNTON, Food and Nutrition.

MARY DEY, Assistant.

VERRAL CRAVEN, Assistant.

HOUSEHOLD ECONOMICS AND CHILD WELFARE—

AMY JANE LEAZENBY ENGLUND, in Charge.

ELMA STEWART, Institutional Management.

MARGARET M. JUSTIN, Sanitation and Public Health.

EMILY WILSON, Assistant.

The Kansas State Agricultural College

HISTORY AND LOCATION

The Kansas State Agricultural College was established under the authorization of an act of congress, approved by Abraham Lincoln, July 2, 1862, the provisions of which were accepted by the State, February 3, 1863.

Under the enabling act the College received an endowment of 90,000 acres of land and its leading object as stated by the law is—

“Without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislature of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.”

The College was located at Manhattan partly in order to receive as a gift the land, building, library and equipment of Bluemont Central College, an institution that was chartered by a group of cultured pioneers, February 9, 1858. The College building was erected in 1859.

The Agricultural College opened September 1, 1863, in the Bluemont College building. Most of the work of the College was moved to the present site in 1873. This location is adjacent to Manhattan, a city which has a residential population of ten thousand, and is unsurpassed for wholesomeness of influence by any city in the state.

The fertile valleys of the Kansas and Blue rivers meet here, and these, with their borders of hilly upland drained by many small wooded streams, create a natural environment which is unusually attractive.

Manhattan is reached by the Union Pacific and Rock Island railways and connecting lines, and the following automobile highways: Midland Trail, Victory Highway, Golden Belt, Oklahoma City-Lincoln, Manhattan-Omaha, and state highway No. 13. It has street-car service between the railway stations and the College, and interurban railway connection with Junction City. Practically all of the streets are paved, and an ample supply of pure water is provided.

The residents of Manhattan give most cordial support to the College and do all that could be desired to make students feel welcome, and to support them in their legitimate undertakings. The student body responds by habitually orderly and law-abiding conduct.

AIMS AND PURPOSES

The Kansas State Agricultural College has three chief aims: to give to the young men and women of Kansas a high standard of collegiate training in agriculture, engineering, home economics, general science, and veterinary medicine; to investigate, through its experiment stations, the agricultural and industrial problems of Kansas; and, by means of its extension division, to carry the full benefits of the College to the remotest parts of the state.

In all the collegiate curricula particular pains are taken that each student, in connection with the scientific and technical instruction necessary to his vocation, be given thorough training in fundamental, cultural subjects which promote sound thinking and good citizenship. The College aims to turn back to the state the type of citizen who is straight-thinking in all lines and a particularly valuable leader in some definite field of human activity. Its chief aim is the development of intelligent, effective leadership.

Besides the full collegiate course the College offers short courses in many fields of agriculture and industrial activity. These courses do not lead to

degrees. Their aim is to give in the shortest possible time the gist of the practical training needed by the efficient artisan.

The second important aim of the Kansas State Agricultural College is, to serve the state by investigating in a scientific manner the state's problems in agriculture and the industries. This work is accomplished through the various agricultural and engineering experiment stations. All investigational work is directly connected with the educational work of the College, so that the students are given the widest opportunity for appreciating the true value of scientific investigation. Many opportunities in the United States Department of Agriculture and in the various experiment stations of the country are thus opened to such students as show interest and skill in investigational work.

In addition to the regular instructional work conducted on the campus, the College realizes its third important aim through the Division of College Extension. This is a highly organized system of agricultural education and service carried directly to the homes of the farmers. The work has been so highly developed within the last few years that the College has come to look upon the whole state as its campus. In addition to the regular staff of the Division of College Extension, many members of the College board of instruction and the staff of the experiment stations give several weeks of each year to this public work among the people of the state.

Buildings and Grounds

The College campus occupies a commanding and attractive site upon an elevation adjoining the western limits of the city of Manhattan, with street-car service into town and to the railway stations. The grounds are tastefully laid out according to the designs of a landscape architect, and are extensively planted with a great variety of beautiful and interesting trees, arranged in picturesque groups, masses, and border plantings, varied by banks of shrubbery and interspersed with extensive lawns, gardens, and experimental fields. Broad well-shaped macadamized avenues lead to all parts of the grounds. Cement walks connect the buildings with one another and with the entrances. Including the campus of 147 acres, the College owns 1,399 acres of land at Manhattan, valued at \$340,600. Outside the campus proper, all of the land is devoted to educational and experimental work in agriculture. Within the College grounds, most of the space not occupied by buildings and needed for drives and ornamental plantings is devoted to orchards, forest and fruit nurseries, vineyards, and gardens.

The more important buildings of the College are harmoniously grouped and are constructed of limestone obtained from the College quarries. These buildings are listed below.

ANDERSON HALL. Erected, 1879, 1883, and 1885; cost \$79,000; dimensions, 152 x 250 feet; two stories and basement. Contains the offices of administration of the College, a social center hall, the College post office; offices of the Division of College Extension and of the Department of Student Health, and offices and classrooms of the Departments of Applied Art, Economics, English, Mathematics, and Modern Languages. It also contains the alumni and stadium offices.

AUDITORIUM. Erected, 1904; cost, \$40,000; dimensions, 113 x 125 feet. Has a large stage with drop curtain and scenery. Seating capacity, 2,300. Contains also the offices and music rooms of the Department of Music.

CALVIN HALL. Erected, 1908; cost, \$70,000; dimensions, 92 x 175 feet; two stories and basement. The first floor and basement are occupied by the laboratories, classrooms, and offices of the Departments of Food Economics and Nutrition, and Household Economics; the second floor is occupied by the laboratories, classrooms, and offices of the Department of Clothing and Textiles.

CHEMISTRY ANNEX No. 1. Erected, 1876; cost, \$8,000; dimensions, 35 x 110 and 46 x 175 feet, in the form of a cross. Originally erected as a chemical laboratory. Reconstructed at a cost of \$5,000 after fire in 1900, the building was used from 1902 to 1911 as a women's gymnasium; since 1911, used by the Department of Chemistry.

CHEMISTRY ANNEX No. 2. Erected, 1904; cost, \$15,000; dimensions, 72 x 103 feet; one story and basement. Occupied by the Department of Dairy Husbandry from the time of its erection till the fall of 1923, since which time it has been used by the Department of Chemistry.

DENISON HALL. Erected, 1902; cost, \$70,000; dimensions, 96 x 166 feet; two stories and basement. Occupied throughout by the laboratories, classrooms and offices of the Departments of Chemistry and Physics.

EDUCATION HALL. Erected, 1900; cost, \$25,000; dimensions, 90 x 95 feet; two stories and basement. Occupies original site of the president's house, destroyed by lightning in 1896. Formerly housed the Departments of Agronomy and Animal Husbandry, later the Vocational School. The abolition of the latter brought change of name in the summer of 1924. Contains class-

rooms and offices of the Departments of Education and Public Speaking and offices of the custodian.

ENGINEERING HALL. Erected: East wing, 1909; main portion, 1920. Cost, \$270,000. Dimensions: Main portion, 60 x 236 feet; east wing, 113 x 200 feet. Three stories in height, but much of the east wing built on the gallery plan rather than by complete floor separation into different stories. This building contains the general offices and library of the Division of Engineering, and the offices, drafting rooms and laboratories of the Departments of Agricultural Engineering, Applied Mechanics, Architecture, Civil Engineering, Machine Design, Mathematics, and Mechanical Engineering. The engines, turbines, generators and boilers that furnish heat, light and power for the College are also installed in this building.

ENGINEERING SHOPS. These consist of several connected structures, erected 1875, 1890, 1900 and 1905. The original building, now used as the woodworking shop, was erected in 1875; a series of additions having later been successively made, the present group is the result. Cost of the group, \$35,000. A portion of the building is two stories high. On the upper floor, which has a floor area of 9,260 square feet, are the classrooms, drafting rooms, pattern storage room and offices of the Departments of Machine Design and Shop Practice. The woodworking shop (35 x 219 feet) is equipped with bench tools and woodworking machinery. Adjoining is the machine shop, amply equipped with modern machine tools. The blacksmith shop (50 x 100 feet) contains 48 forges of modern type, connected with power blast and down-draft exhaust. The iron foundry (27 x 100 feet) and brass foundry (24 x 34 feet) are well supplied with the necessary equipment. The wash and locker room contains 250 steel lockers. A general supply room (22 x 24 feet) is conveniently located for storing small supplies. One room is fitted up as model farm shop and is used in the training of teachers for rural communities in accordance with the Smith-Hughes requirements.

FAIRCHILD HALL. Erected, 1894; enlarged, 1903; cost, \$67,750; dimensions, 100 x 140 feet; two stories, basement, and attic. On the first floor are the College Library and reading rooms, a newspaper reading room, offices of the Librarian and his assistants, and the general museum. On the second floor are the offices, classrooms and laboratories of the Departments of Zoölogy, Entomology, and History and Civics. The museums of natural history are placed here also. The basement is occupied largely by library reference rooms.

FARM BARN. Erected, 1923; cost, \$25,000; dimensions, 80 x 160 feet; two stories and basement. Consists of three sections, arranged like the letter H, and a glazed tile silo of 200 tons capacity. The west wing contains nine box stalls and twenty-six single stalls, equipped with sanitary feed mangers and racks, and is designed especially for the housing of horses. The east wing contains twelve box stalls and thirty single stalls for the breeding cattle and the show herd. The central section has an office, feed rooms, a washing floor, and a basement containing the engine room. The loft, to which a driveway leads, has storage space for ten carloads of grain and 100 tons of hay and straw and contains the grinding apparatus. The barn is used by the Department of Animal Husbandry.

FARM MACHINERY HALL. Erected, 1873; cost, \$11,250; dimensions, 46 x 95 feet; two stories. This was the first building erected on the present campus. It was originally designed as a College barn, and first used for that purpose. It has been used as a general College building, and successively by the Department of Botany and the Department of Veterinary Medicine. The first floor, a large hall, was used for many years as an armory by the Department of Military Science. The entire building is now used by the Department of Agricultural Engineering and contains modern types of farm machinery.

HORTICULTURAL BARN. Erected, 1917; cost, \$1,500; dimensions, 38 x 55 feet. Two stories, first story stone, second story frame. This building is located one mile west of the College campus.

HORTICULTURAL HALL. Erected, 1907; cost, \$50,000; dimensions, 72 x 116 feet; two stories and basement. This building is used by the Departments of Botany and Plant Pathology, and Horticulture. Its classrooms, laboratories, museums, and equipment are modern and ample.

ILLUSTRATIONS HALL. Erected, 1876; cost, \$4,000; dimensions, 32 x 80 feet; one story and basement. At an early period used as a horticultural hall; later the headquarters for general College repairs; since the summer of 1919 used by the Department of Illustrations.

INFIRMARY. Erected, previous to 1871; rebuilt, 1919; dimensions, 34 x 34 feet; two stories. Originally a farm house, later used as dwelling by the professor of agriculture and more recently by the custodian; has served its present use since 1919. Contains separate wards for men and women, five rooms in each ward.

KEDZIE HALL. Erected, 1897; cost, \$16,000; dimensions, 70 x 84 feet; two stories and basement. Used from its erection till 1908 by the Department of Domestic Science and Domestic Art. Basement occupied by the printing plant; first floor taken up by the Department of Industrial Journalism and Printing; second floor divided into general class rooms and offices used by the Department of English.

MAINTENANCE BUILDING. Erected, 1888; cost, \$5,000; dimensions, 30 x 30 feet; one story and basement. Used for years by Department of Horticulture and Entomology, later by the state dairy commissioner and assistants. Contains offices used by Superintendent of Maintenance.

MEMORIAL STADIUM. West wing erected, 1922; east wing erected, 1924; cost of portions now completed, \$118,000; cost of entire structure when completed as planned, \$400,000. The seating decks are constructed of reinforced concrete, the end walls are built of limestone and the back walls will be of the same material. Capacity of the seating decks now standing, 15,000; capacity of the completed structure will be 22,500. The Stadium is being built as a memorial to alumni, students, former students, and faculty of the College who participated in the World War. The cost is met entirely from funds raised by popular subscription.

NEW LIBRARY. Now under construction, to be completed in 1927; cost, \$250,000; three stories and basement. The floor plan is of "T" shape, with dimensions of 183 x 46 feet and 107 x 64 feet. Three large reading rooms will be provided, each 176 x 40 feet, the class reserve reading room being in the basement, the periodical room on the first floor, and the main reading room on the second floor extending through the second and third stories. The remainder of the building will be devoted to stack rooms, seminar rooms, offices, working quarters, and an exhibition gallery.

NICHOLS GYMNASIUM. Erected, 1911; cost, \$122,000; dimensions, 102 x 221 feet; three stories and basement. The building consists of a main section and two wings. The main section (85 x 141 feet), consisting of two stories and a basement, is used as a men's gymnasium and armory, and contains a running track, sixteen laps to the mile. The east half of the basement of the main section contains a swimming pool, baths, rest room, etc., for women; the west half contains a swimming pool and baths for men. The east wing (40 x 102 feet) contains the women's gymnasium, classrooms and offices of the Department of Military Science, and several literary society halls. The west wing (40 x 102 feet) contains the offices of the director of athletics and physical education, a large locker room for men, several literary society halls, and the radio broadcasting studio. This building is constructed on the old armory-castle type and is modern in every respect.

THOMPSON HALL. Erected, 1921; cost, \$125,000; two stories and basement. Basement occupied by receiving and storage rooms for the cafeteria, dishwashing room, refrigeration machinery room, pipe room, locker rooms, and bakery.

The first floor is devoted to the cafeteria, including kitchen, dining room, two offices, and lobbies. On the second floor are a tea room, with a main dining room, kitchen, three alcoves, receiving room, serving room, lobby and coat room, office, two classrooms, and the household-management laboratory.

VAN ZILE HALL. Erected, 1926; cost, \$165,000; dimensions, 169 x 85 feet; three stories and basement. The building contains bedrooms, dining hall, kitchen facilities, and social quarters for 131 women students, besides rooms for guests, matron, and social director.

VETERINARY HALL. Erected, 1908; cost, \$70,000; dimensions, 133 x 155 feet; two stories and basement. Occupied by the laboratories, demonstration and dissecting rooms, classrooms, and offices of the Departments of Anatomy and Physiology, Bacteriology, Pathology, and Vaccine Laboratories, and by the offices of the dean of the Division of Veterinary Medicine.

VETERINARY HOSPITAL. Erected, 1923. Contract price, \$118,000. The building is of stone and of fireproof construction throughout, with general dimensions of 145 x 146 feet. It consists of a central portion and two wings, and is two stories and an attic in height, with a basement under one of the wings. The building is used exclusively for the teaching of the practical phases of veterinary medicine and surgery. It is equipped for housing sick animals of all species, such as horses, cattle, sheep, swine, poultry, dogs, and cats. Its equipment includes an hydraulic elevator, large and small animal operating tables, cattle and horse stocks, dog kennels, operating rooms, laboratories for the diagnosis of animal diseases, etc. In addition, there are well-equipped rooms for senior students in veterinary medicine, together with a reception room for visitors, and offices for members of the veterinary clinical teaching staff.

WATERS HALL. East wing erected, 1912; west wing erected, 1923; cost of portions now completed, \$500,000; cost of building when developed and completed as planned, \$1,000,000. Each of the wings now completed is 80 feet wide and 169 feet long and four stories high. An 80 x 50 foot one-story annex on the east wing serves as a meats laboratory, and a similar annex on the west wing serves as a creamery. A stock-judging pavilion (45 x 100 feet) is located between the two wings and is divided into two large stock-judging rooms, each having a seating capacity of 475. The two wings and the stock-judging pavilion are used by the Departments of Agricultural Economics, Agronomy, Animal Husbandry, Dairy Husbandry, History, Milling Industry, Poultry Husbandry, and the general offices of the Agricultural Experiment Station and of the Division of Agriculture. The equipment includes an electrically operated flour mill capable of manufacturing 75 barrels of flour a day, a modern creamery, a well-equipped meats laboratory, and modern laboratories for instructional and investigative work in seed testing, market milk, soils, field crops, farm organization, grain grading, etc.

In addition to the substantial stone buildings mentioned above, the College has a number of other buildings, among them the following:

AUTO MECHANICS LABORATORIES. Erected, 1918; dimensions, 42 x 176 feet; two stories. Built for the S. A. T. C. as mess hall (barracks No. 5). The upper floor contains a large lecture hall which is used as an assembly room for the Division of Engineering. The main portion of the building is occupied by the repair and ignition sections of the auto mechanics laboratories.

EXPERIMENT STATION BUILDING. Erected, 1918; dimensions, 40 x 176 feet; two stories. Built as barracks No. 4 for the S. A. T. C., now used by the Agricultural Experiment Station.

GENERAL-PURPOSE BUILDING. Erected, 1918; dimensions, 40 x 80 feet; two stories. Built as barracks No. 6 for the S. A. T. C. This building is used by the Department of Electrical Engineering and as a hospital for patients with contagious diseases.

GREENHOUSE. Erected, 1909; cost, \$7,000; dimensions, 114 x 150 feet. Contains six sections used by the various departments as follows: Horticulture, three; Botany, one; Agronomy, one; Entomology and Zoölogy, one.

PLANT MUSEUM. Erected, 1907; cost, \$2,500; dimensions, 20 x 100 feet. Used by the Department of Horticulture. Contains a large number of rare growing plants, including many subtropical species.

REPAIR SHOP. Erected, 1918; dimensions, 40 x 176 feet; one story. Built as barracks No. 1 for the S. A. T. C. Occupied by the Department of Building and Repair.

SERUM BARN. Erected, 1914; cost, \$3,000; dimensions, 92 x 96 feet; contains 30 pens, each 8 x 12 feet, and two feed rooms of the same dimensions. This is a frame and cement building situated three-quarters of a mile north of the College campus.

SERUM PLANT. Erected, 1914; cost, \$7,000; constructed of brick; dimensions, 20 x 60 feet; two stories.

TRACTION ENGINE LABORATORIES. Erected, 1918; cost, \$20,000; two buildings, each 40 x 176 feet. These are two frame buildings on concrete foundations, built originally as barracks Nos. 2 and 3 for the S. A. T. C.

POWER AND WATER SYSTEMS. The College maintains and operates its own modern heat, light, power, water and sewer systems. A central boiler plant of 2,900 horsepower furnishes steam for both the heating system and the power plant. The central power plant contains steam engines and turbines, totaling 700 horsepower, connected to electric generators which furnish power and light for the entire campus. A complete system of underground tunnels connects the various buildings, and through these are carried the steam mains and electric cables which distribute steam and electrical energy to the different parts of the campus.

The waterworks pump house contains electric motor-driven pumps of an aggregate capacity of 600 gallons per minute. Cast-iron water mains distribute this over the campus, and a steel tank of 110,000 gallons capacity supported on a steel tower provides a reserve supply.

The College Library

The general College Library consists of all books belonging to the College, including the library of the Agricultural Experiment Station, which is incorporated with it. On January 1, 1926, the Library contained 82,450 bound volumes, besides much unbound material. It receives currently about five hundred serial publications. As a depository the Library receives the documents and other publications of the United States government. The books are classified according to the Dewey system and are indexed in a dictionary card catalogue.

All students, as well as all officers of administration and instruction, have the privilege of direct access to the book stacks. The Library is primarily for free reference use, but the privilege of drawing books is accorded to all those connected with the College as registered students or as members of the Faculty. Books not specially reserved may be drawn for home use for two weeks. All books are subject to recall at any time.

General reference books, books reserved for classes, general periodicals, and certain other groups of books are to be consulted only in the reading rooms. They may not be loaned from the Library except when the reading rooms are closed. They must then be returned to the Library by the time it next reopens. Any violation of the regulations of the Library subjects the offender to a fine, or to a withdrawal of library privileges, or to both, according to the gravity of the offense. More serious offenses, such as mutilation or theft of books or periodicals, are considered just causes for suspension or expulsion of the offender, who is also required to make good the loss incurred.

READING ROOMS. Three reading rooms are maintained in connection with the Library: the general reference room, containing encyclopedias, dictionaries, atlases; bibliographies, and general reference books; the special reference room, containing books reserved for classes; and the periodical room, containing current magazines and the important daily and weekly Kansas newspapers. These rooms are freely open to the student and to the public for purposes of reading and study.

DIVISIONAL LIBRARIES. Divisional and departmental collections are deposited in certain College buildings apart from the main Library. These collections are for the special convenience of the instructors and students of the departments concerned. They are under the direction of the librarian and are accessible to all students at regular hours.

Student Health Service

The Department of Student Health was established in order to maintain good health among the students of the College. One doctor gives his entire time and three doctors devote part time to this service. The services of the College physicians are free, but the student may employ, at his own expense, any physician he may desire. Four nurses are employed on full time and the matron of the hospital also devotes all her time to student health needs.

The offices of the department are in Anderson Hall and are open to students each school day from 7:45 a.m. to 5 p.m. It is expected that students who have need of medical services and are able to walk will go to the office, unless there is a possibility that they have a contagious disease. Those who are unable to walk to the physician's office, or who have reason to believe that they have some contagion, should go to the hospital at once.

The College hospital is ready to receive students any hour of the day or night. Free hospital service is given for three days in each case of acute sickness except smallpox. After that period a charge of one dollar a day is made. Smallpox cases are not handled at the hospital except in cases where the disease has been contracted after proper vaccination against it. Patients are admitted to the hospital only on recommendation of the head of the College medical corps. Hospital service does not include major surgical cases, such as appendicitis, hernia, etc. If such a case develops while the student is in the hospital, he will be transferred, at his own expense, to a hospital of his choice. Treatment of chronic cases by the College physicians cannot be guaranteed. However, when practicable, treatment of such cases may be undertaken on the same basis as acute cases. Fractures and dislocations of a serious nature are not treated, but minor cases may be treated at the option of the head physician. Students with fractures are admitted to the hospital.

Standard hospital nursing service is furnished free, but the student may employ, at his own expense, a private nurse at any time he desires to do so. A private nurse must obey the same rules that the College nurses are expected to follow. No ambulance service is maintained by the College, as in practically all cases of beginning sickness patients are able to ride to the hospital in an ordinary conveyance.

In order to help control contagious diseases, a student absent from classes because of illness must, before he returns to his classes, secure from the College physician a return card showing him to be free from all such diseases.

Students have the privilege of consulting any of the College physicians at any time on any question of personal hygiene of whatsoever nature.

The health office observes the same vacations and holidays as the rest of the College. Students admitted to the hospital or remaining in the hospital at a time for which the sick-benefit fee has not been paid or during Christmas holidays, will be charged the actual cost of service.

The student health service is maintained by the sick-benefit fee fund. For data concerning this fee see the section on expenses, under General Information.

Requirements for Admission

The entrance requirements of the College are made broad and flexible, only fundamental subjects being definitely required. These requirements are made upon the supposition that high schools are local institutions in which the courses should be adapted to the needs of the individual localities, and that College entrance requirements should be such as to take the output of the high schools, rather than to determine the nature of the work offered in them.

Any person who has completed a four-year course of study in any high school or academy accredited by the State Board of Education will be admitted to the freshman class. The student should have sent in advance a certificate showing his high-school credits.

In order to carry the several curricula successfully the following subjects must have been completed:

Curriculum in Agriculture	English, three units; physics, one unit; algebra, one unit; geometry, one unit.
Curriculum in Animal Husbandry and Veterinary Medicine	Same as for Curriculum in Agriculture.
Curriculum in Architecture	English, three units; physics, one unit; algebra, one and one-half units; geometry, one and one-half units.
Curricula in Engineering	Same as for Curriculum in Architecture.
Curriculum in General Science.....	English, three units; physics, one unit; algebra, one and one-half units; geometry, one unit.
Curriculum in Home Economics.....	Same as for Curriculum in Agriculture.
Curriculum in Home Economics and Nursing..	Same as for Curriculum in Agriculture.
Curriculum in Industrial Journalism.....	Same as for Curriculum in Agriculture.
Curriculum in Landscape Architecture.....	Same as for Curriculum in Architecture.
Curricula in Music	Same as for Curriculum in Agriculture.
Curricula in Physical Education.....	Same as for Curriculum in Agriculture.
Curriculum in Rural Commerce.....	Same as for Curriculum in General Science; and bookkeeping.
Curriculum in Veterinary Medicine.....	Same as for Curriculum in Agriculture.

These curricula were formulated on the assumption that the high-school subjects named will be offered for admission. Those graduates of accredited high schools who in accordance with a state law are admitted as freshmen without all of the high-school subjects that are prerequisite to carrying the curricula chosen will be assigned to the necessary subjects and allowed College credit toward graduation in them, as follows: Elementary Physics, four semester hours; Algebra III, two semester hours; Solid Geometry, two semester hours; Accounting, three semester hours.

Persons who are not graduates of accredited high schools or academies will be admitted to the freshman class if they have completed fifteen acceptable units of high-school work, including the fixed requirements. (A unit is defined to be the work in an accredited high school or academy in five recitation periods a week for one school year.) One who offers fourteen such units will be admitted as a freshman, but will be conditioned in one unit. Such deficiency (whether fixed or optional requirement) must be made up the first year that the student is in attendance. If the optional requirement is not made up within that time College credits are taken in its place.

Subjects acceptable for entrance, arranged in eight groups, together with the number of units that may be offered, are shown as follows:

GROUP I—ENGLISH..... Three or four units.

GROUP II..... Latin, one, two, three, or four units.
FOREIGN Greek, one, two, three, or four units.
LANGUAGES. German, one, two, three, or four units.
 French, one, two, three, or four units.
 Spanish, one, two, three, or four units.

GROUP III.....	Elementary algebra, one or one and one-half units.
MATHEMATICS.	Plane geometry, one unit.
	Solid geometry, one-half unit.
	Plane trigonometry, one-half unit.
	Advanced algebra, one-half unit.
GROUP IV	Physical geography, one-half or one unit.
NATURAL	*Physics, one unit.
SCIENCES.	*Chemistry, one unit.
	*Botany, one-half or one unit.
	*Zoölogy, one-half or one unit.
	*Physiology, one-half or one unit.
	*General biology, one-half or one unit.
	*General science, one-half or one unit.
GROUP V	Greek and Roman history, one unit.
HISTORY AND	Medieval and modern history, one unit.
SOCIAL SCIENCES.	English history, one unit.
	American history, one unit.
	Economics, one-half or one unit.
	Sociology, one-half unit.
	Civics, one-half or one unit.
GROUP VI	Psychology, one-half unit.
NORMAL TRAINING	Methods and management, one-half unit.
SUBJECTS.	Higher arithmetic, one-half unit.
	Reviews
	Grammar, geography, and reading, 12 weeks
	each, or
	Two of these, eighteen weeks each
	*Music, one unit.
GROUP VII	*Agriculture, one-half, one, two, three, or four units.
INDUSTRIAL	*Drawing, one-half or one unit.
SUBJECTS.	*Woodwork, one-half, one, or two units.
	*Forging, one-half or one unit.
	*Printing, one-half, one, or two units.
	*Domestic science, one-half, one, or two units.
	*Domestic art, one-half, one, or two units.
GROUP VIII	Commercial law, one-half unit.
COMMERCIAL	Commercial geography, one-half unit.
SUBJECTS.	Bookkeeping, one-half or one unit.
	*Stenography and typewriting, one-half or one unit each.

DEFICIENCIES

All entrance deficiencies must be made up before the beginning of the sophomore year. All entrance subjects except Physics may be made up by correspondence. Elementary Physics, Solid Geometry, and Algebra III may be taken in classes provided by the College.

No student who fails or is conditioned or found deficient in any subject, or whose grade in more than one subject falls below G in any semester, is allowed to carry extra work during the succeeding semester.

No student is considered a candidate for graduation in the spring who is deficient more than nine semester hours in addition to his regular assignment at the beginning of the first semester.

ADVANCED CREDIT

At the discretion of the president, students who present certificates showing credits for college work done in other acceptable institutions are allowed hour-for-hour credit on courses in this College, in so far as they may be directly applied, or can be accepted as substitutions or electives. Candidates must present to the Committee on Advanced Standing their high-school and college credits certified to by the proper authorities. It is requested, also, that a *college catalogue covering the period of attendance be furnished with college credentials*. In cases in which it is impossible for one to furnish an acceptable certificate concerning work upon which advanced credit is asked, examinations are given, if the subject has been studied under competent instruction.

* In courses consisting of laboratory work wholly or in part, two periods of laboratory work are to be considered the equivalent of one recitation period.

Advanced credit in certain subjects of freshman rank may be secured by examination on account of surplus high-school units over and above the fifteen acceptable units required for admission. The registrar, on request, will furnish a statement of such surplus units to the Committee on Advanced Credit and that committee will conduct the examination within the first thirty days of the semester. Examinations, however, which affect the assignment of the first semester will be given the first Saturday of the first semester. After the expiration of the thirty-day period such examinations are authorized by the student's dean.

If the work of the student shows that advanced credits have been wrongly allowed, such credits will be revoked.

ADMISSION

ADMISSION BY EXAMINATION. Examinations for admission will be held at the College on Monday, September 13, 1926; Monday, January 31, 1927; and Monday, June 6, 1927. These examinations are given for the benefit of those students who need some additional high-school credits to qualify them for entrance to the freshman class. Applications for these examinations should be made in advance to the registrar.

ADMISSION BY CERTIFICATE. The applicant is required to submit to the Committee on Admission a certificate of the high-school or academy credit properly certified to by the authorities to the institution in which the work was done. Blanks will be furnished by the College for this purpose.

It is greatly to the advantage of the prospective student to see to it that this blank, properly filled out and *indicating the curriculum he wishes to take here*, be sent to the College as soon as possible after graduation. A permit to register will then be sent him by the registrar before the first of September. This permit *cannot be sent* unless the prospective student sees that the information as to curriculum is sent to the registrar. This will greatly facilitate the work of entrance. The student will present this permit at the registration room in Nichols Gymnasium, and will not be compelled to wait for his turn to meet the Committee on Admission.

LATE ASSIGNMENT

A considerable amount of extra work and a great deal of confusion is caused by the neglect of students to enroll at the time set for that purpose, and a fee of \$5 will be charged those who are assigned after the time fixed for the close of registration unless they present to the president acceptable excuses for their delay.

SPECIAL STUDENTS

In recognition of the fact that experience and maturity tend to compensate, in a measure at least, for lack of scholastic attainment, the College admits as special students those who are twenty-one years of age or older, without requiring them to pass the regular examinations, provided (1) they show good reason for not taking a regular course; (2) they be assigned only to such work as they are qualified to carry successfully; (3) they do superior work in the subjects assigned. The age limit is not applied to special students of music.

A special student is assigned by the dean of the division in which occur the major subjects to be pursued.

Special students are subject to all of the general regulations and requirements of regular students, such as assignment to physical education and military training.

KANSAS HIGH SCHOOLS AND ACADEMIES IN ACCREDITED RELATIONS WITH THE COLLEGE

(Graduates admitted without examination.)

Abbyville.	Bison.	Columbus.
Abilene.	Blaine.	(Cherokee Co. H. S.)
Ada.	Bloom.	Concordia.
Adams.	Blue Mound.	(Concordia H. S.)
Admire.	Blue Rapids.	(Nazareth H. S.)
Agenda.	Bogue.	Conway Springs.
Agra.	Bonner Springs.	Coolidge.
Alden.	Brewster.	Copeland.
Alexander.	(Brewster Con. H. S.)	Corning.
Allen.	(Brownsville Con. H. S.)	Cottonwood Falls.
Alma.	Bronson.	(Chase Co. H. S.)
Almena.	Brookville.	Council Grove.
Altamont.	(Brookville R. H. S.)	Courtland.
(Labette Co. H. S.)	(Glendale R. H. S.)	Covert.
Alta Vista.	Brownell.	Coyville.
Alton.	Bucklin.	Cuba.
Altoona.	Bucyrus.	Cullison.
Americus.	(Bucyrus R. H. S.)	Culver.
Andover.	(Wea H. S.)	Cunningham.
Anthony.	Buffalo.	Deerfield.
(Anthony H. S.)	Buhler.	Delavan.
(Spring Twp. H. S.)	Bunker Hill.	Delia.
Arcadia.	Burden.	(Washington Twp. H. S.)
Argonia.	Burdett.	Delphos.
Arkansas City.	Burdick.	Denison.
Arlington.	(Diamond Valley R. H. S.)	Densmore.
Arma.	Burlingame.	Denton.
Arnold.	Burlington.	Derby.
Asherville.	Burns.	De Soto.
Ashland.	Burr Oak.	Dexter.
Assaria.	Burrton.	Dighton.
Atchison.	Bushong.	(Lane Com. H. S.)
(Atchison H. S.)	Bushton.	Dodge City.
(St. Benedict's College	Byers.	(Dodge City H. S.)
Academy.)	Caldwell.	(St. Mary of the Plains
(Mount Saint Scholastica	Cambridge.	Academy.)
Academy.)	Caney.	Doniphan.
Athol.	Canton.	Dorrance.
Atlanta.	Carbondale.	Douglass.
Attica.	Caneiro.	Dover.
Atwood.	Cassoday.	Downs.
Auburn.	Castleton.	Dresden.
Augusta.	Cawker City.	Dunlap.
Aurora.	Cedar.	Durham.
Axtell.	Cedar Point.	Dwight.
(Axtell H. S.)	Cedarvale.	Easton.
(St. Michael's H. S.)	Centerview.	Edgerton.
Baldwin.	Centralia.	Edmond.
Bancroft.	Chanute.	Edna.
Barclay.	Chapman.	Edson.
Barnard.	(Dickinson Co. H. S.)	Edwardsville.
Barnes.	Chase.	Effingham.
Basehor.	Chautauqua.	(Atchison Co. H. S.)
Bavaria.	Cheney.	El Dorado.
Baxter Springs.	Cherokee.	Elk City.
Bazine.	(Crawford Co. H. S.)	Elk Falls.
Beattie.	Cherryvale.	Elgin.
Beeler.	Chetopa.	Elkhart.
Belle Plaine.	Cimarron.	Ellinwood.
Belleville.	Circleville.	Ellis.
Belmont.	Claffin.	Ellsworth.
Beloit.	Clay Center.	Elmdale.
(Beloit H. S.)	(Clay Co. H. S.)	Elsmore.
(St. John's H. S.)	Clayton.	Elwood.
Belpre.	Clearwater.	Emmett.
Belvue.	Cleburne.	Emporia.
Bendena.	Clifton.	Englewood.
Benedict.	Climax.	Ensign.
Bennington.	Clyde.	Enterprise.
Bentley.	Coats.	Erie.
Benton.	Codell.	Esbon.
Bern.	Coffeyville.	Eskridge R.
Berryton.	Colby.	Eudora R.
Beverly.	Coldwater.	Eureka.
Bird City.	Collyer.	Everest.
	Colony.	Fairview.

- Fall River.
 Falun.
 Fellsburg.
 Florence.
 Ford R.
 Formoso.
 Fort Scott.
 Fostoria.
 Fowler.
 Frankfort.
 Franklin.
 Fredonia.
 Frontenac.
 Fulton.
 Galena.
 Galesburg.
 Galva.
 Garden City.
 Garden Plain.
 Gardner.
 Garfield.
 Garnett.
 Garrison.
 Gaylord.
 Gem.
 Geneseo.
 Geneva.
 Girard.
 Glasco.
 Glen Elder.
 (Glen Elder H. S.)
 (Athens R. H. S.)
 Goddard.
 Goff.
 Goodland.
 (Sherman Co. H. S.)
 Gove.
 Grainfield.
 Great Bend.
 Greeley.
 Green.
 Greenleaf.
 Greensburg.
 Grenola.
 Gridley.
 Grinnell.
 Gypsum.
 Haddam.
 Halstead.
 Hamilton.
 Hamlin.
 Hanover.
 Hardtner.
 Harlan.
 Harper.
 Hartford.
 Harveyville.
 Haven.
 Havensville.
 Haviland.
 (Haviland R. H. S.)
 (Friends Academy.)
 Hays.
 (Hays H. S.)
 (Girls' Catholic H. S.)
 (Catholic College Academy.)
 Hazelton.
 Healy.
 Hepler.
 Herington.
 Herndon.
 Hesston.
 (Hesston College Academy.)
 Hiawatha.
 Highland.
 Hill City.
 Hillsboro.
 (Hillsboro H. S.)
 (Tabor College Academy.)
 Hoisington.
 Holcomb.
 Holton.
 Holyrood.
- Hope.
 Horton.
 Howard.
 Hoxie.
 (Sheridan Com. H. S.)
 Hoyt.
 Hugoton.
 (Stevens Co. H. S.)
 Humboldt.
 Hunter.
 Hutchinson.
 (Hutchinson H. S.)
 (St. Teresa H. S.)
 (So. Hutchinson H. S.)
 Independence.
 Ingalls.
 Inman.
 Iola.
 Ionia.
 Irving.
 Isabel.
 Jamestown.
 Jarbalo.
 Jennings.
 Jetmore.
 (Hodgeman Co. H. S.)
 Jewell City.
 Johnson.
 (Stanton Com. H. S.)
 Junction City.
 (Junction City H. S.)
 (St. Xavier's H. S.)
 Kackley.
 Kanopolis.
 Kanorado.
 Kansas City.
 (Argentine H. S.)
 (Catholic H. S.)
 (Central H. S.)
 (State School for Blind.)
 (Sumner H. S.)
 (Western Univ. Academy.)
 Keats.
 Kensington.
 Kincaid.
 Kingman.
 Kingsdown.
 Kinsley.
 Kiowa.
 Kipp.
 Kirwin.
 Kismet.
 La Crosse.
 La Cygne.
 Lafontaine.
 La Harpe.
 Lake City.
 Lakin.
 Lane.
 Langdon.
 Lansing.
 Larned.
 Latham.
 Lawrence.
 (Lawrence H. S.)
 (Liberty Memorial H. S.)
 (Oread H. S.)
 Leavenworth.
 (Catholic H. S.)
 (Leavenworth H. S.)
 (St. Mary's Academy.)
 Lebanon.
 Lebo.
 Lecompton.
 Lehigh.
 Lenora.
 Leon.
 Leona.
 Leonardville.
 Leoti.
 (Wichita Com. H. S.)
 Le Roy.
- Levant.
 Lewis.
 Liberal.
 Lincoln.
 Lincolnville.
 Lindsborg.
 (Lindsborg H. S.)
 (Bethany College Academy.)
 Linn.
 Linwood.
 Little River.
 Logan.
 Lone Elm.
 Longford.
 Long Island.
 Longton.
 Lorraine.
 Lost Springs.
 Louisville.
 Lovewell.
 (Sinclair R. H. S.)
 Lucas.
 Luray.
 Lyndon.
 Lyons.
 McCracken.
 McCune.
 McDonald.
 McLouth.
 McPherson.
 (McPherson H. S.)
 (Central College Academy.)
 (McPherson College Academy.)
 Macksville.
 Madison.
 Mahaska.
 Maize.
 Manhattan.
 (Manhattan H. S.)
 (Sacred Heart Academy.)
 Mankato.
 Manter.
 Maplehill.
 Marion.
 Marquette.
 Marysville.
 Matfield Green.
 (Matfield Twp. H. S.)
 Mayetta.
 Meade.
 Medicine Lodge.
 Melvern.
 Menlo.
 Meriden.
 Merriam.
 (Shawnee Mission H. S.)
 Michigan Valley.
 Midian.
 Milan.
 Mildred.
 Milford.
 Miller.
 Milton.
 Miltonvale.
 (Miltonvale R. H. S.)
 (Miltonvale Wesleyan Academy.)
 Minneapolis.
 Minneola.
 Moline.
 Montezuma.
 Montrose.
 Monument.
 Moran.
 Morehead.
 Morganville.
 Morland.
 Morrill.

- Moscow.
 Mound City.
 Mound Ridge.
 Mound Valley.
 Mount Hope.
 Mulberry.
 (Mulberry H. S.)
 (Cockerill H. S.)
 Mullinville.
 Mulvane.
 Munden.
 Muscotah.
 Narka.
 Nashville.
 Natoma.
 Neal.
 Neodesha.
 Neosho Falls.
 Neosho Rapids.
 Ness City.
 Netawaka.
 Newton.
 (Newton H. S.)
 (Bethel College Academy.)
 Nickerson.
 (Reno Co. H. S.)
 Norcatur.
 Northbranch.
 (Northbranch Academy.)
 North Topeka.
 (Seaman H. S.)
 Norton.
 (Norton Co. H. S.)
 Nortonville.
 Norway.
 Norwich.
 Oakland.
 Oakley.
 Oberlin.
 (Decatur Co. H. S.)
 Offerle.
 Oketo.
 Olathe.
 Olsburg.
 Onaga.
 Oneida.
 Osage City.
 Osawatomie.
 Osborne.
 Oskaloosa.
 Oswego.
 Otis.
 Ottawa.
 (Ottawa H. S.)
 (Ottawa University
 Academy.)
 Overbrook.
 Overland Park.
 Oxford.
 Ozawkie.
 Palco.
 Paola.
 (Paola H. S.)
 (Ursuline Academy.)
 Paradise.
 Parker.
 Parkerville.
 Parsons.
 Partridge.
 Pawnee Rock.
 Paxico.
 Peabody.
 Perry.
 Peru.
 Piedmont.
 Pierceville.
 Phillipsburg.
 Piper.
 Pittsburg.
 (Pittsburg H. S.)
 (K. S. T. C. H. S.)
 Plains.
 Plainville.
 Pleasanton.
 Plevna.
 Pomona.
 (Appanoose R. H. S.)
 (Pomona R. H. S.)
 Portis.
 Potter.
 Potwin.
 Powhattan.
 Pratt.
 Prescott.
 Preston.
 Prairie View.
 Pretty Prairie.
 Princeton.
 Protection.
 Quenemo.
 Quincy.
 Quinter.
 Ramona.
 Randall.
 Randolph.
 Ransom.
 Rantoul.
 Raymond.
 Reading.
 Reece.
 Republic.
 Reserve.
 Rexford.
 Richmond.
 Riley.
 Robinson.
 Rock Creek.
 Rolla.
 Rosalia.
 Rosedale.
 Rose Hill.
 Rossville.
 Roxbury.
 Rozel.
 Russell.
 Russell Springs.
 Sabetha.
 Saffordville.
 (Toledo Twp. H. S.)
 St. Francis.
 (Dist. No. 93 H. S.)
 (St. Francis Com. H. S.)
 (St. Paul H. S.)
 St. George.
 St. John.
 (St. John H. S.)
 (Antrim R. H. S.)
 St. Marys.
 (St. Mary's H. S.)
 (St. Mary's College
 Academy.)
 (Immaculate Conception
 H. S.)
 Salina.
 (Salina H. S.)
 (Sacred Heart H. S.)
 (Marymount Academy.)
 Satanta.
 Savonburg.
 Sawyer.
 Scandia Twp.
 Scott City.
 (Scott Com. H. S.)
 Scottsville.
 Scranton.
 Sedan.
 Sedgwick.
 Selden.
 (Selden H. S.)
 (Leoville H. S.)
 Seneca.
 (Seneca H. S.)
 (Sts. Peter and Paul's H. S.)
 Severance.
 Severy.
 Shallow Water.
 Sharon.
 Sharon Springs.
 (Wallace Co. Com. H. S.)
 Silver Lake.
 Simpson.
 Smith Center.
 Smolan.
 Soldier.
 Solomon.
 South Haven.
 Spearville.
 Spivey.
 Spring Hill.
 Stafford.
 Stanley.
 Stark.
 Sterling.
 Stilwell.
 Stockdale.
 Stockton.
 Strawn.
 Sublette.
 Summerfield.
 Sun City.
 Sylvan Grove.
 Sylvia.
 Syracuse.
 Tampa.
 Tescott.
 Thayer.
 Tipton.
 Tonganoxie.
 Tonovay.
 Topeka.
 (Topeka H. S.)
 (Bethany College Academy.)
 (Catholic H. S.)
 (Highland Park H. S.)
 (Kansas Vocational School.)
 (Washburn R. H. S.)
 Toronto.
 Towanda.
 Tribune.
 (Greeley Co. Com. H. S.)
 Trousdale.
 Troy.
 Turner.
 Turon.
 Tyro.
 Udall.
 Ulysses.
 (Grant Co. Com. H. S.)
 Uniontown.
 Utica.
 Valley Center.
 Valley Falls.
 Vermillion.
 Vernon.
 Vesper.
 Victoria.
 Vilas.
 Vinland.
 Viola.
 Virgil.
 Wakeeney.
 (Trego Co. H. S.)
 Wakefield.
 Waldo.
 Wallace.
 Walnut.
 Walton.
 Wamego.
 Washington.
 Waterville.
 Wathena.
 Waverly.
 Wayside.
 Webber.
 Webster.
 Weir City.
 Welda.
 Wellington.
 Wellsville.
 Weskan.
 West Mineral.

Westmoreland.
Westphalia.
Wetmore.
Wheaton.
White City.
White Cloud.
Whitewater.
Whiting.

Wichita.
 (Wichita H. S.)
 (Cathedral H. S.)
 (Mt. Carmel Academy.)
Wilburton.
Williamsburg.
Willis.
Wilmore.
Wilsey.
Wilson.

Winchester.
Windom.
Winfield.
Winona.
Woodbine.
Woodson.
Yates Center.
Zenda.
Zook.

Undergraduate Degrees and Certificates

For graduation, one must complete one of the four-year curricula as shown elsewhere. These are believed to provide for the necessities of most students who seek an institution of this kind, and departures from the specified work are not encouraged. Under special conditions, however, such College substitutions are allowed as the interests of the student demand. The total requirement, including military science or physical training, is about 134 hours, or semester credits, a semester credit being one hour of recitation or lecture work, or three hours of laboratory work a week, for one semester of eighteen weeks. A student, to be considered as a candidate for graduation, must have done his last year's work in residence. Not less than 20 semester hours of undergraduate work must be taken here while this residence requirement is being fulfilled. Not to exceed 16 semester hours of a student's last year's residence work may be taken for graduate credit, provided that all undergraduate requirements will have been satisfied by the graduation. In special cases candidates would be considered who have done three full years of work here and have done their last year of work in an institution approved by the faculty.

Candidates desiring to be graduated must make application to the registrar at least 30 days before the date that graduation is expected. The responsibility rests with a candidate to see that he has complied with all of the requirements.

Candidates for graduation or for advanced degrees are requested to be present in person, unless arrangements have been made in advance for the conferring of the degree in absentia. Application for this privilege should be made to the student's dean.

DEGREES

The degree of Bachelor of Science (B.S.) is conferred upon those who have completed the four-year curriculum in agriculture, agricultural engineering, chemical engineering, mechanical engineering, electrical engineering, civil engineering, flour-mill engineering, architecture, architectural engineering, landscape architecture, home economics, industrial journalism, industrial chemistry, rural commerce or general science, or the five-year curriculum in home economics and nursing.

The degree of Bachelor of Music (B.M.) is conferred upon those who have completed one of the four-year curricula in music.

The degree of Doctor of Veterinary Medicine (D.V.M.) is conferred upon those who have completed the four-year curriculum in veterinary medicine.

CERTIFICATES

An appropriate certificate is granted upon completion of any one of the following:

1. The three-year curriculum in music.
2. The two-year curriculum in public-school music.
3. Any one of the one-year or two-year courses in trades related to engineering.
4. The short course in agriculture.
5. The eight-week creamery short course.

Graduate Study

THE ADMINISTRATION OF GRADUATE COURSES

The administration of the graduate courses is vested in the Graduate Council. This body consists of seven members, selected from the following divisions of the College: Agriculture; Engineering; General Science; Home Economics; and Veterinary Medicine. The members of the Graduate Council are appointed and its chairman designated by the President.

The graduate faculty consists of the deans of the academic divisions and of the staff members recommended by the department heads and approved by the Graduate Council as qualified to give graduate instruction. Its chairman is the President of the College; and its secretary, the secretary of the Graduate Council. The graduate faculty offers all graduate courses, and at the call of the chairman holds meetings for the consideration and adoption of general rules of procedure in the administration of the graduate work.

The Graduate Council determines, subject to the authority of the President of the College and the Board of Regents, and in accordance with any general regulations adopted by the graduate faculty, matters of curriculum, admission to graduate study and to candidacy to advanced degree, and other matters which relate to the proper administration and development of graduate work in the College.

ADMISSION

Admission to graduate courses is granted to graduates of institutions whose requirements for the bachelor's degree are substantially equivalent to those of the Kansas State Agricultural College. Admission to the graduate courses, however, may not be construed to imply admission to candidacy for an advanced degree. Such candidacy is determined by the Graduate Council upon the recommendation of the major instructor after the student has demonstrated by his work for a period of two months or longer that he has the ability to do major work of graduate grade. A mere accumulation of grades will not lead to a degree.

Application blanks for admission to graduate courses may be secured from the chairman of the Graduate Council. Every applicant for admission must submit with his application an official transcript of his college record.

REGISTRATION

Students applying for graduate work should present themselves to the chairman of the Graduate Council at Nichols Gymnasium during the regular registration days (see College calendar), and at other times at his office, room 58, Fairchild Hall.

Students who have been admitted to the graduate courses are required to register with the College registrar and with the chairman of the Graduate Council, at the beginning of each semester, unless special permission for later registration has been granted by the chairman of the Graduate Council. Credit toward the fulfillment of the residence requirements dates from the time of registration and not from the beginning of the semester when the student enters.

CANDIDACY FOR MASTER'S DEGREE

Candidates for the degree of Master of Science (M.S.) are required to spend at least one collegiate year in residence, except under certain special conditions when the residence may be reduced to one and one-half semesters. The equivalent of thirty-two semester credits including a thesis must be satisfactorily completed. Not more than sixteen credits, including thesis, may be se-

cured in a single semester. Students holding half-time graduate assistantships may not obtain more than twelve credits, including thesis, in one semester.

GRADES. Graduate student's work is graded in five classes: E, G, M, P, and F. The last indicates a failure. P indicates unsatisfactory though passable work. The degree will not be conferred on any student who does not receive a grade of G or higher in three-fourths of the courses taken, including thesis. A failure or absence from examination in any course may prevent the conferring of the degree; and failure in any course in the major field precludes conferring the degree in the same year.

LANGUAGE REQUIREMENTS. A reading knowledge of a modern language in the field of the major subject is highly desirable. At the discretion of the department in which the major work is done, this may be required for the degree. This requirement must be met before the beginning of the last semester preceding the conferring of the degree by the student's presenting himself to the head of the Department of Modern Languages for examination. An earlier meeting of this requirement is highly desirable.

MASTER'S THESIS. Each candidate for a master's degree is required to present a thesis on some subject approved by the Graduate Council upon the recommendation of the instructor in charge of his major work.

The thesis ordinarily demands one-fourth of the student's time and may not exceed one-third of it. The thesis and special reports upon it must be prepared in accordance with specifications to be obtained from the office of the chairman of the Graduate Council. (See College calendar for dates.)

A candidate for the master's degree is subject to a rigid oral examination covering his major and minor subjects and thesis by a committee consisting of the dean of the division in which his major subject was taken, a member of the Graduate Council from that division, and the instructors with whom he has taken major and minor work.

PROGRAM OF STUDY

In carrying graduate work, the student is expected to assume the initiative and the responsibility. It is important to recognize in the beginning that graduate work does not consist in the fulfillment of routine requirements alone. The various courses as well as the assistance and advice of the instructors are to be regarded simply as aids in acquiring the methods, discipline, and spirit of independent research.

Each candidate for a degree is expected to have a wide knowledge of his subject and of related lines of work. This is usually obtained only by a wide range of private reading and study outside the immediate field covered by the formal courses to which he may be assigned.

The branch of knowledge to which the student expects to devote the larger part of his time is termed his major subject. The other fields of study selected, which will necessarily be more restricted in scope, are termed minor subjects. The latter should be chosen with reference to their direct bearing on the major subject.

Approximately two-thirds of the student's time is devoted to his major subject and one-third to one or more minor subjects. The word subject is used to designate a recognized field of study, and is not defined by the limits of a department. The nature and distribution of the majors and minors are approved by the Graduate Council, upon the recommendation of the instructor with whom the major is taken.

The program of study suggested by the major instructor and approved by the Graduate Council is made the basis of the formal assignment to courses at the beginning of each semester and of the summer sessions.

It will be noted that in the announcement of the various departments of the College, certain courses are open to both graduate and undergraduate students. For graduate credit in such courses, the student must do extra work. No credit earned during the undergraduate course may be counted

for graduate credit, unless registered, at the time taken, with the chairman of the Graduate Council as credits in excess of those required for the bachelor's degree.

VACATION CREDIT

Upon the recommendation of his major instructor a student not registered in the College may accumulate a limited number of graduate credits in problem or research courses during either semester, the summer school, or the period between the close of summer school and the beginning of the next succeeding semester under the following provisions: (1) The approval of the Graduate Council must be secured in advance. (2) The work must be carried on under the immediate supervision of a graduate instructor.

The credits so earned will be included on the student's next regular assignment marked "vacation credit" and will be in addition to the regularly allowed number of credits assigned. Such credits will be forwarded to the registrar by the instructor as soon as the latter receives the class cards after the beginning of the next semester.

GRADUATE ASSISTANTSHIPS

In order to encourage graduates of this and similar institutions to continue their studies and to pursue advanced work leading to a master's degree, the College has established graduate assistantships in several departments. These assistantships demand half the time of the student for laboratory or research assistance along the line of his major work during the regular collegiate year. The remainder of his time is given to graduate work. No half-time graduate assistant may receive more than twelve graduate credits per semester nor satisfy the residence requirement in less than two semesters and one summer school.

Half-time graduate assistantships, paying a salary fixed each year by the Board of Regents, have been established as follows:

<i>Subject</i>	<i>Number</i>
Agricultural Economics	1
Agronomy	2
Animal Husbandry	2
Bacteriology	1
Botany and Plant Pathology	2
Clothing and Textiles	1
Dairy Husbandry	1
Education	1
Food Economics and Nutrition	1
Home Economics	1
Horticulture	1
Household Economics	2
Physical Education	1
Poultry Husbandry	1
Public Speaking	1
Zoölogy	4

RESEARCH ASSISTANTSHIPS

Research assistantships as listed below usually are maintained in the departments named. Occupants of these positions assist in the conduct of regular research work of the institution.

<i>Subject</i>	<i>Number</i>
Agricultural Economics	1
Agronomy	1
Animal Husbandry	1
Botany and Plant Pathology	1
Clothing and Textiles	1
Dairy Husbandry	1
Entomology	1
Food Economics and Nutrition	2
Household Economics	1
Poultry Husbandry	1
Zoölogy	3

Any department having a half-time graduate assistantship vacant may appoint two quarter-time assistants whenever the plan seems feasible. A quarter-time assistantship pays half the salary of a half-time assistantship. A student holding a quarter-time assistantship may carry not more than fourteen credit hours each semester. By satisfactorily completing four to eight credits of graduate work in the summer session, graduate assistants may meet the requirements for a master's degree within one calendar year.

Appointments for all assistantships are made annually in March, or soon thereafter, for the following year. Students desiring such appointments may obtain application blanks from the chairman of the Graduate Council.

GRADUATE WORK IN THE SUMMER SESSION

Graduate students desiring to do a part or all of the work for the master's degree in the summer may complete the residence requirements, in certain lines only, by pursuing graduate work for four summer sessions. Persons interested should correspond with the chairman of the Graduate Council in advance. In special cases it may be possible to complete the residence requirements for the master's degree as indicated above under "Candidacy for Master's Degree."

A detailed statement concerning the graduate work in the Summer School may be had on application to the dean of the Summer School, Kansas State Agricultural College, Manhattan, Kan.

Professional Degrees

ENGINEERING AND ARCHITECTURE

Graduates in engineering or in architecture from this College previous to 1917 who have been engaged in engineering or architectural practice for a period of five years or more, and graduates in 1917 or later who have been engaged in engineering or architectural practice for a period of three years or more, will be granted the professional degree of Mechanical Engineer, Civil Engineer, Chemical Engineer, Electrical Engineer, Agricultural Engineer, Flour Mill Engineer, Architect, Architectural Engineer or Landscape Architect, under the following conditions:

The graduate to be eligible to a degree must submit a statement of his experience and a thesis covering some phases of his practice. This thesis and experience must be approved by the head of the department in which the degree is requested, by the dean of the Division of Engineering, and by the Graduate Council, before the granting of such a degree will be recommended to the College Faculty and to the Board of Regents.

A candidate must declare his candidacy and file with the Dean of the Division of Engineering a detailed statement of his professional study and experience, and an outline of his proposed thesis, not later than the November 15 next preceding the June commencement at which the degree is to be conferred.

A preliminary copy of the completed thesis must be submitted for criticism not later than April 1, and the final copy in duplicate must be submitted not later than May 15.

Candidates for professional degrees shall present themselves at the commencement exercises in order that the degrees may be conferred.

A diploma fee of \$10 shall be paid by each candidate to the registrar not later than May 15.

General Information

DUTIES AND PRIVILEGES

Good conduct in general, such as becomes men and women everywhere, is expected of all students. Every possible aid and stimulus toward the development of good character is given by the various Christian organizations of the College and the town and by the College itself. Every student is expected to render a good account of himself in the College community life. For those who are high-minded and reasonable, no other requirements need be expected. College discipline is confined chiefly to sending away those whose conduct, after fair trial, makes their further attendance at the College unprofitable or inadvisable.

In order that a fine type of democratic sociability may be fostered among students and Faculty, a large community recreation and rest center has been recently established (1920) in Anderson Hall, the administrative building. This center, one of the largest rooms on the campus, is furnished with divans, arm chairs, and writing tables in wicker and is neatly and beautifully decorated. During vacant hours and between classes, students and Faculty gather here for rest and conversation. The room is also available for student and Faculty receptions and parties during the late afternoon and the evening hours.

Absences from class or laboratory periods must be accounted for to the instructor concerned. Permission for absence from College for one or more days must be secured in advance from the dean of the division in which the student is registered. Students cannot honorably leave the College before the close of semester except by previous arrangement with the deans concerned.

Opportunities for general scientific, literary and forensic training are afforded, in addition to the College courses, by various literary and scientific societies and clubs. The Science Club, meeting monthly, admits to membership all instructors and students interested in science. Papers given at the meetings of the Science Club represent original work in science done at the institution. The program is further characterized by free discussion of the papers presented and by general scientific notes and news contributed by the members. The numerous literary and professional societies, which are described elsewhere in the catalogue under the title "Student Organizations," also afford excellent training in their diverse lines.

At various times during the year the College halls are opened for social, literary, musical, and dramatic entertainments furnished by lecture courses, by the literary societies, by the Department of Music, by the Dramatic Club, by the Oratorical Association, and by other organizations of students and instructors. Addresses by prominent speakers, men of affairs, and persons prominent in scientific, educational, and social work are of frequent occurrence.

EXPENSES

TUITION. There is no charge for tuition. Class instruction in music is free, but fees are charged for individual instruction. (See Department of Music for statement of fees for music.)

MATRICULATION FEE. A matriculation or entrance fee of \$10 for residents of Kansas, or \$15 for nonresidents, is charged all students in College curricula. This fee is not charged Summer School students, short course students, or students in trade courses, but is payable by special students in the College.

INCIDENTAL FEE. An incidental fee of \$30 a year or \$15 a summer term is charged residents of Kansas; nonresidents pay \$45 a year or \$20 a summer term. Students in short courses of more than eight weeks duration pay an incidental fee of \$10. Eight-week short-course students pay an incidental fee of \$5.

SICK-BENEFIT FEE. Each student in the College pays a sick-benefit fee of \$3 a semester or \$1.50 for a summer term. Students in short courses of more than eight weeks duration pay a sick benefit fee of \$3. For students in the short courses, lasting eight weeks only, this fee is \$1.50.

The sick-benefit fee entitles the student to receive the service of the College physician for any illness contracted while in College. It also includes the cost of medicine, and free hospital service up to three days. The fee does not include the cost of surgical operations, reduction of fractures, or the treatment of chronic conditions.

As in the case of all other fees, the College reserves the right to change this fee or to modify the benefits given for it, without previous notice.

The college maintains on the campus a contagion hospital having separate wards for men and women. This hospital is in charge of a matron who resides continuously in the building and cares for the patients, under the direction of the College physician. Students, when suffering from or suspected of having any contagious disease, except smallpox, are admitted to the hospital on the recommendation of the College physician. The student's only expense for hospital service is a fixed charge of \$1 a day, after three days of free service. The aim of the College in providing this hospital is to prevent contagious diseases among the students and, in case the student should contract such a disease, to make it unnecessary to quarantine a rooming house where there are many students.

STUDENT-ACTIVITY FEE. Each student pays a student-activity fee of \$5 a semester. This fee is imposed by vote of the students themselves, and at their request is collected by the College at the beginning of each semester along with the fees levied by the state. Payment of this fee admits the student to all athletic events, to all intercollegiate debates and oratorical contests, and to band concerts, and gives membership in the Student's Self-governing Association. The members of the Faculty and the employees of the College are allowed the privilege of participation in the activity-fee plan.

RECAPITULATION. To make plain especially to prospective students the amount of fees due at the opening of the College year in accordance with the statements of the above paragraphs, the following tabular statement is given:

FOR RESIDENTS OF KANSAS

	<i>Old students.</i>	<i>New students.</i>
Matriculation	None	\$10.00
Incidental (both semesters).....	\$30.00	30.00
Sick benefit (both semesters).....	6.00	6.00
Student activity (each semester).....	5.00	5.00
Totals.....	\$41.00	\$51.00

FOR NONRESIDENTS OF KANSAS

	<i>Old students.</i>	<i>New students.</i>
Matriculation	None	\$15.00
Incidental (both semesters).....	\$45.00	45.00
Sick benefit (both semesters).....	6.00	6.00
Student activity (each semester).....	5.00	5.00
Totals.....	\$56.00	\$71.00

FOR ALL SHORT-COURSE STUDENTS

	<i>1-8 weeks courses.</i>	<i>9-15 weeks courses.</i>
Incidental	\$5.00	\$10.00
Sick benefit	1.50	3.00
Totals.....	\$6.50	\$13.00

LATE ASSIGNMENT FEE. For unexcused late assignment the student is charged \$5.

LABORATORY EXPENSE. In all laboratories students are required to pay for supplies used and for apparatus broken or lost. The cost in the several sub-

jects ranges from 50 cents to \$10 a semester. These charges are noted under the descriptions of the several courses. In the special courses related to engineering, the laboratory charges are fixed at from \$18 to \$36 for the entire course.

COMMENCEMENT FEE. On graduation students pay a commencement fee of \$10 to cover the cost of the diploma and other commencement expenses.

WHEN FEES ARE PAYABLE. The matriculation fee, the incidental fee, and the sick-benefit fee for the full year are payable at the beginning of the year. Laboratory fees and the student activity fee are payable at the beginning of each semester.

A senior expecting to complete his course at the end of the first semester, by presentation of a statement to that effect signed by his dean, will be required to pay for the first semester only.

FEE RECEIPTS ARE TO BE SAVED. Receipts for fees paid must be shown to the assigner at the beginning of each semester before a student is permitted to take out his assignment. Fall semester fee receipts admit the student for second-semester assignment.

REFUND OF FEES. *No refund is made on the matriculation fee.* Certain refunds are made on other fees, as shown below.

A student who does not return for second semester work may receive a refund of his second semester fees.

A student permitted to withdraw on or before the end of the first one-fourth of a semester may receive a refund of one-half of the fees paid for that semester.

A student permitted to withdraw after remaining one-fourth and less than one-half semester may receive a refund of one-fourth the fees paid for that semester.

Refund is made on the unused portion of laboratory fees.

Refunds are given *only* on the presentation of the fee receipt for various fees paid. Refunds are authorized at the office of the registrar. *Fee receipts must be preserved* by the student.

TEXTBOOKS. The cost of textbooks varies considerably from semester to semester and according to the curriculum pursued. The following tabulation shows the approximate cost of books required during the freshman year.

<i>Curriculum.</i>	<i>First semester.</i>	<i>Second semester.</i>
Agriculture	\$23.70	\$5.95
Agricultural Engineering	21.15	8.10
Architecture	14.45	4.75
Civil Engineering	22.15	4.75
Electrical Engineering	20.50	10.95
Flour Mill Engineering	11.50	11.25
General Science	16.60	4.45
Home Economics	21.25	8.65
Industrial Journalism	10.40	.10
Mechanical Engineering	16.00	8.75
Rural Commerce	10.25	4.50
Veterinary Medicine	27.90	3.00

DRAWING INSTRUMENTS. In several curricula, especially in architecture and engineering, drawing instruments are required. These range in price from \$7.50 to \$25.00 a set.

GYMNASIUM SUITS. Each young woman taking physical training must have an approved gymnasium suit costing about \$4.50. Complete gymnasium suits for young men cost about \$5.

MILITARY UNIFORM. Each student required to take military training pays a fee of 35 cents a semester for use of his uniform, which is furnished by the government.

ROOMS. Rooms are not furnished by the College. They are readily obtained in the city at a cost of from \$10 to \$15 a month for a room suitable for

two occupants. Less desirable quarters and less desirable locations may be obtained at a lower rate. There are great differences in the accommodations offered. Those for which the higher prices are charged are modern in all respects, and light, heat, and bath are included in the cost stated.

BOARD. The cost of board depends largely upon individual requirements. In clubs and private boarding houses the cost is usually from \$5 to \$7 a week. Students may board themselves at a smaller money outlay. The College operates a first-class cafeteria, where all meals may be obtained, except on Sundays, at moderate prices. Food is furnished at cost and the expense to the student depends upon the care and judgment which he employs.

LAUNDRY. The expense for laundry may be estimated at 40 cents to 70 cents a week, depending upon individual requirements.

BOARDING AND ROOMING HOUSES

The Christian Associations of the Agricultural College keep on file the official list of boarding and rooming houses. All correspondence relative to boarding accommodations, in advance of the student's arrival in Manhattan, may be addressed to the secretary of the Young Men's Christian Association, to the secretary of the Young Women's Christian Association, or to the registrar of the College. Upon arrival in Manhattan, young men should go directly to the office of the Y. M. C. A. secretary in Anderson Hall on the College campus. Young women upon arrival should go directly to the Y. W. C. A. offices in Calvin Hall on the campus. Taxi service may be had from either station.

For three days before the opening of the fall semester and for the first three days after the opening day, committees from these associations meet trains and assist in directing new students, either to the association buildings or directly to proper boarding places. The associations make no charge for their services or for lists of all approved boarding places, and new students should depend absolutely upon the recommendations of the association committees.

SELF-SUPPORT

The courses of instruction are based upon the supposition that the student is here for study, and therefore a proper grasp of the subjects cannot be obtained by the average student unless the greater part of his time is given to College work. Students of limited means are encouraged and aided in every possible way, but unless exceptionally strong, both mentally and physically, such students are advised to take lighter work by extending their courses, in case they are obliged to give any considerable time to self-support. As a rule, a student should be prepared with means for at least a semester, as some time is required in which to make acquaintances and to learn where suitable work may be obtained.

There are various lines in which students may find employment. The College itself employs labor to the extent of about \$1,200 a month, at rates varying from 20 to 35 cents an hour, according to the nature of the employment and the experience of the employee. Most of this labor is upon the College farm, in the orchards and gardens, in the shops and the printing office, for the janitor, etc. Various departments utilize student help to a considerable extent during the vacations. Students demonstrating exceptional efficiency, ability and trustworthiness obtain limited employment in special duties about the College. Many students secure employment in various lines in the town, and some opportunity exists for obtaining board in exchange for work, with families either in town or in the neighboring country.

Labor is universally respected in the College community, and the student who remains under the necessity of earning his way will find himself absolutely unhampered by discouraging social conditions. Indeed, over one-third of the students support themselves wholly, while a third support themselves in part. False standards regarding physical work do not exist,

and are not tolerated by the board of instruction or by the student body as a whole. Absolutely democratic standards prevail at the College, and students are judged on the basis of their personal worth and efficiency alone.

Students are assisted to obtain employment by means of the employment bureaus maintained by the Young Men's Christian Association and by the Young Women's Christian Association of the College, with secretaries of which organizations correspondence is encouraged.

STUDENT LOAN FUNDS

THE ALUMNI LOAN FUND. The Alumni Association of the Kansas State Agricultural College has created a loan fund, chiefly by means of payments by which the alumnus is relieved from further regular dues in the association. Members are due to pay the association \$5 a year, and on payment of \$50 in one sum they are relieved from such dues. The fund so created, amounting now to about \$4,600, is lent to students at 6 per cent per annum. The fund is administered by a committee appointed by the directors of the Alumni Association. The committee announces no specific rules governing the granting of loans, but in general gives preference to junior and senior students, and to loans of smaller amounts on short time over larger amounts which cannot be paid for several years. Alumni are urged to take life memberships and thus add to the funds available to worthy students. Students wishing loans from this fund may address Dean J. T. Willard, chairman of the Alumni Loan Fund Committee, Manhattan, Kan.

Acknowledgment is made from year to year at this place of additions to the Life Membership Fund. Since the last report life memberships on the hundred-dollar basis have been taken by Elizabeth McNew Winter Fly, Lorena Clemons Records, Royal S. Kellogg, D. H. Otis and F. C. Sears. On the present fifty-dollar basis the following named have become life members: Daisy Hoffman Johntz, Maria Morris, Verna Breese Garratt, Jennie Horner, Anna M. Neer, Mildred C. Mast, June Zirkle, Martha S. Pittman, Elma Stewart, Lester J. Schmutz and Blanche Brooks, and a considerable number have made part payments. George A. Dean and Minerva Blachly Dean have taken joint life membership by payment of \$75. Vilona Cutler has become the first endowment member by her contribution of \$500.

THE HENRY JACKSON WATERS LOAN FUND. The Henry Jackson Waters loan fund consists of the royalties received from the Kansas sales of Ex-President Waters' textbook, *The Essentials of Agriculture*, for the first five years. The royalties so far have amounted to approximately \$2,000, which sum has been augmented by gifts of \$100 each from Senator Capper and L. R. Eakin, of Manhattan, and by smaller amounts received from some others. The entire amount, now over \$3,000, is in constant use. The fund is administered by a committee appointed by the president of the College and approved by the Board of Regents. The rules for the loans are likewise approved by the Board. The rules allow emergency loans of \$50 to any student who has completed one semester of work in this College. Juniors may borrow \$100 and seniors may borrow \$150. Applications for loans should be made to Prof. Albert Dickens, chairman of the Waters Loan Fund Committee, Manhattan, Kan.

THE CHAMBER OF COMMERCE LOAN FUND. The members of the Chamber of Commerce of Manhattan have raised a fund which now amounts to \$3,000 and is being augmented constantly. This is loaned to deserving students at 5 per cent per annum. About ninety loans have been made. Applications for loans from this fund should be addressed to the secretary, Chamber of Commerce, Manhattan, Kan.

THE STATE FEDERATION OF WOMEN'S CLUBS LOAN FUND. Each year several of the young women students of the Kansas State Agricultural College are beneficiaries of the State Federation of Women's Clubs through the administration of its liberal young women's student loan fund. Information regard-

ing this fund can be obtained by addressing Dean Mary P. Van Zile, Manhattan, Kan.

THE P. E. O. LOAN FUND. The P. E. O., a national organization of women, maintains an educational fund to be loaned to girls to help defray college expenses. Information regarding this fund may be obtained from Dean Mary P. Van Zile.

THE SOCIAL CLUB LOAN FUND. This is a fund loaned by the K. S. A. C. Social Club and is administered by the Waters Loan Fund Committee.

THE D. A. R. LOAN FUND. The D. A. R. loan fund is a fund available to both men and women students and is administered by the Waters Loan Fund Committee.

THE WOMEN'S PAN-HELLENIC LOAN FUND. The Alumnæ Pan-Hellenic Fund is loaned to women students. Applications should be made to the president, City Pan-Hellenic, through Dean Mary P. Van Zile.

PRIZES AND MEDALS

STOCK JUDGING. The Block and Bridle Club offers four medals, one gold, one silver, and two bronze, to students obtaining the highest four places in the club's stock-judging contest. The same organization offers prizes of books for stock judging. The faculty of the Department of Animal Husbandry offers prizes of books or papers on stock judging.

DAIRY JUDGING. The Student Dairy Association each year holds a dairy-judging contest, and offers a gold, a silver and a bronze medal to students obtaining the highest three places.

GRAIN JUDGING. The Klod and Kernel Klub holds an annual grain-judging contest. Cash prizes, subscriptions to farm papers, and ribbons are given to the highest ranking students.

PLAY WRITING. The Purple Masque Dramatic Fraternity offers each year a prize of \$50 for the best original play written by a student of the Kansas State Agricultural College and suitable for presentation by the fraternity.

ORATORY. The literary societies, through the Oratorical Board, offer each year, in the Intersociety Oratorical Contest, the following prizes:

First prize, gold medal and \$25.

Second prize, silver medal and \$15.

Third prize, bronze medal and \$10.

The Oratorical Board also finances the sending of a representative from the College to the annual Peace Oratorical Contests, to the winners of which valuable prizes in money are awarded.

The Department of Public Speaking sends to the annual Missouri Valley Contest an orator as the representative of the College. In this contest valuable prizes in money and medals are awarded.

SHORT-STORY WRITING. The Quill Club offers annually a gold medal to the student of Kansas State Agricultural College writing the best short story in a contest held by this organization.

SOCIOLOGY. The Kappa Alpha chapter of the Chi Omega Sorority offers a prize of \$25 to the student who holds the highest grade in sociology at the end of the second semester each year, the standing of the student to be determined by the instructor.

SCHOLARSHIPS

The local branch of the American Association of University Women offer a scholarship, a gift, of \$150 annually. This is awarded the woman student who has the highest academic rank at the end of the first semester of her junior year.

DEBATE. In the Department of Public Speaking two scholarships of the value of \$100 each, one for men and one for women students, are offered annually for proficiency in intercollegiate debating.

GRADUATE ASSISTANTSHIPS

Graduate assistantships have been established for some years by action of the Board of Regents, and are available in several departments of the College. For full details see a previous paragraph in the section devoted to graduate study.

BUSINESS DIRECTIONS

General information concerning the College may be obtained from the president or the registrar. Financial matters are handled through the office of the business manager, State Board of Regents, Topeka, Kan.

Prospective students desiring information or catalogues should address the vice president's office.

Scientific and practical questions, and requests for special advice in subjects in which the College and the Experiment Stations are prepared to give information, should be addressed to the heads of the departments concerned with the work regarding which information is sought.

Applications for farmers' institutes should be made as early in the season as possible, to the Division of College Extension. Applications for the publications of the Agricultural Experiment Station should be addressed: Director of the Agricultural Experiment Station, Manhattan, Kan. Publications of the Engineering Experiment Station may be had by addressing: Director of the Engineering Experiment Station, Manhattan, Kan.

Donations to the Library should be addressed to the librarian, and donations to the Museum to the curator of the Museum.

STUDENT ASSEMBLY

The Student Assembly is held one hour each week. At this time the library, offices, classrooms, and laboratories are closed and the students gather in the College Auditorium. These assembly exercises consist of devotional services, music, and addresses. The devotional exercises are conducted by members of the Faculty, by resident ministers of the various denominations, or by prominent visitors. Excellent music is provided by the College Orchestra, by members of the Department of Music, and by available outside talent. In addition to the addresses delivered by the president and by members of the Faculty, many prominent leaders of state and national reputation are invited to address the assembly. Thus the Student Assembly has become a center of true culture and enlightenment. Although attendance is not compulsory, it is common to see nearly two thousand enthusiastic students present during these exercises.

COLLEGE PUBLICATIONS

The official organ of the College is *The Kansas Industrialist*, published and printed at the College weekly by the Department of Industrial Journalism and Printing. Its pages are filled with articles of interest, with special reference to agriculture and the industries. Particular attention is paid to information concerning the work of the College, to investigations of the Experiment Stations, and to local and alumni news. *The Kansas Industrialist* will be sent to any address for seventy-five cents a year. The alumni may have *The Kansas Industrialist* free upon application.

The Division of College Extension issues a monthly publication entitled *Agricultural Education*, of special interest to institute members.

The students of the College publish a semiweekly periodical, *The Kansas State Collegian*, in the interest of the students at large. A humorous magazine, *The Brown Bull*, is published by the students and appears about four times during the college year. *The Kansas State Engineer* is published by

students in the Division of Engineering. Students in the Division of Agriculture issue *The Kansas Agricultural Student*. *The Home Economics News* is published quarterly by the faculty and students of the Division of Home Economics. A College annual, *Royal Purple*, is published each year by the senior class.

COLLEGE POST OFFICE

The College operates an office for the reception and delivery of mail. This is not a part of the United States postal service, but students and College officers may have their mail delivered there. Mail is received from the Manhattan post office and taken to it three times a day. Matter may be deposited for registered mail, and postage stamps may be procured, but post office orders cannot be obtained.

The chief purpose of this office is to facilitate intercommunication of College departments and communication of deans and teachers with students. All students are expected to call for their mail at least once each two days and preferably every day.

ASSIGNMENTS

No student may be enrolled in classes before receiving an assignment, and no assignment is completed until after the incidental fee is paid.

Assignments at the dates shown in the College calendar are made in Nichols Gymnasium, where detailed directions are announced by placards. Later assignments are made by the student's assigner during regular office hours, but are subject to checking by the registrar in respect to availability of classes. Classes are closed when the limits as to numbers are reached. A student is not admitted later than ten days after the opening of the semester except by special permission of his dean. An extra fee of five dollars is charged for assignments secured after the regular dates for assignment of students at the opening of each semester as announced in the College calendar, unless an acceptable reason for the tardiness is given.

A student desiring to take work at any other than the regular time must obtain the written consent of his dean, the head of the department in which the work is to be done, and the dean of the division to which the department belongs.

Each student must take full work unless excused by his dean, and more than regular work is not allowed to any student except by permission of his dean, and under no circumstance to anyone who failed or was conditioned or deficient in any subject the preceding semester, or whose average grade was below G.

A student is not allowed to carry work by correspondence while enrolled here, except by permission of his dean.

Special requests concerning assignments, and permission to make up deficiencies by outside study under an approved tutor, are acted upon by the student's dean in conference with the heads of the departments involved.

SCHOLARSHIP DEFICIENCIES

Any freshman student who receives deficiencies (grades below passing) in one-third of the work to which he is assigned, or any other student who receives deficiencies in one-fourth of his work, at the end of the semester, is automatically placed on probation for one semester and the parent or guardian of the student is informed of the fact. A third such probation automatically includes dismissal from the College.

Any freshman student who receives deficiencies in one-half of his work, or any other student who receives deficiencies in two-fifths of his work, at the end of the semester, is automatically dismissed from the College.

Dismissal for scholarship deficiencies continues for one semester and one summer school period. During this time the student must not habitually appear upon the campus nor enter any classes. Any student dismissed for scholarship deficiencies may petition in writing, on a form provided by the

College, for immediate reinstatement. Petitions presented by such students are considered by a committee appointed for that purpose. Reinstatement is granted only in exceptional and meritorious cases.

CHANGES IN ASSIGNMENTS

Subjects are not dropped from assignments within two weeks of dates set for reports of low grades.

No student may drop a study or modify his assignment except by a re-assignment, and any student desiring a change in his assignment must apply to his dean. Any change in a student's assignment is made in the office of his dean. Changes are not made within the two weeks immediately preceding a date for report of low grades. Teachers desiring that assignments be changed send requests to the proper deans. Notices of changes are furnished the registrar, the student and the student's assigner. Changes are effective at once, and the registrar, through the heads of departments, sends notices or enrollment cards to the teachers affected.

A student receiving a notice of reassignment must at once report to classes in accordance therewith. If not content with the revised assignment, he may confer with his dean concerning it. All absences caused by a student's dropping out of class without a proper reassignment are reported by the instructor as unexcused absences.

ABSENCE AND TARDINESS

Each student must appear at the first exercises of his classes after he is assigned. Students must be present the very first day of each semester or render a reasonable excuse. All absences are reported from the first day of the semester, even though the student enrolled late. Failure to take out an assignment is not accepted as an excuse for absence from classes. A student is not admitted later than ten days after the opening of the semester except by special permission of his dean.

Each student is required to attend every exercise of a class to which he is assigned. All absences and all cases of tardiness must be promptly accounted for on the "absence blanks." Permission for necessary absences from College for a day or more must, in all cases, be previously obtained from the dean. Any student present at College and desiring to be excused for the day from certain classes must apply in advance to the teachers of those subjects.

The student's attendance record is considered by each instructor as an important factor in determining the grade given in a subject.

The class record of attendance is marked immediately after the beginning of the class period. For students who come in late the record of absence may be changed to that of tardiness, but the teacher is not obliged to make such change unless the student on the day of tardiness hands to him at the close of the hour, on the "absence blank," a statement that he was present. In such a case the record is changed to agree with the facts. When a student who has been absent from College because of sickness returns, he must present to each instructor a certificate of good health from the College physician before he is permitted to remain in any classroom. The aim is to prevent the spread of any contagious disease.

Any class is excused if for any reason the instructor fails to report at the end of ten minutes after the beginning of the recitation period, unless the instructor sends word that he will be there later.

Signed reports of absences for each day are sent to the deans by the teachers before five o'clock p.m. Excuses submitted by students are transmitted with a recommendation in respect to excusing the absence. Action concerning excuse for absence is taken by the student's dean. Excuse for an absence does not relieve the student from responsibility for lecture, recitation or laboratory work lost while absent.

Any student who is found to be persistently inattentive in his College work is at once temporarily suspended by his dean, and reported to the president for permanent suspension.

EXAMINATIONS

Examinations are held during the last eight days of the semester in accordance with a definite examination schedule which, as far as possible, gives the student not more than two examinations on any one day.

No regular examination may be given at a date in advance of that provided, except that, at the discretion of the head of the department, a student may be permitted to take his examination with another class in the same subject instead of in his own class, and that in cases of extreme importance the dean of the student may authorize an examination at an earlier date.

Any student who receives a grade of E for the semester, in any subject, and whose absences for all causes from the class in such subject do not exceed one-tenth of the number of times the class is scheduled to meet during the semester, may be excused from the final examination in that subject, at the discretion of the instructor; provided, however, that instructors are to announce such exemption lists in their respective subjects not earlier than the last session of the class preceding the final examination.

Examinations to remove conditions are held on the fourth Saturday of each semester. A student who has received the grade of C is entitled to take such special examination, provided the instructor or the department head be notified of the student's desire to take the examination not later than the Tuesday evening preceding the Saturday set for the examinations. If a subject in which a student is conditioned is not passed at the first opportunity, the grade is changed from C to F, except that in individual instances, where the reason is sufficient, the student's dean may authorize such examination at a date different than that provided by the rule.

Permission for examination in subjects not taken in class or to make up failures by special examination must be obtained on recommendation of the professor in charge, from the dean of the division in which the student is assigned. Permission to take such examination is not granted unless the preparation for it is made under an approved tutor. All such examinations are under the immediate supervision of the professor in whose department the subject falls.

Examinations in high-school subjects for admission to the College are held at the beginning of each semester and of the summer school. Students desiring such examinations should consult the registrar in advance.

GRADES

Student grades are designated by the letters E, G, M, P, C, F, and U, having the following significance and order of rank:

The grade E designates really distinguished achievement, and is the net resultant of exceptionally good mental ability in conjunction with serious application. It is expected that this grade will not include more than ten per cent of all grades given a class, and usually will include about five per cent.

The grade G represents superior achievement, better than that exhibited by the average student, but not distinguished. It is recognized as a mark of considerable honor and is the resultant of high ability and fair application, or of fair ability and serious application. The percentage of students assigned this grade will depend somewhat upon the number assigned grade E, but the sum of grades E and G should approximate twenty-five per cent of all grades assigned.

The grade M represents the standing of about half of all students in the College. It means achievement equal to that of the average of students, and includes about half of all student grades. It indicates neither superior nor inferior accomplishment.

The grade P, meaning passed, represents achievement of a grade below that of the average of students. It indicates a student's position as being in the upper part of the lower fourth of the class, and his work as being such as may

be described as poor, or inferior. The number of grades P awarded, together with the grades C and F, should not, on the whole, exceed twenty-five per cent of all, and are expected to include about that proportion.

The grade C, meaning conditioned, is the symbol used to represent two types of inferior work: (a) that which is deficient in quality, and (b) that which is satisfactory as to quality but inadequate as to quantity. The results of examinations to remove conditions are reported simply as P (passed) or F (failed), and such examinations not taken are recorded as F.

The grade F, meaning failed, is used to indicate work that is so unsatisfactory as to require that the work be repeated in class or under an approved tutor.

The letter U, meaning unfinished, is reported when, in the judgment of the instructor, the student deserves further time to complete work which has been interfered with by illness or other excusable cause of absence or disability. This is only a temporary report and in no way prejudices the student's final grade in a course. It is expected that such unfinished work will be completed within one month after the student returns to College.

The distribution of grades indicated above applies to large numbers, at least a hundred or several hundred, and is not necessarily true of small numbers. It is not a foregone conclusion, for example, that one in a class of twenty must fail nor even that one in the class must have an E grade. In a small group the chances are very much greater that there may be a departure from the normal. If there be such a departure it should of course be recognized in the grades issued. In the long run the accumulated grades for a series of small classes should, however, approach the normal distribution.

REPORTS OF GRADES

On the fifth Saturday and the ninth Saturday of each semester, on the last day of the first semester, and within two days after the close of the second semester, reports of all grades below passing at those dates are sent to the students and the deans. The dates are shown in the College calendar, and these reports are an imperative duty of all teachers. The first two of these reports are made in percentages on a scale of seventy for passing. The reports at the end of the semester are on the letter system in use.

The instructor prepares for each student a semester grade based on the examination and class work, and is required to report this to the registrar for record within two weeks after the close of the semester. If a student goes through the first half of the semester but not the second half, a half-semester grade is reported for record, and designated as such. If the student drops a subject before midsemester, a grade of Wd, withdrawn, or F, failure, is reported. A subject dropped at any time on account of failure is given a semester grade of F.

In case of absence from the final examination at the end of a semester, a semester grade is not reported until the reason for such absence has been learned; and if the absence is excused or excusable, a reasonable time, usually not over one month, is allowed within which the examination may be taken. In such cases, however, within two weeks after the end of the semester the teacher reports to the registrar a mark of U with a grade for the first half of the semester. If the student's absence is inexcusable a semester grade is reported on the basis of zero for the final examination.

Students in laboratory and industrial work must put in at least four-fifths of the required time in order to get a passing grade in the subject. Should the required time minimum not be reached a mark of U is reported if the quality of the work done is satisfactory and one of F if it is unsatisfactory.

Instructors are enjoined to leave all class books on file in the proper department or with the president of the College when severing their connection with the institution.

THE POINT SYSTEM

For each semester credit of work assigned, the student receives points, according to the grade attained, on the following scheme: Grade E, 3 points; G, 2 points; M, 1 point; and P (or lower), no points. For graduation the total requirement in points is the same as in credits. Above the freshman year classification is based on the same requirement in points as in credits.

Seniors meeting the graduation requirement in credits but failing to meet it in points are required to take further courses designated by the dean of the division in which their major work lies, until the requirement in points is met.

CREDITS FOR EXTRA WORK

Activities connected with the College, but not provided for by any of the curricula, either as required subjects or as electives, are designated as *extra subjects*.

Credit for extra work may be given when the student is regularly assigned to the work in accordance with the general rules governing assignments. A student may be assigned to extra work for credit upon the written recommendation of the instructor in charge of the work. This recommendation is filed in the office of the student's dean, and is effective until revoked.

Credits earned for extra work may be counted as part or all of the electives in any of the College curricula. In curricula that do not include electives, credits for extra work are available only as substitutions for required work, and must be approved in the regular way before becoming effective. A total of not more than eight semester credits may be allowed a student for extra work, and not more than two of these may be obtained in any one semester.

The number of semester credits that may be allowed for extra work is as follows:

<i>Subject</i>	<i>Per semester</i>	<i>Total</i>
Physical Training	1	4
Orchestra	1	4
Band	1	4
Choral Society	1	4
Debate	2	4
Oratorical Contest	2	4
Kansas State Collegian journalism.....	1	4

BIBLE STUDY

Bible study is an elective. Two semester credits are granted for each completed one-year course. Credit may be granted to any one student for not more than two courses. Teachers of classes are to be approved as tutors, and the supervision of the work is placed in the Department of Education. This department also conducts the examination for credit in Bible study.

COURSE NUMBERS

Each course offered bears a number indicating in a general way the standing of students for whom it is given. Courses for undergraduates bear numbers 101 to 199, courses for undergraduates and graduates bear numbers 201 to 299, and courses for graduates only bear numbers 301 to 399. The numbers 1 to 29 are applied to studies offered for short-course students, the numbers 31 to 49 are assigned to Summer School subjects not taught for entrance credit or for College credit, and subjects which give credit for admission to the College are numbered 51 to 99.

In applying this system, the courses offered by any department are numbered independently of all other departments of the College.

CLASSES

The minimum numbers for which classes are organized are as follows:

Freshmen or sophomores.....	12
Juniors or seniors.....	7

This rule is varied only by special permission of the Board of Regents.

THE STUDENTS' SELF-GOVERNING ASSOCIATION

The Students' Self-governing Association was organized on broad lines in the spring of 1919, with the whole-hearted approval and sanction of the Faculty. The association was formed "for the purpose of placing the control and advancement of student interests and activities in the hands of the student body itself, with the firm belief that this arrangement will cause an increased self-control, resulting in higher ideals and better coöperation, and that officers of sufficient wisdom and maturity may be found so that appeal to College authorities shall be unnecessary."

The officers of the association are a president and a vice president, elected by the association as a whole, and a secretary and a treasurer, elected by the executive council of the association.

The supreme governing council of the student association is known as the executive council. This body consists of nineteen members, and its membership is made up as follows: The president and the vice president of the association; two members from each of the College classes; two from the Literary Society Council; one from the Women's Pan-Hellenic Council; one from the Men's Pan-Hellenic Council; one from the "K" fraternity; one from the Women's Athletic Association; one from the Y. W. C. A. cabinet; one from the Y. M. C. A. cabinet. Regular meetings of the council are held once a month.

There are standing committees on discipline, finance, social affairs, calendar, school spirit, and points, and other temporary or standing committees may be provided for from time to time as occasion demands. All chairmen of committees are appointed by the executive council. Each chairman submits a list of members desired for his committee, which appointments must be ratified by the executive committee before they become effective.

All regulations passed by the executive council, by committees, and by the entire association, are considered valid and binding upon all students in so far as said actions are not disapproved by the Faculty and the President of the College.

THE CHRISTIAN ASSOCIATIONS

The Young Men's Christian Association and the Young Women's Christian Association are organizations of the greatest worth and value in the College community, forming centers of moral culture and religious stimulus among the young men and women during their development period. As is well known, the Christian associations in Colleges stand for the best ideals among the students, and are always accorded the cordial support of the authorities. In addition to general moral and spiritual development, the College Christian associations have a practical and efficient influence among the students in many directions.

THE YOUNG MEN'S CHRISTIAN ASSOCIATION

The College Y. M. C. A. has always been a strong and influential body among the students. All young men of the College are welcomed into membership of the organization. No fixed fee is charged, each member giving whatever he feels able to afford. The work of the organization is carried on by a student cabinet, which is composed of the chairmen of the standing committees and officers. Each year there is organized a freshman commission for the benefit of the new men, especially those who have had Hi-Y experience. One of the useful and practical features of the Y. M. C. A. is the student's employment bureau, which is maintained for all students seeking employment. Especial attention is given the new students on and after arrival in helping them to find rooms and boarding places and to get the right start in College life. The association maintains a regular secretary, with whom prospective students are cordially encouraged to correspond. Address, General Secretary Y. M. C. A., Kansas State Agricultural College, Manhattan, Kan.

THE YOUNG WOMEN'S CHRISTIAN ASSOCIATION

Similar in aim and purpose to the organization of the young men is the Young Women's Christian Association. The Home Economics Hall is the headquarters of the association, to which all young women of the College are at all times cordially welcome. An office for the general secretary and rest rooms for the young women are maintained in this building during the College year.

An employment bureau for women students is maintained by the general secretary, without charge to its beneficiaries. Various committees are responsible for the lines of work of the association. At the opening of the College semesters the incoming trains are met by "Big Sisters," who assist new women students, the "Little Sisters," in securing suitable lodging and boarding places. If any prospective woman student will write to the general secretary of the association, her "Big Sister" will correspond with her during the summer vacation.

During the College year various social functions are given for the young women. The first of these is an informal reception to enable the College girls to become acquainted with one another. Once each year the two associations, entertain jointly.

The religious life of the young women is fostered by the weekly vesper services held in Recreation Center. The different churches of the city extend a cordial welcome to the College women, and through the efforts of the association they are encouraged to active participation in the services of the church of their choice.

THE NEWMAN CLUB

The Newman Club, an organization of Catholic students, holds meetings devoted to religious study on alternate Sundays. This work is carried on under the local pastor. The College authorities recognize this Bible study by allowing a two-hour credit for it when duly certified. In further recognition of the club's efforts the College has placed a set of the Catholic Encyclopedia in the library, where there is also a comprehensive selection of Catholic books and pamphlets purchased by the club. In addition to the meetings devoted to religious study, social meetings are held.

The club is affiliated with the national organization of Newman clubs of the state universities and colleges. Its aim is to foster sound morality, to develop character, and to promote the knowledge and practice of their faith among Catholic students.

LITERARY AND SCIENTIFIC SOCIETIES

The literary societies of the College, eight in number, are wholly student organizations, holding weekly meetings in the College buildings. The Alpha Beta and Franklin literary societies are open to both sexes; the Ionian, Eu-rodelphian and Browning societies admit only young women to membership; the Webster, Hamilton and Athenian societies admit young men only. Students are encouraged to join one of these organizations for the sake of practice in the use of language, training in debate, and general experience in conducting meetings and in dealing with their fellows. These societies jointly maintain a debating council, which coöperates with a Faculty committee in arranging for all intercollegiate and interstate debates participated in by representatives of the College. The oratorical board, similarly maintained by these societies, arranges for the intersociety oratorical contest.

AGRICULTURAL SOCIETIES

The Agricultural Association meets Monday evenings. All students interested in agriculture are eligible to membership. The object of the association is to promote the general interests of agriculture in the College and in the state.

The Agricultural Economics Club meets on the second and fourth Tuesdays

of each month. Membership is open to undergraduate students majoring in agricultural economics, graduate students majoring or minoring in agricultural economics, and to members of the Faculty whose work is of an agricultural economic character. The object of the club is to promote interest in agricultural economic topics, to encourage sound economic thinking, and to further the acquaintanceship of Faculty and students. Outside speakers are frequently secured for special meetings which are open to the public.

The Block and Bridle Club meets on the first and third Mondays of each month. Membership is open to all animal husbandry students above the freshman year. The object of the club is to promote the interests of animal husbandry in the College and in the state. Live-stock problems of all kinds are taken up, and the members of the Faculty and outside speakers are secured for addresses on special topics.

The Dairy Club meets on the first and third Mondays of each month. Membership is open to anyone who is taking any four-year course in the Division of Agriculture and also to anyone actively engaged in dairy work at the College. The object of the organization is the furtherance of dairying in Kansas. Current topics and records of the dairy breeds are read and lectures on special subjects are given by Faculty and outside speakers.

The Horticultural Club meets the first and third Tuesdays of each month during the College year. Its object is to promote the horticultural interests of the state and to afford opportunity for students to improve their knowledge of horticulture. Students of the College interested in horticulture and Faculty members are eligible for membership. Students present the majority of the programs.

The Klod and Kernel Klub meets on the second and fourth Tuesdays of each month. Membership is open to junior and senior agronomy students and members of the agronomy Faculty. The object of the society is to arouse more interest in agronomic work and to help students and Faculty members of the Department of Agronomy to become better acquainted. Faculty and outside speakers are secured for programs.

ENGINEERING SOCIETIES

The various technical societies of the Division of Engineering meet weekly in departmental seminars for lectures, presentation of papers, and discussion of notable articles appearing in the technical press or in the journals of the national societies. On special occasions all of the societies meet together as the Engineers' Association, for lectures by eminent practicing engineers.

The students in mechanical and electrical engineering are organized as student branches of the American Society of Mechanical Engineers and the American Institute of Electrical Engineers, respectively.

The Kansas State Agricultural College Civil Engineering Society conducts the meetings of the civil-engineering students, the Architects' Club conducts the meetings of the students in architecture, and the student branch of the American Society of Agricultural Engineers has charge of the meetings of the students in agricultural engineering.

The purpose of these various societies is to acquaint the students with the latest development in the fields of engineering and architecture, to give them more definite ideas as to the opportunities in their professions and the requirements for success in their professions, to promote acquaintance and fellowship among the students, and to further the interest of the Division of Engineering in the College and the state.

HONORS

In each of the divisions of the College "sophomore honors" are awarded at Commencement to not more than five per cent of the sophomore class having the highest standing up to the close of the sophomore year.

In a similar manner "senior honors" are awarded to not exceeding ten per cent of the senior class having the highest standing during their junior and senior years.

In awarding honors, the following values are assigned: Grade E, 3; G, 2; M, 1; P, 0; C, minus 1; and F, minus 2. The honor grade is found by dividing the sum of the products of the grade values and the credit hours by the number of credit hours of work taken. In order to receive honors, the student's average must be G or higher.

The diplomas of the highest three per cent of the senior class are inscribed "with high honor" and of the remainder of the highest ten per cent "with honor."

HONOR SOCIETIES

A chapter of Phi Kappa Phi, an honor scholarship society, membership in which is open to honor graduates of all departments of American universities and colleges, was installed at the Kansas State Agricultural College on November 15, 1915. The eligibility of undergraduates to membership is determined on the basis of their scholarship. The candidates are elected to membership at the October, April and June meetings of the chapter.

The honor society of agriculture, Gamma Sigma Delta, has as its object the encouragement of high standards of scholarship in all branches of agricultural science and education, and the encouragement of a high degree of excellence in the practice of agricultural pursuits. Seniors whose grades place them in the upper one-fourth of their class are eligible for membership. Election is in the hands of Faculty members of the local chapter.

Besides these, above mentioned, there are a number of honor fraternities, sororities, and societies which are open to students in different divisions of the College or in different activities. These are treated below.

HONORARY AND PROFESSIONAL ORGANIZATIONS

The honorary and professional organizations of the College consist of fraternities, sororities, and societies. Membership in these organizations is based on scholarship and achievement. They seek to stimulate effort and to promote the interests of the various divisions or departments which they serve or represent. The list of organizations follows:

<i>Organization</i>	<i>Division or department</i>
Alpha Zeta	Agriculture.
K Fraternity	Athletics.
Mu Phi Epsilon.....	Music.
Omicron Nu	Home Economics.
Phi Alpha Nu	Women's Science.
Phi Kappa Delta.....	Education.
Phi Mu Alpha.....	Music.
Pi Kappa Delta.....	Debating.
Purple Masque.....	Dramatics.
Quill Club	College Writers.
Scabbard and Blade	Military.
Sigma Delta Chi.....	Industrial Journalism.
Sigma Tau	Engineering.
Theta Sigma Phi.....	Industrial Journalism.
Zeta Kappa Psi.....	Debating.

In addition to these student organizations there are chapters of Phi Kappa Phi and Gamma Sigma Delta. In both these societies election is based on scholarship and is in the hands of Faculty members. (See "Honor Societies," above.)

THE COLLEGE BAND

The College Band is a military organization, composed of cadets assigned to this duty for the College year in lieu of drill and technical military instruction. The Band is limited in its membership, and attendance of the members upon its exercises is obligatory. It has proved an effective aid to the cadet corps, stimulating a love for martial music, and affording an attractive feature of the various public ceremonial occasions at the College.

THE COLLEGE ORCHESTRA

The Orchestra is a student organization connected with the Department of Music, membership in which is voluntary. Its daily training under competent leadership results in the acquisition of a considerable repertoire of musical compositions of the best quality. Those connected with the Orchestra obtain in this way familiarity with the works of many of the great composers, and among the students at large the Orchestra is an efficient aid in cultivating a taste for and appreciation of good music.

ATHLETIC ORGANIZATIONS

By means of the gymnasium the College is prepared to give complete physical as well as mental training. This building, which is equipped with all the usual accessories, assists in developing and maintaining physical tone and health in the student body. In addition to the gymnasium classes, and physical training in the military corps of cadets, all young men are encouraged to develop their physical skill by playing on practice teams in various athletic lines. In the fall football teams are organized; in the fall and winter, basketball; while in the spring baseball, tennis, and track athletics prevail. Every possible encouragement is given all students desirous of participating in these games to enter the practice teams and receive the necessary instruction. The most proficient of these have opportunity to enter the first teams and participate in intercollegiate contests. The College authorities encourage all reasonable and sane athletic development, as a means for the training of physical qualities desirable in men everywhere. Professionalizing tendencies are strictly repressed, and the athletic rules adopted by the Faculty prevent, by proper regulation, all participation in intercollegiate games on the part of students deficient in their studies.

The women students have equal opportunity with young men for general physical training. In the gymnasium, under a physical director, they receive training suitable for their needs. Basketball and tennis teams are organized among the young women.

The Division of Agriculture

LELAND EVERETT CALL, *Dean*

The teaching of rational, practical agriculture is fundamental to development in a state whose principal industries are agricultural. Kansas prospers in direct proportion to the productivity of her soil and to the effectiveness with which it is utilized. Effective utilization of the agricultural resources of the state depends upon the success with which the agricultural industries of the state are developed. In order to succeed in farming it is necessary to know something of the soil, the conservation of its fertility and moisture, and its proper cultivation; the kinds of plants to grow and how to improve them; the selection, breeding, and feeding of live stock; the maintenance of orchards, gardens, and attractive surroundings; farm buildings, and the equipment of the farm and the farm home with modern conveniences; the best methods of marketing the product of the farm; and in addition to all this, how to make the farm home the center of influence for good citizenship in the agricultural community.

A man may learn many of these things through practical experience, and thus become successful in modern farming. But practical experience alone is slow and expensive. The Kansas State Agricultural College furnishes a means of acquiring systematic training in agriculture which fits young men adequately for the farm for a moderate expenditure of time and money.

In addition to training men for service as farmers, the College prepares students for various other activities which must be carried on if the agriculture of the state and nation is to be developed properly. These activities include scientific investigation of agricultural problems in state and national institutions, agricultural extension work, teaching of agriculture, service in the industries directly involving agriculture, and a variety of other lines of public and private service of an agricultural nature. The demand for well-trained, reliable men in all these lines is always extensive. The primary aim of the College in training men in agriculture is to fit them for service in which they will develop into agricultural leaders, either as farmers or in some other capacity, and as such, contribute to the upbuilding of rural institutions and the improvement of American country life.

EQUIPMENT

The facilities for such training at this College are of a high order. The College owns 1,399 acres of land, which is used for investigation, instruction, and demonstration in the various courses in agriculture and allied branches. The campus, which comprises 160 acres, is one of the best examples of ornamental tree planting and forestry in the state. Students working daily amid such surroundings can scarcely fail to gain an appreciation or love for the beautiful. A tract of 320 acres is devoted to the work in agronomy; for horticulture and forestry work, 80 acres are used; for dairy work, about 160 acres; and for animal husbandry, about 550 acres. The herds and flocks contain high-class representatives of the important breeds of dairy and beef cattle, hogs, horses, and sheep. With this class of stock available for the work in judging, the student is supplied with types of the best breeds and becomes familiar with these types by actual handling of the stock.

CURRICULA IN AGRICULTURE

The various needs of the student of agriculture are met by the following curricula:

A four-year curriculum in agriculture.

A four-year curriculum in agriculture with special training for landscape gardening.

A six-year curriculum in animal husbandry and veterinary medicine.

Various special courses. (The work of these courses is discussed in another section of the catalogue.)

DEGREES

The four-year curricula in agriculture lead to the degree of Bachelor of Science (in agriculture).

The six-year curriculum in animal husbandry and veterinary medicine, the last two years of which are given in the Division of Veterinary Medicine, leads to the degree of Bachelor of Science at the end of four years, and to the degree of Doctor of Veterinary Medicine at the end of two more years.

THE CURRICULUM IN AGRICULTURE

The four-year curriculum in agriculture is designed to meet the needs primarily of the students who expect to return to the farm. However, the student who completes the curriculum will have had sufficient training to enable him to enter some one of the many lines of agricultural industry as a specialist. The demand for men thus trained is constantly increasing, and such positions offer attractive opportunities for men who by nature and training are adapted to the work. The United States Department of Agriculture, the state colleges and departments of agriculture, high schools, private institutions of secondary and college rank, and a great variety of commercial interests, are constantly demanding men trained in agriculture.

The young man who expects to make farming his life work can start with no better asset than the thorough training in practical and scientific agriculture afforded by the four-year curriculum. The American farmer needs more of the skill that comes through the training of the hand, in order that he may better do the work of farming; but infinitely more, he needs the training of the mind in the fundamental truths that underlie every operation in farming, in order that he may use the skill of the craftsman with reason and judgment. One may learn to plow a field with the greatest skill; the work may be a model of its kind. If, however, it is plowed with utter disregard of the moisture conditions which prevail the result may be a failure. To understand the conditions which should determine when and how to plow is the work of the trained mind; the other is the work of the trained hand. The farmer and the teacher of agriculture must possess both kinds of training, and the curriculum has been organized with this fact in view, and has been so arranged that the *student begins his practical training in agriculture on the first day he enters College.*

ANALYSIS OF THE CURRICULUM IN AGRICULTURE

One hundred thirty-one semester credits in addition to military science are required for graduates, as follows:

	Semester credits	
Prescribed agriculture.....	43	
Electives in agriculture, required with the prerequisites.....	21	
Required in agriculture		64
Prescribed in nonagriculture.....	44	
Electives in nonagriculture, required.....	6	
Electives that may be nonagricultural.....	17	
Total allowed in nonagriculture.....		67
Required in military science.....	6	
Total semester credits for graduation.....		137

As shown in the above general outline and in the tabulated curriculum given hereafter, the candidate for graduation must have completed one hundred thirty-seven College semester credits. The twelve major electives required must be taken from some one of the departments of the Division of Agriculture. During the second semester of the sophomore year each student is required to file in the dean's office a formal statement of his selection of a department in which he will major. All electives must be approved by both the head of the department in which the student majors and the dean of the

Division of Agriculture. The nine minor electives must support the major work. They may be taken from more than one department, and may even be selected from departments in other divisions of the College, but they must directly strengthen the student's preparation in agriculture. At the discretion of the student, with the approval of the dean of the Division of Agriculture and the head of the department in which the student is majoring, twenty-four semester hours of electives may be nonagricultural.

Any candidate for a degree in agriculture must have had at least six months' farm experience approved by the dean of the Division of Agriculture. A formal statement giving information regarding this experience must be filed in the dean's office during the last semester of the senior year.

The student who completes the freshman and sophomore years will have had, in addition to the basic work in chemistry, zoölogy, geology, botany, and English, fundamental studies in soils, farm crops, live stock, dairying, poultry husbandry, horticulture and agricultural economics. These two years give the student a general knowledge of the whole range of agriculture, more than one-third of his time being devoted to strictly agricultural courses.

During the junior and senior years the student continues his studies of fundamental science and learns to apply science to agriculture. He is led step by step to understand the scientific relations of every farming operation. There is so much agriculture to be taught that it becomes necessary for the student to determine which of the general lines he should emphasize most. This is made possible by numerous electives in soils, crops, agricultural economics, animal husbandry, dairy husbandry, horticulture, milling, and poultry husbandry.

STATE TEACHERS' CERTIFICATES

By the selection of proper electives in the Department of Education, the four-year curriculum in agriculture may not only lead to the degree of Bachelor of Science (in agriculture), but at the same time qualify the student for the three-year Kansas state teachers' certificate, renewable for life and valid in any high school or any other public school in the state. A student desiring to qualify for teaching should begin his professional preparation by electing Psychology, first semester, junior year. A total of eighteen semester credits in the Department of Education is required for this certificate. These must include the following courses: Psychology, Educational Administration, and Educational Sociology.

STATE CERTIFICATES FOR TEACHERS OF VOCATIONAL AGRICULTURE

The electives provided in this curriculum in agriculture may be so chosen as to apply toward meeting the requirements for the state certificate for the teaching of vocational agriculture in schools participating in the federal Smith-Hughes funds.

The following courses, or their equivalent, should be included in a student's preparation for the teaching of vocational agriculture:

	<i>Semester credits</i>
Professional work in education.....	18
Psychology D	3
Educational Administration B.....	3
Educational Psychology	3
Special Methods of Teaching Agriculture.....	3
Supervised Observation and Teaching in Agriculture.....	3
Vocational Education	3
Gas Engines and Tractors.....	3
Farm Buildings	3
Farm Equipment	2
Farm Carpentry I	3
Farm Blacksmithing I	1
Farm Shop Methods	3
Total	33

In some cases as many as twenty-four credit hours (the junior electives and the senior general electives) of the work specifically listed above as required for the preparation of Smith-Hughes teachers may be included in the

electives provided in the curriculum in agriculture. In such cases the other nine semester credit hours necessary to qualify the graduate to secure the Smith-Hughes teacher's certificate must be carried as extra work or taken in summer school or by correspondence study. In such cases the student can usually arrange to meet the requirements for both the degree and the teacher's certificate in one summer term of extra residence work. In the case of students majoring in any one of the three live stock departments, however, it may be necessary to take two extra summer schools of work in order to qualify for the bachelor's degree and the Smith-Hughes teacher's certificate.

THE CURRICULUM IN ANIMAL HUSBANDRY AND VETERINARY MEDICINE

A combined curriculum in animal husbandry and veterinary medicine has been outlined so that students may receive the degree of Bachelor of Science in Agriculture at the end of four years, and the degree of Doctor of Veterinary Medicine at the end of two years more, thus securing both degrees in six years.

Curriculum in Agriculture

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours of recitation each week; the second shows the number of hours to be spent in laboratory work each week; and the third, where there is one, indicates the number of hours of outside work in connection with the laboratory required each week.

FRESHMAN

FIRST SEMESTER

College Rhetoric I	
Engl. 101.....	3(3-0)
Chemistry I	
Chem. 101.....	5(3-6)
General Botany I	
Bot. 101	3(1-4, 2)
Judging Market Live Stock	
An. Husb. 132.....	2(0-6)
Elements of Dairying	
Dairy Husb. 101.....	3(2-3)
Library Methods	
Lib. Ec. 101.....	1(1-0) <i>or</i>
Dairy Judging	
Dairy Husb. 104.....	1(0-3)
Agricultural Lectures	
Gen. Agric. 101.....	R(1-0)
Infantry I	
Mil. Tr. 101.....	1½(0-4)
Physical Education M-I	
Phys. Ed. 103.....	R(0-2)

SECOND SEMESTER

College Rhetoric II	
Engl. 104.....	3(3-0)
Chemistry II	
Chem. 102.....	5(3-6)
General Botany II	
Bot. 105	3(1-4, 2)
General Geology	
Geol. 103.....	3(3-0)
Dairy Judging	
Dairy Husb. 104.....	1(0-3) <i>or</i>
Library Methods	
Lib. Ec. 101.....	1(1-0)
Judging Breeding Live Stock	
An. Husb. 138.....	2(0-6)
Agricultural Lectures	
Gen. Agric. 101.....	R(1-0)
Infantry II	
Mil. Tr. 102.....	1½(0-4)
Physical Education M-II	
Phys. Ed. 104.....	R(0-2)

SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER ¹	
Organic Chemistry (Agr.)		Elements of Horticulture	
Chem. 120	3(2-3)	Hort. 108	4(3-3)
Agricultural Economics		Principles of Feeding	
Ag. Ec. 101	3(3-0)	An. Husb. 152	3(3-0)
Anatomy and Physiology		General Zoölogy	
Anat. and Physiol. 131.....	3(2-3)or	Zoöl. 105	5(3-6)
Plant Physiology I ²		Farm Crops	
Bot. 208	3(3-0)	Agron. 109	5(3-6)
Soils			
Agron. 133	5(4-3)		
Farm Poultry Production			
Poult. Husb. 101	2(1-2, 1)		
Infantry III		Infantry IV	
Mil. Tr. 103	1½(0-4)	Mil. Tr. 104	1½(0-4)
Physical Education M-III		Physical Education M-IV	
Phys. Ed. 105	R(0-2)	Phys. Ed. 106	R(0-2)
Agricultural Seminar		Agricultural Seminar	
Gen. Agric. 103	R	Gen. Agric. 103	R

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Genetics		General Entomology	
An. Husb. 221	3(3-0)	Ent. 203	3(2-3)
Plant Pathology I		Farm Organization	
Bot. 205	3(1-4, 2)	Ag. Ec. 106	3(2-3)
Agricultural Microbiology		Elementary Journalism	
Bact. 106	3(1-6)	Ind. Jour. 151.....	2(2-0)
		Journalism Practice I	
Electives ³	7	Ind. Jour. 154.....	2(0-6)
Agricultural Seminar		Electives ³	6
Gen. Agric. 103	R	Agricultural Seminar	
		Gen. Agric. 103	R

SENIOR

FIRST SEMESTER		SECOND SEMESTER	
		Agricultural Relationships	
		Gen. Agric. 105	R(1-0)
Electives ⁴ ..	Major 6 Minor 4 General 6	Electives ⁴ ..	Major 6 Minor 5 General 5
Agricultural Seminar		Agricultural Seminar	
Gen. Agric. 103	R	Gen. Agric. 103	R

1. Sometime during the second semester of the sophomore year each student is required to file a written statement in the office of the dean of the Division of Agriculture, designating the department of the division in which he will major.

2. Students who do not expect to major in animal husbandry, dairy husbandry, or poultry husbandry may, with the approval of the head of the department in which they expect to major, take Plant Physiology I (Bot. 180) instead of Anatomy and Physiology.

3. Six semester credit hours of junior electives must be chosen from courses offered in education, economics, history, mathematics, or modern languages. Students preparing to teach should take not less than nine semester credit hours of junior electives in the Department of Education. Junior electives must be officially approved before assignment by both the head of the department in which the student majors and the dean of the Division of Agriculture.

4. All senior electives must be officially approved before assignment of both the head of the department in which the student majors and the dean of the Division of Agriculture.

Agricultural Electives for Students in the Curriculum in Agriculture

AGRICULTURAL ECONOMICS

FIRST SEMESTER	SECOND SEMESTER
Marketing of Farm Products 3(3-0)	Advanced Farm Organization 3(2-3)
Advanced Agricultural Economics 3(3-0)	
Grain Marketing 3(3-0)	Agricultural Land Problems 3(3-0)
Transportation of Farm Products 3(3-0)	Conservation of Agricultural Resources 2(2-0)
Taxation and Land Ownership 3(3-0)	Agricultural Finance 2(2-0)
Farmer Movements 3(3-0)	History of Agricultural Economic Thought 3(3-0)

EACH SEMESTER

Farm Cost Accounting
3(2-3)
Agricultural Economics Seminar
1(1-0)
Research in Agricultural Economics
(1 to 5 semester credits, for graduates)

AGRONOMY

FIRST SEMESTER	SECOND SEMESTER
Seed Identification and Weed Control 2(1-3)	Crop Improvement 3(2-3)
Advanced Forage Crops 2(1-3)	Crop Ecology 2(2-0)
Advanced Soil Fertility 2(2-3)	Special Crops 2(2-0)
Dry-land Farming 2(2-0)	Grain Grading and Judging 2(0-6)
Principles of Agronomic Experimentation 3(2-3)	Soil Survey 2(1-3)
Pasture Management 2(1-3)	Agronomy Seminar 1(1-0)
Plant Genetics 3(3-0)	
Advanced Grain Judging 2(0-6)	Soil and Crop Management. 3(2-3)
Origin and Classification of Crop Plants 3(-)	Interrelations of Soils and Crop Plants 3(3-0)

EACH SEMESTER

Crops Research (for graduates)
Crop Problems
Soil Research (for graduates)
Soil Problems
Advanced Soils Laboratory
Pasture Management Research (for graduates)
(One or more semester credits each, according to work done)
Genetics Seminar
1(1-0)

ANIMAL HUSBANDRY**FIRST SEMESTER**

Advanced Stock Judging I
2(0-6)
Form and Function in Live Stock
2(0-6)
Horse Production
3(2-3)
History of Breeds and Pedigrees
3(2-3)
Sheep Production
3(2-3)
Advanced Feeding
2(2-0)
Live-stock Marketing Practices
2(2-0)

SECOND SEMESTER

Animal Breeding
3(3-0)
Advanced Genetics
4(3-3)
Advanced Meats
(2 to 4 semester credits)
Advanced Stock Judging II
2(0-6)
Beef Cattle Production
3(2-3)
Swine Production
3(2-3)
Advanced Studies in Pedigrees
3(1-6)
Animal Husbandry Seminar
1(1-0)
The Wool Industry
3(2-3)
Live-stock Production
3(3-0)
Purebred Live-stock Production
2(2-0)
The American Live-stock and Meat Industry
3(3-0)

EACH SEMESTER

Meats
2(1-3)
Genetics Seminar
1(1-0)
Research in Genetics
(4 to 10 semester credits)
Research in Animal Husbandry
(6 to 16 semester credits)

DAIRY HUSBANDRY**FIRST SEMESTER**

Dairy Inspection I
2(1-3)
Dairy Breeds and Pedigrees
2(1-3)
Butter Making I
3(2-3)
Butter Making II
4(2-6)

SECOND SEMESTER

Milk Production
3(3-0)
Ice-cream Making
3(2-3)
Cheese Making
3(2-3)
Advanced Dairy Judging
1(0-3)
Feeding and Management of Dairy Cattle
3(2-3)
Dairy Seminar
1(1-0)
Market Milk
2(1-3)
Creamery Management
2(2-0)
Dairy Technology
1(1-0)

EACH SEMESTER

Dairy Production Problems
Dairy Manufacturing Problems
Dairy Research

(One or more semester credits each, according to work done)

HORTICULTURE

FIRST SEMESTER

Systematic Pomology
4(2-6)

Farm Forestry
4(3-3)

Spraying
3(2-3)

Advanced Pomology
3(2-3)

Greenhouse Construction and Management
3(3-0)

History and Literature of Landscape
Gardening 2(2-0)

The Theory and Aesthetics of Landscape
Gardening 3(3-0)

SECOND SEMESTER

Small Fruits
2(2-0)

Dendrology
3(1-6)

Practical Pomology
3(2-3)

Silviculture
3(2-3)

Market Gardening
3(2-3)

Subtropical Pomology
2(2-0)

Elements of Vegetable Gardening
3(2-3)

Plant Materials in Landscape Gardening
3(2-3)

Landscape Gardening II
3(0-9)

Tree Surgery
2(1-3)

Landscape Gardening III
2(1-3) (for graduates)

EACH SEMESTER

Landscape Gardening I
2(2-0)

Civic Arts
3(3-0)

Horticultural Seminar
1(1-0)

Orchard Problems

Market Gardening Problems

Horticultural Research

Forcing Flowers and Vegetables

(One or more semester credits each, according to work done)

MILLING INDUSTRY

FIRST SEMESTER

Wheat and Flour Testing
4(1-9)

SECOND SEMESTER

Milling Qualities of Wheat and Other Cereals
2(2-0)

Experimental Baking A
2(0-6)

Principles of Milling I
2(1-3)

Principles of Milling II
1(0-3)

EACH SEMESTER

Milling Practice I
3(1-6)

Milling Practice II
2(0-6)

Advanced Wheat and Flour Testing
(Credit as arranged)

Milling Industry Research
(Credit as arranged)

POULTRY HUSBANDRY**FIRST SEMESTER**

Poultry Judging
3(1-6)
Market Poultry and Eggs
4(2-6)
Poultry Seminar
1(1-0)

SECOND SEMESTER

Practice in Poultry Feeding
1(-)
Artificial Incubation and Brooding
3(-)
Advanced Incubation
1(-)
Poultry Breeding
2(2-0)
Poultry Management
2(2-0)
Poultry Farm Organization
3(2-3)
Poultry Bacteriology
3(1-6)
Genetics of Drosophila
2(1-3)

EACH SEMESTER

Genetics Seminar
1(1-0)
Poultry Anatomy
4(1-9)
Poultry Research
(2 or more semester credits, for graduates)
Poultry Problems
(2 or more semester credits)

AGRICULTURAL ENGINEERING**FIRST SEMESTER**

Elements of Irrigation and Drainage
3(2-3)
Gas Engines and Tractors
3(2-3)
Tractors and Trucks
3(2-3)

SECOND SEMESTER

Farm Equipment
2(1-3)
Farm Sanitation and Water Supply
2(2-0)
Farm Motors
3(2-3)

EACH SEMESTER

Farm Buildings
3(1-6)
Field Machinery
2(1-3)

SHOP PRACTICE**FIRST SEMESTER**

Farm Carpentry I
3(1-6)
Farm Blacksmithing I
1(0-3)
Farm Shop Methods
3(1-6)

SECOND SEMESTER

Farm Carpentry II
2(0-6)
Farm Blacksmithing II
1(0-3)

INDUSTRIAL JOURNALISM AND PRINTING.**FIRST SEMESTER**

Principles of Advertising
3(3-0)
Industrial Feature Writing I
2(2-0)
Journalism Practice III
2(0-6)
Copy Reading
2(0-6)

SECOND SEMESTER

Rural Press
3(3-0)
Industrial Writing
2(2-0)
Journalism Practice II
2(0-6)
Editorial Practice
2(2-0)
Ethics of Journalism
2(2-0)
Journalism Surveys
2(0-6)

Curriculum Leading to the Degree of Bachelor of Science in Agriculture, with Special Training for Landscape Gardening

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours of recitation each week; the second shows the number of hours to be spent in laboratory work each week; and the third, where there is one, indicates the number of hours of outside work in connection with the laboratory required each week.

FRESHMAN

FIRST SEMESTER	SECOND SEMESTER
College Rhetoric I Engl. 101 3(3-0)	College Rhetoric II Engl. 104 3(3-0)
Chemistry I Chem. 101 5(3-6)	Chemistry II Chem. 102 5(3-6)
General Botany I Bot. 101 3(1-4, 2)	General Botany II Bot. 105 3(1-4, 2)
Judging Market Live Stock An. Husb. 132 2(0-6)	General Geology Geol. 103 3(3-0)
Elements of Dairying Dairy Husb. 101 3(2-3)	Dairy Judging Dairy Husb. 104 1(0-3)
Library Methods Lib. Ec. 101 1(1-0)	Judging Breeding Live Stock An. Husb. 138 2(0-6)
Agricultural Lectures Gen. Agric. 101 R(1-0)	Agricultural Lectures Gen. Agric. 101 R(1-0)
Infantry I (Men) Mil. Tr. 101 1½(0-4)	Infantry II (Men) Mil. Tr. 102 1½(0-4)
Physical Education M-I (Men) Phys. Ed. 103 R(0-2)or	Physical Education M-II (Men) Phys. Ed. 104 R(0-2)or
Physical Education W-I (Women) Phys. Ed. 151A 1(0-3)	Physical Education W-II (Women) Phys. Ed. 152A 1(0-3)

SOPHOMORE

FIRST SEMESTER	SECOND SEMESTER
Object Drawing I Arch. 111 2(0-6)	Plane Trigonometry Math. 101 3(3-0)
Agricultural Economics Ag. Ec. 101 3(3-0)	Landscape Gardening I Hort. 126 2(2-0)
Plant Physiology I Bot. 208 3(3-0)	Object Drawing II Arch. 114 2(0-6)
Soils Agron. 133 5(4-3)	General Zoölogy Zoöl. 105 5(3-6)
Farm Poultry Production Poult. Husb. 101 2(1-2, 1)	Elements of Horticulture Hort. 108 4(3-3)
Extempore Speech I Pub. Spkg. 106 2(2-0)	
Infantry III (Men) Mil. Tr. 103 1½(0-4)	Infantry IV (Men) Mil. Tr. 104 1½(0-4)
Physical Education M-III (Men) Phys. Ed. 105 R(0-2)or	Physical Education M-IV (Men) Phys. Ed. 106 R(0-2)or
Physical Education W-III (Women) Phys. Ed. 153 1(0-3)	Physical Education W-IV (Women) Phys. Ed. 154 1(0-3)
Agricultural Seminar Gen. Agric. 103 R	Agricultural Seminar Gen. Agric. 103 R

JUNIOR

FIRST SEMESTER	SECOND SEMESTER
Genetics	General Entomology
An. Husb. 221..... 3(3-0)	Ent. 203..... 3(2-3)
Plant Pathology I	Agricultural Microbiology
Bot. 205..... 3(1-4, 2)	Bact. 106..... 3(1-6)
	Elementary Journalism
	Ind. Jour. 151..... 2(2-0)
	Journalism Practice I
	Ind. Jour. 154..... 2(0-6)
Surveying I	Surveying II
Civ. Engr. 102..... 2(0-6)	Civ. Engr. 111..... 2(0-6)
History and Literature of	Plant Materials in
Landscape Gardening	Landscape Gardening
Hort. 222..... 2(2-0)	Hort. 225..... 3(2-3)
Taxonomic Botany of the	
Flowering Plants	Plant Ecology
Bot. 225..... 3(1-4, 2)	Bot. 228..... 2(2-0)
Farm Forestry	
Hort. 113..... 4(3-3)	
Agricultural Seminar	Agricultural Seminar
Gen. Agric. 103..... R	Gen. Agric. 103..... R

SENIOR

FIRST SEMESTER	SECOND SEMESTER
Landscape Gardening II	Agricultural Relationships
Hort. 238..... 3(0-9)	Gen. Agric. 105..... R(1-0)
Dendrology	Silviculture
Hort. 116..... 3(1-6)	Hort. 119..... 3(2-3)
Greenhouse Construction	
and Management	Tree Surgery
Hort. 128..... 3(3-0)	Hort. 233..... 2(1-3)
Theory and Aesthetics of	
Landscape Gardening	Landscape Gardening III
Hort. 242..... 3(3-0)	Hort. 245..... 2(1-3)
Pencil Rendering and Sketching	Forcing Flowers and Vegetables
Arch 116..... 2(0-6)	Hort. 221..... 2(-)
Spraying	Still Life Drawing
Hort. 207..... 3(2-3)	Arch. 117..... 2(0-6)
	Civic Art
	Hort. 223..... 3(3-0)
	Horticultural Research
	Hort. 316..... 2(-)
Agricultural Seminar	Agricultural Seminar
Gen. Agric. 103..... R	Gen. Agric. 103..... R

Curriculum in Animal Husbandry and Veterinary Medicine

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

Freshman year of the Curriculum in Agriculture

SOPHOMORE

FIRST SEMESTER

General Zoölogy	
Zoöl. 105	5(3-6)
Anatomy I	
Anat. and Physiol. 102....	4(2-6)
Soils	
Agron. 133	5(4-3)
Organic Chemistry (Agr.)	
Chem. 120	3(2-3)
Infantry III	
Mil. Tr. 103	1½(0-4)
Physical Education M-III	
Phys. Ed. 105	R(0-2)
Agricultural Seminar	
Gen. Agric. 103.....	R

SECOND SEMESTER

Pathogenic Bacteriology I	
Bact. III	4(2-6)
Anatomy II	
Anat. and Physiol. 107....	9(4-15)
Farm Crops	
Agron. 109	5(3-6)
Infantry IV	
Mil. Tr. 104	1½(0-4)
Physical Education M-IV	
Phys. Ed. 106	R(0-2)
Agricultural Seminar	
Gen. Agric. 103.....	R

JUNIOR

FIRST SEMESTER

Embryology	
Zoöl. 219	3(2-3)
Anatomy III	
Anat. and Physiol. 111....	5(1-12)
Histology I	
Path. 101	3(1-6)
Genetics	
An. Husb. 221	3(3-0)
Electives ²	3(-)
Agricultural Seminar	
Gen. Agric. 103	R

SECOND SEMESTER

Principles of Feeding	
An. Husb. 152	3(3-0)
Anatomy IV	
Anat. and Physiol. 116....	3(1-6)
Histology II	
Path. 106	3(1-6)
Elementary Journalism	
Ind. Jour. 151	2(2-0)
Journalism Practice I	
Ind. Jour. 154	2(0-6)
Elements of Horticulture	
Hort. 108	4(3-3)
Agricultural Seminar	
Gen. Agric. 103	R

SENIOR

FIRST SEMESTER

General Entomology	
Ent. 203	3(2-3)
Agricultural Economics	
Ag. Ec. 101	3(3-0)
Comparative Physiology I	
Anat. and Physiol. 221....	5(4-3)
Electives ²	5(-)
Agricultural Seminar	
Gen. Agric. 103	R

SECOND SEMESTER

Agricultural Relationships	
Gen. Agric. 105	R(1-0)
Farm Organization	
Ag. Ec. 106	3(2-3)
Comparative Physiology II	
Anat. and Physiol. 226....	3(2-3)
Pathology I	
Path. 202	3(2-3)
Electives ²	7(-)
Agricultural Seminar	
Gen. Agric. 103	R

FIFTH YEAR

Junior year of the Curriculum in Veterinary Medicine

SIXTH YEAR

Senior year of the Curriculum in Veterinary Medicine

Agricultural Economics

Professor GRIMES
 Professor ENGLUND
 Professor GREEN
 Assistant Professor EVANS

Instructor HODGES
 Instructor HOWE
 Graduate Assistant LUEBKE

This department aims to give the student an understanding of facts and principles relating to the business side of farming and to agriculture as a fundamental part of the economic life of the people. The student is taught the principles of farm organization and management that are necessary to successful farming. He is also instructed in the factors and economic forces relating to marketing, credit, and other business relations among farmers as individuals and between farmers as a class and other classes in society. Instruction is not only given in present problems, but questions of the future are also considered, particularly through courses in land problems and conservation.

Principles taught in the classroom or elsewhere, and applied to practical problems, can be valuable only in so far as they are based on facts. For this reason the department conducts a number of investigations of various economic problems of agriculture. These studies provide facts for class work and other purposes and present opportunities for advanced students to engage in original research.

The equipment belonging to the department is valued at \$5,232.†

The department is expanding its facilities to meet the growing demand for advanced study. Opportunities of careers for those who are well trained in this field are increasingly favorable, because of the growing importance of agricultural economics to the farmer and in our national life.

COURSES IN AGRICULTURAL ECONOMICS

FOR UNDERGRADUATES

101.* AGRICULTURAL ECONOMICS. Sophomore year, first semester. Class work, three hours. Three semester credits. Prerequisite: Sophomore standing. Mr. Englund, Mr. Howe, and Mr. Luebke.

The course in agricultural economics undertakes to familiarize the student with the economic principles and forces that vitally concern every farmer. Texts: Taylor's *Agricultural Economics* and Ely and Wicker's *Elementary Principles of Economics*.

106. FARM ORGANIZATION. Junior year and elective, first and second semesters. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: Ag. Ec. 101, Agron. 133, and An. Husb. 152. Dr. Grimes, Mr. Evans, and Mr. Hodges.

The economic factors affecting the organization and operation of the farm business are studied with respect to their effect on the profits in farm enterprise. The course deals chiefly with the economic problems of the individual farmer on his farm. Results from actual farms are studied in the laboratory to give the student opportunity to observe the effect of the various economic factors in their influence on the farm business. Laboratory charge, \$1.

112. FARM COST ACCOUNTING. Elective, first and second semesters. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: Ag. Ec. 101. Dr. Grimes, Mr. Evans, and Mr. Hodges.

Various systems of farm records and accounts are studied to acquaint the student with the more practical methods. The laboratory work affords opportunity to work out problems from actual farms in which these principles are involved. Particular attention is given to determining the cost of producing

* For an explanation of the system used in numbering courses, see the paragraph on "Course Numbers," given elsewhere in this catalogue.

† The figures for equipment given here and on pages following are based on the official reports of June 30, 1924.

farm products and to the analysis and utilization of cost of production data. Laboratory charge, \$1.

FOR GRADUATES AND UNDERGRADUATES

202. MARKETING OF FARM PRODUCTS. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Ag. Ec. 101. Mr. Green and Mr. Howe.

This course deals with the economic principles and forces that are at the basis of modern marketing problems. Study is made of the necessary services of marketing and of the comparative efficiency of various marketing methods. The course also includes a study of price making, weaknesses of the present system of marketing, possibilities for improvement, and other marketing problems. Texts: Clark's *Principles of Marketing* and Hibbard's *Marketing Agricultural Products*.

203. GRAIN MARKETING. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Ag. Ec. 202. Mr. Green and Mr. Howe.

This course deals with organized grain exchanges and their economic functions; fundamental factors of supply and demand affecting grain prices; influence of speculation on price; domestic and export trade in grain; and a study of competitive sources of grain supply.

204. TRANSPORTATION OF FARM PRODUCTS. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Ag. Ec. 101. Mr. Green.

This course makes a study of the shipping problems of the farm producer, with particular reference to grain and live stock. Attention is given to freight-rate structures and particular tariffs as they affect the marketing of farm products. Theory and practice in rate making; the effect on rates, of water competition, market competition, competing-line competition, and the development of motor-truck competition are covered with a view to giving the student a better understanding of how the farmer is concerned with transportation services and costs.

206A. ADVANCED FARM ORGANIZATION. Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: Ag. Ec. 106. Dr. Grimes and Mr. Evans.

The factors affecting the successful organization and operation of the farm business are studied by visiting farms in various parts of the state. The effects of external factors are also observed. A number of the better and more profitable farms in Kansas are visited during the course.

212. CONSERVATION OF AGRICULTURAL RESOURCES. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Ag. Ec. 101. Open to juniors, seniors, and graduates only. Mr. Englund.

This course deals with several of the world's more important natural resources, as such, particularly those directly concerned with agriculture and the welfare of the agricultural community. Consideration is given to such matters as the size, location, and importance of these resources, their relationships to present and prospective conditions, their bearing in local, state, national, and international policies, and the place they should occupy in public opinion and citizenship. The course consists of lectures, reference work, assigned topics, and discussions.

218. AGRICULTURAL LAND PROBLEMS. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: Ag. Ec. 101. Mr. Englund.

This course includes a study of land classification, land utilization, and land policies. Special emphasis is placed on property in land; means of acquiring farm land; farm tenancy; public aid in land settlement; and land taxation. It also includes a brief study of the Torren's system of registration in land transfer. It consists of lectures, assigned readings, topics for reports, and discussion. Text: Ely and Morehouse's *Elements of Land Economics*.

219. TAXATION AND LAND OWNERSHIP. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Ag. Ec. 101, or consult instructor. Mr. Englund.

This course consists of a study of some of the fundamental principles of taxation, particularly in their relation to land ownership. Special emphasis is placed on problems of taxation in Kansas. A historical and critical study is made of the general property tax, its advantages and inadequacies under modern economic conditions. This course also considers the possibilities of improving the fiscal system of Kansas and other states where similar economic conditions prevail. Instruction is given by lectures, assigned reading, reports and recitation.

221. AGRICULTURAL FINANCE. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Ag. Ec. 101. Mr. Howe.

The first half of this course deals with the extent to which the federal reserve act supplies farm credit and with the federal farm loan act and the intermediate credits act as instruments for obtaining farm credit. Some comparisons are also made with methods used in financing other industries. The second part of the course deals with farm use of credit based on the financial accounts of representative Kansas farms. Texts: Wright's *Bank Credit and Agriculture* and Wright's *Farm Mortgage Financing*.

227. FARMER MOVEMENTS. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Ag. Ec. 101. Dr. Grimes.

Farmer movements include those efforts of farmers to improve their situation by organized action. The present and past activities and attainments of such organizations as the Grange, the Farmers' Union, the Farm Bureau, the Farmers' Alliance, and the American Society of Equity, are considered and discussed.

231. AGRICULTURAL ECONOMICS SEMINAR. Elective, both semesters. Class work, one hour. One semester credit. Prerequisite: Ag. Ec. 101. Dr. Grimes, Mr. Englund, and Mr. Green.

Current questions in agricultural economics are reviewed and discussed and topics are prepared and presented by the students.

FOR GRADUATES

301. RESEARCH IN AGRICULTURAL ECONOMICS. Elective, both semesters and summer school. One to five semester credits. Prerequisites: Consult instructors. Dr. Grimes, Mr. Englund, and Mr. Green.

This course involves individual research problems in the marketing of farm products, coöperation among farmers, farmer movements, land problems, tenancy, agricultural industries, agricultural finance, farm labor, farm power, farm organization, and the cost of producing farm products. Any of the subjects assigned may furnish data for a master's thesis.

305. ADVANCED AGRICULTURAL ECONOMICS. Elective, first semester. Class work, three hours. Three semester credits. Prerequisites: Consult instructor. Mr. Englund.

This course is a study of the basic principles of economics and is designed to meet the needs of advanced students by giving them a stronger foundation in fundamentals. The course consists of planned reading in the works of leading economists, and discussion of principles and their application to problems which specialists in agricultural economics must face.

310. HISTORY OF AGRICULTURAL ECONOMIC THOUGHT. Elective, second semester. Class work, three hours. Three semester credits. Prerequisites: Consult instructor. Dr. Grimes.

The purpose of this course is to acquaint the student with the development of agricultural economics and the relation of agricultural economic doctrines to conditions existing when they were formulated. The work consists of assigned readings and discussions.

Agronomy

Professor THROCKMORTON
 Professor SALMON
 Professor PARKER*
 Associate Professor DULEY
 Associate Professor SEWELL
 Associate Professor BRUNSON†
 Associate Professor ZAHNLEY
 Associate Professor LAUDE
 Assistant Professor DAVIS

Assistant Professor LYONS
 Assistant Professor LONDON
 Assistant Professor ENLOW
 Instructor HILL
 Assistant Agronomist WILLIER†
 Assistant HARLING
 Assistant PHINNEY
 Graduate Assistant TYSDALE

The College farm used by the Department of Agronomy comprises 320 acres of medium rolling upland soil, well suited to experimental and demonstration work. It is well equipped with all kinds of farm machinery necessary in crop production. The general fields and experimental plots used for the breeding and testing of farm crops, and for conducting experiments in soil fertility and methods of culture, afford the student excellent opportunities for study and investigation.

Large and well-equipped laboratories for soil and crop work are maintained for the regular use of students. Material is provided for the study of the grain and forage crops best adapted to different purposes and most suitable for growing in the state. Ample greenhouse space is provided for problems and research work in crops and soils.

The Department of Agronomy offers courses in cereal and forage crop production and improvement, in pasture management, in soils, soil fertility, soil survey, and dry-land farming.

This department owns equipment valued at \$29,251.

COURSES IN FARM CROPS

FOR UNDERGRADUATES

105. SEED IDENTIFICATION AND WEED CONTROL. Elective first semester and summer school. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: Agron. 109. Mr. Zahnley and Mrs. Harling.

Methods of propagation, control, and eradication of weeds are discussed in lectures, the laboratory period is devoted to the identification of weed plants, and seeds; to germination and purity testing; and to field trips. Laboratory charge, \$2.50.

108. GRAIN GRADING AND JUDGING. Elective, second semester and summer school. Laboratory work, six hours. Two semester credits. Prerequisite: Agron. 109. Mr. Salmon and Mr. Zahnley.

The principal feature of this course is practice work in grading and judging crops and crop products, including wheat, corn, oats, barley, rye, buckwheat, flax, rice, alfalfa, clover, soy beans, cowpeas and various kinds of hay. Laboratory charge, \$4.

109. FARM CROPS. Sophomore year, second semester. Class work, three hours; laboratory, six hours. Five semester credits. Prerequisite: Bot. 101. Mr. Zahnley and Mr. Davis.

This course is a study of the distribution, relative importance, value, and production of the more important grain and forage crops. Laboratory deposit, \$5.

114. ADVANCED GRAIN JUDGING. Elective, first semester. Laboratory, six hours. Two semester credits. Prerequisite: Agron. 108. Mr. Salmon and Mr. Zahnley.

This course is a continuation of Agron. 108. Identification, commercial grading, and judging and presenting the merits of samples of the various kinds of field crops orally and in writing are emphasized. Laboratory charge, \$4.

* Absent on leave, year 1925-'26.

† In coöperation with the U. S. Department of Agriculture.

FOR GRADUATES AND UNDERGRADUATES

202. CROP IMPROVEMENT. Elective, second semester. Class work, two hours; laboratory, three or six hours. Three or four semester credits. Prerequisites: Agron. 109 and An. Husb. 221. Dr. Brunson.

This course reviews the principles of plant breeding and applies them to the principal groups of field crops. Methods of selection, hybridization, and breeding for special qualities are discussed. Laboratory work is a study of heritable characters and of their behavior in several generations following the cross. Laboratory charge, \$2.

203. ADVANCED FORAGE CROPS. Elective, first semester. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: Agron. 109. Mr. Zahnley.

Results of the most recent investigations carried on with forage crops in this and in other countries are studied, together with a more intensive study of the sorghums, alfalfa, sweet clover, soy beans, and other important or promising forage crops.

Laboratory.—The laboratory work is devoted to a study of the growth habits of the crops considered in the lecture, especially as they are related to the production and improvement of these crops. Storing, market grading, and marketing of hay are also considered. Laboratory charge, \$1.50.

205B. PRINCIPLES OF AGRONOMIC EXPERIMENTATION. Elective, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: Agron. 109 and 133. Mr. Salmon.

A discussion of the principles of experimentation in general is followed by their application to agronomic problems. Important contributions to agronomic science are studied from the historical viewpoint. Laboratory charge, \$2.50.

206. AGRONOMY SEMINAR. Elective, second semester. Class work, one hour. One semester credit. Prerequisites: Agron. 109 and 133. Mr. Throckmorton.

In this course students are required to review before the class timely articles appearing in bulletins and current periodicals.

207. PASTURE MANAGEMENT. Elective, first semester. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisites: Bot. 102 and Agron. 109.

This course is taken up in two parts: First, native forage plants, their distribution, value, life history and habits, and their management. Second, management of pastures and ranges, including the determination of carrying capacity, character of stock best suited to a range or pasture and the proper methods of handling areas to maintain or increase the forage cover. Laboratory charge, \$2.50.

208. PLANT GENETICS. Elective, first semester. (Not offered in 1925-'26.) Class work, three hours. Three semester credits. Prerequisite: An. Husb. 221. Mr. Parker.

This course is an advanced course in genetics and is offered to those students interested in plant breeding. Lectures and reference reading will deal with fundamental principles of breeding as they have been worked out in plants.

209. GENETICS SEMINAR. Elective, first and second semesters. One semester credit. Prerequisite: Consult instructors. Dr. Nabours, Mr. Parker, Dr. Warren, Dr. Ibsen, and Dr. Brunson.

This course continues through the first and second semesters and includes the study and criticism of genetic experiments in plants and animals, the biological and mathematical methods employed, and the validity of conclusions drawn.

210. CROP PROBLEMS. Elective, both semesters and summer school. Laboratory, three to twelve hours. One to four semester credits. Prerequisite: Agron. 203. Mr. Salmon and Mr. Parker.

Students choose or are assigned special problems for study. The completion of the work with a written report entitles them to credit according to the amount and quality of the work done. Laboratory deposit, \$5.

211. CROP ECOLOGY. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Agron. 109. Mr. Salmon.

This course considers the distribution of farm crops with special reference to the climatic, edaphic, economic and social factors primarily responsible for the concentration of crop production in certain countries. The possibilities of further increase in crop-producing areas and the probable nature and direction of such increases are considered.

212. ORIGIN AND CLASSIFICATION OF CROP PLANTS. Elective, first semester. Class and laboratory work, six hours. Three semester credits. Prerequisite: Agron. 109. Mr. Parker and Mr. Zahnley.

This course consists of lecture, reference and laboratory work on the geographical and botanical origin of crop plants. A careful study is made of the characters used in the identification of varieties of crop plants and related wild forms. Laboratory charge, \$3.

213. SPECIAL CROPS. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Agron. 109. Mr. Zahnley.

The distribution, climatic and soil requirements, relative importance and production of sugar beets, cotton, flax for fiber, hemp, tobacco and other minor crops are studied.

FOR GRADUATES

301. CROP RESEARCH. Elective, both semesters and summer school. Laboratory, three to fifteen hours. One to five semester credits, according to the work done. Prerequisite: Agron. 203. Mr. Salmon and Mr. Parker.

Students choose or are assigned special problems which may furnish data for a master's thesis. The completion of the work entitles them to credit according to the amount of work done. Laboratory charge, \$5.

302. PASTURE MANAGEMENT RESEARCH. Elective, both semesters and summer school. One to five semester credits, depending on the work done. Prerequisites: Agron. 207, Civ. Engr. 111, Bot. 225.

Students choose or are assigned special problems for investigation. The investigations may furnish data for a master's thesis.

COURSES IN SOILS

FOR UNDERGRADUATES

133. SOILS. Sophomore year, first semester. Class work, four hours; laboratory, three hours. Five semester credits. Prerequisite: Chem. 102 or 108A and Geol. 103. Mr. Throckmorton and Mr. Lyons.

This course deals with the fundamental principles underlying the management of soils. Laboratory charge, \$3.50.

FOR GRADUATES AND UNDERGRADUATES

231. DRY-LAND FARMING. Elective, first semester. Class work, two hours. Two semester credits. Prerequisite: Agron. 133. Mr. Lyons.

The principles underlying the cultivation methods and farming systems under light rainfall conditions are studied.

232A. ADVANCED SOIL FERTILITY. Elective, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: Agron. 133. Dr. Duley.

This course deals with the use of commercial fertilizers and their effects upon plants and soil. Laboratory charge, \$5.

233. SOIL SURVEY. Elective, second semester. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: Agron. 133. Mr. Lyons.

Types of soils of the United States and methods of mapping soil areas are studied in this course. Special attention is given to the study of Kansas soils in the field.

235. **ADVANCED SOILS LABORATORY.** Elective, first and second semester, or both. One to four semester credits, according to the amount of work done. Prerequisite: Agron. 133. Dr. Duley and Mr. Lyons.

This course deals with the more advanced problems of soil physics and fertility and includes the making of mechanical analyses, the determination of moisture equivalent, specific heat, and pot work with soils in the greenhouse. Laboratory charge, \$2.50.

236. **SOIL PROBLEMS.** Elective, both semesters and summer school. Laboratory, three to twelve hours. One to four semester credits. Prerequisites depend on the problem given. Mr. Throckmorton, Dr. Sewell, and Dr. Duley.

Students choose or are assigned special problems in soils. Laboratory deposit, \$5.

243. **SOIL AND CROP MANAGEMENT.** Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: Agron. 109 and 133. Dr. Duley.

The practical management of soils and crops is covered by means of discussion and problems.

247. **INTER-RELATIONS OF SOILS AND CROP PLANTS.** Elective, second semester. Class work, three hours. Three semester credits. Prerequisites: Soils (Agron. 133), Plant Physiology I (Bot. 208). and Physical Chemistry (Chem. 206). Dr. Sewell.

In this course chemical laws and plant physiology and ecological factors are applied to soil problems in relation to crop production.

FOR GRADUATES

331. **SOIL RESEARCH.** Elective, both semesters and summer school. One to five semester credits, according to the work done. Prerequisites: Agron. 133 and Chem. 250. Mr. Throckmorton, Dr. Duley, and Dr. Sewell.

Students are assigned special soil problems, which may extend throughout the year and furnish data for a master's thesis. Laboratory charge, \$5.

Animal Husbandry

Professor McCAMPBELL
Professor BELL
Professor IBSEN
Associate Professor REED
Associate Professor ANDERSON
Assistant Professor AUBEL

Assistant Professor MACKINTOSH
Instructor MARSTON
Instructor WEBER
Graduate Assistant MORRIS
Graduate Assistant BURHOE

The courses of study in this department are arranged to give the student special instruction in the selection, breeding, feeding, marketing, and management of all classes of live stock.

The department devotes 550 acres of land to the maintenance of herds and flocks of pure-bred horses, cattle, sheep, and hogs. The College live stock has attained a national reputation among breeders and feeders on account of the many prize-winning animals produced.

This department feeds experimentally from 750 to 1,000 animals each year. This affords excellent opportunity to study feeding animals and problems in feeding.

The feed yards and barns are well arranged for experimental feeding and the maintenance of the herds. The laboratory of the animal husbandry student is the feed lot and the judging pavilion. He studies the animal from the standpoint of the breeder and of the feeder. He learns to combine the

needs of each and to find these qualities in the animal best suited to meet these needs.

The department owns equipment valued at \$34,927. This includes live stock having a value of \$23,572.

COURSES IN ANIMAL HUSBANDRY

FOR UNDERGRADUATES

132. JUDGING MARKET LIVE STOCK. Freshman year, first semester. Laboratory, six hours. Two semester credits. Mr. Reed, Mr. Anderson, Mr. Aubel, Mr. Mackintosh, and Mr. Weber.

This course consists of a study of conformation and quality in market live stock. Text: Vaughn's *Types and Market Classes of Live Stock*.

Laboratory.—Practice is given in scoring and comparing market animals. Laboratory charge, 50 cents.

138. JUDGING BREEDING LIVE STOCK. Freshman year, second semester. Laboratory, six hours. Two semester credits. Prerequisite: An. Husb. 132. Mr. Reed, Mr. Anderson, Mr. Aubel, Mr. Mackintosh, and Mr. Weber.

This course consists of a study of conformation, quality, and character in breeding animals and the breed characteristics of the various breeds of horses, cattle, sheep and swine. Text: Plumb's *Types and Breeds of Farm Animals*, and Gay's *Principles and Practice of Judging Live Stock*. Laboratory charge, 50 cents.

140. ADVANCED STOCK JUDGING I. Elective, first semester. Laboratory, six hours. Two semester credits. Prerequisite: An. Husb. 138. Mr. Bell.

This course deals with the judging of market animals as well as with the different breeds of pure-bred stock. The stock is judged in groups of from four to six animals in the same manner as is customary at county or state fairs. Laboratory charge, 50 cents.

143. ADVANCED STOCK JUDGING II. Elective, second semester. Laboratory, six hours. Two semester credits. Prerequisite: An. Husb. 140. Mr. Bell.

This is a continuation of An. Husb. 140. During the work of the semester occasional trips are made to the best live-stock farms of the state, where the students have an opportunity to judge and to observe the management of herds and flocks as handled by the most successful stockmen of the state. Laboratory charge, 50 cents.

146. FORM AND FUNCTION IN LIVE STOCK. Elective, first semester. Laboratory, six hours. Two semester credits. Prerequisite: An. Husb. 143. Mr. Bell.

A detailed and specific study is made of animal form and type, and influence of type upon function; also of the relation of form, type and condition to growth and development. Comparative measurements are taken of growing and fattening animals, speed and draft horses, mutton and wool sheep, and lard and bacon types of hogs. Special training is given in presenting orally the relative merits of animals of all breeds. Laboratory charge, 50 cents.

149. HISTORY OF BREEDS AND PEDIGREES. Elective, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: An. Husb. 132. Mr. Mackintosh.

A study is made of the early history and development of pure-bred domestic animals; also a sufficient study of herdbooks and pedigrees to acquaint students with the leading strains and families of the different breeds of horses, cattle, sheep, and swine. Text: Plumb's *Types and Breeds of Farm Animals*. Laboratory charge, \$2.

152. PRINCIPLES OF FEEDING. Sophomore and junior years, second semester and summer school. Class work, three hours. Three semester credits. Prerequisites: Anat. 131 and Chem. 120. Mr. Anderson.

This course involves a study of the digestive system and the processes of

nutrition, the origin, chemical analysis, grades and feeding values of different feeds, and of the theory of practical economy of rations, both for the maintenance and for the fattening of all classes of farm animals. Text: Henry and Morrison's *Feeds and Feeding*, Parts I and II, supplemented by lectures.

155. BEEF-CATTLE PRODUCTION. Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: An. Husb. 132, 138, and 152. Dr. McCampbell and Mr. Anderson.

This course includes the study of economical methods of growing and fattening market cattle. The laboratory includes practice in feeding, management, and housing of cattle.

158. SWINE PRODUCTION. Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: An. Husb. 132, 138, and 152. Mr. Weber.

This course comprises a systematic study of economical methods of growing swine for the market. The laboratory work includes practice in feeding, management, and housing of swine. Text: Smith's *Pork Production*.

161. SHEEP PRODUCTION. Elective, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: An. Husb. 132, 138, and 152. Mr. Reed.

A systematic study is made of economic methods of growing, fitting, and finishing sheep for market. The laboratory work includes practice in feeding, management, and housing of sheep. Text: Coffey's *Productive Sheep Production*.

164. HORSE PRODUCTION. Elective, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: An. Husb. 132, 138, and 152. Mr. Mackintosh.

This course includes a study of economic methods of growing, handling, and housing horses for breeding purposes, for work, and for the market. The laboratory work includes practice in feeding, handling, and housing horses. Text: Gray's *Productive Horse Husbandry*.

167. MEATS. Elective, both semesters and summer school. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisites: An. Husb. 138 and 152. Mr. Mackintosh.

This is a course in killing, and in dressing, cutting, and curing meats. Text: Hesler's *Farm Meats*. Laboratory charge, \$3.

171. LIVE-STOCK PRODUCTION. Elective, second semester. Open only to juniors and seniors not majoring in animal husbandry. Class work, three hours. Three semester credits. Mr. Bell.

The purpose of this course is to give students not majoring in animal husbandry a practical insight into the production of beef cattle, horses, swine, and sheep.

172. FEEDING LIVE STOCK. For Agricultural Engineers only. Junior year, second semester. Class work, three hours. Three semester credits. Mr. Anderson.

This course includes a study of the processes of digestion and assimilation, the food requirements of different animals, methods of calculating rations, and the relative feeding value of different feeds. Text: Henry and Morrison's *Feeds and Feeding*.

176. MEATS HE. Elective, both semesters. Open to juniors and seniors in home economics. Laboratory, three hours. One semester credit. Prerequisite: Food and Nut. 106. Mr. Mackintosh.

This is a course in the selection, cutting, and curing of meats. Particular attention is paid to the grading of carcasses and the uses of the various cuts of meats. Laboratory charge, \$2.50.

FOR GRADUATES AND UNDERGRADUATES

221. GENETICS. Junior year, first semester and summer school. Class work, three hours. Three semester credits. Prerequisites: Zoöl. 105, and Bot. 105. Dr. Ibsen.

This course embraces a general discussion of variation, Mendelian inheritance, and related subjects.

223. ANIMAL BREEDING. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: An. Husb. 221. Mr. Aubel.

This course embraces a study of the physiology of reproduction; general principles of heredity; variation; systems of mating; influence of pedigrees and herdbook standard; and an analysis of the breeding practices of leading breeders.

225. ADVANCED GENETICS. Elective, second semester. Class work, three hours; laboratory, three hours. Four semester credits. Prerequisite: An. Husb. 221. Dr. Ibsen.

Particular attention is given to the relation of the chromosomes to heredity. The subject as a whole is studied in greater detail than in An. Husb. 221.

227. GENETICS SEMINAR. Elective, first and second semester. One semester credit. Prerequisites: Consult instructors. Dr. Nabours, Dr. Ibsen, Mr. Parker, and Dr. Warren.

This course continues through the first and second semesters and includes the study and criticism of genetic experiments in plants and animals, the biological and mathematical methods employed, and validity of conclusions drawn.

229. RESEARCH IN GENETICS. Elective, first and second semesters. Four to ten semester credits. Prerequisite: An. Husb. 225. Dr. Ibsen.

This course continues through the year and offers opportunity for individual study of problems in which small mammals are used as the experimental animals.

231. ADVANCED STUDIES IN PEDIGREES. Elective, second semester. Class work, one hour; laboratory, six hours. Three semester credits. Prerequisite: An. Husb. 149. Mr. Mackintosh.

This course consists of a careful study of the pedigrees and the prepotency of individuals representing the more important strains and families of beef cattle, horses, sheep, and swine.

233. ADVANCED FEEDING. Elective, first semester. Class work, two hours. Two semester credits. Prerequisite: An. Husb. 152. Mr. Marston.

This course consists of a survey of the experimental feeding of horses, cattle, sheep and hogs, together with a study of the fundamental and practical feeding problems of the various sections of the country. Emphasis is placed upon the results obtained in the experimental investigation of these problems.

244. ANIMAL HUSBANDRY SEMINAR. Elective, second semester. Open only to seniors and graduates majoring in animal husbandry. Class work, one hour. One semester credit. Prerequisite: An. Husb. 152. Mr. Reed.

245. ANIMAL HUSBANDRY PROBLEMS. Elective, both semesters and summer school. Credit as arranged. Prerequisites: An. Husb. 140, 149, 152, and 223. and such other courses as may be necessary to a satisfactory study of any particular problem selected for study. Dr. McCampbell.

250. PURE-BRED LIVE-STOCK PRODUCTION. Elective, second semester. Class work two hours. Two semester credits. Open only to seniors and graduates, with prerequisites as follows: An. Husb. 149 and 223. Mr. Reed.

This course gives the student an opportunity to study the real function of pure-bred live stock, the many factors upon which the successful production of pure-bred live stock depends, and the possibilities in pure-bred live-stock production.

260. THE AMERICAN LIVE-STOCK AND MEAT INDUSTRY. Elective, second semester. Class work, three hours. Three semester credits. Prerequisites: An. Husb. 132, 138, and 152. Dr. McCampbell.

This course includes primarily an advanced study of the live-stock and meat industry, its organization and operation, how it grew up with the country, and the relation of its diversified activities to each other and to the public. The development of the live-stock and meat industry is studied under two periods: (1) The prerefrigeration period, extending from the earliest settlement to approximately 1870. (2) The refrigeration period from 1870 to the present time. Considerable time is devoted to grades and classes of live stock, grades and classes of carcasses, packing house by-products, methods of marketing, cycles in production, government regulations, and trends in the American live-stock and meat industry. Clemen's *The Live-stock and Meat Industry* will be used as a text. This is supplemented with lectures and assigned readings and reports.

265. LIVE-STOCK MARKETING PRACTICES. Elective, first semester. Class work, two hours. Two semester credits. Prerequisites: An. Husb. 109 and 152. Dr. McCampbell.

This course deals with the details of getting live stock to market and selling it on a central market; also with the outstanding features of different live-stock markets relating to the class and quality of live stock that predominates on each market. No attempt will be made to discuss the broad economic phases of live-stock marketing.

FOR GRADUATES

301. RESEARCH IN ANIMAL HUSBANDRY. Elective, first and second semesters. Prerequisites: An. Husb. 155, 158, 161, and 164. Six to sixteen semester credits. Dr. McCampbell.

Students are assigned special problems for investigation in beef-cattle production, swine production, sheep production, horse production, pure-bred live-stock production and genetics.

306. ADVANCED MEATS. Elective, second semester. Two to four semester credits. Prerequisite: An. Husb. 167. Mr. Mackintosh.

This course includes grading of carcasses, studies in nutritive value of different grades of meats, factors influencing the quality of meats, factors influencing dressing percentage of meat animals, and the identification of meats from different animals.

311. THE WOOL INDUSTRY. Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: An. Husb. 161. Mr. Reed.

This course includes a study of the supply of wool and the demand for it, and the method of producing, marketing, storing, grading, and manufacturing wool.

Dairy Husbandry

Professor FITCH
Associate Professor CAVE
Associate Professor MARTIN
Assistant Professor LUSH

Instructor RIDDELL
Instructor RENNER
Graduate Assistant FARNER

The activities of the Department of Dairy Husbandry may be divided into two groups: those that deal with the production of milk and those that deal with the marketing and manufacturing of the several dairy products. In order to get first-hand information a dairy herd is maintained and a creamery operated. The animals in the dairy herd are used by judging classes and in experiments in the feeding, care, and management of dairy animals. Up-to-date methods in creamery operation are exemplified in the creamery.

The dairy herd consists of excellent types of the four dairy breeds: Jersey, Guernsey, Ayrshire, and Holstein. These animals are pure bred, and a number have been entered in the advanced registry of their respective breeds. The excellence of the herd is shown by the yearly records of the cows that have been officially tested. The average for the Guernseys is 9,202 pounds of milk and 423 pounds of butter fat; for the Ayrshires, 12,895 pounds of milk and 474 pounds of butter fat; for the Holsteins, 14,411 pounds of milk and 488 pounds of butter fat; and for Jerseys, 8,408 pounds of milk and 439 pounds of butter fat.

The Department of Dairy Husbandry is provided with ample room in the west wing of Waters Hall. The creamery is located in a one-story annex on the north end of this wing. In this building the department has the most up-to-date equipment available for handling butter, cheese, milk and ice cream on a quantity basis, and is equipped far better than ever before to instruct students interested in the manufacturing side of dairying.

Students who have specialized in dairying are now among the leading dairy-cattle breeders of the state. Others who were interested in the manufacturing side of dairying are in responsible positions with creameries and milk companies or in business for themselves. The dairy industry is expanding in Kansas, and this is bringing a greater demand for men with experience and knowledge of dairying.

The instruction in the Department of Dairy Husbandry includes the study of the selection and breeding of dairy animals, the production of milk, its manufacture into butter, cheese, and other dairy products, and its sale on the market. The success of the instruction in judging dairy animals may be assumed from the fact that for the years 1919, 1920 and 1921 the dairy judging teams of this College have won first place in the students' national dairy judging contest at the National Dairy Show. In thirteen contests the Kansas team has averaged better than third place.

This department owns equipment valued at \$53,743. This figure includes live stock to the value of \$28,765.

COURSES IN DAIRY HUSBANDRY

FOR UNDERGRADUATES

101. ELEMENTS OF DAIRYING. Freshman year, both semesters and summer school. Class work, two hours; laboratory, three hours. Three semester credits. Mr. Cave, Mr. Renner, Mr. Riddell, and Mr. Farner.

This is a general course in dairying, dealing with the secretion, composition and properties of milk, with the factors influencing the quantity and quality of milk, and with care of milk and cream on the farm. It includes a study of the different methods of creaming, the construction and operation of farm separators, the principles and application of the Babcock test, the use of the lactometer, and butter making on the farm. Lectures supplemented by text, Judkins' *Principles of Dairying*.

Laboratory.—Practice is given in operating the Babcock test and lactometer, separation of milk, and farm butter making. Laboratory charge, \$2.

104. DAIRY JUDGING. Freshman year, both semesters and summer school. Laboratory, three hours. One semester credit. Mr. Lush and Mr. Riddell.

This course calls for the judging of dairy stock from the standpoint of economical production and breed type. Score cards are used for the purpose of training the student to become accurate, thorough and systematic in the selection of animals as representative of breeds or for breeding purposes. No textbook is required. *Types and Breeds of Farm Animals* by C. S. Plumb, and breed-association literature are used as references.

106. DAIRY INSPECTION I. Elective, first semester. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisites: Bact. 106, and Dairy Husb. 101. Mr. Martin.

Advanced work is given in the testing of dairy products, including testing for adulterations. Practice is given in the use of score cards for inspecting and grading milk depots, dairy farms, and creameries. The course is designed to give training in the duties of a city, state, or government inspector or commissioner. State and city ordinances governing the handling and public sale of dairy products are outlined. Text: Farrington and Woll's *Testing Milk and Its Products*. Laboratory charge, \$3.

108. MILK PRODUCTION. Elective, second semester. Class, work, three hours. Three semester credits. Prerequisites: Dairy Husb. 101 and An. Husb. 152. Mr. Fitch.

This course deals with the economical production of milk and with the most approved method of handling the dairy herd, also the construction of dairy barns and buildings, and other subjects which relate to the dairy farmer. Text: Eckles' *Dairy Cattle and Milk Production*.

109. BUTTER MAKING I. Elective, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: Dairy Husb. 101 and Bact. 211. Mr. Martin.

This course comprises a study of the principles of creamery butter making, the construction and care of creameries and their appliances, methods of sampling and grading cream, pasteurization, starter making, cream ripening, and creamery accounting. Text: Hunziker's *The Butter Industry*.

Laboratory.—Practice is given in the sampling and grading of milk and cream; in separating and ripening cream; in the preparation and use of starter in pasteurization and in raw cream; in churning; in working, washing, salting, and packing butter; and in keeping complete records of each operation. The work also includes the making of salt, fat, and moisture determinations of the finished product, and judging and scoring butter. Laboratory charge, \$3.

111. BUTTER MAKING II. Elective, first semester. Class work, two hours; laboratory, six hours. Four semester credits. Prerequisites: Dairy Husb. 101 and Bact. 211. Mr. Martin.

This course is for students specializing in dairy manufacturing, and differs from Butter Making I in having six hours laboratory instead of three. Laboratory charge, \$3.

116. MARKET MILK. Elective, second semester. Lecture, one hour; laboratory, three hours. Two semester credits. Prerequisites: Dairy Husb. 101 and Bact. 211. Mr. Martin.

This course includes a study of the classes of market milk (certified, inspected and pasteurized, also other classifications), equipment and methods for clean milk production, and the relation of clean milk to producer, dealer, and consumer. Also systems of milk inspection, score cards, and milk and cream contests. Lectures are also given on milk plants, including their methods and equipment, such as receiving, storing, separating, removing sediment, pasteurization, bottling and capping, cleaning and sterilizing bottles and cans, the use

of the homogenizer and emulsifier and practical laboratory methods of examining milk. Text: Kelley and Clement's *Market Milk*.

Laboratory.—The work includes actual practice in all the steps in the production of market milk and cream in the College milk plant. Laboratory charge, \$2.50.

118. DAIRY INSPECTION II. (Vet.) Senior year, second semester. Laboratory, three hours. One semester credit. Mr. Renner.

This course comprises the testing of dairy products, the inspection and scoring of dairies and milk depots, and the testing for adulterants in dairy products. Text: Farrington and Woll's *Testing Milk and Its Products*. Laboratory charge, \$2.

120. ADVANCED DAIRY JUDGING. Elective, second semester. Laboratory, three hours. One semester credit. Mr. Cave.

This course is a continuation of Dairy Husb. 104. Visits are made to the best farms in the state and students are given an opportunity to judge and to handle stock kept by the most successful breeders.

125. DAIRY TECHNOLOGY. Elective, second semester. Lectures, one hour. One semester credit. Prerequisite: Dairy Husb. 109 and 111. Mr. Martin.

This is a lecture course covering special products made from milk such as condensed milk, powdered milk, malted milk, casein, etc.

130. ICE-CREAM MAKING. Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: Dairy Husb. 106 and 116. Mr. Martin.

This course includes a thorough study of the science and practice of the commercial manufacture of ice cream and ices. Text: Fisk's *Book of Ice Cream*.

Laboratory.—The laboratory work in ice-cream making includes all phases of the manufacture of ice cream and ices in the modern college plant. Laboratory charge, \$3.

135. CHEESE MAKING. Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: Dairy Husb. 106 and Bact. 211. Mr. Renner.

The class work comprises a study of the manufacture of American cheddar cheese, soft cheeses, and the most important foreign varieties. Text: Thom and Fisk's *Book of Cheese*.

Laboratory.—The work includes the actual manufacture of the various types of cheese in the laboratory. Laboratory charge, \$3.

FOR GRADUATES AND UNDERGRADUATES

202. DAIRY SEMINAR. Elective, second semester. Class work, one hour. One semester credit. Prerequisites: Dairy Husb. 101, 106, and 108. Mr. Fitch.

This course includes a study and review of dairy periodicals and experiment station bulletins, books and other dairy literature.

207. FEEDING AND MANAGEMENT OF DAIRY CATTLE. Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: Dairy Husb. 108. Mr. Cave.

This is an advanced course in feeding as it applies to dairy cattle under ordinary conditions and to cows on advanced registry test. Consideration is given to general management problems and the fitting of animals for show and sale. Reference texts: Larson and Putney's *Dairy Cattle Feeding and Management* and Eckles' *Dairy Cattle and Milk Production*. Laboratory charge, \$1.

211. DAIRY BREEDS AND PEDIGREES. Elective, first semester. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: Dairy Husb. 108. Mr. Lush.

This course is devoted to a study of the history and development of the

different breeds of dairy cattle. In the laboratory a study is made of the herd books of the dairy breeds and a study of the pedigrees of some of the prominent animals of each breed. Laboratory charge, 75 cents.

216. DAIRY PRODUCTION PROBLEMS. Elective, both semesters. Credit as arranged. Prerequisites: Dairy Husb. 101, 104, and 108, and An. Husb. 152. Mr. Fitch and Mr. Cave.

In this course the student is allowed to follow some investigation pertaining to dairy production problems. Plans for this investigation should be so formulated that the study could be continued for more than one semester if necessary.

221. DAIRY MANUFACTURING PROBLEMS. Elective, both semesters. Credit as arranged. Prerequisites: Dairy Husb. 101, 106, 108, 111, and 114. Mr. Martin.

In this course the student is allowed to follow some investigation pertaining to dairy manufacturing problems. Plans for this investigation should be so formulated that the study could be continued for more than one semester if necessary.

226. CREAMERY MANAGEMENT. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Dairy Husb. 111. Mr. Martin.

This is an advanced course in creamery management for students specializing in dairy manufacturing.

FOR GRADUATES

301. DAIRY RESEARCH. Elective, both semesters. Credit as arranged. Prerequisites: Dairy Husb. 108, 109, 206, 211 or 108, 111, 116, and 226.

This course gives credit for special investigations in dairy husbandry or dairy manufactures which may form the basis of a thesis in partial fulfillment of the requirements for the degree of Master of Science.

General Agriculture

DEAN CALL

FOR UNDERGRADUATES

101. AGRICULTURAL LECTURES. Freshman year, first and second semesters. Lectures, one hour a week. Deans of the Division of Agriculture, Veterinary Medicine, Extension, and the Summer School, and heads of the departments of the Agricultural Experiment Station and of various other departments of the College.

These lectures have a twofold object: (1) To assist freshmen to develop ability to study efficiently, and (2) to inform freshmen regarding the prospective opportunities for those who prepare themselves for service in the various fields of work open to agricultural graduates, and the requirements for success in those fields; and regarding the relationships between agricultural subject matter and certain other kinds of subject matter in well-balanced agricultural training.

103. AGRICULTURAL SEMINAR. Required of all undergraduates in the Division of Agriculture. Four meetings each semester.

The agricultural seminar is maintained primarily to bring all the agricultural undergraduates together with reasonable frequency for the discussion of general agricultural questions and agricultural student affairs. The programs will be presented by students, members of the College faculty, and invited speakers from outside the College community.

105. AGRICULTURAL RELATIONSHIPS. Senior year, second semester. Class work, one hour. Required of all seniors in agriculture. Dean Call.

This course is designed for agricultural students who are about to enter upon

their life work. It is given for the purpose of directing the attention of these students to their duties, responsibilities, and opportunities for service as citizens of the agricultural community and as specialists in various phases of agricultural activity. It consists of lectures and discussions relating to the broad, fundamental relationships of individual farmers and other agricultural people with each other, and of the agricultural community with other communities. The course places special emphasis in this connection on the responsibilities, obligations, and opportunities of agricultural graduates as American citizens.

Horticulture

Professor DICKENS
Professor BARNETT
Assistant Professor PICKETT

Assistant Professor HELDER
Assistant Professor BALCH
Graduate Assistant TOZZER

A wealth of illustrative material for classes in all horticultural subjects is found in the large collection of species growing on the College campus, in the orchard plantations, and in the greenhouses.

The horticultural grounds consist of eighty acres of land devoted exclusively to horticultural and forestry work in gardens, nurseries, orchards, and vineyards. A new small-fruit plantation is being developed, in which will be planted all standard kinds of small fruits. A full equipment of garden tools, spraying machinery and accessories, pruning tools, and special apparatus for floriculture is available at all times for the use of students. The College grounds furnish one of the finest and most complete laboratories in the state for the study of landscape gardening.

The instruction in the Department of Horticulture covers horticulture, pomology, including fruit judging, vegetable gardening, small fruits, spraying, greenhouse problems, forestry, and all phases of landscape gardening.

Instruction in landscape gardening is planned to meet the requirements of two classes of students: (1) Students who wish a better understanding of the principles underlying landscape gardening; (2) students who wish to specialize in landscape gardening. A complete curriculum, with the coöperation of the Departments of Civil Engineering and Architecture, is offered the latter students. (See "Curriculum leading to the degree of Bachelor of Science in Agriculture, with special training in landscape gardening.")

The value of equipment belonging to this department is \$4,806.

COURSES IN HORTICULTURE

FOR UNDERGRADUATES

105. SYSTEMATIC POMOLOGY. Elective, first semester. Class work, two hours; laboratory, six hours. Four semester credits. Prerequisite: Hort. 108. Mr. Barnett and Mr. Pickett.

This course consists of a technical study of fruit varieties, including varietal relationships, and the principles underlying pomological nomenclature, variety description, and both artificial and natural systems of variety classifications. Text: Hedrick's *Systematic Pomology*.

Laboratory.—In the laboratory actual fruits are studied. These are obtained from many parts of the United States and make possible valuable comparisons of varietal variations due to environment. Description, identification, judging, and the preparation of fruit displays are the principal laboratory topics. Laboratory charge, \$1.

108. ELEMENTS OF HORTICULTURE. Sophomore year, second semester. Class work, three hours; laboratory, three hours. Four semester credits. Prerequisite: Bot. 105. Mr. Barnett and Mr. Pickett.

The relation of the more important subdivisions of horticulture to general agriculture and to advanced courses in pomology and olericulture is presented in this course.

Both the practices necessary for success in orcharding and gardening and the principles on which these practices are based are brought out in some detail. This course is presented with two aims: First, to give the student who becomes a general farmer, a teacher of high-school agriculture, or a county agent the fundamentals of horticulture; second, to serve as a basic course for students planning to major in some branch of horticulture. Text: Sears' *Productive Orcharding*.

Laboratory.—The greater part of the laboratory work is done in the College orchards and gardens. Fruit-bearing habits, propagation, pruning, spraying, transplanting, cover crops, and fruit varieties are among the important topics studied. Laboratory charge, \$1.

110. SMALL FRUITS. Elective, second semester and summer school. Class work, two hours. Two semester credits. Prerequisite: Bot. 105. Mr. Barnett.

The small fruits of commercial importance are considered with reference to their requirements as to soil, fertilizers, cultivation, and protection. The management of small areas designed to furnish a supply of fruits for home use, and the handling of commercial plantations, are considered. Text: Sears' *Productive Small Fruit Culture*.

113. FARM FORESTRY. Elective, first semester. Class work, three hours; laboratory, three hours. Four semester credits. Mr. Dickens.

This course consists of a study of the needs of Kansas farms for windbreaks and wood lots for post and fuel production; also a study of forest conservation and methods of handling timber. The growing of trees in locations better suited for timber than for other crops is considered; also the composition of windbreaks and their value as a protection to home orchards and fields.

Laboratory.—Laboratory work includes identification of species, methods of forming windbreaks, and nursery work in transplanting trees of various sizes and a determination of the rate of growth of trees under various conditions.

116. DENDROLOGY. Elective, second semester. Class work, one hour; laboratory, six hours. Three semester credits. Mr. Dickens.

In this course a study is made of the classification and identification of forest trees, including a study of forest ecology and taxonomy; of the classification of commercial species; the relative importance of timber species; and the life history and requirements of trees.

Laboratory.—The laboratory work consists of studies in the College arboretum and excursions to near-by wood lots. The student is given an opportunity to become acquainted with trees that succeed well in this state.

119. SILVICULTURE. Elective, second semester. Class work, two hours; field work, three hours. Three semester credits. Prerequisite: Hort. 113 or 116. Mr. Dickens.

The business of tree growing for timber and economic purposes is studied. Requirements of species, their range and requirements as to soils, climate and the various factors that determine their reproduction and rate of growth are discussed. Protection of forests from fire and insects and the application of various systems of silviculture are given consideration.

122. GARDENING. Sophomore year, second semester. Class work, three hours. Three semester credits. Mr. Helder.

This is a course in landscape gardening appreciation, the purpose of which is to afford sufficient knowledge of the art to enable the student to become acquainted with the fundamental principles underlying its application to the planning, developing, and maintaining of those landscape phases directly and intimately associated with the building and improving of the home grounds. In conjunction with the lectures the student is introduced to the methods of preparing plans for home grounds and is also given some acquaintance with the requirements for the larger landscape developments such as playgrounds and parks. Special emphasis is placed upon an acquaintance with plant materials and also upon the architectural features as used in the landscape work which has special relation to the home.

126. LANDSCAPE GARDENING I. Elective, first and second semesters and summer school. Class work, two hours. Two semester credits. Mr. Helder.

This is a general course designed to give the student a broad knowledge of the planning of land areas for efficient use and beauty. A study is made of the various types of landscape and garden forms, of the elements which compose each, and the principles which underlie their artificial creation. A brief introduction to the plant materials for landscape gardening, including trees, shrubs, vines, and herbaceous flowers, which are hardy in Kansas, is given. The College campus affords an excellent laboratory for the study of landscape plant materials. A series of problems is given, advancing from the simple arrangement of home grounds to the layout of the country estate or park. This course is illustrated by the use of the stereopticon.

128. GREENHOUSE CONSTRUCTION AND MANAGEMENT. Elective, first semester. Class work, three hours. Three semester credits. Prerequisites: Agron. 133 and Bot. 105. Mr. Balch.

This course consists of work covering the more important points of greenhouse construction and the proper methods of conducting the greenhouse business. Not only is this subject treated from the commercial standpoint, but the management of private conservatories is also carefully studied.

130. SCHOOL GARDENING. Elective, summer school. Class work, two hours. Two semester credits. Mr. Balch.

This is a course in general vegetable gardening designed for teachers in the public schools. The field covered includes in a general way soils, insects, diseases, and machinery, as well as vegetable crops and their culture.

133. ELEMENTS OF VEGETABLE GARDENING. Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: Agron. 133 and Bot. 105. Mr. Balch.

This course deals with the practices necessary for success in vegetable gardening, aiming to give the student who becomes a teacher, a county agricultural agent, or a vegetable grower the fundamentals of this work, or to serve as a basic course for those interested in taking advanced courses in vegetable production. Laboratory charge, \$2.50.

FOR GRADUATES AND UNDERGRADUATES

201. PRACTICAL POMOLOGY. Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: Hort. 105. Mr. Barnett and Mr. Pickett.

The class work in this course is given by means of lectures and library assignments. It treats of certain practical phases of orcharding which are not given due weight in even the most recent textbooks. These are: Fruit geography, harvesting, grading and packing, storage houses and their management, marketing, and the production of manufactured fruit products.

Laboratory.—The laboratory work consists of field work in the harvesting, grading, and packing of fruits. Several types of sizing machines are used for demonstrations. Intensive work is given in packing of the various kinds of fruits in boxes and barrels. A thorough study is made of storage practice. Laboratory charge, \$1.

202. SUBTROPICAL POMOLOGY. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Hort. 105. Mr. Barnett.

This course is designed to acquaint students of pomology with the geography and methods of production of the principal subtropical fruits which are grown in the United States. The first half of the semester is devoted to the citrus group, and Coit's *Citrus Fruits* is used as a text. Other important fruits, as the fig, the olive, the date, the avocado, the loquat, etc., are studied by means of lectures and assigned readings during the second half of the semester.

205. ADVANCED POMOLOGY. Elective, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: Hort. 105. Mr. Barnett and Mr. Pickett.

The class work in advanced pomology takes up each of the important deciduous tree fruits and considers those points in which its characteristics and production set it apart from the other species. Included are such studies as the taxonomy, morphology, history, statistics of production, climatic range and limits, varietal adaptations, quality and its determining factors, and irrigation of the kinds of fruits under consideration. Lectures and recent bulletins supply the material.

Laboratory.—Advanced apple judging, description and identification of the trees of named varieties, and preparation of production graphs and fruit storage studies are typical of the laboratory work in this course. Laboratory charge, \$1.

207. SPRAYING. Elective, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: Chem. 102. Mr. Pickett.

The class work consists of lectures and assigned readings on spray machinery and accessories; the chemical properties, the manufacture and the uses of the important insecticides and fungicides for garden and orchard; and the determination of spray dates.

Laboratory.—The laboratory work offers practice in the preparation and testing of spray materials. Special study is given spray machinery and accessories. Laboratory charge, \$1.

209. ORCHARD PROBLEMS. Credit determined by instructor. Prerequisite: Hort. 105. Open to seniors and graduate students only. Mr. Dickens.

An opportunity is given students in this course to do investigative work on problems relating to commercial orcharding. Orchard surveys, production costs, root-stock adaptations, pruning tests, and studies of fruits in common storage are specific examples. The course is elastic and may extend over the full year. Some extra expense incident to visiting other sections of the state or for the purchase of materials may be required of the student.

210. MARKET GARDENING. Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: Agron. 133 and Hort. 133. Mr. Balch.

This course is made as practical as possible. In the classroom the lecture work is reinforced with problems concerning the business end of market gardening. The students are required to prepare seed orders and estimate the cost per acre of growing various garden crops. Particular stress is laid upon the harvesting, storing, and marketing of vegetables.

Laboratory.—The laboratory work is given in the College gardens. Each student is assigned a plot of ground to plant and care for during the semester. Careful records are kept of cultural operations and the yields. Disease and insect control are studied in a practical way. Laboratory charge, \$2.50.

218. MARKET-GARDENING PROBLEMS. Credit determined by instructor. Prerequisite: Hort. 210. Mr. Balch.

This course includes a study of the important methods of production of standard vegetables of both garden and greenhouse. Special attention is given to the problems of marketing, including organization and formation of first-hand markets in cities by express and parcel-post shipments and the possibilities of improving storage and shipping facilities in order to prolong the period of salable condition.

221. FORCING FLOWERS AND VEGETABLES. Credit determined by instructor. Prerequisite: Hort. 128 or Hort. 133. Mr. Balch.

The propagation and cultural method, soil studies, ventilation, heating, watering, and the control of greenhouse pests are among the problems studied.

222. HISTORY AND LITERATURE OF LANDSCAPE GARDENING. Elective, first semester. Class work, two hours. Two semester credits. Mr. Helder.

This course offers a comprehensive study of the historical development of the art of landscape gardening from its earliest known practice to the present day. Emphasis is placed upon the influence the art has had upon the different

ances of people through affecting their social life, and the sequential growth it has made through its transfer from one people to another throughout the successive stages of its development.

223. CIVIC ART. Elective, first and second semesters. Class work, three hours. Three semester credits. Prerequisites: Hort. 222, 225, 242, and 245. Mr. Helder.

This course is designed to afford the student opportunity for advanced and extensive study of technical problems concerning the planning and developing of municipal landscape work such as parks, playgrounds, park systems, subdivisions, and civic centers. These problems are studied with direct reference to the social, economic, and æsthetic welfare of the municipality. The course emphasizes the problems which concern the smaller cities and towns.

225. PLANT MATERIALS IN LANDSCAPE GARDENING. Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: Bot. 105. Mr. Helder.

This course offers the student opportunity for a comprehensive study of the wide and varied range of plant material used in landscape gardening. Special emphasis is laid upon the relation between plant materials and soil and climatic conditions, as well as particular varieties appropriate to certain landscape styles. The nature, character, foliage, flower, and fruit of plant materials are discussed with regard to the influence these play in both the practical and æsthetic phases of landscape gardening. Frequent field trips are taken to give the student an opportunity to get an intimate acquaintance with plant materials appropriate to landscape work. Laboratory charge, \$1.

233. TREE SURGERY. Elective, second semester. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: Bot. 208. Mr. Helder.

This course consists of a study and practice of the most approved methods of caring for ornamental trees and the technical details of planting, pruning and spraying, bolting, chaining, and cavity work. Shade-tree legislation and the duties of shade-tree commissions and tree wardens are discussed. Laboratory charge, \$1.

235. HORTICULTURE SEMINAR. Elective, first and second semesters. Class work, one hour. One semester credit. Prerequisites: Hort. 105 and 133 or 128. Mr. Dickens and Mr. Barnett.

The work in this course includes a study and critical discussion of recent horticultural publications and of experimental and research projects now under study in this and other agricultural experiment stations.

238. LANDSCAPE GARDENING II. Elective, second semester. Laboratory, nine hours. Three semester credits. Prerequisites: Hort. 126 and 225. Mr. Helder.

A series of advanced problems of a practical nature is offered the student, and from these a comprehensive knowledge of landscape gardening as applied to practical land improvement is afforded. The adjustment of certain landscape features, such as road building, walks, terraces, and walls, is considered, and special emphasis is laid upon materials of construction and the engineering phase of landscape gardening. Laboratory charge, \$1.

242. THEORY AND ÆSTHETICS OF LANDSCAPE GARDENING. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Hort. 222. Mr. Helder.

This course offers an analytical study of landscape design with special reference to stimulating the student's artistic comprehension. The course deals largely with the theoretical study of landscape motifs and the influence these exert upon the æsthetic sense. A study of landscape design pertaining to both landscape painting and landscape gardening is made, and the relation these bear to one another is brought out to show how the study of the works of great landscape painters aids in the comprehension of the principles underlying landscape design as applied to gardening. The course is planned for those intending to specialize in landscape gardening although it will prove

interesting and instructive to anyone wishing to obtain information regarding the psychology of landscape design.

245. LANDSCAPE GARDENING III. Elective, second semester and summer school. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisites: Hort. 225 and 238. Mr. Helder.

This course includes a study of complicated problems of landscape gardening, dealing with the planning and laying out of large areas as estates, country clubs, golf courses, subdivisions, parks, and playgrounds. Special attention is given to the adaptation of large natural tracts to park development. It includes the preparation of complete plans and specifications covering comprehensive landscape developments and also the discussion of methods in letting contracts, and analyzing bids for landscape work. A thorough knowledge of the technic of planning new developments and also the replanning of existing landscape work is offered, and the student is trained in construction pertaining to roads, walks, walls, and other structural work used in large landscape projects. Laboratory charge, \$1.

FOR GRADUATES

316. HORTICULTURAL RESEARCH. Elective, both semesters and summer school. Credit determined by the instructor. Prerequisites: Such courses as the problem undertaken may require. Mr. Dickens, Mr. Barnett, and Mr. Helder.

Graduate students who enroll in this course may select for original investigation any feasible problem which relates to their major line of graduate study. The field covered includes pomology, olericulture, forestry, and landscape gardening. Data collected in this course may form the basis for a master's thesis.

Milling Industry

Professor SWANSON
Associate Professor WORKING
Miller OAKES

The milling of wheat and other cereals occupies second rank among manufacturing industries of the United States, on the basis of the cost of raw materials used in manufacture, and sixth on the basis of the value of products. Milling products constitute over one-third of the total food materials produced in the United States. An industry of such magnitude calls for technically trained men. Kansas is the center of the hard-winter wheat belt, and flour milling is the second manufacturing industry in the state.

The department has a well-equipped flour mill, consisting of six double-stand rolls with necessary wheat-cleaning machinery, sifters, purifiers, and dust collectors. The equipment is equal to that found in the commercial mills of the same capacity.

The baking laboratory is equipped with dough mixer, proofing closet, baking oven, and other necessary apparatus. The chemical laboratory contains the apparatus needed for flour and wheat testing. For advanced work there are available a hydrogen-ion potentiometer, and apparatus for making conductivity measurements and viscosity tests.

The department owns equipment valued at \$18,166.

COURSES IN MILLING INDUSTRY

FOR UNDERGRADUATES

104. PRINCIPLES OF MILLING I. Freshman year and elective, second semester. Class work, one hour; laboratory, three hours. Two semester credits. Dr. Swanson and Mr. Oakes.

In this course the class work includes a study of the theory and principles of the different flour-milling operations, and the laboratory gives practice work on an experimental mill. Laboratory charge, \$2.

106. **PRINCIPLES OF MILLING II.** Sophomore year and elective, second semester. Laboratory, three hours. One semester credit. Mr. Oakes.

In this course a study is made of wheat conditioning preliminary to milling, and with the aid of a flow sheet the student follows the course of different products through the mill. Laboratory charge, \$2.

109. **MILLING PRACTICE I.** Junior year and elective, both semesters. Class work, one hour; laboratory, six hours. Three semester credits. Prerequisite: Mill. Ind. 101. Mr. Oakes.

This course consists of practice in the art of milling, with demonstrations on a model mill. Laboratory charge, \$2.

110. **MILLING PRACTICE II.** Senior year and elective, both semesters. Laboratory, six hours. Two semester credits. Prerequisite: Mil. Ind. 109. Mr. Oakes.

This course is a continuation of Milling Practice I. Laboratory charge, \$2.

115. **THESIS.** Senior year, continuing through the year. First semester; laboratory, three hours; one semester credit. Second semester: Laboratory, six hours; two semester credits. Dr. Swanson, Dr. Working, and Mr. Oakes.

The flour mill and laboratories furnish an excellent opportunity for experimental work on problems connected with flour milling or the testing of wheat and flour. The subject for investigation should be selected in consultation with the head of the department at the beginning of the senior year.

FOR GRADUATES AND UNDERGRADUATES

203. **WHEAT AND FLOUR TESTING.** Senior year and elective, first semester. Class work, one hour; laboratory, nine hours. Four semester credits. Prerequisites: Mil. Ind. 211 and Chem. 120 and 251 or 260. Dr. Swanson and Dr. Working.

This course includes special quantitative tests applied to cereals and their by-products; methods of analysis and interpretation of results. Laboratory deposit, \$7.50.

204. **EXPERIMENTAL BAKING A.** Senior year and elective, second semester. Laboratory, six hours. Two semester credits. Prerequisite: Mil. Ind. 203. Dr. Working.

This course includes practice in baking tests; comparison of methods, formulas, and flour; and interpretation of results. Laboratory charge, \$4.

210. **ADVANCED WHEAT AND FLOUR TESTING.** Elective, first or second semester. One semester credit for each three hours laboratory work. Prerequisite: Mil. Ind. 203 and such other courses as are necessary for the work the student wishes to pursue. Dr. Swanson and Dr. Working.

In this course the student has opportunity to study physico-chemical and other methods used in testing wheat and flour.

211. **MILLING QUALITIES OF WHEAT AND OTHER CEREALS.** Junior year and elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Chem. 120. Dr. Swanson.

A brief study is made of the factors which affect the milling qualities of wheat and other cereals such as moisture, respiration, enzymes, harvesting and storage, climate and soil. Attention is also given to processes of manufacturing cereal food products.

This course supersedes Mil. Ind. 103, Grain Products.

FOR GRADUATES

301. **MILLING INDUSTRY RESEARCH.** Elective, both semesters and summer school. Credit as arranged. Prerequisites: Mil. Ind. 203 and 204 and other courses as required by the problem selected. Dr. Swanson and Dr. Working.

In this course a definite line of investigation is followed which may, if sufficient as to quality and quantity, be used as a basis for a thesis presented in partial fulfillment of the requirements for the degree of master of science.

Poultry Husbandry

Professor PAYNE
Associate Professor WARREN
Assistant Professor STEUP

Graduate Assistant KLEIN
Superintendent MUGGLESTONE

The poultry plant, occupying twenty-four acres and situated just north of the northeast corner of the College campus, is devoted to the breeding and rearing of the stock used for class and experimental work. It is equipped with various types of houses, runs, incubators and brooders, and with flocks of the leading breeds of fowls.

There is in the government and state experiment stations and in schools and colleges an increasing demand for men with experience and systematic training in handling poultry. There is likewise a growing demand for men to enter poultry-packing houses and for men capable of managing poultry-farming enterprises of considerable proportions.

The department owns equipment valued at \$10,473.

COURSES IN POULTRY HUSBANDRY

FOR UNDERGRADUATES

101. FARM POULTRY PRODUCTION. Sophomore and junior years, both semesters and summer school. Class work, one hour; laboratory, three hours. Two semester credits. Mr. Payne, Mr. Steup, and Mr. Klein.

This course takes up the problems of poultry management on the general farm. Text: Lippincott's *Poultry Production*. Laboratory charge, \$2.

104. PRACTICE IN POULTRY FEEDING. Elective, second semester. Three times a day, seven days a week, for a period of three weeks, at hours outside of the regular schedule. One semester credit. Prerequisite: Poult. Husb. 101. Mr. Steup.

This course consists of the actual care of a flock of fowls by the student under the supervision of an instructor. Careful records are kept of the feeds consumed and the eggs produced, and a survey is made of the recent literature on poultry feeding. Laboratory charge, \$2.

109. POULTRY JUDGING. Elective, first semester. Class work, one hour; laboratory, six hours. Three semester credits. Prerequisite: Poult. Husb. 101. Mr. Steup.

In this course a historical study is made of the various breeds commonly found on the Kansas farm. Particular attention is paid to production characteristics and tracing the evolution of the present breed types.

Laboratory.—About half the time in the laboratory is devoted to judging the standard breeds and varieties, both by score card and by comparison. The rest of the time is given over largely to judging hens for egg production on the basis of their trapnest records. Laboratory charge, \$3.

116. MARKET POULTRY AND EGGS. Elective, first semester. Class work, two hours; laboratory, six hours. Four semester credits. Prerequisite: Poult. Husb. 101. Mr. Payne and Mr. Klein.

In this course the lectures cover the methods of handling market eggs and live and dressed poultry.

Laboratory.—In the laboratory practice is given in candling and grading eggs; caponizing, killing, cooling, grading, and packing poultry for market. The student will also crate-feed, kill, and dress three lots of market poultry. Text: Benjamin's *Marketing Poultry Products*. Laboratory charge, \$3.

120. ARTIFICIAL INCUBATION AND BROODING. Elective, second semester. Lectures by appointment; laboratory, three times a day, seven days a week for a period of not less than eight weeks at hours outside the regular schedule.

Three semester credits. Prerequisite: Poult. Husb. 101. Mr. Payne and Mr. Steup.

This course consists of a survey of the literature upon incubation and brooding, the care of an incubator by the student throughout the incubation period, bringing off the hatch, and caring for the chicks in a brooder for four weeks. Laboratory charge, \$3.

125. **ADVANCED INCUBATION.** Elective, second semester. Three times a day, seven days a week for a period not less than three weeks at hours outside of the regular schedule. One semester credit. Prerequisites: Poult. Husb. 101 and 120. Mr. Payne and Mr. Klein.

A study of the baby chick industry, the operation of a mammoth incubator, and the packing and shipping of baby chicks will comprise the work in this course. Laboratory charge, \$2.

FOR GRADUATES AND UNDERGRADUATES

202. **POULTRY BREEDING.** Elective, second semester. Lectures, two hours. Two semester credits. Prerequisite: An. Husb. 221. Dr. Warren.

The experimental work on inheritance in poultry is reviewed by means of lectures and assigned readings.

POULTRY FARM ORGANIZATION. See Advanced Farm Organization (Ag. Ec. 206).

POULTRY BACTERIOLOGY. See Poultry Bacteriology (Bact. 216).

POULTRY ANATOMY. See Special Anatomy (Anat. 201).

206. **POULTRY PROBLEMS.** Elective, both semesters and summer school. Credit as arranged. Prerequisites: Poult. Husb. 101, 104, and such other courses as the problem undertaken may require. Mr. Payne.

In this course the student pursues a definite investigation concerning some phase of poultry work. Arrangements must be made to continue this work through more than one semester when the problem attacked cannot be solved within the limits of a single semester.

208. **GENETICS OF DROSOPHILA.** Elective, second semester. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: Genetics (An. Husb. 221). Dr. Warren.

This course is designed primarily for graduate students who are doing major or minor work in genetics. Exceptional undergraduates may also be admitted. Lectures and assigned readings review the literature upon the genetics of *Drosophila*.

Laboratory.—The laboratory work consists of breeding problems illustrating the more fundamental genetic phenomena observed in *Drosophila*. Lectures may be taken without the laboratory work.

210. **GENETICS SEMINAR.** Elective, first and second semesters. One semester credit. Prerequisites: Consult instructors. Dr. Nabours, Dr. Ibsen, Mr. Parker, and Dr. Warren.

This course continues through the first and second semesters and includes the study and criticism of genetic experiments in plants and animals, the biological and mathematical methods employed, and validity of conclusions drawn.

215. **POULTRY MANAGEMENT.** Junior and senior elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Poult. Husb. 101. Mr. Payne.

In this course a detailed study of all phases of the farm flock will be made. This will include the reproduction of the flock; the production of market poultry and eggs, hatching eggs, baby chicks, and breeding stock; housing, feeding, and marketing the products and the best type of management to secure an even distribution of income each month of the year. Problems will

be assigned consisting of a detailed account of a farm flock of poultry kept for a period of one year. A few farms will be visited by the class for practical demonstrations.

220. POULTRY SEMINAR. Elective, first semester. Class work, one hour. One semester credit. Prerequisite: Poult. Husb. 101. Dr. Warren.

A review of current literature appearing in periodicals and bulletins and reports on research projects and topics of special interest, in the main, constitute the work of this course.

FOR GRADUATES

301. POULTRY RESEARCH. Elective, both semesters and summer school. Credit as arranged. Prerequisites: Poult. Husb. 101, 104, and such other courses as the problem undertaken may require. Mr. Payne and Dr. Warren.

In this course a definite line of investigation is followed which may form the basis of a thesis presented in partial fulfillment of the requirements for the degree of master of science.

Agriculture in the Summer School

Teachers in the high schools and grade schools of Kansas are beginning to appreciate the value of the work offered in the Summer School of the Kansas State Agricultural College. Besides first-class professional courses and other regular standard courses of college grade, courses in agriculture and agricultural engineering furnish unusual opportunities to teachers preparing for large usefulness in Kansas communities. Some of the agricultural courses that will interest teachers are: soils, farm crops, grain grading and judging, seed identification and weed control, agricultural economics, farm organization, farm cost accounting, marketing of farm products, meats, history of breeds and pedigrees, genetics, live-stock production, principles of feeding, elements of dairying, dairy judging, farm poultry production, small fruits, landscape gardening, and school gardening. Advanced courses in agriculture will be added to meet the demand, while the preparation of Smith-Hughes teachers and others for the proper teaching of farm shop work is amply provided for in the Departments of Agricultural Engineering and Shop Practice. Some of the fundamental courses offered in these departments are: farm buildings, gas engines and tractors, farm equipment, farm machinery, farm carpentry, farm blacksmithing, and farm shop methods.

Brief information regarding many of these courses in the Summer School may be found in the department descriptions in this catalogue.

SPECIAL COURSES IN AGRICULTURE

The Farmers' Short Course, the Commercial Creamery Short Course, and the Short Course in Wheat and Flour Testing are grouped with other special courses in another part of the catalogue, and are there described. They may be found by reference to the general index in the back of this book.

The Division of Engineering

ROY ANDREW SEATON, *Dean*

The Division of Engineering offers curricula in agricultural engineering, architecture, chemical engineering, civil engineering, electrical engineering, flour-mill engineering, mechanical engineering and landscape architecture, each leading to the degree of Bachelor of Science in the profession selected.

While the curricula, as scheduled, are believed to be sufficient to cover the needs of the average young man, it is possible to combine portions of the work of two or more of them in such a way that one may be prepared to take up a special line of work for which he desires to fit himself. For example, by substituting certain courses from the departments of chemistry and geology for some of those in the curriculum in mechanical engineering, a young man can fit himself for work in connection with the oil industry. By combining some of the courses in civil and mechanical engineering and by taking additional work in chemistry and geology, a young man may fit himself for special work in connection with the development of the coal fields of the country. In special cases permission will be granted to combine the work on the lines here indicated. With the permission of the dean of the division students desiring to do so may substitute work in the reserve officers training corps for certain subjects in any of the curricula of the division.

It is believed that the curricula as tabulated give the best preparation for students expecting to follow general work in the profession selected, and for those who are not certain what particular branch of the profession they will follow. The substitutions and combinations indicated, and others similar to them, will be permitted only when there is good evidence that the student desiring such work is practically certain to follow the branch selected.

In the case of any of these modifications, the degree granted will be that of the course in which the major portion of the work is taken. In no case will the substitution of an additional amount of technical work for any of the general cultural work in the course be allowed.

Besides the four-year professional curricula, the Division of Engineering offers one- or two-year courses in auto mechanics, blacksmithing, foundry practice, and machine shop work.

STATE TEACHER'S CERTIFICATE

By substituting nine specified credit hours of work in the Department of Education a four-year curriculum in engineering may lead not only to the degree of Bachelor of Science in Engineering, but at the same time qualify the student for a three-year Kansas state teacher's certificate, renewable for three-year periods. By taking nine additional credit hours of work in the Department of Education, graduates in engineering are qualified for the three-year Kansas state teacher's certificate, renewable for life and valid in any high school or any other public school in the state. A student desiring to qualify for teaching should begin his professional preparation by electing psychology in his junior year.

CURRICULUM IN AGRICULTURAL ENGINEERING

The curriculum in agricultural engineering is designed to qualify men for engineering work in rural communities; for positions in the farm-machinery and farm-motor industry; for the management of farms where drainage, irrigation or power-farming methods are prevalent; and for the positions of advisors, consulting engineers or architects in connection with agricultural development.

The work of the first year is similar to the other engineering curricula. During the last three years about one-fourth of the time is devoted to agricultural subjects, in order to familiarize the students with the modern methods of scientific agriculture and to enable them to apply engineering principles to agricultural problems. Considerable time is devoted to farm machinery, farm motors, rural architecture, highway engineering, irrigation, drainage, and concrete construction.

CURRICULUM IN ARCHITECTURAL ENGINEERING

The curriculum in architectural engineering as herein outlined is designed primarily for the student who wishes to specialize in the constructional side of the building profession.

The field of the architectural engineer is wide and varied. It comprises the superintending of building construction, general contracting, the estimating of costs for construction projects, and the designing of the structural members of steel, timber and concrete.

Because of the nature of the work of the architectural engineer in the profession, it is necessary that he be also well grounded in the underlying principles of art and architectural design. In addition to the necessary architectural and engineering requirements, the curriculum also provides for general cultural courses. These courses are designed to provide the student with the essentials of a liberal education.

CURRICULUM IN ARCHITECTURE

The curriculum in architecture aims to provide the technical training which will give a broad and sound foundation for the needs of the practicing architect, as well as the essentials of a liberal education. Although closely associated with, and somewhat dependent upon, science and engineering, architecture is primarily a fine art; hence the training of the architect, while including the general fundamentals of engineering and science, must be based primarily upon a study and understanding of the basic architectural principles together with the canons of art and good taste. A major portion of the curriculum is therefore devoted to the study of architectural design, supplemented by those subjects preparatory or contributory to it.

Supporting this line of study the student is given a comprehensive view of the development of civilization together with a more detailed study of the history of architecture and of art. Throughout the course draughtsmanship as applied to architectural design and construction, as well as to free-hand drawing and sketching, is given constant attention. Courses dealing with the fundamental principles of building construction, sanitation, heating and lighting, together with a careful study of the properties and uses of building materials, are given simultaneously with the courses in design and drawing.

In addition to the above-outlined professional and technical studies, approximately one-quarter of the curriculum is devoted to more general studies designed to broaden the student's view and to give him the essentials of a liberal education. Thus it is the aim not only to provide a fundamental training upon which the student may base his professional development and advancement, but to afford a training which is in the broadest sense educational.

Students pursuing the curriculum in architecture are urged to devote a fifth year to the work. By so doing the student can combine the curricula in architectural engineering and architecture and receive the Bachelor of Science degree in both architectural engineering and architecture.

CURRICULUM IN CHEMICAL ENGINEERING

Though the progress of chemical science and of the chemical industries has been rapid in the last twenty-five years, their development really has only begun. One need but survey briefly the hosts of industries which are dependent upon chemistry for their improvement to realize what opportunities await

the trained chemical engineer. Industries which have been more or less empirically developed include those concerned with the manufacture of paints and varnishes, soaps, glass, leather, rubber and ceramic materials. Industrial products which are the direct result of chemical research include dyes, synthetic essential oils, drugs, food products, and all electrochemical and electrothermal products, such as calcium carbide, carborundum, graphite, caustic soda, chlorine, chlorates, aluminum and other metals, and atmospheric nitrates. Still further improvements are possible in the present processes and a vast number of entirely new industries are waiting to be developed.

The training offered in the chemical engineering curriculum gives the student knowledge of the theoretical phases of chemistry and engineering which are fundamental to further development in many lines of industrial work. It is intended to fit him to enter the professional field of chemical engineering. In addition to sound training in chemical laws and processes, considerable work is given in the mathematical and physical sciences, drawing, economics, and engineering methods and operations.

CURRICULUM IN CIVIL ENGINEERING

The aim of the curriculum in civil engineering, as outlined in this catalogue, is to give the young men taking the work the best possible preparation for entering upon the active practice of the profession under present conditions. It will be noted that the first and second years are devoted largely to general cultural studies and the sciences, including mathematics. This follows the arrangement generally found in the engineering curricula of American colleges, and it finds its justification in the well-nigh universally accepted idea that any engineering education worthy of consideration must be grounded upon ample preliminary education in the allied sciences. An introduction to the technical work is given in these years through courses in drawing, shopwork, surveying, and the elementary phases of engineering.

The last two years are devoted largely to technical work. In recognition of the mechanical trend of the age, liberal provision is made for class and laboratory work in mechanical and electrical engineering. In view of the growing importance of municipal problems, such as paving, sewerage, and water-supply, the curriculum in civil engineering includes required courses in these subjects.

Advanced elective courses in railway, highway, and irrigation and drainage engineering are offered in the second semester of the senior year.

CURRICULUM IN ELECTRICAL ENGINEERING

The essential elements underlying a sound engineering training are based upon a thorough study of mathematics and the physical sciences. These studies, together with introductory courses in drawing, shopwork, surveying, and the elementary phases of engineering, occupy most of the time of the first two years.

Freshmen are given courses which involve the fundamental principles of electricity and magnetism and their application to electrical construction and machinery.

The professional work of this curriculum begins in the junior year and continues throughout the last two years. General cultural subjects are included in the work of each of the four years.

Emphasis is placed upon training to deal with forces and matter according to scientific principles, rather than upon the accumulation of facts. The department laboratories are well equipped with the various measuring instruments, standardizing apparatus, and different types of dynamo machinery. The different subjects are presented in the classroom, and the classroom work is supplemented by laboratory practice. The curriculum provides a liberal training in wood- and iron-working, mechanical drawing, and machine-shop practice.

The laboratory experiments selected for the students are designed to give a clear conception of the theoretical work of the classroom.

Students are given extensive practice in connecting up the different types of machines for testing purposes and for standard commercial work. This practice work and testing extends throughout the junior and senior years, and is intended to give the student familiarity with the underlying principles of the different machines, and a knowledge of the care necessary to operate them successfully. Opportunity is also given to undertake the investigation of commercial problems as they are sent to the college from the different central stations of the state.

CURRICULUM IN FLOUR-MILL ENGINEERING

The milling of wheat and other cereals is an important industry in this state. The curriculum in flour-mill engineering is designed to prepare men for the management of mills, for work in connection with the designing of milling plants, and for research work in the preparation and utilization of mill products.

The work of the freshman year is the same as in the other engineering courses. The sophomore year is similar to that of the mechanical engineering course, but includes additional chemistry and a beginning course in milling practice. In the junior and senior years, besides the courses dealing with the production, marketing, testing, and milling of grain products, a considerable amount of time is devoted to mechanics, chemistry, history, economics, business law and organization, steam and gas engineering, and flour-mill design.

CURRICULUM IN LANDSCAPE ARCHITECTURE

The aim of the curriculum in landscape architecture is to give to the student such technical training as will equip him for successful practice as a landscape architect.

The work of the landscape architect embraces the design, construction, execution, planting, and maintenance of farmsteads, estates, and other home grounds. In his work he is also called upon to plan parks, playgrounds, real estate subdivisions, country clubs, and boulevards and street systems. City planning and the laying out of town sites is probably the most important work of the landscape architect.

The function of the landscape architect is the fitting of land for human use, convenience and enjoyment, whether it be in the city or in the country. The work requires a thorough knowledge of the fundamentals of architecture, engineering, and horticulture. Because landscape architecture is primarily a fine art, especial emphasis is given to the study of the fundamental principles of design. A major portion of the curriculum is therefore devoted to the study of architectural and landscape design. These courses are supplemented with courses in drafting, free-hand drawing, and sketching, so the student may develop a facility for expressing his ideas on paper. Throughout the course the student is also given intensive training in the study of plant materials, forestry, and soil conditions.

In addition to professional courses of study, the curriculum provides general cultural courses. These courses are designed primarily to give the student the basic elements of a liberal education.

CURRICULUM IN MECHANICAL ENGINEERING

The work in mechanical engineering prepares for the successful management and superintendence of factories and power plants; for the design of power machinery installations; for the design and construction of machine tools, steam and gas engines, compressors, hydraulic machinery, etc.; and for the design and erection of engineering buildings and factories, including the selection, purchasing, and location of the equipment.

The curriculum has been laid out with the aim of securing a judicious mixture of theory and practice, such as will not only give the student the technical skill required for engineering operations, but will also endow him with an

understanding of the scientific and economic principles necessary for the solution of engineering and industrial problems.

Throughout the four years the theoretical studies in the classroom are supplemented by practical work in the laboratories in such a manner as very materially to strengthen both. In the testing laboratories the work does not end when the test is completed, but the entire problem must be written up in such a manner as would be approved in the best commercial testing laboratories. The laboratory work in the shops not only gives the student practice in performing the machinery and various mechanical operations, but includes a scientific study of the factors of production, so that the loss of material and expenditure of human effort will be a minimum.

Optional or elective courses are available in the senior year, second semester, and give the student an opportunity for instruction in the more specialized branches of mechanical engineering. These courses include: heating, ventilation, and refrigeration; factory design; aerodynamics, or aeronautical engineering, and automobile engineering.

Students pursuing a mechanical engineering curriculum are urged to spend at least two summers in some shop or commercial plant in order to broaden their training.

Curriculum in Agricultural Engineering

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER	SECOND SEMESTER
Chemistry E-I Chem. 107..... 4(3-3)	Chemistry E-II Chem. 108..... 4(3-3)
Plane Trigonometry* Math. 101..... 3(3-0)	College Algebra* Math. 104..... 3(3-0)
College Rhetoric I Engl. 101..... 3(3-0)	College Rhetoric II Engl. 104..... 3(3-0)
Engineering Drawing Mach. Design 101..... 2(0-6)	Descriptive Geometry Mach. Design 106..... 2(0-6)
Judging Market Live Stock An. Husb. 132..... 2(0-6)	Field Machinery Ag. Engr. 106, 167..... 2(1-3)
Extempore Speech I Pub. Spk. 106..... 2(2-0)	Engineering Woodwork I Shop 101..... 1(0-3)
Artillery I Mil. Tr. 113..... 1½(0-4)	Forging I Shop 150..... 1(0-3)
Engineering Lectures Gen. Engr. 101..... R	Artillery II Mil. Tr. 114..... 1½(0-4)
Physical Education M-I Phys. Ed. 103..... R(0-2)	Engineering Lectures Gen. Engr. 101..... R
	Physical Education M-II Phys. Ed. 104..... R(0-2)

* Students who offer but one unit of algebra for admission take a five-hour course in College Algebra, Math. 107, the first semester, postponing Trigonometry and two hours of other work until the second semester.

SOPHOMORE

FIRST SEMESTER

Engineering Physics I	
Physics 145.....	5(4-3)
Plane Analytical Geometry	
Math. 110.....	4(4-0)
American Industrial History	
Hist. 105.....	3(3-0)
Mechanism	
Mach. Design 121.....	3(3-0)
Surveying I	
Civ. Engr. 102.....	2(0-6)
Artillery III	
Mil. Tr. 115.....	1½(0-4)
Seminar	
Gen. Engr. 105.....	R
Physical Education M-III	
Phys. Ed. 105.....	R(0-2)

SECOND SEMESTER

Engineering Physics II	
Physics 150.....	5(4-3)
Calculus I	
Math. 205.....	5(5-0)
General Geology	
Geol. 103.....	3(3-0)
Machine Drawing I	
Mach. Design 111.....	2(0-6)
Surveying II	
Civ. Engr. 111.....	2(0-6)
Artillery IV	
Mil. Tr. 116.....	1½(0-4)
Seminar	
Gen. Engr. 105.....	R
Physical Education M-IV	
Phys. Ed. 106.....	R(0-2)

JUNIOR

FIRST SEMESTER

Applied Mechanics	
Ap. Mech. 202.....	4(4-0)
Calculus II	
Math. 206.....	3(3-0)
Soils	
Agron. 133.....	5(4-3)
Organic Chemistry (Agr.)	
Chem. 120.....	3(2-3)
Power Machinery	
Ag. Engr. 111, 112.....	2(1-3)
Seminar	
Gen. Engr. 105.....	R

SECOND SEMESTER

Strength of Materials	
Ap. Mech. 211, 220.....	6(5-3)
Farm Motors	
Ag. Engr. 125, 126.....	3(2-3)
Farm Crops	
Agron. 109.....	5(3-6)
Feeding Live Stock	
An. Husb. 172.....	3(3-0)
Metallography	
Shop 167.....	1(0-3)or
Foundry Practice	
Shop 160.....	1(0-3)
Seminar	
Gen. Engr. 105.....	R

SENIOR*

FIRST SEMESTER

Economics	
Econ. 101.....	3(3-0)
Tractors and Trucks	
Ag. Engr. 116, 117.....	3(2-3)
Farm Buildings	
Ag. Engr. 103.....	3(1-6)
Highway Engineering I	
Civ. Engr. 230 and	
Ap. Mech. 250.....	3(2-3)
Hydraulics	
Ap. Mech. 230, 235.....	4(3-3)
Commercial Law	
Hist. 160.....	1(1-0)
Seminar	
Gen. Engr. 105.....	R
Thesis	
Ag. Engr. 175.....	1(0-3)

SECOND SEMESTER

Farm Organization	
Ag. Ec. 106.....	3(2-3)
Drainage and Irrigation I	
Civ. Engr. 161.....	2(2-0)
Electrical Engineering C	
Elect. Engr. 160, 165.....	3(2-2, 1)
Steam and Gas Engineering C	
Mech. Eng. 120, 125.....	3(2-3)
Machine Tool Work I	
Shop 170.....	2(0-6)
Engineering English	
Engl. 110.....	2(2-0)
Business Organization	
Econ. 106.....	1(1-0)
Seminar	
Gen. Engr. 105.....	R
Thesis	
Ag. Engr. 175.....	2(0-6)

* Optional subjects are offered during the senior year for those wishing to specialize in rural electrification.

Curriculum in Architectural Engineering

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
Chemistry E-I		Chemistry E-II	
Chem. 107	4(3-3)	Chem. 108	4(3-3)
Plane Trigonometry*		College Algebra*	
Math. 101	3(3-0)	Math. 104	3(3-0)
College Rhetoric I		College Rhetoric II	
Engl. 101	3(3-0)	Engl. 104	3(3-0)
Descriptive Geometry A		Shades and Shadows, and Perspective	
Mach. Design 107	3(0-9)	Mach. Design 108	3(0-9)
Elements of Architecture I		Elements of Architecture II	
Arch. 106A	3(0-9)	Arch. 107A	3(0-9)
Artillery I		Artillery II	
Mil. Tr. 113	1½(0-4)	Mil. Tr. 114	1½(0-4)
Engineering Lectures		Engineering Lectures	
Gen. Engr. 101	R	Gen. Engr. 101	R
Physical Education M-I		Physical Education M-II	
Phys. Ed. 103	R(0-2)	Phys. Ed. 104.....	R(0-2)

SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
Engineering Physics I		Engineering Physics II	
Physics 145	5(4-3)	Physics 150	5(4-3)
History of Architecture I		History of Architecture II	
Arch. 154A	2(2-0)	Arch. 157A	2(2-0)
Plane Analytical Geometry		Calculus I	
Math. 110	4(4-0)	Math. 205	5(5-0)
Object Drawing I		Object Drawing II	
Arch. 111	2(0-6)	Arch. 114	2(0-6)
Extempore Speech I		Electrical Machinery and Construction	
Pub. Spk. 106.....	2(2-0)	Elec. Engr. 170.....	2(0-6)
Surveying I			
Civ. Engr. 102.....	2(0-6)		
Artillery III		Artillery IV	
Mil. Tr. 115.....	1½(0-4)	Mil. Tr. 116.....	1½(0-4)
Seminar		Seminar	
Gen. Engr. 105.....	R	Gen. Engr. 105.....	R
Physical Education M-III		Physical Education M-IV	
Phys. Ed. 105.....	R(0-2)	Phys. Ed. 106.....	R(0-2)

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Applied Mechanics		Strength of Materials	
Ap. Mech. 202.....	4(4-0)	Ap. Mech. 211, 220.....	6(5-3)
Calculus II		Working Drawings and Specifications	
Math. 206	3(3-0)	Arch. 191	3(0-9)
History of Architecture III		History of Architecture IV	
Arch. 158A	2(2-0)	Arch. 160A	2(2-0)
Masonry and Foundations			
Civ. Engr. 120	2(2-0)		
Design I		Design II	
Arch. 142	3(0-9)	Arch. 144	3(0-9)
Pencil Rendering and Sketching		Water Color I	
Arch. 116	2(0-6)	Arch. 118	2(0-6)
Elective†	2(-)	Elective†	2(-)
Seminar		Seminar	
Gen. Engr. 105.....	R	Gen. Engr. 105.....	R

* Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, the first semester, postponing Trigonometry and two hours of other work until the second semester.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

SENIOR

FIRST SEMESTER	SECOND SEMESTER
Stresses in Framed Structures Civ. Engr. 201..... 4(4-0)	Design of Framed Structures Civ. Engr. 246 3(0-9)
Civil Engineering Drawing II Civ. Engr. 205..... 2(0-6)	Concrete Design Civ. Engr. 250, 255..... 3(2-3)
Design III Arch. 145 5(0-15)	Engineering English Engl. 110 2(2-0)
Rural Architecture Arch. 153 2(0-6)	Design IV Arch. 147 5(0-15)
Economics Econ. 101 3(3-0)	Steam and Gas Engineering C Mech. Engr. 120, 125..... 3(2-3)
Business Law A Hist. 161 2(2-0)	Business Management Econ. 126 2(2-0)
Seminar Gen. Engr. 105..... R	Seminar Gen. Engr. 105..... R

Curriculum in Architecture

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER	SECOND SEMESTER
Plane Trigonometry* Math. 101..... 3(3-0)	College Algebra* Math. 104..... 3(3-0)
History of Architecture I Arch. 154A..... 2(2-0)	History of Architecture II Arch. 157A 2(2-0)
College Rhetoric I Engl. 101..... 3(3-0)	College Rhetoric II Engl. 104..... 3(3-0)
Descriptive Geometry A Mach. Design 107..... 3(0-9)	Shades and Shadows, and Perspective Mach. Design 108..... 3(0-9)
Object Drawing I Arch. 111..... 2(0-6)	Object Drawing II Arch. 114..... 2(0-6)
Elements of Architecture I Arch. 106A..... 3(0-9)	Elements of Architecture II Arch. 107A..... 3(0-9)
Artillery I Mil. Tr. 113..... 1½(0-4)	Artillery II Mil. Tr. 114..... 1½(0-4)
Engineering Lectures Gen. Engr. 101..... R	Engineering Lectures Gen. Engr. 101..... R
Physical Education M-I (Men) <i>or</i> Phys. Ed. 103..... R(0-2)	Physical Education M-II (Men) <i>or</i> Phys. Ed. 104..... R(0-2)
Physical Education W-I (Women) Phys. Ed. 151A..... 1(0-3)	Physical Education W-II (Women) Phys. Ed. 152A..... 1(0-3)

* Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, the first semester, postponing Trigonometry and two hours of other work until the second semester.

SOPHOMORE

FIRST SEMESTER

Engineering Physics I	
Physics 145.....	5(4-3)
History of Architecture III	
Arch. 158A.....	2(2-0)
Building Materials and Construction	
Arch. 187A.....	3(3-0)
Pencil Rendering and Sketching	
Arch. 116.....	2(0-6)
Design I	
Arch. 142.....	3(0-9)
Advanced Composition I	
Engl. 113.....	2(2-0)
Artillery III	
Mil. Tr. 115.....	1½(0-4)
Seminar	
Gen. Engr. 105.....	R
Physical Education M-III (Men) <i>or</i>	
Phys. Ed. 105.....	R(0-2)
Physical Education W-III (Women)	
Phys. Ed. 153.....	1(0-3)

SECOND SEMESTER

Engineering Physics II	
Physics 150.....	5(4-3)
History of Architecture IV	
Arch. 160A.....	2(2-0)
Working Drawings and Specifications	
Arch. 191.....	3(0-9)
Water Color I	
Arch. 118.....	2(0-6)
Design II	
Arch. 144.....	3(0-9)
Advanced Composition II	
Engl. 116.....	2(2-0)
Artillery IV	
Mil. Tr. 116.....	1½(0-4)
Seminar	
Gen. Engr. 105.....	R
Physical Education M-IV (Men) <i>or</i>	
Phys. Ed. 106.....	R(0-2)
Physical Education W-IV (Women)	
Phys. Ed. 154.....	1(0-3)

JUNIOR

FIRST SEMESTER

Applied Mechanics A	
Ap. Mech. 102	3(3-0)
Still Life Drawing	
Arch. 117	2(0-6)
Design III	
Arch. 145	5(0-15)
Rural Architecture	
Arch. 153	2(0-6)
French I	
Mod. Lang. 151	3(3-0)
Extempore Speech I	
Pub. Spk. 106.....	2(2-0)
Commercial Law	
Hist. 160	1(1-0)
Seminar	
Gen. Engr. 105	R

SECOND SEMESTER

Strength of Materials A	
Ap. Mech. 116, 121	4(3-3)
Life Drawing I	
Arch. 121	2(0-6)
Design IV	
Arch. 147	5(0-15)
French II	
Mod. Lang. 152.....	3(3-0)
Economics	
Econ. 101	3(3-0)
Business Organization	
Econ. 106	1(1-0)
Seminar	
Gen. Engr. 105	R

SENIOR

FIRST SEMESTER

History of Civilization and Art I	
Arch. 178	2(3-0)
Interior Decoration	
Arch. 120	2(0-6)
Design V	
Arch. 148	8(0-24)
Theory of Structures I	
Arch. 192	4(2-6)
Engineering English	
Engl. 110	2(2-0)
Seminar	
Gen. Engr. 105	R

SECOND SEMESTER

History of Civilization and Art II	
Arch. 182	2(3-0)
Life Drawing II	
Arch. 123	2(0-6)
Design VI	
Arch. 151	8(0-24)
Theory of Structures II	
Arch. 194A	5(3-6)
Seminar	
Gen. Engr. 105	R

Curriculum in Chemical Engineering

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
Chemistry E-I		Chemistry E-II	
Chem. 107	4(3-3)	Chem. 108	4(3-3)
Plane Trigonometry*		College Algebra*	
Math. 101	3(3-0)	Math. 104	3(3-0)
College Rhetoric I		College Rhetoric II	
Engl. 101	3(3-0)	Engl. 104	3(3-0)
Engineering Drawing		Descriptive Geometry	
Mach. Des. 101	2(0-6)	Mach. Des. 106	2(0-6)
Extempore Speech I		Machine Drawing I	
Pub. Spk. 106	2(2-0)	Mach. Des. 111	2(0-6)
Engineering Woodwork I		Metallurgy	
Shop 101	1(0-3)	Shop 165	2(2-0)
Forging I			
Shop 150	1(0-3)	Artillery II	
Artillery I		Mil. Tr. 114	1½(0-4)
Mil. Tr. 113	1½(0-4)	Engineering Lectures	
Engineering Lectures		Gen. Engr. 101	R
Gen. Engr. 101	R	Physical Education M-II	
Physical Education M-I		Phys. Ed. 104	R(0-2)
Phys. Ed. 103	R(0-2)		

SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
Engineering Physics I		Engineering Physics II	
Physics 145	5(4-3)	Physics 150	5(4-3)
Plane Analytical Geometry		Calculus I	
Math. 110	4(4-0)	Math. 205	5(5-0)
Adv. Inorg. Chemistry		Quantitative Analysis	
Chem. 207	3(3-0)	Chem. 241	5(1-12)
Inorganic Preparations		Metallography	
Chem. 202	2(0-6)	Shop 167	1(0-3)
American Industrial History		Library Methods	
Hist. 105	3(3-0)	Lib. Ec. 101	1(1-0)
Artillery III		Artillery IV	
Mil. Tr. 115	1½(0-4)	Mil. Tr. 116	1½(0-4)
Seminar		Seminar	
Gen. Engr. 105	R	Gen. Engr. 105	R
Physical Education M-III		Physical Education M-IV	
Phys. Ed. 105	R(0-2)	Phys. Ed. 106	R(0-2)

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Calculus II		Strength of Materials E	
Math. 206	3(3-0)	Ap. Mech. 216, 220	4(3-3)
Applied Mechanics		Industrial Electrochemistry	
Ap. Mech. 202	4(4-0)	Chem. 205	2(2-0)
Steam and Gas Engineering I		Steam and Gas Engineering II	
Mech. Engr. 101, 105§....	5(4-3)	Mech. Engr. 110, 115§....	4(3-3)
Organic Chemistry I		Organic Chemistry II	
Chem. 218	4(2-6)	Chem. 219	4(2-6)
Commercial Law		Economics	
Hist. 160	1(1-0)	Econ. 101	3(3-0)
Seminar		Seminar	
Gen. Engr. 105	R	Gen. Engr. 105	R

* Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, the first semester, postponing Trigonometry and two hours of other work until the second semester.

SENIOR

FIRST SEMESTER	SECOND SEMESTER
Industrial Chemistry I Chem. 203 5(3-6)	Industrial Chemistry II Chem. 204 5(3-6)
Electrical Engineering M-I Elect. Engr. 230, 231§.... 4(3-2, 1)	Electrical Engineering M-II Elect. Engr. 242, 243§.... 4(3-2, 1)
Physical Chemistry Chem. 206 5(3-6)	Engineering English Engl. 110 2(2-0)
Organic Preparations Chem. 223 2(0-6)or	Fire Assaying Chem. 242 2(0-6)
Qualitative Organic Analysis Chem. 224 2(0-6)	Gas Analysis Chem. 243 1(0-3)
Business Organization Econ. 106 1(1-0)	History of Chemistry Chem. 208 1(1-0)
Thesis 1(0-3)	Thesis 2(0-6)
Seminar Gen. Engr. 105 R	Seminar Gen. Engr. 105 R

Curriculum in Civil Engineering

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER	SECOND SEMESTER
Chemistry E-I Chem. 107..... 4(3-3)	Chemistry E-II Chem. 108..... 4(3-3)
Plane Trigonometry* Math. 101..... 3(3-0)	College Algebra* Math. 104..... 3(3-0)
College Rhetoric I Engl. 101..... 3(3-0)	College Rhetoric II Engl. 104..... 3(3-0)
Engineering Drawing Mach. Design 101..... 2(0-6)	Descriptive Geometry Mach. Design 106..... 2(0-6)
Surveying I Civ. Engr. 102..... 2(0-6)	Surveying II Civ. Engr. 111..... 2(0-6)
Extempore Speech I Pub. Spk. 106..... 2(2-0)	Engineering Woodwork I Shop 101..... 1(0-3)
Artillery I Mil. Tr. 113..... 1½(0-4)	Forging I Shop 150..... 1(0-3)
Engineering Lectures Gen. Engr. 101..... R	Artillery II Mil. Tr. 114..... 1½(0-4)
Physical Education M-I Phys. Ed. 103..... R(0-2)	Engineering Lectures Gen. Engr. 101..... R
	Physical Education M-II Phys. Ed. 104..... R(0-2)

* Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, the first semester, postponing Trigonometry and two hours of other work until the second semester.

§ Students who wish to do so may replace these courses by German I (3 semester credits), German II (3 semester credits), Scientific German (4 semester credits), Steam and Gas Engineering C (3 semester credits), Electrical Engineering C (3 semester credits), Elective (1 semester credit).

SOPHOMORE

FIRST SEMESTER

Engineering Physics I	
Physics 145.....	5(4-3)
Plane Analytical Geometry	
Math. 110.....	4(4-0)
American Industrial History	
Hist. 105.....	3(3-0)
Surveying III	
Civ. Engr. 151, 155.....	3(2-3)
Machine Drawing I	
Mach. Design III.....	2(0-6)
Artillery III	
Mil. Tr. 115.....	1½(0-4)
Seminar	
Gen. Engr. 105.....	R
Physical Education M-III	
Phys. Ed. 105.....	R(0-2)

SECOND SEMESTER

Engineering Physics II	
Physics 150.....	5(4-3)
Calculus I	
Math. 205.....	5(5-0)
Metallurgy	
Shop 165.....	2(2-0)
Surveying IV	
Civ. Engr. 156, 157.....	3(2-3)
Civil Engineering Drawing I	
Civ. Engr. 125.....	2(0-6)
Artillery IV	
Mil. Tr. 116.....	1½(0-4)
Seminar	
Gen. Engr. 105.....	R
Physical Education M-IV	
Phys. Ed. 106.....	R(0-2)

JUNIOR

FIRST SEMESTER

Applied Mechanics	
Ap. Mech. 202.....	4(4-0)
Calculus II	
Math. 206.....	3(3-0)
Highway Engineering I	
Civ. Engr. 230 and	
Ap. Mech. 250.....	3(2-3)
Masonry and Foundations	
Civ. Engr. 120.....	2(2-0)
Economics	
Econ. 101.....	3(3-0)
Business Law A	
Hist. 161.....	2(2-0)
Seminar	
Gen. Engr. 105.....	R

SECOND SEMESTER

Strength of Materials	
Ap. Mech. 211, 220.....	6(5-3)
Hydraulics	
Ap. Mech. 230, 235.....	4(3-3)
Railway Engineering I	
Civ. Engr. 145.....	2(2-0)
Drainage and Irrigation I	
Civ. Engr. 161.....	2(2-0)
Steam and Gas Engineering C	
Mech. Engr. 120, 125.....	3(2-3)
Seminar	
Gen. Engr. 105.....	R

SENIOR

FIRST SEMESTER

Stresses in Framed Structures	
Civ. Engr. 201.....	4(4-0)
Civil Engineering Drawing II	
Civ. Engr. 205.....	2(0-6)
Astronomy and Geodesy	
Civ. Engr. 211, 216.....	4(2-6)
Water Supply	
Civ. Engr. 220.....	2(2-0)
Sewerage	
Civ. Engr. 225.....	2(2-0)
Engineering Geology	
Geol. 102.....	4(3-3)
Seminar	
Gen. Engr. 105.....	R

SECOND SEMESTER

Design of Framed Structures	
Civ. Engr. 246.....	3(0-9)
Electrical Engineering C	
Elect. Engr. 160, 165.....	3(2-2, 1)
Engineering English	
Engl. 110.....	2(2-0)
Business Management	
Econ. 126.....	2(2-0)
Concrete Design	
Civ. Engr. 250, 255.....	3(2-3)
Railway Engineering II	
Civ. Engr. 260, 265.....	4(2-6)or
Highway Engineering II	
Civ. Engr. 270, 275.....	4(2-6)or
Drainage and Irrigation II	
Civ. Engr. 280, 285.....	4(2-6)
Seminar	
Gen. Engr. 105.....	R

Curriculum in Electrical Engineering

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER	SECOND SEMESTER
Chemistry E-I Chem. 107 4(3-3)	Chemistry E-II Chem. 108 4(3-3)
Plane Trigonometry* Math. 101 3(3-0)	College Algebra* Math. 104 3(3-0)
College Rhetoric I Engl. 101 3(3-0)	College Rhetoric II Engl. 104 3(3-0)
Engineering Drawing Mach. Design 101 2(0-6)	Descriptive Geometry Mach. Design 106 2(0-6)
Engineering Woodwork I Shop 101 1(0-3)	Extempore Speech I Pub. Spk. 106 2(2-0)
Forging I Shop 150 1(0-3)	
Electrical Machinery and Construction Elect. Engr. 170 2(0-6) <i>or</i>	Electrical Machinery and Construction Elect. Engr. 170 2(0-6) <i>or</i>
Surveying I Civ. Engr. 102 2(0-6)	Surveying I Civ. Engr. 102 2(0-6)
Artillery I Mil. Tr. 113 1½(0-4)	Artillery II Mil. Tr. 114 1½(0-4)
Engineering Lectures Gen. Engr. 101 R	Engineering Lectures Gen. Engr. 101 R
Physical Education M-I Phys. Ed. 103 R(0-2)	Physical Education M-II Phys. Ed. 104 R(0-2)

SOPHOMORE

FIRST SEMESTER	SECOND SEMESTER
Engineering Physics I Physics 145 5(4-3)	Engineering Physics II Physics 150 5(4-3)
Plane Analytical Geometry Math. 110 4(4-0)	Calculus I Math. 205 5(5-0)
Mechanism Mach. Design 121 3(3-0)	American Industrial History Hist. 105 3(3-0)
Machine Drawing I Mach. Design 111 2(0-6)	Machine Drawing II Mach. Design 116 3(0-9)
Metallurgy Shop 165 2(2-0)	
Foundry Practice Shop 160 1(0-3)	Metallography Shop 167 1(0-3)
Artillery III Mil. Tr. 115 1½(0-4)	Artillery IV Mil. Tr. 116 1½(0-4)
Seminar Gen. Engr. 105 R	Seminar Gen. Engr. 105 R
Physical Education M-III Phys. Ed. 105 R(0-2)	Physical Education M-IV Phys. Ed. 106 R(0-2)

JUNIOR

FIRST SEMESTER	SECOND SEMESTER
Applied Mechanics Ap. Mech. 202 4(4-0)	Strength of Materials E Ap. Mech. 216, 220 4(3-3)
Calculus II Math. 206 3(3-0)	Hydraulics Ap. Mech. 230, 235 4(3-3)
Economics Econ. 101 3(3-0)	Pattern Making Shop 145 1(0-3)
Direct-current Machines I Elect. Engr. 203, 204 4(3-2, 1)	Direct-current Machines II Elect. Engr. 206, 207 3(2-2, 1)
Electrical Measurements Elect. Engr. 227, 228 3(2-2, 1)	Alternating-current Machines I Elect. Engr. 209, 211 5(4-2, 1)
Seminar Gen. Engr. 105 R	Seminar Gen. Engr. 105 R

* Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, the first semester, postponing Trigonometry and two hours of other work until the second semester.

SENIOR

FIRST SEMESTER

Steam and Gas Engineering I	
Mech. Engr. 101, 105.....	5(4-3)
Alternating-current Machines II	
Elect. Engr. 213, 215.....	6(4-4, 2)
Electrical Machine Design I	
Elect. Engr. 270	1(0-3)
Factory Engineering	
Shop 245	2(2-0)
Elective†	4(-)
Seminar	
Gen. Engr. 105	R

SECOND SEMESTER

Steam and Gas Engineering II	
Mech. Engr. 110, 115.....	4(3-3)
Commercial Law	
Hist. 160	1(1-0)
Business Organization	
Econ. 106	1(1-0)
Engineering English	
Engl. 110	2(2-0)
Machine Tool Work I	
Shop 170	2(0-6)
Elective†	7(-)
Seminar	
Gen. Engr. 105	R

Curriculum in Flour-mill Engineering

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER

Chemistry E-I	
Chem. 107.....	4(3-3)
Plane Trigonometry*	
Math. 101.....	3(3-0)
College Rhetoric I	
Engl. 101.....	3(3-0)
Extempore Speech I	
Pub Spk. 106.....	2(2-0)
Engineering Drawing	
Mach. Design 101.....	2(0-6)
Engineering Woodwork I	
Shop 101.....	1(0-3)
Forging I	
Shop 150.....	1(0-3)
Artillery I	
Mil. Tr. 113.....	1½(0-4)
Engineering Lectures	
Gen. Engr. 101.....	R
Physical Education M-I	
Phys. Ed. 103.....	R(0-2)

SECOND SEMESTER

Chemistry E-II	
Chem. 108.....	4(3-3)
College Algebra*	
Math. 104.....	3(3-0)
College Rhetoric II	
Engl. 104.....	3(3-0)
Descriptive Geometry	
Mach. Design 106.....	2(0-6)
Principles of Milling I	
Mill. Ind. 104.....	2(1-3)
Surveying I	
Civ. Eng. 102.....	2(0-6)
Artillery II	
Mil. Tr. 114.....	1½(0-4)
Engineering Lectures	
Gen. Engr. 101.....	R
Physical Education M-II	
Phys. E. 104.....	R(0-2)

* Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, the first semester, postponing Plane Trigonometry and two hours of other work until the second semester.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
Engineering Physics I		Engineering Physics II	
Physics 145.....	5(4-3)	Physics 150.....	5(4-2)
Plane Analytical Geometry		Calculus I	
Math. 110.....	4(4-0)	Math. 205.....	5(5-0)
Organic Chemistry (Agr.)		Mechanism	
Chem. 120.....	3(2-3)	Mach. Design 121.....	3(3-0)
Machine Drawing I		Machine Drawing II	
Mach. Design 111.....	2(0-6)	Mach. Design 116.....	3(0-9)
Quantitative Analysis A		Principles of Milling II	
Chem. 250.....	3(1-6)	Mill. Ind. 106.....	1(0-3)
Artillery III		Artillery IV	
Mil. Tr. 115.....	1½(0-4)	Mil. Tr. 116.....	1½(0-4)
Seminar		Seminar	
Gen. Engr. 105.....	R	Gen. Engr. 105.....	R
Physical Education M-III		Physical Education M-IV	
Phys. Ed. 105.....	R(0-2)	Phys. Ed. 106.....	R(0-2)

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Applied Mechanics		Strength of Materials E	
Ap. Mech. 202.....	4(4-0)	Ap. Mech. 216, 220.....	4(3-3)
Calculus II		Hydraulics	
Math. 206.....	3(3-0)	Ap. Mech. 230, 235.....	4(3-3)
Advanced Quantitative Analysis		Commercial Law	
Chem. 260.....	1(0-3)	Hist. 160.....	1(1-0)
American Industrial History		Economics	
Hist. 105.....	3(3-0)	Econ. 101.....	3(3-0)
Farm Crops Laboratory		Grain Grading and Judging	
Agron. 109.....	2(0-6)	Agron. 108.....	2(0-6)
Milling Practice I		Milling Qualities of Wheat and Other Cereals	
Mill. Ind. 109.....	3(1-6)	Mill. Ind. 211.....	2(2-0)
Milling Entomology		Milling Practice II	
Ent. 116.....	1(1-0)	Mill. Ind. 110.....	2(0-6)
Seminar		Seminar	
Gen. Engr. 105.....	R	Gen. Engr. 105.....	R

SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Wheat and Flour Testing		Experimental Baking A	
Mill. Ind. 203.....	4(1-9)	Mill. Ind. 204.....	2(0-6)
Grain Marketing		Electrical Engineering C	
Ag. Ec. 203.....	3(3-0)	Elect. Engr. 160, 165.....	3(2-2, 1)
Flour-mill Design		Refrigeration, Heating and Ventilation	
Mach. Design 215.....	2(0-6)	Mech. Engr. 210, 215.....	3(2-3)
Steam and Gas Engineering I		Steam and Gas Engineering II	
Mech. Engr. 101, 105.....	5(4-3)	Mech. Engr. 110, 115.....	4(3-3)
Business Organization		Engineering English	
Econ. 106.....	1(1-0)	Engl. 110.....	2(2-0)
Factory Engineering		Machine Tool Work I	
Shop 245A.....	2(2-0)	Shop 170.....	2(0-6)
Seminar		Seminar	
Gen. Engr. 105.....	R	Gen. Engr. 105.....	R
Thesis		Thesis	
Mach. Design 126, Mech. Engr. 195, Mill. Ind. 115, or Shop 195.....	1(0-3)	Mach. Design 126, Mech. Engr. 195, Mill. Ind. 115, or Shop 195.....	2(0-6)

Curriculum in Landscape Architecture

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
Plane Trigonometry*		College Algebra*	
Math. 101.....	3(3-0)	Math. 104.....	3(3-0)
College Rhetoric I		College Rhetoric II	
Engl. 101.....	3(3-0)	Engl. 104.....	3(3-0)
General Botany I		General Botany II	
Bot. 101.....	3(1-4, 2)	Bot. 105.....	3(1-4, 2)
Descriptive Geometry A		Shades and Shadows, and Perspective	
Mach. Design 107.....	3(0-9)	Mach. Design 108.....	3(0-9)
Object Drawing I		Object Drawing II	
Arch. 111.....	2(0-6)	Arch. 114.....	2(0-6)
Surveying I		Surveying II	
Civ. Engr. 102.....	2(0-6)	Civ. Engr. 111.....	2(0-6)
Artillery I (Men)		Artillery II (Men)	
Mil. Tr. 113.....	1½(0-4)	Mil. Tr. 114.....	1½(0-4)
Physical Education M-I (Men)		Physical Education M-II (Men)	
Phys. Ed. 103.....	R(0-2) <i>or</i>	Phys. Ed. 104.....	R(0-2) <i>or</i>
Physical Education W-I (Women)		Physical Education W-II (Women)	
Phys. Ed. 151A.....	1(0-3)	Phys. Ed. 152A.....	1(0-3)
Engineering Lectures		Engineering Lectures	
Gen. Engr. 101.....	R	Gen. Engr. 101.....	R

SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
History of Architecture I		History of Architecture II	
Arch. 154A.....	2(2-0)	Arch. 157A.....	2(2-0)
Elements of Architecture I		Elements of Architecture II	
Arch. 106A.....	3(0-9)	Arch. 107A.....	3(0-9)
Surveying III		Water Color I	
Civ. Engr. 151, 155.....	3(2-3)	Arch. 118.....	2(0-6)
Chemistry E-I		Chemistry E-II	
Chem. 107.....	4(3-3)	Chem. 108.....	4(3-3)
Landscape Gardening I		Landscape Gardening II	
Hort. 126.....	2(2-0)	Hort. 238.....	3(0-9)
Plant Physiology I		General Geology	
Bot. 208.....	3(3-0)	Geol. 103.....	3(3-0)
Artillery III (Men)		Artillery IV (Men)	
Mil. Tr. 115.....	1½(0-4)	Mil. Tr. 116.....	1½(0-4)
Physical Education M-III (Men)		Physical Education M-IV (Men)	
Phys. Ed. 105.....	R(0-2) <i>or</i>	Phys. Ed. 106.....	R(0-2) <i>or</i>
Physical Education W-III (Women)		Physical Education W-IV (Women)	
Phys. Ed. 153.....	1(0-3)	Phys. Ed. 154.....	1(0-9)
Seminar		Seminar	
Gen. Engr. 105.....	R	Gen. Engr. 105.....	R

* Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, the first semester, postponing Plane Trigonometry and two hours of other work until the second semester.

JUNIOR

FIRST SEMESTER

History of Architecture III	
Arch. 158A	2(2-0)
Pencil Rendering and Sketching	
Arch. 116	2(0-6)
Design I	
Arch. 142	3(0-9)
Soils	
Agron. 133	5(4-3)
History and Literature of Landscape Gardening	
Hort. 222	2(2-0)
Theory and Æsthetics of Landscape Gardening	
Hort. 242	3(3-0)
Seminar	
Gen. Engr. 105	R

SECOND SEMESTER

History of Architecture IV	
Arch. 160A	2(2-0)
Working Drawings and Specifications	
Arch. 191	3(0-9)
Design II	
Arch. 144	3(0-9)
Plant Materials in Landscape Gardening	
Hort. 225	3(2-3)
Elements of Horticulture	
Hort. 108	4(3-3)
Silviculture	
Hort. 119	3(2-3)
Seminar	
Gen. Engr. 105	R

SENIOR

FIRST SEMESTER

Plant Pathology I	
Bot. 205	3(1-4, 2)
Highway Engineering I	
Civ. Engr. 230,	
Ap. Mech. 250	3(2-3)
Landscape Gardening III	
Hort. 245	2(1-3)
Rural Architecture	
Arch. 153	2(0-6)
Elective†	2(-)
Greenhouse Construction and Management	
Hort. 128	3(3-0)
Building Materials and Construction	
Arch. 187A	3(3-0)
Seminar	
Gen. Engr. 105	R

SECOND SEMESTER

Economics	
Econ. 101	3(3-0)
City Planning	
Arch. 249	3(0-9)
Civic Art	
Hort. 223	3(3-0)
Elective †	5(-)
Tree Surgery	
Hort. 233	2(1-3)
Engineering English	
Engl. 110	2(2-0)
Seminar	
Gen. Engr. 105	R

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

Curriculum in Mechanical Engineering

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
Chemistry E-I		Chemistry E-II	
Chem. 107	4(3-3)	Chem. 108	4(3-3)
Plane Trigonometry *		College Algebra *	
Math. 101	3(3-0)	Math. 104	3(3-0)
College Rhetoric I		College Rhetoric II	
Engl. 101	3(3-0)	Engl. 104	3(3-0)
Engineering Drawing		Descriptive Geometry	
Mach. Design 101	2(0-6)	Mach. Design 106	2(0-6)
Extempore Speech I		Surveying I	
Pub. Spk. 106	2(2-0)	Civ. Engr. 102	2(0-6)
Engineering Woodwork I		Elements of Steam and Gas Power	
Shop 101	1(0-3)	Mech. Engr. 130	2(0-6) or
Forging I		Engineering Woodwork I	
Shop 150	1(0-3)	Shop 101	1(0-3)
Elements of Steam and Gas Power		Forging I	
Mech. Engr. 130	2(0-6)	Shop 150	1(0-3)
Artillery I		Artillery II	
Mil. Tr. 113	1½(0-4)	Mil. Tr. 114	1½(0-4)
Engineering Lectures		Engineering Lectures	
Gen. Engr. 101	R	Gen. Engr. 101	R
Physical Education M-I		Physical Education M-II	
Phys. Ed. 103	R(0-2)	Phys. Ed. 104	R(0-2)

SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
Engineering Physics I		Engineering Physics II	
Physics 145	5(4-3)	Physics 150	5(4-3)
Plane Analytical Geometry		Calculus I	
Math. 110	4(4-0)	Math. 205	5(5-0)
Mechanism		American Industrial History	
Mach. Design 121	3(3-0)	Hist. 105	3(3-0)
Machine Drawing I		Machine Drawing II	
Mach. Design 111	2(0-6)	Mach. Design 116	3(0-9)
Metallurgy		Foundry Practice	
Shop 165	2(2-0)	Shop 160	1(0-3)
Metallography		Artillery IV	
Shop 167	1(0-3)	Mil. Tr. 116	1½(0-4)
Artillery III		Seminar	
Mil. Tr. 115	1½(0-4)	Gen. Engr. 105	R
Seminar		Physical Education M-IV	
Gen. Engr. 105	R	Phys. Ed. 106	R(0-2)
Physical Education M-III			
Phys. Ed. 105	R(0-2)		

* Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, the first semester, postponing Plane Trigonometry and two hours of other work until the second semester.

JUNIOR

FIRST SEMESTER

Applied Mechanics	
Ap. Mech. 202.....	4(4-0)
Calculus II	
Math. 206.....	3(3-0)
Steam and Gas Engineering I	
Mech. Engr. 101, 105.....	5(4-3)
Commercial Law	
Hist. 160.....	1(1-0)
Pattern Making	
Shop 145.....	1(0-3)
Graphic Statics	
Ap. Mech. 225.....	1(0-3)
Machine Tool Work I	
Shop 170.....	2(0-6)
Seminar	
Gen. Engr. 105.....	R

SECOND SEMESTER

Strength of Materials	
Ap. Mech. 211, 220.....	6(5-3)
Hydraulics	
Ap. Mech. 230, 235.....	4(3-3)
Steam and Gas Engineering II	
Mech. Engr. 110, 115.....	4(3-3)
Machine Design I	
Mach. Design 202.....	1(0-3)
Machine Tool Work II	
Shop 192.....	2(0-6)
Seminar	
Gen. Engr. 105.....	R

SENIOR

FIRST SEMESTER

Electrical Engineering M-I	
Elect. Engr. 230, 231.....	4(3-2, 1)
Power Plant Engineering	
Mech. Engr. 206.....	3(0-9)
Machine Design II	
Mach. Design 204, 205.....	5(3-6)
Factory Engineering	
Shop 245A.....	2(2-0)
Economics	
Econ. 101.....	3(3-0)
Seminar	
Gen. Engr. 105.....	R
Thesis	
Ap. Mech. 150, Mach. Design 126, Mech. Engr. 195, or Shop 195.....	1(0-3)

SECOND SEMESTER

Electrical Engineering M-II	
Elect. Engr. 242, 243.....	4(3-2, 1)
Refrigeration, Heating and Ventilation	
Mech. Engr. 210, 215.....	3(2-3) or
Aërodynamics	
Mech. Engr. 220, 225.....	3(2-3)
Machine Design III	
Mach. Design 210.....	2(0-6)
Factory Design	
Shop 225.....	2(0-6) or
Automotive Engineering	
Shop 270, 275.....	2(1-3)
Engineering English	
Engl. 110.....	2(2-0)
Business Organization	
Econ. 106.....	1(1-0)
Machine Tool Work III	
Shop 193.....	1(0-3)
Seminar	
Gen. Engr. 105.....	R
Thesis	
Ap. Mech. 150, Mach. Design 126, Mech. Engr. 195, or Shop 195.....	2(0-6)

Agricultural Engineering

Professor WALKER
Associate Professor SANDERS
Assistant Professor DRIFTMIER

Assistant Professor HILLMAN
Assistant SMITH

This department gives instruction in such branches of engineering as are directly related to agriculture. It also correlates and gives general supervision to such courses presented in other engineering departments as are open to students in agriculture and agricultural engineering, in order that the agricultural application and uses of engineering principles, methods, and materials may be kept clearly before the student.

In all the courses given, the time is carefully apportioned between the classroom and the laboratory, in order to present the subject in the clearest and most forceful way. The practical application of theoretical principles is emphasized.

The laboratory equipment is unusually ample and complete; all kinds of modern farm implements and equipment, to the value of \$30,000, are available, whereby their construction, operation, adjustment, and care may be fully cov-

ered in the field and laboratory studies. The study of traction engines is arranged to cover thoroughly the construction, operation and repair of the numerous modern tractors which are part of the regular equipment; traction tests in conjunction with various types of farm power machinery are also made. The tractor laboratory is equipped with four tractor power units mounted on bases, with various types of tractor ignition apparatus, and with complete apparatus for power and draft tests. All farm machinery and tractor equipment is kept up to date through a system of exchange with the manufacturers whereby old machines are replaced, when advisable, by new ones.

The comparatively recent development of this work, and its rapidly growing importance, renders investigational study very valuable, and special attention is given to the courses covering this phases of the subject.

The department possesses equipment valued at \$7,832.

COURSES IN AGRICULTURAL ENGINEERING

FOR UNDERGRADUATES

103. FARM BUILDINGS. Senior year and elective, both semesters and summer school. Class work, one hour. Drafting-room practice, six hours. Three semester credits. Mr. Walker and Mr. Hillman.

This course includes lectures on the requirements, details of arrangement, and materials of construction for barns, storage, and work buildings for the farm. The preparation of specifications, bills of material, and estimates of costs is an essential part of the course. In the drafting-room, plans are prepared for typical farm buildings. Text: Foster and Carter's *Farm Buildings*.

106. FIELD MACHINERY RECITATION. Freshman year and elective, second semester. Class work, one hour. One semester credit. Mr. Driftmier.

The fundamentally important definitions and principles relating to farm machinery are first given, this being followed by material concerning the development, construction, operation, and use of soil preparation, seeding, cultivating, harvesting, and miscellaneous machinery. The importance of proper selection and care of farm machinery is emphasized. Text: Davidson and Chase's *Farm Machinery and Farm Motors*.

107. FIELD MACHINERY LABORATORY. Freshman year and elective, second semester. Laboratory, three hours. One semester credit. Mr. Driftmier and Mr. Smith.

A detailed study of the machines taken up in the classroom is conducted both in the laboratory and in the field. Laboratory charge, \$1.

111. POWER MACHINERY RECITATION. Junior year, first semester. Class work, one hour. One semester credit. Prerequisite: Field Machinery (Ag. Engr. 106.) Mr. Driftmier and Mr. Hillman.

This course continues the study of field machinery with special reference to those machines requiring mechanical power for their operation, including engine plows, hay balers, feed mills, corn shellers, ensilage cutters, and threshing machines.

112. POWER MACHINERY LABORATORY. Junior year, first semester. Laboratory, three hours. One semester credit. Mr. Driftmier and Mr. Hillman.

Laboratory and field instruction is given and tests are conducted upon the machines discussed in the classroom. Laboratory charge, \$1.

116. TRACTORS AND TRUCKS RECITATION. Senior year, and elective, first semester. Lectures and recitations, two hours. Two semester credits. Prerequisite: Farm Motors (Ag. Engr. 125). Mr. Sanders.

This course covers the study of the construction and operation of tractors and trucks, with special reference to machines using internal combustion engines as power units.

117. TRACTORS AND TRUCKS LABORATORY. Senior year, and elective, first semester. Laboratory, three hours. One semester credit. Mr. Sanders.

A study is made of the construction of steam and gas tractors and trucks and practice is given in the operation and testing of these machines under belt, road, and field conditions. Laboratory charge, \$2.

119. FARM SANITATION AND WATER SUPPLY. Elective, second semester. Class work, two hours. Two semester credits. No prerequisite. Mr. Walker.

A study is made of water geology, development of water supplies for the farm, water contamination, water systems, pumping equipment, cisterns, household sewage disposal, collection of farm wastes, and the sanitary arrangement of the farm buildings.

120. FARM EQUIPMENT RECITATION. Elective, second semester. Lectures and recitations, one hour. One semester credit. Mr. Driftmier.

A study of handy farm practices and important items of equipment for the farmstead is made in this course. Text: Ramsower's *Equipment for the Farm and Farmstead*.

121. FARM EQUIPMENT LABORATORY. Elective, second semester. Laboratory, three hours. One semester credit. Mr. Driftmier.

Practice is given in rope work, belt lacing and splicing, soldering and pipe fitting, fencing, concrete work, and farm survey. Laboratory charge, \$1.

125. FARM MOTORS RECITATION. Junior year, and elective, second semester. Lectures and recitations, two hours. Two semester credits. Mr. Sanders.

This course involves a descriptive study of steam engines, boilers, internal-combustion engines and automobiles, with special reference to their utilization on the farm. Text: Streeter's *Internal Combustion Engines*.

126. FARM MOTORS LABORATORY. Junior year, and elective, second semester. Laboratory, three hours. One semester credit. Mr. Sanders and assistants.

In the laboratory, tests are conducted upon the machines discussed in the classroom. Draft tests are made on various types of farm machines. A study is made also of the cost of operating these machines. Laboratory charge, \$2.

130. GAS ENGINES AND TRACTORS. Elective, first semester and summer school. Lectures and recitations, two hours; laboratory, three hours. Three semester credits. Mr. Sanders.

This course is a study of gas engines and tractors with special reference to their application to power work on the farm. The classroom work covers the principles and application of the internal-combustion engine. The laboratory work includes the operation, testing, adjustment, care and use of the stationary gas engine and tractor for farm work. Text: Potter's *Farm Motors*. Laboratory charge, \$2.

140. ELEMENTS OF IRRIGATION AND DRAINAGE RECITATION. Elective, first semester. Class work, two hours. Two semester credits. Prerequisite: Soils (Agron. 133). Mr. Walker.

This course comprises a study of the fundamental principles of land reclamation by drainage and irrigation with special reference to agricultural development. Texts: Elliott's *Engineering for Land Drainage*, Fortier's *Use of Water in Irrigation*.

145. ELEMENTS OF IRRIGATION AND DRAINAGE LABORATORY. Elective, first semester. Field and drafting-room work, three hours. One semester credit. Mr. Walker.

Practice work in the field and drafting room is developed in the laying out and plotting of farm drainage and irrigation systems. Texts: Same as for Ag. Engr. 140. Laboratory charge, \$1.

175. THESIS. Senior year, continuing through both semesters. First semester; laboratory, three hours; one semester credit. Second semester; laboratory, six hours; two semester credits. Mr. Walker, Mr. Sanders, and Mr. Driftmier.

Original problems relating to subjects taught in this department are assigned for investigation, after consultation with the head of the department, at the beginning of the first semester of the senior year.

FOR GRADUATES AND UNDERGRADUATES

205. FARM MACHINERY RESEARCH. Elective, second semester. Six to fifteen hours laboratory or reading. Two to five semester credits. Assignment by permission. Prerequisites: Field Machinery and Power Machinery and such other preparation as may be necessary to conduct properly the investigation assigned. Mr. Walker, Mr. Driftmier and Mr. Hillman.

Farm machinery offers a broad field for original investigation along the lines of draft requirements, power consumption, and cost of operating. Students admitted to this course are assigned to one project.

215. TRACTOR RESEARCH. Elective, first semester. Six to fifteen hours laboratory, computation, or reading. Two to five semester credits. Prerequisites: Tractors and Trucks, and such other preparation as may be necessary to conduct properly the problem assigned. Mr. Sanders and Mr. Driftmier.

Intensive studies are made of problems relating to tractor operation and construction.

FOR GRADUATES

301. AGRICULTURAL ENGINEERING RESEARCH. Elective, first or second semester. One semester credit for each three hours of laboratory work. Prerequisites: Soils (Agron. 133) and Engineering Physics II (Engr. Physics 150) or its equivalent. Mr. Walker.

Many agricultural engineering problems in the design, use and application of machinery and equipment in the development of agriculture are open for extensive research. The laboratories of the College are available for this work. The results of such investigations, if suitable, may be incorporated in bulletins of the Engineering Experiment Station. This work may furnish material for the master's thesis.

Applied Mechanics

Professor SCHOLER
Professor ROBERT
Associate Professor WOJASZAK
Assistant Professor DAWLEY

Assistant Professor CHEEK
Assistant Professor ALLEN
Assistant Professor SPIETH
Instructor ABDUN-NUR

The aim of the courses in applied mechanics is to give to the engineering student a practical working knowledge of those fundamental principles of mechanics upon which his future work in structural and machine design may be based.

The materials-testing laboratory is well equipped with machines and apparatus for making physical tests of materials of construction, such as tension, compression, flexure, shear, torsion, hardness, and impact tests, and tests under repeated load. Some of the machines are of sufficient capacity to test full size structural and machine members to destruction, among them being a universal machine of 200,000 pounds capacity, with extension members for testing long beams and columns. Facilities are provided for making, curing, and testing concrete and reinforced concrete test specimens.

The materials-testing laboratory also has complete equipment for the testing of highway materials, and has been designated as the official laboratory of the Kansas Highway Commission.

The hydraulics laboratory has facilities for furnishing water under a considerable range of pressures and volumes. It contains devices for measuring and recording the flow of water, including measuring pits, water meters, weirs, nozzles, pitometer, and a Venturi meter. It is also provided with pumps, a standpipe, water motors, and a turbine water wheel for testing purposes, and a supply of pressure gauges, weighing scales, and other auxiliary apparatus. The equipment belonging to the department is valued at \$27,333.

COURSES IN APPLIED MECHANICS

FOR UNDERGRADUATES

102. APPLIED MECHANICS A. Junior year, first semester. Class work, three hours. Three semester credits. Prerequisites: Plane Trigonometry (Math. 101), and Engineering Physics 1 (Physics 145). Mr. Robert and Mr. Cheek.

This course comprises a study of statics, with applications to stresses in structures; center of gravity; and moment of inertia. Algebraic methods are generally employed, supplemented by graphic construction and numerous examples.

116. STRENGTH OF MATERIALS A RECITATION. Junior year, second semester. Class work, three hours. Three semester credits. Prerequisite: Applied Mechanics A (Ap. Mech. 102). Mr. Robert and Mr. Cheek.

Behavior of materials subjected to tension, compression, and shear; strength and stiffness of simple beams; moment and shear in flexure of beams, with diagrams; designs of beams of wood, steel and reinforced concrete, and design and investigation of columns.

121. STRENGTH OF MATERIALS A LABORATORY. Junior year, second semester. Laboratory, three hours. One semester credit. Must accompany or follow Strength of Materials A Recitation. Mr. Cheek.

This course comprises a study of the various testing machines. Tension, compression, shear, and bending tests are made on specimens of iron, steel, wood, and concrete. Tests are also made on cement and on the fine and coarse aggregates for concrete. Laboratory charge, \$2.

150. THESIS. Senior year, continuing through the year. First semester: laboratory, three hours; one semester credit. Second semester: laboratory, six hours; two semester credits. Mr. Scholer and Mr. Robert.

The laboratories of the department furnish an excellent opportunity for experimental work in strength of materials, road materials, concrete and hydraulics, suitable for thesis projects of students in any branch of engineering. The subject of the investigation should be selected in consultation with the head of the department at the beginning of the first semester of the senior year.

FOR GRADUATES AND UNDERGRADUATES

202. APPLIED MECHANICS. Junior year, both semesters and summer school. Class work, four hours. Four semester credits. Prerequisites: Calculus I (Math. 205) and Engineering Physics II (Physics 150). Mr. Scholer, Mr. Robert, Mr. Wojtaszak, and Mr. Abdun-Nur.

A study is made of the analytical and graphical composition, resolution, and conditions of equilibrium of concurrent and nonconcurrent forces; center of gravity; friction; laws of rectilinear and curvilinear motion of material points; moments of inertia; relations between forces acting on rigid bodies and the resulting motions; and of work, energy, and power. Text: Poorman's *Applied Mechanics*.

211. STRENGTH OF MATERIALS RECITATION. Junior year, both semesters and summer school. Class work, five hours. Five semester credits. Prerequisite: Applied Mechanics (Ap. Mech. 202). Mr. Scholer, Mr. Robert, Mr. Wojtaszak, and Mr. Allen.

This course embraces a study of behavior of materials subjected to tension, compression, and shear; riveted joints; torsion; shafts, and the transmission of power; strength and stiffness of simple and continuous beams and cantilevers; bending moments and shear forces in beams; design of beams of wood, steel and reinforced concrete; design of built-up beams and box girders; resilience of beams; stresses in columns and hooks; and the design of columns of wood, steel and reinforced concrete. Text: Boyd's *Strength of Materials* and Urquhart and O'Rourke's *Design of Concrete Structures*. Carnegie's *Pocket Companion* is used for reference.

216. **STRENGTH OF MATERIALS E RECITATION.** Junior year, both semesters and summer school. Class work, three hours. Three semester credits. Prerequisite: Applied Mechanics (Ap. Mech. 202). Mr. Robert and Mr. Wojtaszak.

The subject matter of this course is similar to that of Strength of Materials, but much less time is devoted to the study of continuous girders and of reinforced concrete. Text: Boyd's *Strength of Materials*. Carnegie's *Pocket Companion* is used for reference.

220. **STRENGTH OF MATERIALS LABORATORY.** Junior year, both semesters and summer school. Laboratory, three hours. One semester credit. Must accompany or follow Strength of Materials or Strength of Materials E Recitation. Mr. Robert, Mr. Wojtaszak, Mr. Dawley, and Mr. Allen.

Tension, compression, shear and bending tests are made on specimens of iron, steel, wood, and concrete. These include standard commercial tests and tests to determine the elastic properties of the materials. Torsion tests are also made on steel shafting. Standard tests are made on fine and coarse aggregates for concrete. Text: Hatt and Schofield's *Laboratory Manual for Testing Materials*. Laboratory charge, \$2.

225. **GRAPHIC STATICS.** Junior year, first semester. Drafting-room practice, supplemented by lectures, three hours. One semester credit. Must accompany or follow Applied Mechanics or Applied Mechanics A. Mr. Wojtaszak.

Graphical solutions are made of the stresses existing in a number of typical trusses, under a variety of loadings. Text: Hudson and Squire's *Elements of Graphic Statics*.

230. **HYDRAULIC RECITATION.** Junior and senior years, both semesters and summer school. Class work, three hours. Three semester credits. Prerequisite: Applied Mechanics (Ap. Mech. 202). Mr. Robert, Mr. Wojtaszak, and Mr. Abdun-Nur.

This course comprises a study of fluid pressures, stresses in containing vessels and pipes, center of pressure, immersion and flotation; Bernoulli's theorem, with applications; flow through orifices, weirs, short and long pipes; loss of head due to various causes; flow of water in open channels, and its measurement; Kutter's formula; impulse and reaction of a jet; elements of water power, impulse wheels, reaction turbines, and centrifugal pumps. Text: Daugherty's *Hydraulics*.

235. **HYDRAULICS LABORATORY.** Junior and senior years, both semesters. Laboratory, three hours. One semester credit. Must accompany or follow Hydraulics Recitation (Ap. Mech. 230.) Mr. Robert and Mr. Wojtaszak.

Tests are made to determine the coefficients of weirs and orifices; use and calibration of water meters are studied; tests are taken to determine loss of head in pipes due to various causes; and tests are made on water wheels, water turbines, rams, and pumps. Laboratory charge, \$1.

250. **HIGHWAY ENGINEERING I LABORATORY.** Junior year, first semester. Laboratory, three hours. One semester credit. Prerequisite: Strength of Materials Laboratory (Ap. Mech. 220). Mr. Scholer and Mr. Allen.

This is a comprehensive course in the examination and testing of bituminous and nonbituminous road materials. Text: Blanchard's *Highway Engineers' Handbook*. Laboratory charge, \$1.50.

260. **ADVANCED APPLIED KINETICS.** Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Strength of Materials (Ap. Mech. 211), or Strength of Materials E (Ap. Mech. 216). Mr. Robert.

Advanced problems in kinetics are given with special attention to the kinetics of rigid bodies.

265. **ADVANCED MECHANICS OF MATERIALS.** Elective, first semester. Class work, two hours. Two semester credits. Prerequisite: Strength of Materials (Ap. Mech. 210), or Strength of Materials E (Ap. Mech. 216). Mr. Scholer.

A study is made of the theory of elasticity and its applications, of elastic and masonry arches, and advanced problems in continuous girders involving the general three moment equations.

270. **HYDRAULIC MACHINERY.** Elective, first semester. Class work, two hours. Two semester credits. Prerequisite: Hydraulics (Ap. Mech. 230). Mr. Robert.

A study is made of the characteristics and applications of water wheels, turbines, pumps, and other hydraulic machinery.

275. **ROAD MATERIALS.** Elective, second semester. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: Highway Engineering I Laboratory (Ap. Mech. 250). Mr. Scholer.

An advanced course in the properties and testing of the various materials used in road construction is here given.

280. **MECHANICS OF REINFORCED CONCRETE.** Elective, first semester. Class work, two hours. Two semester credits for students who have not taken Strength of Materials E (Ap. Mech. 211) or its equivalent. Prerequisite: Strength of Materials E (Ap. Mech. 216). Mr. Scholer.

The behavior of reinforced-concrete structural elements, including slabs, rectangular beams, T-beams, columns and special floor systems under load, is studied.

FOR GRADUATES

301. **RESEARCH IN MATERIALS OF CONSTRUCTION.** Elective, first or second semester. One semester credit for each three hours of laboratory work. Mr. Scholer and Mr. Robert.

Many problems related to materials used in engineering construction offer attractive fields for research. A number of special pieces of apparatus in addition to the usual equipment of a strength of materials laboratory are available for this work. The results of such investigations, if suitable, may be incorporated in bulletins of the Engineering Experiment Station.

This work may furnish material for the master's thesis.

Architecture

Professor WEIGEL
Professor WALTERS (Emeritus)
Associate Professor KLEINSCHMIDT

Assistant Professor CHEEK
Instructor HELM
Instructor WICHERS

The courses in architecture are offered not only to provide for the fundamental training necessary for the practice of architecture, but also to give the student a facility and working knowledge which will be of immediate value to him upon graduation. The foundation which the student acquires in college should be supplemented by continual professional study, especially during those years immediately following graduation, when it is desirable that he should acquire practical experience in the employ and under the guidance of capable and experienced members of the profession. Students are most urgently advised to acquire practical experience in an architect's office during the summer vacations of their college course.

Throughout the course the instruction by lectures, recitations and drafting-room practice is fully amplified and expanded by a free use of the equipment of the Department of Architecture. Within the department is housed a good working library of the standard architectural works and leading professional magazines, together with the collections of lantern slides and photographs to all of which the student has free access. Placed about the amply lighted and well-equipped rooms of the department is a generous collection of plaster casts, including important examples of architectural fragments and ornaments from historical monuments. On the walls of the drafting rooms, where they are

constantly before the student, are hung selected examples from the department's collection of original drawings, including specimens of both academic and current professional work. From time to time this exhibit is changed.

At frequent intervals, representative men actually engaged in the practice of architecture and the allied arts and trades are invited to talk to and to advise the student. During the junior or senior year under the direction of and in company with a member of the departmental faculty, each student is expected to make a visit to one or more of the neighboring cities, thus enabling him to acquaint himself with the representative work of the profession as well as with the operations and processes involved in the conduct of allied professions and industries.

Students pursuing the curriculum in architecture are urged to devote a fifth year to the work. By so doing, a student can combine the curricula in architectural engineering and architecture and receive the bachelor of science degree in both.

All drawings or designs made during the student's course are to become the property of the department, to be used or returned at the discretion of the faculty.

The department owns equipment valued at \$9,375.

COURSES IN ARCHITECTURE

FOR UNDERGRADUATES

106A. ELEMENTS OF ARCHITECTURE I. Freshman year, first semester. Drafting room, nine hours. Three semester credits. Mr. Weigel.

This course is outlined to give the student a thorough knowledge of the orders and of the fundamental elements of architectural forms. Throughout the course special attention is given to the development of a high standard of lettering and draftsmanship. Text: Pierre Esquire's *Traite Elementaire d'Architecture Comprenant l'Etude Complete des Cinq Ordres*. Laboratory deposit, \$1.

107A. ELEMENTS OF ARCHITECTURE II. Freshman year, second semester. Drafting room, nine hours. Three semester credits. Prerequisite: Elements of Architecture (Arch. 106A). Mr. Weigel.

This is a continuation of Elements of Architecture I, and consists of simple applications of the forms studied in the previous course. In preparation for the courses in design, attention is given to simple architectural rendering. Laboratory deposit, \$1.

111. OBJECT DRAWING I. Freshman year, both semesters. Studio, six hours. Two semester credits. Mr. Helm.

This course comprises the drawing of simple geometric objects as exercises in developing the powers of observation, as well as in training the hand. Special attention is given to representations of the third dimensions. Later in the semester studies are made from fragments of antique architectural ornaments.

114. OBJECT DRAWING II. Freshman year, second semester. Studio, six hours. Two semester credits. Prerequisite: Object Drawing I (Arch. 111). Mr. Helm.

This is an amplification and expansion of the principles taught in Object Drawing I as applied to architectural ornament and to architectural fragments. The work consists of drawing in charcoal and pencil from casts.

116. PENCIL RENDERING AND SKETCHING. Sophomore year, first semester. Studio, six hours. Two semester credits. Prerequisite: Object Drawing II (Arch. 114). Mr. Helm.

This course comprises the drawing of architectural ornament, architectural fragments, and parts of the human figure with attention being given to the representation of the third dimension in pencil. In the latter half of the semester pencil sketches are made from nature.

117. **STILL-LIFE DRAWING.** Junior year, first semester. Studio, six hours. Two semester credits. Prerequisite: Water Color I (Arch. 118). Mr. Helm. Advanced studies are made of the human figure from full-length plaster casts. The study of the third dimension is continued in still-life groups in charcoal. Pen and ink rendering is taken up.

118. **WATER COLOR I.** Sophomore year, second semester. Studio six hours. Two semester credits. Prerequisite: Pencil Rendering and Sketching (Arch. 116), or by approval of instructor. Mr. Helm.

In this course exercises are given in the handling of the medium and of the translation of color. The theory of color is also studied.

120. **INTERIOR DECORATION.** Senior year, first semester. Studio, six hours. Two semester credits. Prerequisites: Design I (Arch. 142) and General History of Architecture (Arch. 244). Mr. Helm.

In this course the principles of interior architecture are studied, special attention being given to the designing of English, Italian, French, and Colonial interiors and furniture.

121. **LIFE DRAWING I.** Junior year, second semester. Studio, six hours. Two semester credits. Prerequisite: Water Color I (Arch. 118). Mr. Helm.

This consists of drawing from the living model in charcoal. Full-length antique is also drawn. Laboratory deposit, \$5.

123. **LIFE DRAWING II.** Senior year, second semester. Studio, six hours. Two semester credits. Prerequisite: Life Drawing I (Arch. 121). Mr. Helm.

This course is a continuation of Life Drawing I. Laboratory deposit, \$5.

133. **CLAY MODELING.** Elective, junior year, first semester. Studio, six hours. Two semester credits. Prerequisite: Still Life Drawing (Arch. 117). Mr. Weigel.

This course is designed primarily to acquaint the student with the sculptor's art. Clay models, plaster molds, and finished plaster casts of simple decorative fragments and anatomical forms are made. Relief maps are constructed from data obtained from actual survey.

142. **DESIGN I.** Sophomore year, first semester. Drafting room, nine hours. Three semester credits. Prerequisites: Elements of Architecture II (Arch. 107A), Free-hand Drawing II (Arch. 114). Mr. Weigel and Mr. Kleinschmidt.

This course is outlined to develop the student's understanding of architectural composition and his ability to present architectural conceptions, thus laying the foundation for his esthetic training. By means of problems in original design, accompanied by a constant study and analysis of the best historical examples, the student is led to develop his sense of proportion and conception of beauty, at the same time acquiring through the training of hand and eye a facility in architectural composition and rendering. In this course each student receives individual instruction, accompanied by frequent criticisms of student's work before the entire class. Laboratory charge, 50 cents.

144. **DESIGN II.** Sophomore year, second semester. Drafting room, nine hours. Three semester credits. Prerequisite: Design I (Arch. 142). Mr. Weigel and Mr. Kleinschmidt.

In this course Design I is continued. Laboratory charge, 50 cents.

145. **DESIGN III.** Junior year, first semester. Drafting room, fifteen hours. Five semester credits. Prerequisites: Still-life Drawing (Arch. 117) and Design II (Arch. 144). Mr. Kleinschmidt.

This is a continuation of Design I and II. At frequent intervals during the year, time problems or rapid design sketches are required to test the student's development and to give him practice in clear and concise expression. It is also required that at least one problem be presented in perspective. Laboratory charge, 50 cents.

147. DESIGN IV. Junior year, second semester. Drafting room, fifteen hours. Five semester credits. Prerequisite: Design III (Arch. 145). Laboratory charge, 50 cents. Mr. Kleinschmidt.

In this course Design III is continued.

148. DESIGN V. Senior year, first semester. Drafting room, twenty-four hours. Eight semester credits. Prerequisites: Water Color I (Arch. 118) and Design IV (Arch. 147). Mr. Kleinschmidt.

In this course Design IV is continued. An option is given those who wish to specialize in interior design and decoration. Laboratory charge, 50 cents.

151. DESIGN VI. Senior year, second semester. Drafting room, twenty-four hours. Eight semester credits. Prerequisite: Design V (Arch. 148). Mr. Kleinschmidt.

The work in Design V, including that in interior design and decoration, if previously elected, is continued. Laboratory charge, 50 cents.

153. RURAL ARCHITECTURE. Junior year, first semester. Drafting room, six hours. Two semester credits. Prerequisites: Working Drawings and Specifications (Arch. 191) and Design II (Arch. 144). Mr. Wichers.

A detailed study is made of the architectural needs of the small towns and the rural population. Problems such as rural and city homes are studied; also the planning of school buildings, country clubs, community and welfare buildings and churches. A careful survey is made of the local building materials found in the various counties of Kansas and the economical use of such materials for building purposes is studied.

154A. HISTORY OF ARCHITECTURE I. Freshman year, first semester. Lectures, two hours. Two semester credits. Mr. Weigel.

This is a lecture and recitation course covering the history of architecture from the dawn of civilization to the end of the Roman empire. Throughout the courses in the history of architecture the relation of architecture to the development of civilization is constantly emphasized. The lectures are given with the aid of lantern slides, and written papers, with sketches, are required of each student.

157A. HISTORY OF ARCHITECTURE II. Freshman year, second semester. Lectures, two hours. Two semester credits. Prerequisite: History of Architecture I (Arch. 154A). Mr. Weigel.

This course continues History of Architecture I.

158A. HISTORY OF ARCHITECTURE III. Sophomore year, first semester. Lectures, two hours. Two semester credits. Prerequisites: Free-hand Drawing (Arch. 114) and History of Architecture II (Arch. 157A). Mr. Kleinschmidt.

This course continues History of Architecture II.

160A. HISTORY OF ARCHITECTURE IV. Sophomore year, second semester. Lectures, two hours. Two semester credits. Prerequisite: History of Architecture III (Arch. 158A). Mr. Kleinschmidt.

This course continues History of Architecture III and finishes the History of Architecture to modern times.

165. COMMERCIAL ILLUSTRATION I. Elective, first semester. Studio, six hours. Two semester credits. Elective for Industrial Journalism students and students in the Division of General Science. Mr. Helm.

This course is intended for those who wish to enter the field of commercial art. The principles of advertising arrangements are studied and various types of advertising designs are made. These include newspaper advertisements, street-car cards, lettering and posters. Cover designs are made for magazines, books and trade catalogues, also for headings, tailpieces and decorative page arrangements. Drawings are carried out in black and white and in one or more colors, careful consideration being given to the practical nature of the design.

170. **COMMERCIAL ILLUSTRATION II.** Elective, second semester. Studio, six hours. Two semester credits. Prerequisite: Commercial Illustration I (Arch. 165) or Design (Applied Art 101). Mr. Helm.

This course is a continuation of Arch. 165. The more advanced problems are studied here.

178. **HISTORY OF CIVILIZATION AND ART I.** Senior year, first semester. Lectures, three hours. Two semester credits. Prerequisite: History of Architecture IV (Arch. 160A). Mr. Weigel.

This course comprises a survey of civilization from earliest history, laying special emphasis on the Hellenic and Roman periods; tracing the economic, political, racial, and religious phases of history simultaneously with the artistic developments of each epoch. The course consists of lectures, recitations, written papers, and research; the accomplishment of which is greatly aided by a free use of lantern slides, photographs, and library references.

182. **HISTORY OF CIVILIZATION AND ART II.** Senior year, second semester. Lectures, three hours. Two semester credits. Prerequisite: History of Civilization and Art I (Arch. 178). Mr. Weigel.

In this course History of Civilization and Art I is continued to the close of the Renaissance.

187A. **BUILDING MATERIALS AND CONSTRUCTION.** Sophomore year, first semester. Lectures, three hours. Three semester credits. Prerequisite: Elements of Architecture II (Arch. 107A). Mr. Cheek.

The student is introduced to the properties and uses of the materials of construction. Attention is also paid to the properties of these materials in their relation to design of completed structures. A brief introduction to the plumbing, heating and lighting systems is also given, including simple problems in the design of each. Occasional visits to buildings under construction are made to familiarize the student with various forms of construction and with the methods employed in building operations. Subjects are periodically assigned for papers and discussions which require the use of the reference library.

191. **WORKING DRAWINGS AND SPECIFICATIONS.** Sophomore year, second semester. Drafting room, nine hours. Three semester credits. Prerequisites: Building Materials and Construction (Arch. 187A) and Design I (Arch. 142). Mr. Weigel.

The course comprises the preparing of working drawings and specifications for suburban residences. The complete details for buildings are drawn. Heating, plumbing and structural problems are also worked out in connection with the course. It is attempted in this course to meet problems very much as they are met with by the architect in the profession.

192. **THEORY OF STRUCTURES I.** Senior year, first semester. Class work, two hours; drafting room, six hours. Four semester credits. Prerequisites: Working Drawing and Specifications (Arch. 191), Applied Mechanics A (App. Mech. 102), and Strength of Materials A (App. Mech. 116, 121). Mr. Cheek.

This course covers the simple principles of the design of framed structures under static loads. Emphasis is placed upon the action of forces, moments, reactions, internal stresses, and the laws of equilibrium. Class work is devoted to the algebraic solution of beams and typical roof trusses by both the methods of joints and sections. Drafting-room work consists of the graphical solution of problems relating to simple forces, centers of gravity, moments, moments of inertia and the analysis of the stresses in the more common forms of roof trusses and mill bents under dead and wind loads, ending with the individual design of a timber roof truss.

194A. **THEORY OF STRUCTURES II.** Senior year, second semester. Class work, three hours; drafting room, six hours. Five semester credits. Prerequisite: Theory of Structures I (Arch. 192). Mr. Cheek.

This is a continuation of Theory of Structures I. Two hours of the class work are devoted to the elements of concrete and masonry design. The third

hour is devoted particularly to the problems under consideration in the drafting room with emphasis placed on the more general considerations that accompany good judgment in practical design. Drafting room work consists of the design and detailing of individual problems in steel and concrete construction.

196. **STRUCTURAL DESIGN I.** Elective, first semester. Class work, one hour; drafting room, six hours. Three semester credits. Prerequisite: Theory of Structures II (Arch. 194A). Mr. Cheek.

This course comprises design and detailing of a plate girder and steel roof truss and other problems in modern steel construction. The problems are assigned in practical form as met with in field conditions, and the student is required to calculate the loadings and conditions that determine the stresses in his particular case. Emphasis is placed upon the manner of making his notes and of detailing and tracing his finished design.

198. **STRUCTURAL DESIGN II.** Elective, second semester. Class work, one hour; drafting room, six hours. Three semester credits. Prerequisite: Structural Design I (Arch. 196). Mr. Cheek.

This is a continuation of Structural Design I (Arch. 196). The elements and simpler design of reinforced concrete are taken up specifically.

FOR GRADUATES AND UNDERGRADUATES

201. **ADVANCED FREE-HAND DRAWING I.** Elective, first semester. Drafting room, six hours. Two semester credits. Mr. Helm.

This course includes the study of the human figure and exercises in original composition of architectural ornament. Work is done in various mediums.

206. **ADVANCED FREE-HAND DRAWING II.** Elective, second semester. Drafting room, six hours. Two semester credits. Mr. Helm.

This is a continuation of Advanced Free-hand Drawing I.

211. **ADVANCED HISTORY OF CIVILIZATION AND ART I.** Elective, first semester. Class work, two hours. Two semester credits. Prerequisite: History of Civilization and Art II (Arch. 182). Mr. Weigel.

This course comprises a detailed study of civilization from the Babylonian and Assyrian Empires to the fifteenth century, tracing the artistic developments of each epoch. Instruction is by means of lectures, recitations, written papers, and research.

216. **ADVANCED HISTORY OF CIVILIZATION AND ART II.** Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Advanced History of Civilization and Art I (Arch. 211). Mr. Weigel.

This is a continuation of Advanced History of Civilization and Art I.

221. **PROBLEMS IN ARCHITECTURAL DEVELOPMENT.** Elective, first and second semesters. Drafting-room and class work. Credit as determined by Mr. Weigel.

This course comprises the study of historic problems in architectural development. Such work must be pursued under the direct supervision of some member of the departmental staff.

230. **OIL PAINTING I.** Elective, first semester. Studio, six hours. Two semester credits. Prerequisite: Water Color I (Arch. 118) or by approval of instructor. Mr. Helm.

This is a course in the rudiments of painting in oil. A knowledge is acquired of the essential materials and a palette is selected. Sketches are made of simple objects and drapes.

235. **OIL PAINTING II.** Elective, second semester. Studio, six hours. Two semester credits. Prerequisite: Oil Painting I (Arch. 230). Mr. Helm.

This is a continuation of course 230. Larger still-life groups are painted. One-half of the semester is devoted to sketching out of doors.

244. **GENERAL HISTORY OF ARCHITECTURE.** Elective, first or second semester. Lectures, three hours. Three semester credits. Prerequisite: Object Drawing II (Arch. 114) or Design A (Ap. Art 106). Mr. Weigel.

This is a lecture and recitation course intended for students not registered in architecture or landscape architecture. The historic architectural styles of the world are studied and analyzed. The lectures are given with the aid of illustrations and lantern slides. Written papers, with sketches, are required of each student.

249. **CITY PLANNING.** Senior year, second semester. Drafting room, nine hours. Three semester credits. Prerequisites: Design II (Arch. 144), Civic Art (Hort. 223), and Landscape Gardening II (Hort. 245). Mr. Weigel.

A detailed study is made of city plans, including transportation and street systems, parks and recreation facilities, public buildings and civic centers, subdivisions of land, restrictions and zoning. Field trips, reference readings, reports and drafting are comprised in the course.

FOR GRADUATES.

301. **ADVANCED DESIGN I.** Elective, first semester. Drafting room, thirty hours. Ten semester credits. Mr. Weigel.

In this course a study of the planning of important buildings and groups of buildings is made, together with occasional rapid-sketch problems of minor buildings or plan projects.

304. **ADVANCED DESIGN II.** Elective, second semester. Drafting room, thirty hours. Ten semester credits. Mr. Weigel.

This is a continuation of Advanced Design I.

This course may furnish material for the master's thesis.

324. **RESEARCH IN ARCHITECTURE.** Elective, first and second semesters. Drafting-room or class work. Credit as determined by Mr. Weigel and Graduate Council.

This course comprises the study of a research problem in architecture, determined by conferences between Mr. Weigel and the student, and approved by the Graduate Council.

This course may furnish material for the master's thesis.

Civil Engineering

Professor CONRAD
Professor FRAZIER
Associate Professor FURR

Assistant Professor WHITE
Instructor CRAWFORD
Instructor MORSE

The purpose of the instruction in the Department of Civil Engineering is to give the student a thorough knowledge of the fundamental principles of engineering and to develop his ability to analyze engineering problems, and thus prepare the graduate to enter any one of the many special fields which are usually included under the title of civil engineering.

In addition to the laboratory equipment of the other engineering departments, which is available to civil-engineering students, the Department of Civil Engineering possesses a good assortment of transits, levels, plane tables, compasses, tapes and chains. It also owns a precise level, a direction theodolite, a repeating theodolite, four different kinds of solar attachments, and a base-line outfit.

Approximately 90 per cent of the graduates of this department are now engaged in engineering work in cities, in the oil fields, in the government reclamation and valuation service, in consulting engineering, in highway work, in construction work, and in other work in which a knowledge of civil engineering is a prerequisite.

The department owns equipment valued at \$14,737.

COURSES IN CIVIL ENGINEERING

FOR UNDERGRADUATES

102. SURVEYING I. Freshman year, both semesters and summer school. Field work, plotting, and supervised study, six hours. Two semester credits. Prerequisite or parallel: Plane Trigonometry (Math. 101). Mr. White, Mr. Crawford and Mr. Morse.

This is a brief course in the use and care of engineers' surveying instruments. Text: Breed and Hosmer's *Surveying*, Vol. I. Laboratory charge, \$1.

111. SURVEYING II. Freshman year, both semesters and summer school. Field work, plotting and supervised study, six hours. Two semester credits. Prerequisite: Surveying I (Civ. Engr. 102). Mr. Furr and Mr. White.

The course is devoted to land and topographic surveying. Text: Breed and Hosmer's *Surveying*, Vol. I. Laboratory charge, \$1.

120. MASONRY AND FOUNDATIONS. Junior year, first semester. Class work, two hours. Two semester credits. Prerequisite: Engineering Physics II (Physics 150). Applied Mechanics I (Ap. Mech. 202) must be taken with this course or precede it. Mr. Frazier.

In this course a study is made of the principles underlying the design and construction of foundations, the stresses in plain masonry structures, and the method of designing such structures. Text: Jacoby and Davis' *Foundations for Bridges and Buildings*.

125. CIVIL ENGINEERING DRAWING I. Sophomore year, second semester. Drafting room, six hours. Two semester credits. Prerequisite: Machine Drawing I (Mach. Design 111). Mr. White.

This course is devoted to the application of stereotomy, shades and shadows, isometric and perspective drawing, and copying working drawings of engineering structures. The principles are explained to the students by such short lectures as seem necessary for the purpose. No textbook is used.

145. RAILWAY ENGINEERING I. Junior year, second semester. Class work, two hours. Two semester credits. Prerequisites: Surveying II and Civil Engineering Drawing I (Civ. Engr. 111, 125). Mr. Frazier.

This is a short course in the theory of railway engineering based on Wellington's economic theory. Considerable time is also devoted to the study of track construction and maintenance, and to the design of yards and terminals. Text: Raymond's *Elements of Railroad Engineering*.

151. SURVEYING III RECITATION. Sophomore year, first semester. Class work, two hours. Two semester credits. Prerequisite: Surveying II (Civ. Engr. 111). Mr. Furr.

This course comprises a study of topographic, hydrographic, city, and mine surveying. Text: Breed and Hosmer's *Surveying*, Vols. I and II.

155. SURVEYING III LABORATORY. Sophomore year, first semester. Field and drafting-room work, three hours. One semester credit. Prerequisite: Surveying II (Civ. Engr. 111). Mr. Furr.

The field exercises are devoted to practice work in topographic surveying. Time in the drafting room is devoted principally to topographic mapping. Texts: Same as Civ. Engr. 151.

156. SURVEYING IV RECITATION. Sophomore year, second semester. Class work, two hours. Two semester credits. Prerequisite: Surveying III (Civ. Engr. 151, 155). Calculus I (Math. 205) must be taken with this course or precede it. Mr. Furr.

This course is devoted to a study of railroad curves and earthwork. Text: Allen's *Railroad Curves and Earthwork*, with tables.

157. SURVEYING IV LABORATORY. Sophomore year, second semester. Field and drawing room, three hours. One semester credit. Prerequisite: Surveying III (Civ. Engr. 151, 155). Mr. Furr.

The time is devoted to field and drafting room exercises in railroad curves and earthwork.

161. DRAINAGE AND IRRIGATION I. Junior year, second semester and summer school. Class work, two hours. Two semester credits. Hydraulics (Ap. Mech. 230 and 235) must be taken with this course or precede it. Mr. Conrad.

In this course a study is made of the application of engineering principles to the design and construction of drainage and irrigation works. Texts: Elliott's *Engineering for Land Drainage*, and Davis and Wilson's *Irrigation Engineering*.

170. THESIS. Elective, senior year, continuing through both semesters. First semester, three hours; one semester credit. Second semester, six hours; two semester credits. Mr. Conrad.

All candidates for the degree of Bachelor of Science in civil engineering are required during their senior year to prepare a thesis, or to do an equivalent amount of work in an elective subject approved by the dean of engineering. This thesis may be a report on a proposed design, an original investigation, or a library research. Civil engineering students may, with the approval of the head of the department, take their thesis work outside of the department. The thesis subject may be selected and approved by the head of the department in which the work is done before October first next preceding the commencement at which the candidate proposes to graduate.

FOR GRADUATES AND UNDERGRADUATES

201. STRESSES IN FRAMED STRUCTURES. Senior year, first semester and summer school. Class work, four hours. Four semester credits. Prerequisite: Strength of Materials (Ap. Mech. 211). Mr. Conrad.

This course involves a study of the methods of computing the stresses in bridges, leading up to the subject of bridge design in the following semester.

205. CIVIL ENGINEERING DRAWING II. Senior year, first semester and summer school. Drafting room, six hours. Two semester credits. Prerequisite: Civil Engineering Drawing I (Civ. Engr. 125). Mr. Conrad.

This course is devoted to graphic statics and the design of simple roof trusses in timber and steel. Text: Same as for course 201.

211. ASTRONOMY AND GEODESY RECITATION. Senior year, first semester. Class work, two hours. Two semester credits. Prerequisite: Surveying III (Civ. Engr. 151, 155). Mr. Frazier.

This is a brief course in the elements of practical astronomy, followed by a study of the precise methods of surveying and leveling. Text: Hosmer's *Geodesy*.

216. ASTRONOMY AND GEODESY LABORATORY. Senior year, first semester. Field work, six hours. Two semester credits. Prerequisite: Surveying III Laboratory (Civ. Engr. 155). Mr. Frazier.

The work is devoted to simple astronomical observations, principally for determining the true meridian and latitude; to base-line measurements and triangulation work. Each student is also required to run a short circuit with the precise level.

220. WATER SUPPLY. Senior year, first semester. Class work, two hours. Two semester credits. Prerequisite: Hydraulics. (Ap. Mech. 230 and 235). Mr. Frazier.

The course deals with the water supply for cities from the standpoint of consumption, collection, storage, distribution, and purification. Text: Turncaire and Russell's *Public Water Supplies*.

225. SEWERAGE. Senior year, first semester. Class work, two hours. Two semester credits. Prerequisite: Hydraulics (Ap. Mech. 230). Mr. Frazier.

A study is made of the problems met in the design and construction of sewer systems and disposal plants for cities of moderate size.

230. HIGHWAY ENGINEERING I RECITATION. Junior year, first semester. Class work, two hours. Two semester credits. Mr. Furr.

A study is made of the principles underlying the location, construction, and maintenance of all ordinary types of roads and pavements. Text: *Agg's Construction of Roads and Pavements*. (For laboratory work in connection with this course, see Ap. Mech. 250.)

246. DESIGN OF FRAMED STRUCTURES. Senior year, second semester and summer school. Drawing, nine hours. Three semester credits. Prerequisite: Stresses in Framed Structures (Civ. Engr. 201). Mr. Conrad.

This course comprises the making of general drawings for a highway truss bridge, a railroad truss bridge, and a railroad deck plate girder.

250. CONCRETE DESIGN RECITATION. Senior year, second semester. Class work, two hours. Two semester credits. Prerequisite: Strength of Materials (Ap. Mech. 211). Mr. Conrad.

An application of the principles of reinforced concrete to the design of chimneys, buildings, retaining walls, dams, and bridges. Text: *Concrete Engineers' Handbook*, by Hool and Johnson.

255. CONCRETE DESIGN LABORATORY. Senior year, second semester. Drafting-room work, three hours. One semester credit. Prerequisite: Strength of Materials (Ap. Mech. 211). Mr. Conrad.

In this course the students make drawings of reinforced concrete retaining walls, dams, slab bridges and girder bridges. Text: *Concrete Engineers' Handbook*, by Hool and Johnson.

256. REINFORCED CONCRETE ARCHES. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: Concrete Design (Civ. Engr. 250, 255). Mr. Conrad.

A study of the various types of reinforced-concrete arches adapted for use in bridges, buildings and dams, including the computation of stresses and arrangement of details.

260. RAILWAY ENGINEERING II RECITATION. Optional, senior year, second semester. Class work, two hours. Two semester credits. Prerequisite: Railway Engineering I (Civ. Engr. 145). Mr. Frazier.

This course comprises the study of railway operation and maintenance.

265. RAILWAY ENGINEERING II LABORATORY. Optional, senior year, second semester. Field and drafting room, six hours. Two semester credits. Prerequisite: Railway Engineering I (Civ. Engr. 145). Mr. Frazier.

In the field, a reconnoissance and survey of a short railroad is made, and the office work consists in making the maps, profiles, and estimates from the survey. Text: *Allen's Railroad Curves and Earthwork*, with tables.

270. HIGHWAY ENGINEERING II RECITATION. Optional, senior year, second semester. Class work, two hours. Two semester credits. Prerequisite: Highway Engineering I (Civ. Engr. 230). Mr. Furr.

This course consists in a study of highway laws, highway administration in the various states, and highway economics.

275. HIGHWAY ENGINEERING II LABORATORY. Optional, senior year, second semester. Field and drafting room, six hours. Two semester credits. Prerequisite: Highway Engineering I (Civ. Engr. 230). Mr. Furr.

In the field, a reconnoissance and survey for a highway a few miles long is made. The work in the drafting room consists in making the maps, profiles, and estimates from the survey.

276. HIGHWAY ECONOMICS. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Highway Engineering II (Civ. Engr. 270, 275). Mr. Furr.

A study of highway transport and construction problems as affected by recent findings of research agencies in this field. Text: *Harger's Rural Highway Pavements*.

280. DRAINAGE AND IRRIGATION II RECITATION. Optional, senior year, second semester. Class work, two hours. Two semester credits. Prerequisite: Drainage and Irrigation I (Civ. Engr. 161). Mr. Conrad.

A continuation of the former course in Drainage and Irrigation, dealing with the design of irrigation structures and the management of irrigation projects.

285. DRAINAGE AND IRRIGATION II LABORATORY. Optional, senior year, second semester. Field and drafting room, six hours. Two semester credits. Mr. Conrad.

The field work consists in making the survey for a drainage or irrigation project. In the office the maps, estimates, and designs are made, using the survey as a basis.

FOR GRADUATES.

301. ADVANCED BRIDGE STRESSES. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Stresses in Framed Structures (Civ. Engr. 201). Mr. Conrad.

A study of deflections; stresses in continuous, movable, cantilever, suspension, multiple intersection, and steel arch bridges; and secondary stresses.

316. RAILROAD TRANSPORTATION. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: Railway Engineering I (Civ. Engr. 145). Mr. Frazier.

A study of the function of the railway system; its relation to industrial development and its correlation with other methods of transportation.

Electrical Engineering

Professor REID
Professor KLOEFFLER
Assistant Professor BRENNEMAN
Assistant Professor KERCHNER

Instructor HUNT
Instructor CHURCH
Instructor JORGENSEN
Instructor BUECHE

Instruction in the Department of Electrical Engineering is planned to give the student a thorough training in the underlying principles of electrical phenomena, direct and alternating current, and in the application of electrical theory to the solution of the practical problems in the many fields of the industry. The textbook, lecture and classroom instruction is accompanied by extended courses in the laboratories, which include commercial tests on standard types of machinery and also special tests designed to exemplify the theory.

The laboratories include a measurement laboratory, well equipped with standards of resistance, electromotive force, self-induction and capacity, and with standard instruments of high precision of both American and foreign manufacture.

The telephone laboratory is unusually well supplied with several demonstration panels of and switchboards for magneto, common battery (manual) and automatic telephone systems, and a large supply of telephone instruments and parts for assembling complete circuits.

An illumination laboratory is equipped with standard apparatus for all kinds of photometric measurements. Lamps, reflectors and luminaries covering almost every type used in practice are maintained for experimental purposes.

Equipment for the study of radiotelephony is also available.

The main dynamo laboratory contains examples of all types of electrical machinery and control apparatus, including more than 50 direct- and alternating-current generators and motors, from 1 to 30 kilowatts and totaling more than 450 horsepower. The instrument room in connection contains more than 100 instruments of more than 250 ranges for the measurement of current, voltage, power, frequency and other electrical quantities. The dynamo laboratory also includes a complete electric-railway test set, consisting of two

modern railway motors, geared to a load and controlled by a complete H L type control equipment.

In addition, there is a repair shop for the department; a repair laboratory for instruction in armature winding and dynamo and apparatus repair; and a wiring laboratory for the freshman course, in which sixteen booths or rooms, in imitation of buildings both finished and in process of construction, and a complete stock of supplies for cleat, concealed knob and tube, conduit, and conduit construction afford students actual practice in wiring buildings by the commonly used methods.

The equipment belonging to the department is valued at \$39,113.

COURSES IN ELECTRICAL ENGINEERING

FOR UNDERGRADUATES

160. ELECTRICAL ENGINEERING C RECITATION. Senior year, second semester. Recitations or lectures, two hours. Two semester credits. Prerequisite: Engineering Physics II (Physics 150). Mr. Church.

This work is designed to cover briefly the fundamental principles of direct-current and alternating-current electricity. Emphasis is laid upon the proper installation and operation of the different classes of machines and the use of electricity for lighting and power. Text: Bailey's *Dynamo-Electric Machinery*.

165. ELECTRICAL ENGINEERING C LABORATORY. Senior year, second semester. Laboratory, three hours. One semester credit. Mr. Church.

The laboratory practice is designed to give the student a knowledge of the most important commercial tests. The proper use of electrical instruments is emphasized. A written report of each laboratory test is required. Text: Wilson's *Dynamo Laboratory Outlines*. Laboratory charge, \$1.50.

170. ELECTRICAL MACHINERY AND CONSTRUCTION. Freshman year, both semesters and summer school. Laboratory, six hours. Two semester credits. Prerequisite: High School Physics. Mr. Reid, Mr. Hunt, and Mr. Jorgensen.

This is an introductory course in applied electricity. About one-half the time is devoted to acquainting the student with the various modern methods of interior wiring, approved by the National Board of Fire Underwriters, including open, cleat wiring, knob and tube-concealed wiring, flexible and rigid iron pipe conduit, and metal molding. The wiring "code" is used as a reference in this part of the course, and on its completion the student should be competent to plan, lay out and install the wiring for the usual residence or business building.

The remainder of the time is devoted to the installation, care, operation, and repair of electrical machinery. It includes armature winding of direct- and alternating-current motors and generators; the diagnosis and location of faults—short circuits, open circuits, grounds—and the repair of these various types of electrical-machine troubles. It also includes the installation and connection of motors, generators, meters, compensators, and other of the usual types of electrical apparatus. Texts: Croft's *Wiring for Light and Power*, Timbie's *Essentials of Electricity*. Laboratory charge, \$3.

195. THESIS. Elective, continuing through both semesters. First semester: three hours; one semester credit. Second semester: six hours; two semester credits. Mr. Reid, Mr. Kloeffer, Mr. Brenneman, Mr. Kerchner, Mr. Hunt, Mr. Jorgensen, and Mr. Church.

The subject for thesis work is selected in consultation with the head of the department, at the beginning of the first semester of the senior year. The work is continued during the second semester. Every opportunity is given the student to work out original ideas as to design and operation of electrical apparatus and machinery.

FOR GRADUATES AND UNDERGRADUATES

203. DIRECT-CURRENT MACHINES I RECITATION. Junior year, both semesters and summer school. Recitations or lectures, three hours. Three semester credits. Prerequisites: Calculus I (Math. 205) and Engineering Physics II (Physics 150). Mr. Brenneman and Mr. Kerchner.

The work consists of a detailed study of the fundamental principles of magnetic and electric circuits and their application to the various types of direct-current machines. Numerous problems involving the application of the principles are given as a part of the course. The class work is planned to coordinate with the work in the electrical engineering laboratory. Text: Pender's *Direct Current Machinery*.

204. DIRECT-CURRENT MACHINES I LABORATORY. Junior year, both semesters and summer school. Laboratory, three hours. One semester credit. This course should accompany or follow Direct-current Machines I Recitation. Mr. Brenneman and Mr. Kerchner.

A series of experiments outlined which is designed to necessitate careful, accurate measurement. The student is obliged to make all electrical connections with necessary instruments in the circuit, and to record the required data. From the laboratory records a written report upon each experiment or test must be submitted. The laboratory exercises include tests for armature and field resistance, potential curves, machine characteristics, motor and generator efficiencies. Text: Swenson and Frankenfield's *Testing of Electromagnetic Machinery, Vol. I*. Laboratory charge, \$1.50.

206. DIRECT-CURRENT MACHINES II RECITATION. Junior year, both semesters and summer school. Lectures or recitations, two hours. Two semester credits. Prerequisites: Direct-current Machines I (Elec. Engr. 203) and Electrical Measurements (Elec. Engr. 227). Mr. Brenneman and Mr. Kerchner.

This course is a continuation of direct-current Machines I. It involves a detailed study of special types of direct-current machinery, dynamo losses, commutation and Kirchhoff's laws as applied to direct-current circuits. Text: Pender's *Direct Current Machinery*.

207. DIRECT-CURRENT MACHINES II LABORATORY. Junior year, both semesters and summer school. Laboratory, three hours. One semester credit. This course should accompany or follow Direct-current Machines II Recitation. Mr. Klöeffler, Mr. Kerchner, Mr. Hunt and Mr. Jorgenson.

Special attention is given in this course to the different methods of determining generator and motor efficiencies and to the proper tabulation and interpretation of results. The latter part of the course is devoted to the calibration of electrical instruments. Text: Swenson and Frankenfield's *Testing of Electromagnetic Machinery, Vol. I*. Laboratory charge, \$1.50.

208. DIRECT-CURRENT MACHINES III RECITATION. Elective, junior and senior years, second semester. Lectures or recitations, two hours. Two semester credits. Prerequisites: Direct-current Machines I (Elec. Engr. 203) and Direct-current Machines II (Elec. Engr. 206) or may be taken simultaneously with Direct-current Machines II. Mr. Brenneman.

This course deals with the fundamental causes of various relations described in Direct-current Machines I and Direct-current Machines II; the fundamental systems of electrical units and important principles derived therefrom; the prediction of generator and motor performance from features of design; the division of load between dissimilar units; and the solving of networks by successive approximations and graphics.

209. ALTERNATING-CURRENT MACHINES I RECITATION. Junior year, second semester and summer school. Recitations or lectures, four hours. Four semester credits. Prerequisites: Calculus II (Math. 206) and Direct-current Machines I (Elec. Engr. 203, 204). Mr. Reid and Mr. Kerchner.

The work consists of a mathematical treatment of alternating-current phenomena. A study is made of the vector method of treating alternating-current

problems. The solution of problems involving single and polyphase circuits forms an important part of the course. Text: Lawrence's *Principles of Alternating Currents*.

211. ALTERNATING-CURRENT MACHINES I LABORATORY. Junior year, second semester and summer school. Laboratory, three hours. One semester credit. This course should accompany or follow Alternating-current Machines I Recitation. Mr. Reid, Mr. Kerchner, Mr. Hunt and Mr. Church.

It is the aim of this course to provide a series of experiments illustrating the theoretical work of the lecture room. Practice is given in the accurate measurement of capacity and inductance, and the effect of each upon the circuit. The latter part of the course is devoted to a study of polyphase circuits. Laboratory charge, \$1.50.

213. ALTERNATING-CURRENT MACHINES II RECITATION. Senior year, first semester and summer school. Recitations or lectures, four hours. Four semester credits. Prerequisite: Alternating-current Machines I (Elec. Engr. 209, 211). Mr. Reid and Mr. Kerchner.

This is a continuation of Alternating-current Machines I. The course consists of a study of the theory of alternating-current machinery, alternators, synchronous motors, induction motors, transformers, and the various devices used in connection with alternating-current work. A study is also made of the application of the different types of machinery to industrial uses. Text: Lawrence's *Principles of Alternating-current Machinery*.

215. ALTERNATING-CURRENT MACHINES II LABORATORY. Senior year, first semester and summer school. Laboratory, six hours. Two semester credits. This course should accompany or follow Alternating-current Machines II Recitation. Mr. Reid, Mr. Kerchner, Mr. Hunt and Mr. Church.

A series of experiments involving special and commercial tests of alternators, synchronous motors, transformers, and the different types of alternating-current machinery and apparatus are carried out. Laboratory charge, \$2.

217. ELECTRICAL COMMUNICATION I RECITATION. Elective, first semester. Class work, two hours. Two semester credits. Prerequisite: Alternating-current Machines I (Elec. Engr. 209, 211). Mr. Kloeffer.

This course covers the principles of telephone communications as applied to the apparatus and circuits used on magneto, common battery (manual), Strowger automatic and machine switching systems. Toll telephone practice, involving the use of line loading, repeaters, and carrier currents, is likewise included. Text: Kloeffer's *Telephone Communication Systems*.

218. ELECTRICAL COMMUNICATION I LABORATORY. Elective, first semester. Laboratory, three hours. One semester credit. This course should accompany Electrical Communication I Recitation (Elec. Engr. 217). Mr. Kloeffer.

This course includes the study of telephone apparatus and circuits on magneto, common battery, and automatic systems. Measurements are made on artificial telephone lines. Laboratory charge, \$1.

219. RADIO COMMUNICATION RECITATION. Elective, second semester. Lectures and recitations, two hours. Two semester credits. Prerequisite: Alternating-current Machines I (Elec. Engr. 209, 211). Mr. Kloeffer and Mr. Bueche.

This includes a study of high-frequency alternating current phenomena. The production, measurement and control of such currents and electro-magnetic waves, and their application to radio telegraphy and telephony and carrier current transmission are covered. Principles of operation of thermionic vacuum tubes with a proper consideration of these principles in their application to the generation, modulation, amplification, and detection of continuous waves are also considered.

223. RADIO COMMUNICATION LABORATORY. Elective, second semester. Laboratory, three hours. One semester credit. This course should accompany

Radio Communication Recitation (Elec. Engr. 219). Mr. Kloeffer and Mr. Bueche.

This laboratory course follows the theoretical discussions of the classroom and makes practical application of the various principles studied. Laboratory charge, \$1.

232. ELECTRICAL COMMUNICATION II RECITATION. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Electrical Communication I (Elec. Engr. 217, 218). Mr. Kloeffer.

This course covers a study of transmission problems, telephonic efficiencies, telephone repeaters, wave filters, and carrier currents. Text: Johnson's *Transmission Circuits for Telephonic Communication*.

233. ELECTRICAL COMMUNICATION II LABORATORY. Elective, second semester. Laboratory, three hours. One semester credit. This course should accompany Electrical Communication II Recitation (Elec. Engr. 232). Mr. Kloeffer.

This course consists of high frequency measurements as applied to wire communication. Among other things a study is made of vacuum tubes telephone transformers, attenuation losses, and wave filters. Laboratory charge, \$1.

227. ELECTRICAL MEASUREMENTS RECITATION. Junior year, first semester and summer school. Lectures and recitations, two hours. Two semester credits. Prerequisites: Calculus I (Math. 205) and Engineering Physics II (Physics 150). Mr. Kloeffer.

This course is an extension of the work in electricity in Engineering Physics II. It treats of the various methods for the measurement of resistance, current, electromotive force, capacity and inductance. Text: C. M. Smith's *Electric and Magnetic Measurements*.

The latter part of the course is devoted to a study of the construction and testing of the various types of voltmeters, ammeters, wattmeters, and watthour meters. Text: Jansky's *Electrical Meters*.

228. ELECTRICAL MEASUREMENTS LABORATORY. Junior year, first semester and summer school. Laboratory, three hours. One semester credit. This course should accompany or follow Electrical Measurements Recitation. Mr. Kloeffer and Mr. Church.

The laboratory course follows the work of the classroom by giving applications of the fundamental principles studied. Laboratory charge, \$2.

230. ELECTRICAL ENGINEERING M-I RECITATION. Senior year, first semester. Lectures or recitations, three hours. Three semester credits. Prerequisites: Engineering Physics II (Physics 150) and Calculus I (Math. 205). Mr. Brenneman.

This course covers the subject of direct-current machines with reference to the fundamental laws of the electric circuit, the principles of direct-current machinery, and the more important commercial tests. The last month is devoted to an introduction to alternating-current circuits preparatory to Electrical Engineering M-II. Text: Bailey's *Dynamo Electric Machinery*.

231. ELECTRICAL ENGINEERING M-I LABORATORY. Senior year, first semester. Laboratory, three hours. One semester credit. This course should accompany or follow Electrical Engineering M-I Recitation. Mr. Brenneman and Mr. Church.

Practice is given in the proper use of electrical measuring instruments. The experiments include a variety of tests requiring accurate observation and a knowledge of the theory of dynamo machines. The various standard characteristics and efficiency tests are given. A written report on each test is required. Laboratory charge, \$1.50.

235. ILLUMINATING ENGINEERING RECITATION. Elective, second semester. Lectures and recitation, two hours. Two semester credits. Prerequisites: Calculus II (Math. 206) and Engineering Physics II (Physics 150). Mr. Kloeffer.

This course is devoted to a study of photometry, light standards, the principles of illumination, and illumination design. Texts: Barrow's *Light Photometry and Illuminating Engineering*.

236. ILLUMINATING ENGINEERING LABORATORY. Elective, second semester. Laboratory, three hours. One semester credit. This course should accompany or follow Illuminating Engineering Recitation. Mr. Kloeffer.

The laboratory work involves photometric measurements of light intensity, luminous flux, brightness and illumination, and the determination of light distribution about various illuminants and luminaries. Each student makes a lighting survey of some commercial establishment and works out a practical illumination design problem as a part of the course. Laboratory charge, \$1.

240. ELECTRIC RAILWAYS. Elective, second semester. Recitations or lectures, two hours. Two semester credits. Prerequisite: Alternating-current Machines II (Elec. Engr. 213, 215.) Mr. Reid and Mr. Kerchner.

A study is made of the development of electric traction; traffic conditions and train schedules; speedtime curves; power generation and distribution for electric railway signal systems; types of cars and locomotives in use; various control systems; and adaptability of electric traction to steam road. Text: Harding's *Electric Railway Engineering*.

242. ELECTRICAL ENGINEERING M-II RECITATION. Senior year, second semester. Lectures and recitations, three hours. Three semester credits. Prerequisite: Electrical Engineering M-I (Elec. Engr. 230, 231). Mr. Brenneman and Mr. Church.

The work covers briefly the important principles of alternating-current phenomena. The leading types of alternating-current machinery and apparatus are discussed with reference to their operation and their adaptability to different classes of service. Text: Bailey's *Dynamo-Electric Machinery*.

243. ELECTRICAL ENGINEERING M-II LABORATORY. Senior year, second semester. Laboratory, three hours. One semester credit. Mr. Brenneman, Mr. Hunt, and Mr. Church.

This course includes practice in the use of alternating-current instruments; standard tests of alternators, motors, and transformers; and methods of operating the different types of alternating-current machinery. Laboratory charge, \$1.50.

245. STORAGE BATTERY ENGINEERING. Elective, first semester. Class work, three hours. Three semester credits. Prerequisites: Chemistry E-II (Chem. 108), and Engineering Physics II (Physics 150). Knowledge of generators will be valuable. Mr. Brenneman.

This course includes a study of process of manufacture, molecular and chemical theory of operation, behavior on charge and discharge, rating and life of a battery; battery diseases, their causes, methods of recognition, and remedies; methods of charge and discharge; and features of batteries that determine their adaptability to central stations, farm lighting service and gas and electric vehicles. Attention is given to the features of each application that are most likely to cause the various troubles. Text: Vinol's *Storage Batteries*, with other books for reference.

250. COMMERCIAL ENGINEERING. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Economics (Econ. 101). Mr. Kloeffer.

This course develops the relation of the engineer to commercial life. It covers the work of the sales engineer and the routine of an order through an industrial concern. It likewise includes the principles of salesmanship as applied to the selling of materials and apparatus, plans and services. Text: Russell's *Textbook of Salesmanship*.

255. ELECTRIC HEATING. Elective, first semester. Class work, two hours. Two semester credits. Prerequisite: Direct-current Machines I (Elec. Engr. 203). Mr. Kloeffer and Mr. Kerchner.

This course covers the theory and practice of electricity as applied to cooking, room heating, japanning ovens, spot welding, arc welding, and the various types of electric arc and induction furnaces.

260. INDUSTRIAL ELECTRICAL APPLICATIONS. For advanced students in courses other than electrical engineering. Elective, first or second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: Electrical Engineering M-II (Elec. Engr. 242). Mr. Reid.

The course comprises a study of the principal types of electrical machinery and apparatus encountered in practice, and the transmission and distribution of electric power for industrial purposes, including electric motor drive, electric lighting and electric heating in industrial plants. Choice of equipment for performing specified duties is discussed.

270. ELECTRICAL MACHINE DESIGN I. Senior year, first semester. Laboratory, three hours. One semester credit. Prerequisite: Direct-current Machines II (Elec. Engr. 206, 207). Mr. Kloeffer.

The purpose of the course is to acquaint the student with the principles of electrical design. Each student makes calculations for electromagnets and a direct-current generator. Text: Still's *Elements of Electrical Design*.

271. ELECTRICAL MACHINE DESIGN II. Elective, second semester. Laboratory, six hours. Two semester credits. Prerequisites: Alternating-current Machines II (Elec. Engr. 213, 215) and Electrical Machine Design I (Elec. Engr. 270). Mr. Kloeffer and Mr. Brenneman.

This is a continuation of Electrical Machine Design I. The calculations for a direct-current generator are completed and a study made of the principles of alternating-current design. The student makes the necessary design calculations for a transformer.

275. ADVANCED CALCULATIONS IN ALTERNATING CURRENT CIRCUITS. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Alternating-current Machines II (Elec. Engr. 213). Mr. Brenneman and Mr. Kerchner.

In this course use is made of the vector methods in solving alternating-current problems. Single-phase, balanced or unbalanced three-phase problems in net works are solved; computations of real and reactive power on the reverse are handled by symbolic notation. Problems are illustrated by the corresponding vector diagram.

280. GENERATION, TRANSMISSION AND DISTRIBUTION OF ELECTRICAL ENERGY. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: Alternating-current Machines II (Elec. Engr. 213). Mr. Brenneman.

This course is designed to cover selection of equipment for powerhouses and substations, station operation and management, and problems of power transmission and systems of distribution, including electrical, mechanical and economic calculations for low-, medium- and high-potential systems. Text: Still's *Electrical Power Transmission*.

284. TRANSIENT ELECTRICAL PHENOMENA. Elective, second semester. Class work, three hours. Three semester credits. Prerequisites: Alternating-current Machines I and II (Elec. Engr. 209 and 213) and Differential Equations (Math. 201). Mr. Brenneman.

In this course two phases of electrical phenomena are discussed, namely:

(a) Transients in time: Condensers and inductances in direct- and alternating-current circuits at time of make or break of circuit; transient conditions in divided circuits; transient conditions during short circuit of generators; connecting induction motors and transformers to a line.

(b) Transients in space: Current and voltage relations along a transmission line; distribution of current density throughout body of magnetic and non-magnetic conductors; rate of flux penetration. A solution of a number of the problems with an equivalent graphical solution is given to parallel the text. Text: Steinmetz's *Transient Electrical Phenomena*.

286. **ADVANCED ILLUMINATION.** Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Illuminating Engineering (Elec. Engr. 235). Mr. Kloeffer.

A study is made of the lighting systems adapted for the illumination of stores, offices, drafting rooms, machine shops, railway shops, hospitals and city streets. Two specific designs are required of each student.

FOR GRADUATES

336. **ELECTRICAL ENGINEERING RESEARCH.** Elective, first or second semester. One semester credit for each three hours laboratory. Prerequisite: Alternating-current Machines II (Elec. Engr. 213). Mr. Reid, Mr. Kloeffer and Mr. Brennehan.

An advanced laboratory course intended as an introduction to more elaborate work of special investigation. The course will be adapted to meet the needs and attainments of individual students. Particular problems will be assigned which must be studied by reference to existing literature and by experimental work, and on which completed reports must be submitted.

General Engineering

DEAN SEATON

101. **ENGINEERING LECTURES.** Freshman year, continuing through both semesters. Lectures, one hour a week. Dean Seaton, other members of the engineering faculty, and visiting practicing engineers.

These lectures are designed to acquaint students who are beginning the study of engineering and architecture with the fundamental principles of their profession and to give them a general survey of the field of engineering.

105. **SEMINAR.** Sophomore, junior, and senior years. Required throughout each year. Lectures, papers, discussions and inspection trips, one hour a week. Members of the engineering faculty.

This work differs for the various curricula, and as far as possible is conducted by the student branches of the professional engineering societies. In the case of electrical engineering students the work is conducted by the student branch of the American Institute of Electrical Engineers; the student branch of the American Society of Mechanical Engineers has charge of the work for students in mechanical engineering; the Kansas State Agricultural College Civil Engineering Society conducts the seminar for students in civil engineering; the Architects' Club has charge of the seminar for students in architecture, landscape architecture and architectural engineering; the student branch of the American Society of Agricultural Engineers conducts the seminar for the students in agricultural engineering; special seminars are held for students in chemical engineering and flour mill engineering. Students are required to present abstracts and reviews of articles appearing in the journals of their respective societies or in the technical press of their profession or to prepare original articles. Occasionally these individual groups unite in the general Engineering Society, under whose auspices lectures are given by practicing engineers and by members of the engineering and college Faculty on topics of general interest to engineering students.

Inspection trips to nearby industrial centers are annually made during the junior and senior years. The plants inspected are carefully selected to exemplify various engineering applications in practice. All students in the departments making the inspection are required to accompany the party unless excused and assigned special work to make up the absence by the head of his department.

Machine Design

Professor PEARCE
Associate Professor SMUTZ
Associate Professor DURLAND

Assistant Professor HUNT
Instructor GINGRICH
Instructor HAFFORD

The courses in engineering drawing and machine drawing deal principally with the training of the freshman and sophomore students in visualization, and the application of graphical language to engineering problems, with particular reference to commercial drafting-room methods. The object of these courses is primarily to develop this graphical language as a tool to be used in all future engineering work.

The courses in machine design deal with the mechanical transmission of power, the analysis of the action of machine parts, and the design of machine elements and of complete machines with regard to strength, stiffness and general operating efficiency. In this group may be included also the course in flour-mill design, which deals with the layout of flow sheets and the selection and arrangement of milling machinery.

The department owns equipment valued at \$9,157.

COURSES IN DRAWING AND MACHINE DESIGN

FOR UNDERGRADUATES

101. ENGINEERING DRAWING. Freshman year, both semester and summer school. Drafting, supplemented by lectures and recitations, six hours. Two semester credits. Mr. Smutz, Mr. Hunt and Mr. Gingrich.

Instruction is given in the selection and use of drawing instruments, construction of geometrical figures, lettering, orthographic projections and sections, and pictorial methods of representation. Text: French's *Engineering Drawing*, and French and Turnbull's *Lessons in Lettering, Book II*.

106. DESCRIPTIVE GEOMETRY. Freshman year, both semesters and summer school. Drafting practice with lectures and recitations, six hours. Two semester credits. Prerequisites: Engineering Drawing (Mach. Design 101) and Solid Geometry. Mr. Smutz, Mr. Hunt and Mr. Gingrich.

This course, which is a continuation of Engineering Drawing, takes more advanced problems, involving the point, line, and plane; the intersection and development of the surfaces of geometric solids; as well as the practical applications of the principles involved. Emphasis is laid on developing the student's ability to visualize drawings in the third angle. Text: *Descriptive Geometry* by Cutter.

107. DESCRIPTIVE GEOMETRY A. Freshman year, first semester. Drafting practice with lectures and recitations, nine hours. Three semester credits. Mr. Smutz and Mr. Hunt.

This course is primarily for architectural students, and its problems are all related to their work. About one-third of the time is devoted to the study of orthographic and isometric projections and the remainder of the time is devoted to the study of descriptive geometry problems involving points, lines, planes, angles in space and the intersection and development of the surfaces of geometrical solids. Emphasis is laid on developing the student's ability to visualize drawings in the first angle. Text: Young and Baxter's *Descriptive Geometry*.

108. SHADES AND SHADOWS, AND PERSPECTIVE. Freshman year, second semester. Drafting room practice with lectures and recitations, nine hours. Three semester credits. Prerequisites: Descriptive Geometry A (Mach. Design 107) or Elements of Architecture I (Arch. 106A). Mr. Smutz and Mr. Hunt.

About two-thirds of the time is devoted to the study of the conventional shades and shadows of common geometrical solids, solids of revolution, and simple architectural members. The remainder of the time is devoted to the

study of the theory of perspective as applied to the same simple solids and to problems from architectural practice. Texts: Goodwin's *Architectural Shades and Shadows* and Lubschez's *Perspective*. Laboratory charge, \$1.50.

111. MACHINE DRAWING I. Sophomore year, both semesters and summer school. Drafting, with lectures and recitations, six hours. Two semester credits. Prerequisite: Descriptive Geometry (Mach. Design 106). Mr. Pearce, Mr. Durland, Mr. Hunt, and Mr. Hafford.

A study is made of conventional representations, working drawings, modern drafting-room systems, and the reproduction of drawings. Additional practice is given the inclined Gothic and Reinhardt systems of lettering. Working drawings, both detail and assembly, are made from assigned plates. Special emphasis is given to the proper selection of views to present the necessary information in convenient forms, dimensioning, checking for errors, and the subject matter and arrangement of titles and notes. Text: French's *Engineering Drawing*.

116. MACHINE DRAWING II. Sophomore and junior years, second semester and summer school. Drafting, nine hours. Three semester credits. Prerequisites: Machine Drawing I (Mach. Design 111). Mechanism (Mach. Design 121) must accompany or precede this course. Mr. Pearce, Mr. Hunt, and Mr. Hafford.

About one-half of the time is occupied in making free-hand sketches of simple machine parts and complete working drawings from these sketches without further reference to the objects. At least one drawing is traced, and a blue print made from the tracing. The remainder of the semester is devoted to kinematic problems, including belting, cams, linkages, and gears to fulfill specified conditions. Center line drawings are first made, embodying the solution of the problems, and upon these are built working drawings of the machine parts. An effort is made to follow standard practice in the design of those details usually determined by empirical methods. Displacement and velocity diagrams are drawn for linkages and cams.

121. MECHANISM. Sophomore and junior years, both semesters and summer school. Lectures and recitations, three hours. Three semester credits. Prerequisites: Plane Trigonometry (Math. 101) and Descriptive Geometry (Machine. Design 106). Mr. Pearce, Mr. Durland, and Mr. Hunt.

A careful study is made of the fundamental elements of machinery with reference to the transmission of motion and force, and to their forms and arrangements in actual machines. Among the subjects discussed are: bearings; screws; worms and wheels; rolling cylinders, cones and discs; belts, ropes, and chains; cams, levers, and linkwork, with their motion, velocity, and force diagrams; special forms of linkages, such as quick return and straight-line motions; gear-tooth outlines, and trains of gears. The solution of a large number of graphical and mathematical problems is required in this course. Text: Schwamb and Merrill's *Elements of Mechanism*.

126. THESIS. Senior year, continuing through the year. First semester: laboratory, three hours; one semester credit. Second semester: laboratory, six hours; two semester credits. Mr. Pearce.

Projects in machine design or flour-mill design furnish excellent material for thesis study. The subject of the investigation should be selected in consultation with the head of the department at the beginning of the first semester of the senior year.

FOR GRADUATES AND UNDERGRADUATES

202. MACHINE DESIGN I. Junior year, second semester. Drafting, three hours. One semester credit. Prerequisites: Machine Drawing II (Mach. Design 116) and Steam and Gas Engineering I (Mech. Engr. 101). Mr. Durland.

This includes the solution of a problem on the slide valve by the Bilgram diagram, followed by the design, mostly by empirical methods, of the cylinder,

piston, steam chest, and valve of a steam engine. All calculations and sketches are carefully kept in notebooks. Mark's *Mechanical Engineers' Handbook* is extensively used for reference. Manufacturers' catalogues and blue prints are also used for reference.

204. MACHINE DESIGN II RECITATION. Senior year, first semester. Lectures and recitations, three hours. Three semester credits. Prerequisites: Strength of Materials (Ap. Mech. 211), Machine Drawing II (Mach. Design 116), Steam and Gas Engineering II (Mech. Engr. 110). Must accompany Machine Design II Laboratory (Mach. Design 205). Mr. Pearce.

A study is made of the straining actions in machine elements in general with special attention to the design of springs, riveted fastenings, screw fastenings, keys, force fits, cylinders, plates, journals, bearings, shafting, clutches, couplings, and belt, rope, chain and gear transmissions. Some time is devoted to a study of friction and lubrication, to the action of reciprocating parts in engines, and to the problems arising in the design of high-speed machinery. Texts: Leutwiler's *Machine Design*, and *Class Notes on the Dynamics of the Reciprocating Engine*, by Pearce.

205. MACHINE DESIGN II LABORATORY. Senior year, first semester. Drafting, six hours. Two semester credits. Must accompany Machine Design II Recitation (Mach. Design 204). Mr. Pearce.

A steam boiler is designed in strict conformity to the *A. S. M. E. Boiler Code*. Calculations are made for all parts except standard fittings, and working drawings are made. In the latter part of the course designs are made for a large pulley, shaft, and shaft coupling. All calculations and sketches are kept in notebooks.

210. MACHINE DESIGN III. Senior year, second semester. Drafting, six hours. Two semester credits. Prerequisite: Machine Design II (Mach. Design 204, 205). Mr. Pearce.

This is a continuation of Machine Design II Laboratory. A small power shear is designed. Calculations are made for all parts, and a graphical analysis is made of the stress in the shaft. Working drawings are made.

215. FLOUR-MILL DESIGN. Senior year, first semester. Drafting, supplemented by lectures and assigned reading, six hours. Two semester credits. Prerequisites: Strength of Materials E (Ap. Mech. 216) and Milling Practice I (Mill. Ind. 109). Mr. Pearce.

A design is made for a medium capacity flour mill, including the selection and planning of the arrangement of the machinery.

220. MECHANISM G. Elective, first semester. Lectures and recitations, three hours. Three semester credits. Prerequisites: Plane Trigonometry (Math. 101), Engineering physics II (Physics 150), and Descriptive Geometry (Mach. Design 106). Mr. Pearce and Mr. Durland.

This course is similar to Mechanism (Mach. Design 121), but somewhat more advanced. In addition to the subjects discussed in the latter course, attention is given to the pressure angles in cams, multiple speed drives for machine tools, epicyclic trains, and graphical analysis of motions in linkages. Considerable library reference work is required. Text: Schwamb and Merrill's *Elements of Mechanics*.

225. GRAPHICS OF ENGINEERING FORMULAS. Elective, second semester. Lectures and recitations, two hours. Two semester credits. Prerequisite: Plane Analytical Geometry (Math. 110). Mr. Pearce.

This course is intended to satisfy the needs of two classes of technical workers: (1) Those who wish to find equations to satisfy experimental data; and (2) those who wish to plot known formulas so that the latter can be solved graphically. The first section deals with the design of empirical equations according to the methods of selected points, averages, or least squares, and a consideration of general methods of plotting. The second section deals with the diagramming of formulas so that a solution may be

read directly without computation. A particular study is made of the construction of nomographic or alignment charts, in which all the variables of a formula will be along any straight transversal cutting the lines of the diagram. Text: *Design of Diagrams for Engineering Formulas*, by Hewes and Seward.

FOR GRADUATES

301. **ADVANCED MACHINE DESIGN.** Elective, first or second semester. One semester credit for each hour of recitation or three hours of drafting-room work. Mr. Pearce.

At the option of the student, this course may include a study of the advanced dynamics of machinery, with special reference to the inertia effects, torque characteristics, flywheel design, and balancing of multiple cylinder engines and compressors, the design of turbine drums and disks, the critical speed of rotating parts, and gyroscopic action.

This course may furnish material for the master's thesis.

Mechanical Engineering

Professor CALDERWOOD
Associate Professor MACK
Instructor WILLIS
Instructor BRAINARD

The object of the instruction in this department is to give to the student the fundamental principles underlying the design, construction, selection, operation and testing of steam boilers; steam engines and steam turbines; gas producers; gas and petroleum engines; compressed-air and refrigerating machinery; condensers and evaporators. These subjects are developed by courses in engineering thermodynamics and in steam and gas engineering, and are followed in the fourth year by courses in power-plant engineering, in refrigeration, and in heating and ventilation. The classroom instruction of every course consists of lectures and recitations, which are paralleled by work in the drafting room and laboratory, and supplemented by numerous practical problems, trade catalogues, notes, and inspection trips requiring written reports.

The mechanical-engineering laboratories are well equipped for the testing of boilers, steam engines, gas engines, refrigeration machinery, fuels, lubricants, and other equipment and materials met with in the practice of mechanical engineering. In addition to the equipment installed especially for experimental purposes, all the heating, power, ventilating, and pumping equipment of the College subserves the further purpose of experimental work.

The equipment belonging to this department is valued at \$23,675.

COURSES IN MECHANICAL ENGINEERING

FOR UNDERGRADUATES

101. **STEAM AND GAS ENGINEERING I RECITATION.** Junior and senior years, first and second semesters. Lectures and recitations, four hours. Four semester credits. Prerequisites: Mechanism (Mach. Design 121) and Calculus II (Math. 206). Mr. Calderwood, Mr. Mack and Mr. Willis.

This is a study of heat-power engineering, including valve gears and thermodynamics. Special stress is put upon the theory of the thermodynamics of gases and vapors, and gas and vapor cycles. Texts: Fessenden's *Valve Gears*; and Moyer, Calderwood, and Potter's *Elements of Engineering Thermodynamics*.

105. **STEAM AND GAS ENGINEERING I LABORATORY.** Junior and senior years, first and second semesters. Laboratory, three hours. One semester credit. Taken with Steam and Gas Engineering I Recitation. Mr. Willis and Mr. Brainard.

The study and calibration of steam gauges, indicators, and planimeters;

valve-setting and steam-engine operations; study of calorimeters, flow meters, and feed-water heaters; determination of the indicated and brake horsepower, mechanical efficiency, and the steam consumption of high-speed automatic cut-off, Corliss, simple and compound engines; tests of DeLaval, Kerr and Terry steam turbines are included in this course. Text: Carpenter and Diederchs' *Experimental Engineering* is used in this and subsequent laboratory courses. Laboratory charge, \$1.

110. STEAM AND GAS ENGINEERING II RECITATION. Junior and senior years, first and second semesters. Lectures and recitations, three hours. Three semester credits. Prerequisite: Steam and Gas Engineering I (Mech. Engr. 101). Mr. Calderwood, Mr. Mack and Mr. Willis.

This is a continuation of the study of heat-power engineering and includes a detailed study of steam engines, steam boilers, steam turbines, internal-combustion engines, fuels and combustion, gas producers, and other power-plant equipment. Text: Gebhardt's *Steam Power Plant Engineering*.

115. STEAM AND GAS ENGINEERING II LABORATORY. Junior and senior years, first and second semesters. Laboratory, three hours. One semester credit. Taken with Steam and Gas Engineering II Recitation. Mr. Willis and Mr. Brainard.

This course involves the proximate analysis of coal; determination of the calorific values of solid, liquid, and gaseous fuels; evaporative tests of steam boilers; testing of internal-combustion engines, including a study of the various auxiliaries for gas and oil engines; tests of compressed-air and refrigerating machinery. Laboratory charge, \$1.

120. STEAM AND GAS ENGINEERING C RECITATION. Junior and senior years, second semester. Lectures and recitations, two hours. Two semester credits. Prerequisites: Engineering Physics II (Physics 150) and Calculus II (Math. 206). Mr. Willis and Mr. Brainard.

A descriptive study is made of steam boilers, steam engines, steam turbines, gas and oil engines, including the various auxiliaries. Text: Allen and Bursley's *Heat Engines*.

125. STEAM AND GAS ENGINEERING C LABORATORY. Junior and senior years, second semester. Laboratory, three hours. One semester credit. Taken with Steam and Gas Engineering C Recitation. Mr. Willis and Mr. Brainard.

The study and calibration of steam gauges, indicators, and planimeters; calorimeters; evaporative tests of steam boilers; determination of the heating value of liquid and gaseous fuels; tests of steam engines; valve setting; tests of steam turbines; tests of internal-combustion engines; operation and testing of refrigerating machines are involved in this course. Laboratory charge, \$1.

130. ELEMENTS OF STEAM AND GAS POWER. Freshman year, both semesters. Lectures, recitations, and laboratory, six hours. Two semester credits. Mr. Calderwood, Mr. Willis and Mr. Brainard.

An elementary study is made of steam engines, steam turbines, steam boilers, steam power-plant auxiliaries, gas and oil engines, natural and manufactured gas, gas power-plant auxiliaries, and the elements of automotive engineering. Text: Potter and Calderwood's *Elements of Steam and Gas Power Engineering*. Laboratory charge, 50 cents.

170. DAIRY REFRIGERATION RECITATION. Elective, first semester. Lectures and recitations, one hour. One semester credit. Mr. Willis.

The elementary theory and principles of operation of various refrigerating and ice-making machinery and of cold storage, with special reference to the dairy industry, are considered.

175. DAIRY REFRIGERATION LABORATORY. Elective, first semester. Laboratory, three hours. One semester credit. Mr. Willis.

Various types of refrigeration systems and their operation are studied; steam-engine operation is studied, and refrigeration machines are tested. Laboratory charge, \$1.

195. **THESIS.** Senior year, continuing through both semesters. First semester: Laboratory, three hours; one semester credit. Second semester: Laboratory, six hours; two semester credits. Mr. Calderwood and Mr. Mack.

The laboratories of the department are well furnished with apparatus suitable for experimental and research work in the field of heat-power engineering. The subject of the investigation should be selected in consultation with the head of the department at the beginning of the first semester.

FOR GRADUATES AND UNDERGRADUATES

206. **POWER-PLANT ENGINEERING.** Senior year, first semester. Recitations, laboratory and drafting room practice, nine hours. Three semester credits. Prerequisite: Steam and Gas Engineering II (Mach. Engr. 110). Mr. Calderwood, Mr. Mack, and Mr. Brainard.

One-third of the semester is devoted to complete power-plant testing; special investigations of steam-engine performance; operation of gas producers and advanced laboratory work on internal-combustion engines. The remainder of the time is spent in designing a complete power plant and the solution of special problems dealing with power generation. Laboratory charge, \$1.50.

210. **REFRIGERATION, HEATING, AND VENTILATION RECITATION.** Senior year, second semester. Lectures and recitations, two hours. Two semester credits. Prerequisite: Steam and Gas Engineering II (Mech. Engr. 110). Mr. Calderwood.

This course is planned to acquaint the student with the fundamental principles of refrigerating systems, and the application of refrigeration to ice making, cold storage, and the cooling of air, liquids, and solids; also the fundamental principles of heating and ventilation, including the direct and indirect systems, hot-air, hot-water and steam systems of heating. Text: Allen and Walker's *Heating and Ventilation*, and notes on refrigeration.

215. **REFRIGERATION, HEATING, AND VENTILATION LABORATORY.** Senior year, second semester. Laboratory, three hours. One semester credit. Taken with Refrigeration, Heating and Ventilation Recitation. Mr. Calderwood and Mr. Mack.

The laboratory work includes tests of refrigerating machinery and of the thermal conductivity of insulating materials; tests of fans and blowers, radiators and house-heating boilers. The remainder of the time is devoted to the design of heating and ventilating systems for buildings. Laboratory charge, \$1.

220. **AERODYNAMICS RECITATION.** Elective, senior year, second semester. Lectures and recitations, two hours. Two semester credits. Prerequisite: Steam and Gas Engineering II (Mech. Engr. 110). Mr. Calderwood.

This course is planned to acquaint the student with the fundamental principles of airplane construction and the theory of wind forces. A careful study of aeronautical instruments and current practice in the design of airplanes is included. Text: William's *The Dynamics of the Airplane*, and references to various publications and notes.

225. **AERODYNAMICS LABORATORY.** Elective, senior year, second semester. Laboratory, three hours. One semester credit. Taken with Aerodynamics Recitation. Mr. Calderwood and Mr. Mack.

The laboratory work includes tests of various types and forms of airplane wing models, efficiency tests of propellers, and investigation of theory advanced in Aerodynamics Recitation.

230. **ADVANCED THERMODYNAMICS.** Elective, first semester. Lectures and recitations, two hours. Two semester credits. Prerequisite: Steam and Gas Engineering I (Mech. Engr. 101). Mr. Calderwood.

A study is made of the advanced phases of engineering thermodynamics, including research work along fundamental properties of gases and vapors. Reports are made of recent investigations along thermodynamic lines.

235. **STEAM TURBINES.** Elective, second semester. Lectures and recitations, two hours. Two semester credits. Prerequisite: Power Plant Engineering (Mech. Engr. 206). Mr. Calderwood.

A study is made of the theoretical principles involved in the various important types of steam turbines and the construction and operation of some of the commercial types. The selection of a steam turbine as a prime mover for power plants operating under particular operating conditions and the effect of factors such as superheat, vacuum and pressure are fully discussed.

FOR GRADUATES

305. ENGINEERING RESEARCH. Elective, first or second semester. One semester credit for each three hours of laboratory work. Mr. Calderwood and Mr. Mack.

The laboratory work is correlated with the work of the Engineering Experiment Station. Investigations on lubricants, fuels, combustion, internal-combustion engines, steam engines, steam turbines, steam boilers, gas producers, refrigeration, heat, insulating materials, heating and ventilation, compressed air and similar subjects are carried on.

Data secured in this course may be used as the basis for a master's thesis.

Shop Practice

Professor CARLSON
Associate Professor SELLERS
Assistant Professor JONES
Assistant Professor LYNCH
Assistant Professor _____
Assistant Professor GRAHAM
Assistant Professor AIMAN

Instructor GRANT
Instructor COOL
Instructor _____
Instructor _____
Assistant GREELEY
Assistant IRWIN

The work in the shops is planned to meet the needs of three classes of students: (1) those in the special courses related to engineering and agriculture who expect to make use of the knowledge gained in their subsequent work in the shops and on the farm; (2) those who are training themselves for teaching and need to secure a general knowledge of the principles underlying shop work, and sufficient skill in the performance of various operations, to be able to instruct others; and (3) those in the courses in engineering whose need is to secure a thorough knowledge of the methods of performing various kinds of shop work; of the machines best suited for the different purposes; of the amount of work that may be expected of the different machines and of the workman under different conditions.

The shop building is a series of connected structures. The woodworking shop consists of two rooms, 40 by 90 and 45 by 81 feet, respectively. The wood machinery room is 35 by 42 feet and contains an excellent assortment of machines used in exemplifying commercial woodworking methods. The farm shop, 65 by 75 feet, is equipped for handling farm shop projects. The machine shop, 40 by 170 feet, is one of the best equipped shops of its kind in the country. The blacksmith shop is 50 by 100 feet and is equipped with thirty modern down-draft forges, oxyacetylene welding outfits and other important equipment. The iron and brass foundries, 27 by 100 and 24 by 34 feet, respectively, are modern in every respect.

A locker room of ample capacity is conveniently located near the shops building for the use of students taking work in the department.

The value of equipment belonging to this department is \$41,091.

COURSES IN SHOP PRACTICE

FOR UNDERGRADUATES

101. ENGINEERING WOODWORK I. Freshman year, both semesters and summer school. Laboratory, three hours. One semester credit. Prerequisite: None. Mr. Aiman and Mr. Irwin.

This is a course for engineering students and is devoted to such work as will emphasize the importance of the use of methods, machinery and men in con-

nection with an industrial woodworking plant. The lecture work which accompanies the course covers forestry conditions, wastage, the structural growth of wood and the kiln drying of lumber. Text: Koehler's *Properties and Uses of Wood*.

103. **ENGINEERING WOODWORK II.** Elective, both semesters. Laboratory, three hours. One semester credit. Prerequisite: Engineering Woodwork I (Shop 101). Mr. Aiman.

This course is a continuation of Engineering Woodwork I, giving special attention to commercial methods. The effect of heat, humidity, evaporation, circulation, and the piling of lumber in the operation of drykilns is given special treatment. The routing of material through a woodworking factory, the selection of woodworking machinery and its location, labor-saving devices and other important features are studied.

117. **MANUAL TRAINING FOR PRIMARY GRADES.** Elective, second semester and summer school. Laboratory, six hours. Two semester credits. Mr. Aiman.

This course is planned to meet the needs of the teachers of primary and grade work up to and including the eighth grade in the one-room school. Exercises suitable for the various grades are studied, and a short time is devoted to the selection of suitable problems, materials and equipment. The work includes paper and cardboard construction, raffia and cord work, weaving and simple problems in reed work and elementary tool work in woodworking. Special instruction in methods of teaching this work is also taken up in order to strengthen the teacher's initiative as well as to point out how to develop initiative in the child. Laboratory charge, \$2.50.

119. **REED FURNITURE CONSTRUCTION.** Elective, both semesters and summer school. Laboratory, six hours. Two semester credits. Prerequisite: Woodworking I for High Schools (Shop 125). Mr. Aiman.

In this course problems in reed construction are solved. The student may progress as rapidly as he wishes, getting the principles of construction in such a way that he can follow up with the more difficult pieces. The use of art fiber in the place of reed is brought out and the construction of commercial articles is studied. Laboratory charge, \$2.50.

120. **WOODWORKING FOR GRAMMAR GRADES.** Elective, both semesters and summer school. Laboratory, six hours. Two semester credits. Prerequisite: None. Mr. Aiman.

This course is designed for those who are preparing to teach manual training. It takes up beginning work, and exercises are given suitable for problems in the Grammar Grades. Laboratory charge, \$2.50.

125. **WOODWORKING I FOR HIGH SCHOOLS.** Elective, both semesters and summer school. Laboratory, six hours. Two semester credits. Prerequisite: Woodwork for Grammar Grades (Shop 120). Mr. Aiman.

This is a continuation of Woodwork for Grammar Grades. Problems suitable for students in the high schools are given. Special attention is given to the study of woods and methods of finishing them, as well as the use and care of tools. Laboratory charge, \$2.50.

130. **WOODWORKING II FOR HIGH SCHOOLS.** Elective, both semesters and summer school. Laboratory, six hours. Two semester credits. Prerequisite: Woodworking I for High Schools (Shop 125). Mr. Aiman.

This is a continuation of Woodworking I for High Schools with advanced work in cabinet construction by the use of woodworking machinery, and such bench work as necessary. Special emphasis is placed upon quantity, as well as quality of the work, in order that a proper use may be made of time. Instruction is given in the use, care and selection of machines for a manual training shop. Laboratory charge, \$2.50.

135. **WOODTURNING.** Elective, second semester and summer school. Laboratory, six hours. Two semester credits. Prerequisite: Woodworking II for High Schools (Shop 130). Mr. Irwin.

This work is such as will give the student a thorough training in handling the lathe and turning tools. Laboratory charge, \$2.50.

140. **ADVANCED WOODWORK.** Elective, both semesters and summer school. Laboratory, six hours. Two semester credits. Prerequisite: Woodworking II for High Schools (Shop 130). Mr. Aiman.

This course is a continuation of Woodworking II for High Schools and gives an opportunity to specialize in wood finishing, cabinet work, or some other work of special interest to the student. Laboratory charge, \$2.50.

142. **AUTOMOBILES I.** Elective, first semester. Class work, two hours. Two semester credits. Prerequisite: High School Physics.

This course covers the general principles of construction and operation of the automobile. The nature of the work is such as to be valuable for those preparing to teach.

143. **AUTOMOBILES II.** Elective, second semester. Class work, one hour. Laboratory, six hours. Three semester credits. Prerequisite: Automobiles I (Shop 142).

This course is a continuation of Automobiles I with laboratory practice to supplement the class work. Laboratory charge, \$5.

145. **PATTERN MAKING.** Junior and senior years, both semesters. Laboratory, three hours. One semester credit. Prerequisite: Engineering Woodwork I (Shop 101). Mr. Aiman.

A series of exercises is given embodying the principles governing the construction of plain and split patterns, including core prints and core boxes, after which practical patterns of machine parts are made. Laboratory charge, \$2.

147. **FARM CARPENTRY I.** Elective, first semester and summer school. Lectures and recitations, one hour; laboratory, six hours. Three semester credits. Mr. Graham.

This course is designed for the training of teachers who must solve problems in connection with carpentry work on the farm. It consists of rafter cutting and erection, studding and siding work, making window and door frames, hanging doors, and similar operations on full-size construction work. A bill of material will be made before each exercise is started. Instruction is also given in saw filing, tool sharpening and the general care and upkeep of tools. Laboratory charge, \$2.50.

148. **FARM CARPENTRY II.** Elective, second semester and summer school. Laboratory, six hours. Two semester credits. Prerequisite: Farm Carpentry I (Shop 147). Mr. Graham.

This course is a continuation of Farm Carpentry I. It consists of work on projects that will be most useful to those who are preparing to teach in rural communities. Laboratory charge, \$2.50.

150. **FORGING I.** Freshman year, both semesters and summer school. Laboratory, three hours. One semester credit. Prerequisite: None. Mr. Lynch and assistants.

This course in the forging of iron and steel is designed to teach the principles and operations of drawing, bending, upsetting, welding, twisting, splitting, and punching, and the proper methods of making forgings and tools. Tools required: a two-foot rule and a pair of five-inch outside calipers, a center punch, and a ball pein hammer weighing with handle about two pounds. Laboratory charge, \$2.50.

157. **FARM BLACKSMITHING I.** Elective, first semester and summer school. Laboratory, three hours. One semester credit. Mr. Lynch and Mr. Graham.

The preliminary work of this course is the same as Forging I (Shop 150). The exercises are closely related to the work of the farm. The course is designed to train teachers for service in rural communities. Tools required: Same as Forging I. Text: Bacon's *Forge Shop Practice*. Laboratory charge, \$2.50.

158. FARM BLACKSMITHING II. Elective, second semester and summer school. Laboratory, three hours. One semester credit. Prerequisite: Farm Blacksmithing I (Shop 157). Mr. Lynch and Mr. Graham.

This course is a continuation of Farm Blacksmithing I. It covers more advanced instruction in the working of iron and steel, and in the annealing, hardening and tempering of tools useful to the farmer. Laboratory charge, \$2.50.

160. FOUNDRY PRACTICE. Sophomore year, both semesters and summer school. Laboratory, three hours. One semester credit. Prerequisite: None. Mr. Grant.

Practice is given in floor, bench, and machine molding, in core making, and in casting in iron, copper, brass, and special alloys. A study is also made of modern foundry construction, equipment, materials, and methods. Laboratory charge, \$1.

165. METALLURGY. Sophomore year, both semesters and summer school. Lectures and recitations, two hours. Two semester credits. Prerequisites: Chemistry E-I (Chem. 107), and Chemistry E-II; or may be taken with Chemistry E-II. Mr. Sellers.

This course deals with the manufacture and use of iron, steel, copper, and their alloys, as well as their proper selection and use in the manufacturing industries.

167. METALLOGRAPHY. Sophomore year, both semesters. Laboratory, three hours. One semester credit. Prerequisites: Forging I (Shop 150) and Metallurgy (Shop 165); may be taken simultaneously with Metallurgy. Mr. Carlson and Mr. Sellers.

A study is made of the microscopic constituents of the different grades of iron, steel, and the more common nonferrous alloys. The changes in the structure and properties of the metals as produced by heat treatment, mechanical working and composition are also studied. Laboratory charge, \$2.50.

170. MACHINE TOOL WORK I. Junior year, both semesters and summer school. Laboratory, six hours. Two semester credits. Prerequisite: Foundry Practice (Shop 160). Mr. Jones and Mr. ———.

Practice is given in chipping, filing, shaper and planer work, scraping, drilling and turning on the lathe. Tools required: A four-inch scale, one nine-inch combination square, one pair five-inch outside calipers, one pair five-inch inside calipers, one center drill, and one B. & S. center gauge. Text: Smith's *Advanced Machine Work*. Laboratory charge, \$5.

175. FARM SHOP METHODS. Elective, first semester and summer school. Lectures and recitations, one hour; laboratory, six hours. Three semester credits. Prerequisites: Farm Carpentry II (Shop 148), Farm Blacksmithing II (Shop 158) and Farm Equipment (Agr. Engr. 120, 121). Mr. Graham.

This course is designed to train teachers in farm shop work. It includes babbitting, soldering, drilling and drill grinding, thread cutting with dies and taps, tool sharpening, belt lacing, repair of machinery, and other practical operations. Laboratory charge, \$2.50.

184. SHOP PRACTICE TEACHING I. Elective, both semesters and summer school. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites for Practice Teaching in the Farm Shop: Farm Carpentry I and II (Shop 147 and 148); Farm Shop Methods (Shop 175); Farm Blacksmithing I (Shop 157) and Machine Drawing I (Mach. Design 111). Prerequisites for Practice Teaching in Manual Training: Woodworking II for High Schools (Shop 130) and Machine Drawing I (Mach. Design 111).

The class-room work includes lectures, recitations, discussions and written reports on shop organization, materials of construction, the selection and care of tools and shop equipment, and the preparation of job sheets and lesson plans. Actual shop practice involving the construction of projects in wood or

metal, and practice in the conduct of classes in shop work illustrates the principles discussed in the recitation.

185. **SHOP PRACTICE TEACHING II.** Elective, both semesters and summer school. Laboratory, six hour. Two semester credits. Prerequisite: Shop Practice Teaching I (Shop 184).

Opportunity is offered for those who wish to specialize in teaching any phase of the work offered by the Shop Practice Department. The work consists of special assignments so arranged as to secure a more general knowledge of the principles underlying the shop work taken and to provide actual teaching experience under proper supervision. The nature of the work is such that arrangements must be made with the head of the department before taking out the assignments.

192. **MACHINE TOOL WORK II.** Junior year, both semesters and summer school. Laboratory, six hours. Two semester credits. Prerequisite: Machine Tool Work I (Shop 170). Mr. Jones and Mr. ———.

Progressive problems are given in turning and calipering, in boring, in reaming and taper turning and in threading on the lathe with exercise in chucking, the use of forming tools, and gear cutting. A study is made of cutting edges and tool adjustments best suited to the different metals, and of cutting speeds and feeds. Tools and text required: same as for Machine Tool Work I. Laboratory charge, \$5.

193. **MACHINE TOOL WORK III.** Senior year, both semesters and summer school. Laboratory, three hours. One semester credit. Prerequisite: Machine Tool Work II (Shop 192). Mr. Jones and Mr. ———.

This course takes up work on the turret lathe, boring mill, screw machines, automatic screw machines, and grinder. Practical work is also given with the jigs and templets and a study is made of the rapid production of duplicate parts, of belts, lacings, and other methods of belt connection, and of compound and differential indexing. Laboratory charge, \$2.50.

195. **THESIS.** Senior year, continuing through both semesters. First semester: laboratory, three hours; one semester credit. Second semester: laboratory, six hours; two semester credits. Mr. Carlson and Mr. Sellers.

A thesis gives an opportunity for the student to work out problems of interest and value to himself under his own initiative, but subject to the supervision of the instructors. The shops have ample facilities for carrying on work of this character, of a constructive or investigative nature, and every possible aid is given those who select theses along this line.

FOR GRADUATES AND UNDERGRADUATES

245A. **FACTORY ENGINEERING.** Senior year, first and second semesters. Lectures and recitations, two hours. Two semester credits. Prerequisite: Strength of Materials (Ap. Mech. 211). Mr. Carlson.

This course deals with problems of the factory executive, such as the selection, installation, and arrangement of direct and indirect equipment, the standardization of machines and tools, stock and store methods, production orders, routing and dispatching, time study and rate setting, instruction and operation cards, wage systems, cost systems, and the various factors that have to do with the design and control of factories.

255. **FACTORY DESIGN.** Senior year, second semester. Drafting, six hours. Two semester credits. Prerequisite: Factory Engineering (Shop 245A). Mr. Carlson.

The knowledge gained in the shops and laboratories and in the course in factory engineering is used in the design of a complete factory.

260. **ADVANCED SHOP PRACTICE.** Elective, first semester. One semester credit for each three hours of laboratory. Mr. Carlson and assistants.

Opportunity is offered those having the necessary preliminary training to

specialize to a limited degree along certain lines of shop practice, such as the heat treatment of steel, oxyacetylene welding, jig and die work, woodworking, foundry practice, cutting speeds and feeds, shop management, and systems. Laboratory charge, varies with subject matter.

265. **SHOP-PRACTICE RESEARCH.** Elective, both semesters. One semester credit for each three hours of laboratory. Mr. Carlson and Mr. Sellers.

Those who wish to investigate some phase of shop-practice work in which they are greatly interested are given opportunity to do so. The wonderful improvements in the methods of present-day production amply justify investigative work along this line, and every possible aid will be accorded those wishing to take this work.

270, 275. **AUTOMOTIVE ENGINEERING.** Elective, second semester. Lectures and recitations, one hour; laboratory, three hours. Two semester credits. Prerequisites: Strength of Materials (Ap. Mech. 211, 220), Machine Design II (Mach. Design 204, 205). Mr. Carlson and Mr. ———.

This course deals with the construction and operation of the various parts of the automobile, and is especially adapted to the needs of those who expect to follow some phase of automobile work or to take up employment in automobile factories. Laboratory charge, \$2.50.

Engineering in the Summer School

In order to encourage the introduction of manual training and industrial drawing in the common schools and high schools of the state, and to improve the quality of work now being given, the College offers summer courses in mechanical drawing, manual training, and shop practice for high-school and grade teachers.

In addition various courses required in the several engineering curricula are offered in the Summer School. This enables teachers who wish to take an engineering curriculum to get a considerable start on the work during their summer vacations, and also enables College students who are irregular to make up their back courses.

For full information in regard to the courses offered, a special circular giving details concerning the Summer School may be had upon application to the vice president of the College.

Special Courses Related to Engineering

Special one- and two-year courses in trades related to engineering dealing with automobile repair, machine-shop work, foundry practice and blacksmithing are grouped with other special courses in another part of this catalogue, and are there described in detail. Reference should be made to the general index in the back of this book.

The Division of General Science

JULIUS TERRASS WILLARD, *Dean.*

In the class of college to which this institution belongs the classical studies of the older type of college are replaced by work in the sciences and in professional and vocational subjects. A sound basis for technical training includes thorough training in mathematics, physical science, and biological science. It is believed also that education should include some preparation for the discharge of one's duties to the state and to the community in which he lives. It should afford him that discipline and culture which alone can give him a grasp of the relations among persons and activities, peoples and events, with breadth of view and tolerance of attitude, and hence an influence over his associates and fellow citizens of every station of life.

It is the province of the departments grouped in this division of the College to give this basic, scientific, cultural and disciplinary training. Their work is not only foundational, but it penetrates through all of the characteristic vocational courses of the institution, as the structural steel of the modern skyscraper penetrates the entire building and forms a secure framework and support for the more readily visible and evidently important parts. The departments thus give unity to all of the four-year curricula, although presenting but few curricula that are distinctive of their own work. These, however, by means of electives and options, are susceptible of manifold modification and application.

CURRICULUM IN GENERAL SCIENCE

The curriculum in general science includes the fundamental training in English, mathematics, science, history, economics, military science, and physical training required in the several specialized vocational courses now offered by the College. Its required subjects constitute the central educational basis of the institution. By means of a number of groups of electives, it gives an opportunity to students to advance themselves still further in these fundamental lines and to give special attention to some, instead of taking the technical subjects characterizing other courses. This opportunity meets the needs of several types of young people, among whom are: (1) Those who have not yet fully decided as to their vocation, but who wish an education that is strong and well balanced in respect to modern science and cultural subjects, as a foundation for further education or as a preparation for sound citizenship, and intellectual, esthetic and ethical satisfaction in life. (2) Those who are looking forward to teaching in the high schools of the state. The electives offered allow one to give special attention to mathematics, physical science, biological science, agriculture, home economics, history, economics, English, journalism, music, professional educational subjects, and several other lines. (3) Those who are fitting themselves for research work in the sciences, especially as applied to agriculture, engineering, and other industries. (4) Those for whom a good general education is required or desirable before studying a profession such as law and medicine.

The elective groups offered in this curriculum are to a considerable extent made up of studies required in one or more of the specialized curricula. They provide also, advanced work not included in the other curricula. The scientific work in connection with the Agricultural and Engineering Experiment Stations, and several fields of state investigation and service, calls for the operation of unusually well-equipped departments in the sciences, and excellent facilities for practical training in this work are thus afforded.

While the curriculum in general science offers a wide choice of electives, these may not be selected aimlessly, or with the idea of choosing the easiest, or of obtaining credit for miscellaneous subjects taken elsewhere or in other

curricula. The studies of the freshman and sophomore years are basic and are required of all, without exception. They insure a broad and adequate foundation for subsequent work in the several lines of electives. The electives are to be chosen in groups, approved by the Faculty or by the dean of the Division of General Science, and in such a manner as to give logical coherence to the curriculum as a whole. The elective portion of the curriculum, as thus made up, consists for the most part of several groups of two or more full studies or their equivalent. It is possible to include some single subjects that may be advantageously taken without others. Special combinations in home economics and mechanic arts have been planned to meet the needs of prospective teachers of household arts and manual training. Students changing from other curricula to that in general science receive credit for work done in the other curricula in so far as it can be fitted into the general plan of this one.

The curriculum in general science is thus many in one. Such various combinations of groups are possible that it is not practicable to print all of them in extended form. There are, therefore, formally presented here the required subjects of the curriculum in their specified order by years and semesters, and on later pages a considerable number of groups of electives.

CURRICULUM IN INDUSTRIAL JOURNALISM

Knowledge is power only as it comes into the possession of those who can use it; it gives pleasure in direct proportion to the extent of its diffusion. A discovery is of little value as long as the discoverer is the only one who knows of its existence, and the printed page is by far the most effective means of extending knowledge concerning it. Magazines and newspapers never sleep, nor do they take vacations, and their power to elevate mankind is incalculable. But printed knowledge becomes effective only as it is read, and to be widely read in this day it must stand out from the great mass of other matter and gain the attention and hold the interest of the reader. To do this its points must be sharp and easily seen, and the style must be attractive. On the other hand, if the presentation is not essentially true, the more attractive it is the worse it is, and the greater the harm that follows wide reading of it.

The curriculum in industrial journalism endeavors to give young men and women training which will enable them to write both truthfully and effectively, particularly upon industrial subjects. To such subjects the modern newspaper and the general magazine are giving constantly more attention while there are also 500 agricultural publications and a greater number of class and trade publications which are largely or exclusively concerned with matters relating to industrial life. The training given by the College has enabled a goodly number of alumni to do successful work upon these publications.

The aim of the curriculum is to present such subjects as will enable the writer to see his work in proper perspective, to obtain authoritative knowledge of some field of industrial activity, and to write acceptably. The curriculum consequently offers, in the first place, fundamental studies of literary, social, and scientific character. Because of the materials with which journalism deals, it is highly desirable that the student obtain a clear knowledge of the social sciences and be able to read at least one current foreign language. In the second place, the student is required to elect subjects in agriculture, mechanic arts, applied science, or home economics, depending on the portion of the field of industrial journalism which he desires to enter, it being expected that every student graduated from the curriculum shall have special knowledge of some prominent line of industry. In the third place, the theory and practice of journalism are presented in a series of courses extending throughout the sophomore, junior, and senior years, and opportunity is offered for taking additional electives in journalism simultaneously with the required courses.

The College thus affords preparation for work in a wide and inviting field. Our unprecedented industrial achievements have been made by the application of discoveries in physical and biological science. Much of discovery and much of application are yet to come, and one who can write truthfully and attractively of that which is, and of that which comes, will find ample reward.

CURRICULUM IN INDUSTRIAL CHEMISTRY

The facilities for instruction in chemistry are ample, and the demand of students for a curriculum planned especially to give chemical training is such that a formulation has been made to meet the needs of those desiring to specialize in industrial chemistry. A curriculum in chemical engineering is also offered in the Division of Engineering. The instructional facilities of the Department of Chemistry, reinforced by opportunities for practical work in connection with the researches of the experiment stations, are such as to provide amply for this specialized training.

CURRICULA IN MUSIC

A knowledge of music contributes to the satisfaction in life of practically all cultivated people. This College throughout its history has maintained a department of music for the purpose of affording culture in this art to any of its students. In recent years the excellence of the instruction offered has created a demand for curricula in music.

Students who complete one of the four-year curricula in voice or an instrument, or in public-school music, are awarded the degree of Bachelor of Music.

A student completing the first two years of the curriculum in public-school music is awarded a certificate, and becomes eligible to receive from the State Board of Education a three-year state certificate as teacher or supervisor of public-school music. This certificate is renewable for three-year periods.

CURRICULA IN PHYSICAL EDUCATION

Within recent years a great awakening has taken place in respect to physical development. The prevalence of bodily conditions and defects that systematic and intelligently directed exercise would have corrected has been found to be serious. Since this situation has been recognized there has been in schools of all grades a great increase in the provision for physical education and training. The curricula offered at this institution are designed to prepare teachers of physical education who are fundamentally trained. This is a much broader field than mere coaching of athletics. At the same time it is fully recognized that the impulse to play is instinctive, and that wisely chosen games, conducted under adequate supervision, constitute attractive and effective agencies for physical development. The theoretical and practical instruction given in these curricula amply prepares students for coaching athletic games. The curricula are also so planned as to enable the student to get the work in professional education necessary for a state certificate, and to elect work in English, mathematics, history or some other subjects which one may teach in connection with physical education in the smaller schools. In 1926-'27 only the freshman and sophomore years of the curricula are offered, though it is possible to obtain some of the subjects of the junior and senior years.

CURRICULUM IN RURAL COMMERCE

The commercial prosperity of Kansas depends primarily upon the business success of its farming population. The success of the farmer is determined to a large extent by his relations with those who handle his products or furnish him with goods and services. The towns of the state and the strictly rural districts about them constitute an economic unit, the members of which are mutually dependent. A knowledge of the economic, financial, social, and business principles affecting the country and the towns in themselves and in their interrelations is of the greatest importance. The curriculum in rural commerce is designed primarily to train men and women for citizenship and business service in these communities.

The completion of this curriculum should not only enable one to conduct his own business more successfully, but give him an insight into the problems of others in their occupations. A general diffusion of such knowledge promotes tolerance, consideration for the general public with which each deals, and social unity.

Choice of electives is rather free in this curriculum, and any agricultural, industrial, commercial or social subjects of study will be approved if they are chosen in such relationships as to give promise of usefulness.

Curriculum in General Science

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER	SECOND SEMESTER
College Rhetoric I Engl. 101 3(3-0)	College Rhetoric II Engl. 104 3(3-0)
Chemistry I Chem. 101 5(3-6)	Chemistry II Chem. 102 5(3-6)
Plane Trigonometry* Math. 101 3(3-0)	College Algebra* Math. 104 3(3-0)
General Botany I Bot. 101 3(1-4, 2)	General Botany II Bot. 105 3(1-4, 2)
Current History Hist. 126 1(1-0)	Current History Hist. 126 1(1-0)
Library Methods Lib. Ec. 101 1(1-0)	Elective† 2(-)
Infantry I (Men) Mil. Tr. 101 1½(0-4)	Infantry II (Men) Mil. Tr. 102 1½(0-4)
Physical Education M-I (Men) Phys. Ed. 103 R(0-2) or	Physical Education M-II (Men) Phys. Ed. 104 R(0-2) or
Physical Education W-I (Women) Phys. Ed. 151A 1(0-3)	Physical Education W-II (Women) Phys. Ed. 152A 1(0-3)

SOPHOMORE

FIRST SEMESTER	SECOND SEMESTER
English Literature Engl. 172 3(3-0)	American Literature Engl. 175 3(3-0)
English History Hist. 121 3(3-0)	Modern Europe Hist. 223 3(3-0)
General Physics I Physics 135 4(3-3)	General Physics II Physics 140 4(3-3)
General Zoölogy Zoöl. 105 5(3-6)	Elective† 6(-)
Elective 2(-)	Infantry IV (Men) Mil. Tr. 104 1½(0-4)
Infantry III (Men) Mil. Tr. 103 1½(0-4)	Physical Education M-IV (Men) Mil. Tr. 106 R(0-2) or
Physical Education M-III (Men) Phys. Ed. 105 R(0-2) or	Physical Education W-IV (Women) Phys. Ed. 154 1(0-3)
Physical Education W-III (Women) Phys. Ed. 153 1(0-3)	

JUNIOR

FIRST SEMESTER	SECOND SEMESTER
History of English Literature Engl. 181 3(3-0)	American History I Hist. 201 3(3-0)
American Government Hist. 151, 152 or 153 3(3-0)	Economics Econ. 101 3(3-0)
Psychology C Educ. 103 3(3-0)	General Microbiology Bact. 101 3(1-6)
Extempore Speech I Pub. Spk. 106 2(2-0)	Elective† 7(-)
Elective† 5(-)	

SENIOR

FIRST SEMESTER	SECOND SEMESTER
Elective† 16(-)	Elective† 16(-)

* Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, the first semester, postponing trigonometry, current history, and library methods until the second semester. The additional credits are applied against electives.

† Electives are to be chosen, with the advice and approval of the dean, in groups of not less than eight semester credits, or in courses which extend fields already entered in the required work.

Curriculum in Industrial Journalism

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER	SECOND SEMESTER
College Rhetoric I Engl. 101 3(3-0)	College Rhetoric II Engl. 104 3(3-0)
Chemistry I Chem. 101 5(3-6)	Chemistry II Chem. 102 5(3-6)
Principles of Typography I Ind. Jour. 101 3(2-3)	Principles of Typography II Ind. Jour. 104 3(2-3)
Current History Hist. 126 1(1-0)	Current History Hist. 126 1(1-0)
Option related to an industry or to applied science*..... 4(-)	Option related to an industry or to applied science*..... 4(-)
Industrial Journalism Lecture.... R	Industrial Journalism Lecture.... R
Infantry I (Men) Mil. Tr. 101 1½(0-4)	Infantry II (Men) Mil. Tr. 102 1½(0-4)
Physical Education M-I (Men) Phys. Ed. 103 R(0-2) or	Physical Education M-II (Men) Phys. Ed. 104 R(0-2) or
Physical Education W-I (Women) Phys. Ed. 151A 1(0-3)	Physical Education W-II (Women) Phys. Ed. 152A 1(0-3)

SOPHOMORE

FIRST SEMESTER	SECOND SEMESTER
English Literature Engl. 172 3(3-0)	American Literature Engl. 175 3(3-0)
General Zoölogy Zoöl. 105 5(3-6) or	General Botany II Bot. 105 3(1-4, 2) or
General Botany I Bot. 101 3(1-4, 2)	General Microbiology Bact. 101 3(1-6) if General Botany I is chosen the first semester.
Elementary Journalism Ind.-Jour. 151 2(2-0)	Industrial Writing Ind. Jour. 161 2(2-0)
Journalism Practice I Ind. Jour. 154 2(0-6) *	Journalism Practice II Ind. Jour. 155 2(0-6)
French I Mod. Lang. 151 3(3-0) or	French II Mod. Lang. 152 3(3-0) or
Spanish I Mod. Lang. 176 3(3-0)	Spanish II Mod. Lang. 177 3(3-0)
Option related to an industry or to applied science*..... 2 or 4(-)	Option related to an industry or to applied science*..... 7 or 4(-)
Industrial Journalism Lectures... R	Industrial Journalism Lectures... R
Infantry III (Men) Mil. Tr. 103 1½(0-4)	Infantry IV (Men) Mil. Tr. 104 1½(0-4)
Physical Education M-III (Men) Phys. Ed. 105 R(0-2) or	Physical Education M-IV (Men) Phys. Ed. 106 R(0-2) or
Physical Training W-III (Women) Phys. Ed. 153 1(0-3)	Physical Training W-IV (Women) Phys. Ed. 164 1(0-3)

* The options and electives are chosen with the advice and approval of the dean. The options are in two general groups, of eighteen semester credits each: (1) social science, and (2) courses related to an industry or applied science. In the tabulated presentation of electives for students in the Division of General Science, groups may be found that will be accepted as the required option and electives. Group 31 (applied science), group 32 (home economics), group 35 (agriculture), group 36 (architecture), or group 37 (manual training), may be chosen in satisfaction of the eighteen hours required related to an industry or applied science. From group 30, eighteen hours are to be chosen in satisfaction of the social science option. The options taken in the freshman year, and a large part of those in the sophomore year, must be those related to an industry or applied science.

The electives are to be chosen in groups of usually not fewer than eight semester credits, unless they are courses which extend fields already entered through the required subjects or the options.

JUNIOR

FIRST SEMESTER	SECOND SEMESTER
Industrial Feature Writing I Ind. Jour. 167..... 2(2-0)	Industrial Feature Writing II Ind. Jour. 171..... 2(2-0)
Journalism Practice III Ind. Jour. 158..... 2(0-6)	Journalism Practice IV Ind. Jour. 159..... 2(0-6)
Extempore Speech I Pub. Spk. 106..... 2(2-0)	Principles of Advertising Ind. Jour. 179..... 3(3-0)
	History of English Literature Engl. 181..... 3(3-0)
Options and Electives*..... 10(-)	Options and Electives*..... 6(-)
Industrial Journalism Lectures... R	Industrial Journalism Lectures... R

SENIOR

FIRST SEMESTER	SECOND SEMESTER
Circulation and Advertising Promotion Ind. Jour. 251 3(3-0)	Editorial Practice Ind. Jour. 257..... 2(2-0)
Copy Reading Ind. Jour. 254..... 2(0-6)	Ethics of Journalism Ind. Jour. 260..... 2(2-0)
Contemporary Thought Ind. Jour. 255..... 3(3-0)	
Electives and Options* 8(-)	Electives and Options*..... 11(-)
Industrial Journalism Lectures... R	Industrial Journalism Lectures... R

Curriculum in Industrial Chemistry

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER	SECOND SEMESTER
College Rhetoric I Engl. 101..... 3(3-0)	College Rhetoric II Engl. 104..... 3(3-0)
Chemistry I Chem. 101..... 5(3-6)	Chemistry II Chem. 102..... 5(3-6)
Plane Trigonometry† Math. 101..... 3(3-0)	College Algebra† Math. 104..... 3(3-0)
Engineering Drawing Mach. Design 101..... 2(0-6)	Descriptive Geometry Math. Design 106..... 2(0-6)
Commercial Law Hist. 160..... 1(1-0)	Machine Drawing I Mach. Design 111..... 2(0-6)
Engineering Woodwork I Shop 101..... 1(0-3)	Library Methods Lib. Ec. 101..... 1(1-0)
Forging I Shop 150..... 1(0-3)	
Infantry I (Men) Mil. Tr. 101..... 1½(0-4)	Infantry II (Men) Mil. Tr. 102..... 1½(0-4)
Physical Education M-I (Men) Phys. Ed. 103..... R(0-2)or	Physical Education M-II (Men) Phys. Ed. 104..... R(0-2)or
Physical Education W-I (Women) Phys. Ed. 151A..... 1(0-3)	Physical Education W-II (Women) Phys. Ed. 152A..... 1(0-3)

* See footnote on previous page.

† Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, the first semester, postponing trigonometry, current history, and library methods until the second semester. The additional credits are applied against electives.

SOPHOMORE

FIRST SEMESTER

Organic Chemistry I	
Chem. 218	4(2-6)
Plane Analytical Geometry	
Math. 110	4(4-0)
Engineering Physics I	
Physics 145	5(4-3)
Adv. Inorg. Chemistry	
Chem. 207	3(3-0)
Infantry III (Men)	
Mil. Tr. 103	1½(0-4)
Physical Education M-III (Men)	
Phys. Ed. 105	R(0-2)or
Physical Education W-III (Women)	
Phys. Ed. 153	1(0-3)

SECOND SEMESTER

Organic Chemistry II	
Chem. 219	4(2-6)
Calculus	
Math. 119	3(3-0)
Engineering Physics II	
Physics 150	5(4-3)
Quantitative Analysis	
Chem. 241	5(1-12)
Infantry IV (Men)	
Mil. Tr. 104	1½(0-4)
Physical Education M-IV (Men)	
Phys. Ed. 106	R(0-2)or
Physical Education W-IV (Women)	
Phys. Ed. 154	1(0-3)

JUNIOR

FIRST SEMESTER

German I	
Mod. Lang. 101	3(3-0)
Inorganic Preparations	
Chem. 202	2(0-6)
Physical Chemistry	
Chem. 206	5(3-6)
Fire Assaying	
Chem. 242	2(0-6)
Gas Analysis	
Chem. 243	1(0-3)
Electives †	3(-)

SECOND SEMESTER

German II	
Mod. Lang. 102	3(3-0)
History of Chemistry	
Chem. 208	1(1-0)
Industrial Electrochemistry	
Chem. 205	2(2-0)
Electrical Engineering C	
Elect. Engr. 160, 165	3(2-2, 1)
Electives†	7(-)

SENIOR

FIRST SEMESTER

American Government	
Hist. 151, 152 or 153	3(3-0)
Industrial Chemistry I	
Chem. 203	5(3-6)
Scientific German I	
Mod. Lang. 237	4(4-0)
Electives †	4(-)
Thesis	R

SECOND SEMESTER

Economics	
Econ. 101	3(3-0)
Industrial Chemistry II	
Chem. 204	5(3-6)
Electives †	8(-)
Thesis	R

† Electives are to be chosen, with the advice and approval of the dean, in groups of not less than eight semester credits, or in courses which extend fields already entered in the required work.

Curriculum in Public-school Music

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER

Voice A-I	
Mus. 161A	2(1-6)
Piano B-I	
Mus. 174A	1(½-6)
Public School Music I	
Mus. 120	2(2-0)
Harmony I	
Mus. 101	2(2-0)
Ear Training and Sight Singing I	
Mus. 105	2(2-0)
Psychology B	
Educ. 102	3(3-0)
Choral Society I	
Mus. 190A	1(1-0)
College Rhetoric I	
Engl. 101	3(3-0)
Infantry I (Men)	
Mil. Tr. 101	1½(0-4)
Physical Education M-I (Men)	
Phys. Ed. 103	R(0-2)or
Physical Education W-I (Women)	
Phys. Ed. 151A	1(0-3)

SECOND SEMESTER

Voice A-II	
Mus. 161B	2(1-6)
Piano B-II	
Mus. 174B	1(½-6)
Public School Music II	
Mus. 121	2(2-0)
Harmony II	
Mus. 102	2(2-0)
Ear Training and Sight Singing II	
Mus. 106	2(2-0)
Methods of Teaching A	
Educ. 111	3(3-0)
Choral Society II	
Mus. 190B	1(1-0)
College Rhetoric II	
Engl. 104	3(3-0)
Infantry II (Men)	
Mil. Tr. 102	1½(0-4)
Physical Education M-II (Men)	
Phys. Ed. 104	R(0-2)or
Physical Education W-II (Women)	
Phys. Ed. 152A	1(0-3)

SOPHOMORE

FIRST SEMESTER

Voice A-III	
Mus. 161C	2(1-6)
Piano B-III	
Mus. 174C	1(½-6)
Public School Music III	
Mus. 122	2(2-0)
Harmony III	
Mus. 103	2(2-0)
Ear Training and Sight Singing III	
Mus. 107	2(2-0)
Choral Society III	
Mus. 190C	1(1-0)
History and Appreciation of Music I	
Mus. 112	3(3-0)
Educational Administration A	
Educ. 105	3(3-0)
Infantry III (Men)	
Mil. Tr. 103	1½(0-4)
Physical Education M-III (Men)	
Phys. Ed. 105	R(0-2)or
Physical Education W-III (Women)	
Phys. Ed. 153	1(0-3)

SECOND SEMESTER

Voice A-IV	
Mus. 161D	2(1-6)
Piano B-IV	
Mus. 174D	1(½-6)
Public School Music IV	
Mus. 123	2(2-0)
Harmony IV	
Mus. 104	2(2-0)
Ear Training and Sight Singing IV	
Mus. 108	2(2-0)
Choral Society IV	
Mus. 190D	1(1-0)
History and Appreciation of Music II	
Mus. 113	3(3-0)
English Literature	
Engl. 172	3(3-0)
Conducting I	
Mus. 117	1(1-0)
Infantry IV (Men)	
Mil. Tr. 104	1½(0-4)
Physical Education M-IV (Men)	
Phys. Ed. 106	R(0-2)or
Physical Education W-IV (Women)	
Phys. Ed. 154	1(0-3)

JUNIOR

FIRST SEMESTER

Public School Music V	
Mus. 124	2(2-0)
Counterpoint	
Mus. 108A	2(2-0)
Instrumentation	
Mus. 130	2(2-0)
Chorus, Orchestra or Band.....	1(1-0)
Educational Psychology	
Educ. 109	3(3-0)
Methods of Teaching Music	
Mus. 145	1(1-0)
Elective in Voice or Instrument	
Mus.	2(1-6)
Electives	3(-)

SECOND SEMESTER

Public School Music VI	
Mus. 125	2(2-0)
Harmonics	
Physics 222	2(2-0)
Orchestration	
Mus. 133	2(2-0)
Chorus, Orchestra, or Band.....	1(1-0)
Practice Teaching of Music	
Mus. 188	2(2-0)
Elective in Education.....	3(3-0)
Elective in Voice or Instrument	
Mus.	2(1-6)
Electives	3(-)

SENIOR

FIRST SEMESTER

Public School Music VII	
Mus. 126	2(2-0)
Musical Form and Analysis	
Mus. 109	2(2-0)
Pageant Production	
Pub. Spk. 145	3(3-0)
Chorus, Orchestra, or Band.....	1(1-0)
Elective in Voice or Instrument, 2(2-0)	
Elective in Education.....	3(3-0)
Electives	4(-)

SECOND SEMESTER

Public School Music VIII	
Mus. 127	2(2-0)
Extempore Speech I	
Pub. Spk. 106	2(2-0)
Oral English	
Eng. 128	3(3-0)
Chorus, Orchestra, or Band.....	1(1-0)
Elective in Voice or Instrument, 2(2-0)	
Electives	6(-)

Curriculum in Voice

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER

Voice I	
Mus. 160A	4(1-12)
History and Appreciation of Music I	
Mus. 112	3(3-0)
Current History	
Hist. 126	1(1-0)
Harmony I	
Mus. 101	2(2-0)
Ear Training and Sight Singing I	
Mus. 105	2(2-0)
Ensemble I	
Mus. 190A, 193A, or 196A, 1(1-0)	
College Rhetoric I	
Engl. 101	3(3-0)
Infantry I (Men)	
Mil. Tr. 101	1½(0-4)
Physical Education M-I (Men)	
Phys. Ed. 103	R(0-2)or
Physical Education W-I (Women)	
Phys. Ed. 151A	1(0-3)

SECOND SEMESTER

Voice II	
Mus. 160B	4(1-12)
History and Appreciation of Music II	
Mus. 113	3(3-0)
Current History	
Hist. 126	1(1-0)
Library Methods	
Lib. Ec. 101.....	1(1-0)
Harmony II	
Mus. 102	2(2-0)
Ear Training and Sight Singing II	
Mus. 106	2(2-0)
Ensemble II	
Mus. 190B, 193B, or 196B, 1(1-0)	
College Rhetoric II	
Engl. 104	3(3-0)
Infantry II (Men)	
Mil. Tr. 102	1½(0-4)
Physical Education M-II (Men)	
Phys. Ed. 104.....	R(0-2)or
Physical Education W-II (Women)	
Phys. Ed. 152A.....	1(0-3)

SOPHOMORE

FIRST SEMESTER

Voice III	
Mus. 160C	4(1-12)
Piano A-I	
Mus. 172A	2(1-6)
Harmony III	
Mus. 103	2(2-0)
Ensemble III	
Mus. 190C, 193C, or 196C,	1(1-0)
Recital I	
Mus. 184A	R(-)
English Literature	
Engl. 172	3(3-0)
Psychology B	
Educ. 102	3(3-0)
Infantry III (Men)	
Mil. Tr. 103	1½(0-4)
Physical Education M-III (Men)	
Phys. Ed. 105	R(0-2)or
Physical Education W-III (Women)	
Phys. Ed. 153	1(0-3)

SECOND SEMESTER

Voice IV	
Mus. 160D	4(1-12)
Piano A-II	
Mus. 172B	2(1-6)
Harmony IV	
Mus. 104	2(2-0)
Ensemble IV	
Mus. 190D, 193D, or 196D,	1(1-0)
Recital II	
Mus. 184B	R(-)
Harmonics	
Physics 222	2(2-0)
Educational Psychology	
Educ. 109	3(3-0)
Infantry IV (Men)	
Mil. Tr. 104	1½(0-4)
Physical Education M-IV (Men)	
Phys. Ed. 106	R(0-2)or
Physical Education W-IV (Women)	
Phys. Ed. 154	1(0-3)
Elective	2(-)

JUNIOR

FIRST SEMESTER

Voice V	
Mus. 160E	4(1-12)
Methods of Teaching Music	
Mus. 145	1(1-0)
Counterpoint	
Mus. 108A	2(2-0)
Ensemble V	
Mus. 190E, 193E, or 196E,	1(1-0)
Recital III	
Mus. 184C	R(-)
Piano A-III	
Mus. 172C	2(1-6)
German I	
Mod. Lang. 101	3(3-0)
Conducting I	
Mus. 117	1(1-0)
Elective	3(3-0)

SECOND SEMESTER

Voice VI	
Mus. 160F	4(1-12)
Practice Teaching of Music	
Mus. 188	2(2-0)
Musical Form and Analysis	
Mus. 109	2(2-0)
Ensemble VI	
Mus. 190F, 193F, or 196F,	1(1-0)
Recital IV	
Mus. 184D	2(2-0)
Piano A-IV	
Mus. 172D	2(1-6)
German II	
Mod. Lang. 102	3(3-0)

SENIOR

FIRST SEMESTER

Voice VII	
Mus. 160G	4(1-12)
Instrumentation	
Mus. 130	2(2-0)
Ensemble VII	
Mus. 190G, 193G, or 196G,	1(1-0)
Recital V	
Mus. 184E	R(-)
American Literature	
Engl. 175	3(3-0)
French I	
Mod. Lang. 151	3(3-0)
Repertoire I	
Mus. 186A	2(2-0)
Elective	2(-)

SECOND SEMESTER

Voice VIII	
Mus. 160H	4(1-12)
Orchestration	
Mus. 133	2(2-0)
Ensemble VIII	
Mus. 190H, 193H, or 196H,	1(1-0)
Recital VI	
Mus. 184F	2(2-0)
French II	
Mod. Lang. 152	3(3-0)
Repertoire II	
Mus. 186B	2(2-0)
Elective	2(-)

Curriculum in Piano

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER

Piano I	
Mus. 170A.....	4(1-18)
Harmony I	
Mus. 101.....	2(2-0)
Ear Training and Sight Singing I	
Mus. 105.....	2(2-0)
Ensemble I	
Mus. 190A, 193A, or 196A..	1(1-0)
College Rhetoric I	
Engl. 101.....	3(3-0)
History and Appreciation of Music I	
Mus. 112.....	3(3-0)
Current History	
Hist. 126.....	1(1-0)
Piano Ensemble I	
Mus. 176A.....	R(1-0)
Infantry I (Men)	
Mil. Tr. 101.....	1½(0-4)
Physical Education M-I (Men)	
Phys. Ed. 103.....	R(0-2)or
Physical Education W-I (Women)	
Phys. Ed. 151A.....	1(0-3)

SECOND SEMESTER

Piano II	
Mus. 170B.....	4(1-18)
Harmony II	
Mus. 102.....	2(2-0)
Ear Training and Sight Singing II	
Mus. 106.....	2(2-0)
Ensemble II	
Mus. 190B, 192B, or 196B..	1(1-0)
College Rhetoric II	
Engl. 104.....	3(3-0)
History and Appreciation of Music II	
Mus. 113.....	3(3-0)
Current History	
Hist. 126.....	1(1-0)
Library Methods	
Lib. Ec. 101.....	1(1-0)
Piano Ensemble II	
Mus. 176B.....	R(1-0)
Infantry II (Men)	
Mil. Tr. 102.....	1½(0-4)
Physical Education M-II (Men)	
Phys. Ed. 104.....	R(0-2)or
Physical Education W-II	
Phys. Ed. 152A.....	1(0-3)

SOPHOMORE

FIRST SEMESTER

Piano III	
Mus. 170C.....	4(1-18)
Voice A-I	
Mus. 161A.....	2(1-6)
Harmony III	
Mus. 103.....	2(2-0)
Ensemble III	
Mus. 190C, 193C, or 196C..	1(1-0)
Recital I	
Mus. 184A.....	R(-)
English Literature	
Engl. 172.....	3(3-0)
Psychology B	
Educ. 102.....	3(3-0)
Piano Ensemble III	
Mus. 176C.....	R(1-0)
Infantry III (Men)	
Mil. Tr. 103.....	1½(0-4)
Physical Education M-III (Men)	
Phys. Ed. 106.....	R(0-2)or
Physical Education W-III (Women)	
Phys. Ed. 153.....	1(0-3)

SECOND SEMESTER

Piano IV	
Mus. 170D.....	4(1-18)
Voice A-II	
Mus. 161B.....	2(1-6)
Harmony IV	
Mus. 104.....	2(2-0)
Ensemble IV	
Mus. 190D, 193D, or 196D,	1(1-0)
Recital II	
Mus. 184B.....	R(-)
Harmonics	
Physics 222.....	2(2-0)
Educational Psychology	
Educ. 109.....	3(3-0)
Piano Ensemble IV	
Mus. 176D.....	R(1-0)
Infantry IV (Men)	
Mil. Tr. 104.....	1½(0-4)
Physical Education M-IV (Men)	
Phys. Ed. 105.....	R(0-2)or
Physical Education W-IV (Women)	
Phys. Ed. 154.....	1(0-3)
Electives	2(-)

JUNIOR

FIRST SEMESTER

Piano V	
Mus. 170E	4(1-18)
Counterpoint	
Mus. 108A	2(2-0)
Ensemble V	
Mus. 190E, 193E, or 196E..	1(1-0)
Recital III	
Mus. 184C	R(-)
German I	
Mod. Lang. 101	3(3-0)
Normal Piano Methods	
Mus. 140	2(2-0)
Piano Ensemble V	
Mus. 176E	R(1-0)
Conducting I	
Mus. 117	1(1-0)
Electives	4(-)

SECOND SEMESTER

Piano VI	
Mus. 170F	4(1-18)
Musical Form and Analysis	
Mus. 109	2(2-0)
Ensemble VI	
Mus. 190F, 193F, or 196F..	1(1-0)
Recital IV	
Mus. 184D	2(2-0)
German II	
Mod. Lang. 102	3(3-0)
Practice Teaching of Music	
Mus. 188	2(2-0)
Piano Ensemble VI	
Mus. 176F	R(1-0)
Elective	2(-)

SENIOR

FIRST SEMESTER

Piano VII	
Mus. 170G	4(1-18)
Instrumentation	
Mus. 130	2(2-0)
Ensemble VII	
Mus. 190G, 193G, or 196G,	1(1-0)
Recital V	
Mus. 184E	R(-)
American Literature	
Engl. 175	3(3-0)
French I	
Mod. Lang. 151	3(3-0)
Piano Ensemble VII	
Mus. 176G	R(1-0)
Elective	4(-)

SECOND SEMESTER

Piano VIII	
Mus. 170H	4(1-18)
Orchestration	
Mus. 133	2(2-0)
Ensemble VIII	
Mus. 190H, 193H, or 196H,	1(1-0)
Recital VI	
Mus. 184F	2(2-0)
French II	
Mod. Lang. 152	3(3-0)
Piano Ensemble VIII	
Mus. 176H	R(1-0)
Elective	4(-)

Curriculum in Violin

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER

Violin I	
Mus. 165A	4(1-12)
Harmony I	
Mus. 101	2(2-0)
History and Appreciation of Music I	
Mus. 112	3(3-0)
Current History	
Hist. 126	1(1-0)
Ear Training and Sight Singing I	
Mus. 105	2(2-0)
Ensemble I	
Mus. 190A, 193A, or 196A,	1(1-0)
College Rhetoric I	
Engl. 101	3(3-0)
Infantry I (Men)	
Mil. Tr. 101	1½(0-4)
Physical Education M-I (Men)	
Phys. Ed. 103	R(0-2)or
Physical Education W-I (Women)	
Phys. Ed. 151A	1(0-3)

SECOND SEMESTER

Violin II	
Mus. 165B	4(1-12)
Harmony II	
Mus. 102	2(2-0)
History and Appreciation of Music II	
Mus. 113	3(3-0)
Current History	
Hist. 126	1(1-0)
Library Methods	
Lib. Ec. 101	1(1-0)
Ear Training and Sight Singing II	
Mus. 106	2(2-0)
Ensemble II	
Mus. 190B, 193B, or 196B,	1(1-0)
College Rhetoric II	
Engl. 104	3(3-0)
Infantry II (Men)	
Mil. Tr. 102.....	1½(0-4)
Physical Education M-II (Men)	
Phys. Ed. 104.....	R(0-2)or
Physical Education W-II (Women)	
Phys. Ed. 152A	1(0-3)

SOPHOMORE

FIRST SEMESTER

Violin III	
Mus. 165C	4(1-12)
Piano A-I	
Mus. 172A	2(1-6)
Harmony III	
Mus. 103	2(2-0)
Ensemble III	
Mus. 190C, 193C, or 196C, 1(1-0)	
Recital I	
Mus. 184A	R(-)
English Literature	
Engl. 172	3(3-0)
Psychology B	
Educ. 102	3(3-0)
Infantry III (Men)	
Mil. Tr. 103	1½(0-4)
Physical Education M-III (Men)	
Phys. Ed. 105.....	R(0-2)or
Physical Education W-III (Women)	
Phys. Ed. 153	1(0-3)

SECOND SEMESTER

Violin IV	
Mus. 165D	4(1-12)
Piano A-II	
Mus. 172B	2(1-6)
Harmony IV	
Mus. 104	2(2-0)
Ensemble IV	
Mus. 190D, 193D, or 196D, 1(1-0)	
Recital II	
Mus. 184B	R(-)
Harmonics	
Physics 222	2(2-0)
Educational Psychology	
Educ. 109	3(3-0)
Infantry IV (Men)	
Mil. Tr. 104.....	1½(0-4)
Physical Education M-IV (Men)	
Phys. Ed. 106	R(0-2)or
Physical Education W-IV (Women)	
Phys. Ed. 154	1(0-3)
Elective	2(-)

JUNIOR

FIRST SEMESTER

Violin V	
Mus. 165E	6(1-24)
Counterpoint	
Mus. 108A	2(2-0)
Ensemble V	
Mus. 190E, 193E, or 196E, 1(1-0)	
Recital III	
Mus. 184C	R(-)
Piano A-III	
Mus. 172C	2(1-6)
German I	
Mod. Lang. 101	3(3-0)
Methods of Teaching Music	
Mus. 145	1(1-0)
Conducting I	
Mus. 117	1(1-0)

SECOND SEMESTER

Violin VI	
Mus. 165F	6(1-24)
Musical Form and Analysis	
Mus. 109	2(2-0)
Ensemble VI	
Mus. 190F, 193F, or 196F, 1(1-0)	
Recital IV	
Mus. 184D	2(2-0)
Piano A-IV	
Mus. 172D	2(1-6)
German II	
Mod. Lang. 102	3(3-0)
Practice Teaching of Music	
Mus. 188	2(2-0)

SENIOR

FIRST SEMESTER

Violin VII	
Mus. 165G	6(1-24)
Instrumentation	
Mus. 130	2(2-0)
Ensemble VII	
Mus. 190G, 193G, or 196G, 1(1-0)	
Recital V	
Mus. 184E	R(-)
French I	
Mod. Lang. 151.....	3(3-0)
American Literature	
Engl. 175	3(3-0)
Elective	2(-)

SECOND SEMESTER

Violin VIII	
Mus. 165H	6(1-24)
Orchestration	
Mus. 133	2(2-0)
Ensemble VIII	
Mus. 190H, 193H, or 196H, 1(1-0)	
Recital VI	
Mus. 184F	2(2-0)
French II	
Mod. Lang. 152	3(3-0)
Elective	2(-)

Curriculum in Physical Education for Men

(Only the freshman and sophomore years of this curriculum are offered in 1926-'27.)

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER	SECOND SEMESTER
Track and Field Sports I (first half of semester) Phys. Ed. 140 1(2-0)	Track and Field Sports II Phys. Ed. 141 1(0-3)
Marching Tactics and Calisthenics (second half of semester) Phys. Ed. 115 1(0-6)	Calisthenics Phys. Ed. 117 2(1-3)
Football I Phys. Ed. 126A 2(1-3)	Swimming M-I Phys. Ed. 121 1(0-3)
Basketball Phys. Ed. 130A 2(1-3)	General Zoölogy Zoöl. 105 3(3-6)
College Rhetoric I Engl. 101 3(3-0)	College Rhetoric II Engl. 104 3(3-0)
Chemistry I Chem. 101 5(3-6)	Chemistry II Chem. 102 5(3-6)
Extempore Speech I Pub. Spk. 106 2(2-0)	
Infantry I Mil. Tr. 101 1½(0-4)	Infantry II Mil. Tr. 102 1½(0-4)
Physical Education M-I Phys. Ed. 103 R(0-2)	Physical Education M-II Phys. Ed. 104 R(0-2)

SOPHOMORE

FIRST SEMESTER	SECOND SEMESTER
Football II Phys. Ed. 127 2(1-3)	Swimming M-II Phys. Ed. 122 1(0-3)
Boxing Phys. Ed. 132 1(0-3)	Playground Management M Phys. Ed. 145 1(1-0)
Wrestling Phys. Ed. 128 1(0-3)	Baseball Phys. Ed. 135A 2(1-3)
Organic Chemistry HE Chem. 121 5(3-6)	Current History Hist. 126 1(1-0)
Human Anatomy Zoöl. 123 5(5-0)	Embryology and Physiology Zoöl. 201 5(3-6)
First Aid and Massage I Phys. Ed. 113 2(2-0)	General Microbiology Bact. 101 3(1-6)
	History and Principles of Physical Education Phys. Ed. 192 3(3-0)
Infantry III Mil. Tr. 103 1½(0-4)	Infantry IV Mil. Tr. 104 1½(0-4)
Physical Education M-III Phys. Ed. 105 R(0-2)	Physical Education M-IV Phys. Ed. 106 R(0-2)

JUNIOR

FIRST SEMESTER	SECOND SEMESTER
Mass Athletics and Group Games Phys. Ed. 143..... 1(1-0)	Psychology of Childhood and Adolescence Educ. 208..... 3(3-0)
Kinesiology Phys. Ed 194..... 3(3-0)	Hygiene Phys. Ed. 119..... 2(2-0)
Psychology C Educ. 103..... 3(3-0)	Educational Administration A Educ. 105..... 3(3-0)
Elementary Journalism Ind. Jour. 151..... 2(2-0)	Extempore Speech II Pub. Spk. 108..... 2(2-0)
Journalism Practice I Ind. Jour. 154..... 2(0-6)	Practice Coaching II Phys. Ed. 137..... 1(0-3)
Practice Coaching I Phys. Ed. 136..... 1(0-3)	Officiating Phys. Ed. 147..... 1(1-0)
First Aid and Massage II Phys. Ed. 114..... 2(2-0)	Organization and Administration of Physical Education M Phys. Ed. 146A..... 1(1-0)
Elective* 3(-)	Apparatus Phys. Ed. 109..... 1(0-3)
	Elective* 3(-)

SENIOR

FIRST SEMESTER	SECOND SEMESTER
Practice Teaching of Physical Education Phys. Ed. 149..... 1(0-3)	Corrective Exercise Phys. Ed. 118..... 1(1-0)
Educational Psychology Educ. 109..... 3(3-0)	Physiology of Exercise Phys. Ed. 123..... 2(2-0)
Special Histology Path. 252..... 3(1-6)	Physical Diagnosis M Phys. Ed. 124..... 2(2-0)
Practice Coaching III Phys. Ed. 138..... 1(0-3)	Practice Coaching IV Phys. Ed. 139..... 1(0-3)
Methods of Teaching B Educ. 112..... 3(3-0)	Sociology Econ. 151..... 3(3-0)
Elective 4(-)	Elective* 6(-)

Curriculum in Physical Education for Women

(Only the freshman and sophomore years of this curriculum are offered in 1926-'27.)

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at laboratory exercise; and the third, where there is such, indicates the number of hours a week required by the outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER	SECOND SEMESTER
College Rhetoric I Engl. 101 3(3-0)	College Rhetoric II Engl. 104 3(3-0)
Chemistry I Chem. 101 5(3-6)	Chemistry II Chem. 102 5(3-6)
Extempore Speech I Pub. Spk. 106 2(2-0)	Extempore Speech II Pub. Spk. 108..... 2(2-0)
Current History Hist. 126 1(1-0)	General Zoölogy Zoöl. 105 5(3-6)
Hygiene and Home Nursing Hsld. Econ. 103 3(2-3)	
Physical Education W-I Phys. Ed. 151A..... 1(0-3)	Physical Education W-II Phys. Ed. 152A..... 1(0-3)
General Technic of Gymnastics I Phys. Ed. 156A..... 1(0-3)	General Technic of Gymnastics II Phys. Ed. 156B..... 1(0-3)

* All electives are to be taken in departments other than that of physical education.

SOPHOMORE

FIRST SEMESTER

Organic Chemistry HE	
Chem. 121	5(3-6)
Human Anatomy	
Zööl. 123	5(3-6)
English Literature	
Engl. 172	3(3-0)
Library Methods	
Lib. Ec. 101.....	1(1-0)
Plays and Games	
Phys. Ed. 181A.....	1(0-3)
First Aid	
Phys. Ed. 158.....	1(1-0)
Physical Education W-III	
Phys. Ed. 153.....	1(0-3)
General Technic of Gymnastics III	
Phys. Ed. 156C.....	1(0-3)

SECOND SEMESTER

Embryology and Physiology	
Zööl. 201	5(3-6)
General Microbiology	
Bact. 101	3(1-6)
American Literature	
Engl. 175	3(3-0)
History and Principles of Physical Education	
Phys. Ed. 192.....	3(3-0)
Playground Management W	
Phys. Ed. 182.....	1(1-0)
Physical Education W-IV	
Phys. Ed. 154.....	1(0-3)
General Technic of Gymnastics IV	
Phys. Ed. 156D.....	1(0-3)

JUNIOR

FIRST SEMESTER

Psychology C	
Educ. 103	3(3-0)
History of English Literature	
Engl. 181	3(3-0)
Kinesiology	
Phys. Ed. 194.....	3(3-0)
Physical Diagnosis W	
Phys. Ed. 170.....	3(3-0)
Folk Dancing I	
Phys. Ed. 160	1(0-3)
Sports Technic I	
Phys. Ed. 165A.....	1(0-3)
General Technic of Gymnastics V	
Phys. Ed. 156E.....	1(0-3)
Elective*	2(-)

SECOND SEMESTER

Educational Administration A**	
Educ. 105	3(3-0)
Psychology of Childhood and Adolescence	
Educ. 208	3(3-0)
Therapeutics and Massage	
Phys. Ed. 172	2(1-3)
American History I	
Hist. 201	3(3-0)
Folk Dancing II	
Phys. Ed. 161.....	1(0-3)
Sports Technic II	
Phys. Ed. 165B.....	1(0-3)
General Technic of Gymnastics VI	
Phys. Ed. 156F.....	1(0-3)
Technic of Gymnastics	
Phys. Ed. 168.....	(1-0)
Elective*	2(-)

SENIOR

FIRST SEMESTER

Educational Psychology**	
Educ. 109	3(3-0)
Supervised Teaching	
Educ.	3(3-0)
Teaching and Adaptation of Physical Education	
Phys. Ed. 188.....	3(3-0)
Sports Technic III	
Phys. Ed. 165C	1(0-3)
General Technic of Gymnastics VII	
Phys. Ed. 156G.....	1(0-3)
Elective*	6(-)

SECOND SEMESTER

Educational Sociology A**	
Educ. 118	3(3-0)
Organization and Administration of Physical Education W	
Phys. Ed. 176.....	2(2-0)
Physiology of Exercise	
Phys. Ed. 174	2(1-3)
Theory and Technic of Dancing	
Phys. Ed. 163	1(1-0)
General Technic of Gymnastics VIII	
Phys. Ed. 156H.....	1(0-3)
Elective*	8(-)

* All electives are to be in departments other than that of physical education.

** Subjects to change according to the requirements of the State Board of Education.

Curriculum in Rural Commerce

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER

College Rhetoric I	
Engl. 101	3(3-0)
Physical or Biological Science*	5(-) or 3(-)
Modern Language*	3(3-0)
Plane Trigonometry*	
Math. 101	3(3-0)
Extempore Speech I	
Pub. Spkg. 106	2(2-0)
Current History	
Hist. 126	1(1-0)
Library Methods	
Lib. Ec. 101	1(1-0)
Infantry I (Men)	
Mil. Tr. 101	1½(0-4)
Physical Education M-I (Men)	
Phys. Ed. 103	R(0-2) or
Physical Education W-I (Women)	
Phys. Ed. 151A	1(0-3)

SECOND SEMESTER

College Rhetoric II	
Engl. 104	3(3-0)
Physical or Biological Science*	3(-) or 5(-)
Modern Language*	3(3-0)
College Algebra*	
Math. 104	3(3-0)
Extempore Speech II	
Pub. Spkg. 108	2(2-0)
Current History	
Hist. 126	1(1-0)
Infantry II (Men)	
Mil. Tr. 102	1½(0-4)
Physical Education M-II (Men)	
Phys. Ed. 104	R(0-2) or
Physical Education W-II (Women)	
Phys. Ed. 152A	1(0-3)

SOPHOMORE

FIRST SEMESTER

Commercial Correspondence	
Engl. 122	3(3-0)
Modern Language	3(3-0)
Am. Industrial History	
Hist. 105	3(3-0) or
Am. Agricultural History	
Hist. 204	3(3-0) or
History of Commerce and Industry	
Hist. 110	3(3-0)
Accounting Practice I*	
Math. 140A	3(2-3)
Psychology C	
Educ. 104	3(3-0)
Electives	2(-)
Infantry III (Men)	
Mil. Tr. 103	1½(0-4)
Physical Education M-III (Men)	
Phys. Ed. 105	R(0-2) or
Physical Education W-III (Women)	
Phys. Ed. 153	1(0-3)

SECOND SEMESTER

Written and Oral Salesmanship	
Engl. 123	3(3-0)
Economics	
Econ. 101	3(3-0) or
Agricultural Economics	
Ag. Econ. 101	3(3-0)
Business Management	
Econ. 126	2(2-0)
Business Law A	
Hist. 161	2(2-0)
Accounting Practice II	
Math. 143A	3(2-3)
Applied Psychology	
Educ. 215 A	3(3-0)
Elective	1(-)
Infantry IV (Men)	
Mil. Tr. 104	1½(0-4)
Physical Education M-IV (Men)	
Phys. Ed. 106	R(0-2) or
Physical Education W-IV (Women)	
Phys. Ed. 154	1(0-3)

* Eight hours of physical or biological science are to be elected in this curriculum, if possible in the freshman year. Subject to any prerequisites, chemistry, physics, botany, zoölogy and geology are available. If Chemistry I is taken, Chemistry II is required also. In one modern language a student must attain the proficiency given by nine semester hours of College work. If the language has been studied in high school, elementary work may be avoided in College, and the time saved used for elective studies. Students who have had only one year of high-school algebra are not assigned to trigonometry, but are assigned to a five-credit course in College Algebra, Math. 107, the first semester, postponing trigonometry and library methods to the second semester. Accounting practice requires the previous study of elementary bookkeeping. Students who have not had a course in bookkeeping will be assigned to Accounting, Math. 137, for which they will be allowed credits on electives. Because of the various contingencies and elective possibilities in the sciences and modern languages, the proper planning of the work of the freshman year requires great care and foresight.

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Principles of Advertising		Mathematics of Investment	
Ind. Jour. 179	3(3-0)	Math. 150	3(3-0)
English Literature		Money and Banking	
Engl. 172	3(3-0)	Econ. 116	2(2-0)
Cost Accounting		Public Finance	
Econ. 131	2(2-0) or	Econ. 213	2(2-0)
Farm Cost Accounting		Labor Problems	
Ag. Econ. 112	3(2-3)	Econ. 233	2(2-0)
Sociology		American Government	
Econ. 151	3(3-0)	Hist. 151, 152 or 153.....	3(3-0)
Electives	6 or 5(-)	Electives	4(-)

SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Economic Geography		Transportation Problems	
Econ. 121	3(3-0)	Econ. 229	2(2-0)
		Latin America	
		Hist. 207	2(2-0)
Elective	13(-)	Elective	12(-)

**Groups of Electives and Options for Students in
the Division of General Science†**

In addition to the courses included in the following groups, others will be found described in the exposition of the work of the respective departments. From any group elected a sufficient number of courses to constitute an effective block of knowledge must be taken. At least eight semester credits in any new field are usually required, but a smaller number will be honored if in a field already entered upon. In a modern language a student must reach a point equivalent to that obtained by college courses aggregating eight or nine semester hours.

1. English Language

FIRST SEMESTER		SECOND SEMESTER	
Advanced Composition I		Advanced Composition II	
Engl. 113	2(2-0)	Engl. 116	2(2-0)
Commercial Correspondence		Written and Oral Salesmanship	
Engl. 122	3(3-0)	Engl. 123	3(3-0)
Oral English		Methods of Teaching English	
Engl. 128	3(3-0)	Engl. 134	3(3-0)
The Short Story I		The Short Story II	
Engl. 251	3(3-0)	Engl. 252	3(3-0)
The Light Essay		Critical Writing	
Engl. 225	2(2-0)	Engl. 202	3(3-0)
		Technical Writing	
		Engl. 207	2(2-0)

† Electives are to be chosen, with the advice and approval of the dean, in groups of not less than eight semester credits, or in courses which extend fields already entered in the required work.

2. English Literature

FIRST SEMESTER	SECOND SEMESTER
Chaucer Engl. 260 3(3-0)	Milton and the Puritan Revolt Engl. 262 3(3-0)
The English Bible Engl. 271 3(3-0)	American Survey Engl. 265 2(2-0)
Shakespearean Drama I Engl. 273 3(3-0)	Shakespearean Drama II Engl. 274 3(3-0)
The English Romantic Revival Engl. 278 3(3-0)	English Essayists of the Eighteenth and Nineteenth Centuries Engl. 276 3(3-0)
World Classics I Engl. 280 3(3-0)	World Classics II Engl. 281 3(3-0)
Contemporary Fiction Engl. 283 3(3-0)	Contemporary Drama Engl. 284 3(3-0)
The Novel I Engl. 286 3(3-0)	The Novel II Engl. 287 3(3-0)
English Survey I Engl. 288 2(2-0)	English Survey II Engl. 290 2(2-0)
American Literature Engl. 175 3(3-0)	Browning and Tennyson Engl. 293 3(3-0)
	Contemporary Poetry Engl. 297 3(3-0)

3. German

FIRST SEMESTER	SECOND SEMESTER
German I Mod. Lang. 101 3(3-0)	German II Mod. Lang. 102 3(3-0)
German Readings Mod. Lang. 111 3(3-0)	German Short Stories Mod. Lang. 201 3(3-0)
Scientific German I Mod. Lang. 237 4(4-0)	German Classics Mod. Lang. 226 3(3-0)

4. French and Spanish

FIRST SEMESTER	SECOND SEMESTER
French I Mod. Lang. 151..... 3(3-0)	French II Mod. Lang. 152..... 3(3-0)
French Readings Mod. Lang. 161..... 3(3-0)	French Short Stories Mod. Lang. 251..... 3(3-0)
French Composition and Conversation Mod. Lang. 261..... 3(3-0)	French Drama Mod. Lang. 256..... 3(3-0)
Spanish I Mod. Lang. 176..... 3(3-0)	Spanish II Mod. Lang. 177..... 3(3-0)
Spanish Readings Mod. Lang. 180..... 3(3-0)	Spanish Short Stories Mod. Lang. 272..... 3(3-0)
The Spanish Novel Mod. Lang. 275..... 3(3-0)	The Spanish Drama Mod. Lang. 280..... 3(3-0)
Spanish Conversation Mod. Lang. 195..... 2(2-0)	Spanish Conversation Mod. Lang. 195..... 2(2-0)

5. Mathematics

FIRST SEMESTER	SECOND SEMESTER
Plane Analytical Geometry Math. 110 4(4-0)	Calculus Math. 119 3(3-0)
Calculus I Math. 205 5(5-0)	Calculus II Math. 206 3(3-0)
Elements of Statistics Math. 126 3(3-0)	Institutional Accounting Math. 131 3(3-0)
Differential Equations Math. 201 3(3-0)	Special Methods in the Teaching of Mathematics Math. 122 3(3-0)
	Advanced Accounting I Math. 156 3(3-0)
	Advanced Accounting II Math. 160 3(3-0)

6. Inorganic Chemistry**FIRST SEMESTER**

Advanced Inorganic Chemistry	
Chem. 207	3(3-0)
Inorganic Preparations	
Chem. 202	2(0-6) to 4(0-12)
Industrial Chemistry I	
Chem. 203	5(3-6)

SECOND SEMESTER

Industrial Electrochemistry	
Chem. 205	2(2-0)
Physical Chemistry	
Chem. 206	5(3-6)
Industrial Chemistry II	
Chem. 204	5(3-6)

7. Organic Chemistry**FIRST SEMESTER**

Organic Chemistry (Agr.)	
Chem. 120	3(2-3)
Organic Chemistry I	
Chem. 218	4(2-6)
Organic Preparations	
Chem. 223	5(0-15)
Qualitative Org. Analysis	
Chem. 224	2(0-6)
Physiological Chemistry I	
Chem. 232	5(3-6)
Pathological Chemistry	
Chem. 235	2(2-0)
Organic Chemistry HE	
Chem. 121	5(3-6)

SECOND SEMESTER

Organic Chemistry II	
Chem. 219	4(2-6)
Stereoisomeric and Tautomeric Compounds	
Chem. 225	2(2-0)
Carbocyclic and Heterocyclic Compounds	
Chem. 226	2(2-0)
Physiological Chemistry	
Chem. 231	5(3-6)
Physiological Chemistry II	
Chem. 233	5(3-6)

8. Analytical Chemistry**FIRST SEMESTER**

Quantitative Analysis A	
Chem. 250	3(1-6)
Advanced Qualitative Analysis	
Chem. 240	3(1-6)

SECOND SEMESTER

Quantitative Analysis B	
Chem. 251	3(1-6)

9. Physics**FIRST SEMESTER**

Household Physics	
Physics 101	4(3-3)
Photography	
Physics 120	2(1-3)
Molecular Physics and Heat	
Physics 220	3(2-3)
Wireless Telephony	
Physics 130	2(1-3)
Spectroscopy	
Physics 230	3(1-6)
Radio Measurements	
Physics 245	2(1-3)

SECOND SEMESTER

Harmonics	
Physics 222	2(2-0)
Special Methods in the Teaching of Physics	
Physics 224	3(2-3)
Meteorology	
Physics 133	2(2-0)
Descriptive Astronomy	
Physics 155	3(3-0)
Storage Batteries	
Physics 235	2(1-3)
Radioactivity and Electron Theory	
Physics 233	3(3-0)

10. Microbiology**FIRST SEMESTER**

Agricultural Microbiology	
Bact. 106	3(1-6)
Hygienic Bacteriology	
Bact. 206	4(2-6)
Pathogenic Bacteriology II	
Bact. 116	4(2-6)
Poultry Bacteriology	
Bact. 216	3(1-6)

SECOND SEMESTER

Soil Microbiology	
Bact. 201	3(1-6)
Pathogenic Bacteriology I	
Bact. 111	4(2-6)
Dairy Bacteriology	
Bact. 211	3(1-6)

11. Botany**FIRST SEMESTER**

General Botany I	
Bot. 101.....	3(1-4, 2)
Plant Pathology I	
Bot. 205.....	3(1-4, 2)
Mycology I	
Bot. 204.....	4(2-4, 2)
Plant Physiology I	
Bot. 208.....	3(3-0)
Fruit Crop Diseases	
Bot. 202.....	2(1-2, 1)
Botanical Problems	
Bot. 232.....	1 to 5(-)
Taxonomic Botany of the Flowering Plants	
Bot. 225.....	3(1-4, 2)

SECOND SEMESTER

Plant Histology	
Bot. 215.....	2(0-6)
Plant Physiology II	
Bot. 209.....	2(0-6)
Plant Ecology	
Bot. 228.....	2(2-0)
Field Crop Diseases	
Bot. 240.....	2(1-2, 1)
Vegetable Diseases	
Bot. 245.....	2(1-2, 1)

12. Zoölogy**FIRST SEMESTER**

Human Physiology	
Zoöl. 235.....	4(3-3)
Cytology	
Zoöl. 214.....	4(2-6)
Parasitology	
Zoöl. 208.....	3(2-3)
Taxonomy of Parasites	
Zoöl. 240.....	2(1-3)
Field Zoölogy	
Zoöl. 205.....	3(1-6)
Heredity and Eugenics	
Zoöl. 216.....	2(2-0)
Zoölogical Problems	
Zoöl 203.....	1 or 2(-)
Zoöl. Technic	
Zoöl. 206.....	1 or 2(-)

SECOND SEMESTER

Comparative Anatomy of Vertebrates	
Zoöl. 245.....	3(1-6)
Animal Ecology	
Zoöl. 211.....	3(1-6)
Ornithology	
Zoöl. 230.....	2(1-3)
Embryology	
Zoöl. 219.....	3(2-3)
Advanced Embryology	
Zoöl. 220.....	4(2-6)
Parasites and Public Health	
Zoöl. 218.....	3(3-0)
Zoölogical Problems	
Zoöl 203.....	1 or 2(-)
Zoölogical Technic	
Zoöl. 206.....	1 or 2(-)

13. Geology**FIRST SEMESTER**

Engineering Geology	
Geol. 102.....	4(3-3)
Economic Geology	
Geol. 206.....	3(2-3)
Crystallography and Mineralogy	
Geol. 209.....	4(2-6)

SECOND SEMESTER

Historical Geology	
Geol. 201.....	3(2-3)
General Geology	
Geol. 103.....	3(3-0)

14. Entomology**FIRST SEMESTER**

General Entomology	
Ent. 203	3(2-3)
Insect Morphology I	
Ent. 211	3(1-6)
Advanced General Entomology	
Ent. 221	3(3-0)
Advanced Apiculture B	
Ent. 228	3(2-3)

SECOND SEMESTER

General Economic Entomology	
Ent. 206	3(2-3)
Apiculture	
Ent. 111	3(2-3)
Principles of Taxonomy	
Ent. 216	1(1-0)
Taxonomy of Insects I	
Ent. 217	2(0-6)
Insect Physiology	
Ent. 234.....	2(2-0)

15. History and Civics

FIRST SEMESTER

American History II	
Hist. 202	3(3-0)
American Industrial History	
Hist. 105	3(3-0)
History of Commerce and Industry	
Hist. 110	3(3-0)
Latin America	
Hist. 207	2(2-0)
The British Empire	
Hist. 226	2(2-0)
American Political History	
Hist. 206	2(2-0)
American National Government	
Hist. 152	3(3-0)

SECOND SEMESTER

American History III	
Hist. 203	3(3-0)
Europe (1500 to 1815)	
Hist. 115	3(3-0)
Modern Europe (since 1814)	
Hist. 223	3(3-0)
Immigration and International Relations	
Hist. 228	2(2-0)
Comparative Government	
Hist. 252	2(2-0)
American State Government	
Hist. 153	3(3-0)
The World Since 1914	
Hist. 130	2(2-0)

16. Law

FIRST SEMESTER

Business Law A	
Hist. 161	2(2-0)
Commercial Law	
Hist. 160	1(1-0)

SECOND SEMESTER

Business Law B	
Hist. 162	2(2-0)
Farm Law	
Hist. 175	2(2-0)

17. Economics and Sociology

FIRST SEMESTER

Economics	
Econ. 101	3(3-0)
Rural Sociology	
Econ. 156	3(3-0)
Money and Banking	
Econ. 116	2(2-0)
Labor Problems	
Econ. 233	2(2-0)
Marketing Practice	
Econ. 245	2(2-0)

SECOND SEMESTER

Economic Geography	
Econ. 121	3(3-0)
Sociology	
Econ. 151	3(3-0)
Business Management	
Econ. 126	2(2-0)
Public Finance	
Econ. 213	2(2-0)
Insurance	
Econ. 240	2(2-0)

18. Education

FIRST SEMESTER

Educational Administration A or B	
Educ. 105 or 106	3(3-0)
History of Education A	
Educ. 113	3(3-0)
Supervised Teaching and Observation in Science	
Educ. 163	3(1-6)
Rural Education	
Educ. 201	3(3-0)
Psychology A, B, or C	
Educ. 101-103	3(3-0)
Mental Measurements	
Educ. 211	3(3-0)
Educational Tests and Measurements	
Educ. 212	3(3-0)
Applied Psychology	
Educ. 215A	3(3-0)
History of Philosophy	
Educ. 150	3(3-0)

SECOND SEMESTER

Methods of Teaching A	
Educ. 111	3(3-0)
Educational Psychology A or B	
Educ. 118 or 119	3(3-0)
Statistical Methods Applied to Education	
Educ. 223	3(3-0)
The Psychology of Childhood and Adolescence	
Educ. 208	3(3-0)
Educational Psychology	
Educ. 109	3(3-0)
Abnormal Psychology	
Educ. 213	3(3-0)
Advanced Psychology	
Educ. 216	3(3-0)
The Technic of Mental Testing	
Educ. 235	3(3-0)
Rural Secondary Education	
Educ. 204	3(3-0)

19. Vocational Education

FIRST SEMESTER		SECOND SEMESTER	
Vocational Education A		Special Methods in the Teaching of Agriculture	
Educ. 125	3(3-0)	Educ. 136	3(3-0)
Vocational Education B		Supervised Observation and Teaching in Agriculture	
Educ. 226	3(3-0)	Educ. 161	3(0-9)
		Special Methods in the Teaching of Home Economics	
		Educ. 132	3(3-0)
		Supervised Teaching in Home Economics	
		Educ. 160	3(0-9)
Agricultural Education B		Special Methods in the Teaching of Industrial Arts Subjects	
Educ. 330	3(3-0)	Educ. 140	3(3-0)

20. Industrial Journalism

FIRST SEMESTER		SECOND SEMESTER	
Elementary Journalism		Industrial Writing	
Ind. Jour. 151	2(2-0)	Ind. Jour. 161	2(2-0)
Journalism Practice I		Journalism Practice II	
Ind. Jour. 154	2(0-6)	Ind. Jour. 155	2(0-6)
Industrial Feature Writing I		Industrial Feature Writing II	
Ind. Jour. 167	2(2-0)	Ind. Jour. 171	2(2-0)
Journalism Practice III		Journalism Practice IV	
Ind. Jour. 158	2(0-6)	Ind. Jour. 159	2(0-6)
Materials of Journalism		Magazine Features	
Ind. Jour. 265	2(2-0)	Ind. Jour. 270	2(2-0)
History of Journalism		Journalism Surveys	
Ind. Jour. 274	2(2-0)	Ind. Jour. 278	2(0-6)

23. Music

The acceptability for elective credit of work in voice or instrumental music is contingent upon the attainment of an effective degree of proficiency.

Voice A (Music 161A to 161H)

Two private lessons a week. Two semester credits per semester.

Piano A (Music 172A to 172H)

Two private lessons a week. Two semester credits per semester.

Violin A (Music 166)

Two private lessons a week. Two semester credits per semester.

Wind Instruments (Music 182)

Two private lessons a week. Two semester credits per semester.

FIRST SEMESTER		SECOND SEMESTER	
Harmony I		Harmony II	
Music 101	2(2-0)	Music 102	2(2-0)
Harmony III		Harmony IV	
Music 103	2(2-0)	Music 104	2(2-0)
Counterpoint		Musical Form and Analysis	
Music 108A	2(2-0)	Music 109	2(2-0)
History and Appreciation of Music I		History and Appreciation of Music II	
Music 112	3(3-0)	Music 113	3(3-0)
Public School Music I		Public School Music II	
Music 120	2(2-0)	Music 121	2(2-0)
Public School Music III		Public School Music IV	
Music 122	2(2-0)	Music 123	2(2-0)
Choral Society		Choral Society	
Music 190A to 190H.....	1(1-0)	Music 190A to 190H.....	1(1-0)
Orchestra		Orchestra	
Music 193A to 193H.....	1(1-0)	Music 193A to 193H.....	1(1-0)
Band		Band	
Music 196A to 196H.....	1(1-0)	Music 196A to 196H.....	1(1-0)

24. Rural Leadership

(a) For all; (b) for those preparing for work in agricultural extension; (c) for adult special students; (d) for those preparing for home economics extension.

FIRST SEMESTER

- (a) Rural Sociology
Econ. 156 3(3-0)
- (a) Agricultural Economics
Ag. Ec. 101 3(3-0)
- (a) Rural Education
Educ. 201 3(3-0)
- (c) Agricultural Journalism
Ind. Jour. 164..... 1(1-0)
- (c, d) Social Problems
Econ. 257 2(2-0)
- (d) Child Welfare
Hshld. Ec. 203 3(3-0)

SECOND SEMESTER

- (a) Community Organization
Econ. 267 3(3-0)
- (b, c) Marketing of Farm Products
Ag. Ec. 202 3(3-0)
- (c) Parliamentary Procedure
Pub Spk. 125 2(2-0)
- (c, d) Sanitation and Public Health
Hshld. Ec. 211 3(3-0)
- (d) Home Nursing
Hshld. Ec. 109 1(0-3)

25. Military Science and Tactics**FIRST SEMESTER**

- Infantry V
Mil. Tr. 109..... 3(-)
- Infantry VII
Mil. Tr. 111..... 3(-)

SECOND SEMESTER

- Infantry VI
Mil. Tr. 110..... 3(-)
- Infantry VIII
Mil. Tr. 112..... 3(-)

26. Physical Education and Athletics**FIRST SEMESTER**

- Advanced Apparatus I
Phys. Ed. 110..... 1(0-3)
- Basket Ball
Phys. Ed. 130A..... 2(1-3)
- Track and Field Sports I
Phys. Ed. 140..... 1(1-0)

SECOND SEMESTER

- Advanced Apparatus II
Phys. Ed. 111..... 1(0-3)
- Football I
Phys. Ed. 126A..... 2(1-3)
- Baseball
Phys. Ed. 135A..... 2(1-3)

Additional subjects are available during the summer session.

27. Public Speaking**FIRST SEMESTER**

- Oral Interpretation
Pub. Spkg. 101..... 2(2-0)
- Parliamentary Procedure
Pub. Spkg. 125..... 2(2-0)
- Dramatic Production I
Pub. Spkg. 130..... 2(2-0)
- Argumentation and Debate I
Pub. Spkg. 121..... 2(2-0)
- Pageant Composition
Pub. Spkg. 140..... 3(3-0)

SECOND SEMESTER

- Dramatic Reading
Pub. Spkg. 102..... 2(2-0)
- Lecture Recital
Pub. Spkg. 115..... 2(2-0)
- Dramatic Production II
Pub. Spkg. 135..... 2(2-0)
- Argumentation and Debate II
Pub. Spkg. 122..... 2(2-0)
- Pageant Production
Pub. Spkg. 145..... 3(3-0)

30. Social Science**FIRST SEMESTER**

- American History I
Hist. 201 3(3-0)
- American Government
Hist. 151 3(3-0)or
- American National Government
Hist. 152 3(3-0)
- Latin America
Hist. 207 2(2-0)
- English History
Hist. 121 3(3-0)
- Economics
Econ. 101 3(3-0)
- Business Organization
Econ. 106 1(1-0)
- Labor Problems
Econ. 233 2(2-0)
- Sociology
Econ. 151 3(3-0)
- History of Journalism
Ind. Jour. 274..... 2(2-0)

SECOND SEMESTER

- American History II or III
Hist. 202 or 203..... 3(3-0)
- American State Government
Hist. 153 3(3-0)
- Modern Europe
Hist. 223 3(3-0)
- Agricultural Economics
Ag. Ec. 101 3(3-0)
- Money and Banking
Econ. 116 2(2-0)
- Public Finance
Econ. 213 2(2-0)
- Marketing of Farm Products
Ag. Ec. 202 3(3-0)
- Agricultural Land Problems
Ag. Ec. 218 3(3-0)

31. Applied Science

FIRST SEMESTER		SECOND SEMESTER	
General Botany I		General Botany II	
Bot. 101	3(1-4, 2)	Bot. 105	3(1-4, 2)
Plant Pathology I		Field Crop Diseases	
Bot. 205	3(1-4, 2)	Bot. 240	2(1-2, 1)
Fruit Crop Diseases		Vegetable Diseases	
Bot. 202	2(1-2, 1)	Bot. 245	2(1-2, 1)
Farm Forestry		Seed Identification and Weed Control	
Hort. 113	4(3-3)	Agron. 105	2(1-3)
General Zoölogy		Elements of Horticulture	
Zoöl. 105	5(3-6)	Hort. 108	4(3-3)
Parasitology		Small Fruits	
Zoöl. 208	3(2-3)	Hort. 110	2(2-0)
Zoölogy and Embryology (Vet.)		Gardening	
Zoöl. 109	5(3-6)	Hort. 122	3(3-0)
Hygienic Bacteriology		Landscape Gardening I	
Bact. 206	4(2-6)	Hort. 126	2(2-0)
General Entomology		General Microbiology	
Ent. 203	3(2-3)	Bact. 101	3(1-6)
Horticultural Entomology		General Economic Entomology	
Ent. 201	2(2-0)	Ent. 206	3(2-3)
Organic Chemistry (Agr.)		Apiculture	
Chem. 120	3(2-3)	Ent. 111	3(2-3)
Chemistry of Soils and Fertilizers		Chemistry of Crops	
Chem. 252A	2(0-6)	Chem. 253A	2(0-6)
Human Nutrition		Dairy Chemistry	
Food and Nut. 112.....	3(3-0)	Chem. 254	3(1-6)
Household Physics			
Physics 101	4(3-3)		
Photography		Meteorology	
Physics 120	2(1-3)	Physics 133	2(2-0)

32. Home Economics

FIRST SEMESTER		SECOND SEMESTER	
Household Physics		Foods I	
Physics 101.....	4(3-2)	Foods and Nut. 101.....	3(1-6)
Organic Chemistry (HE)		Household Microbiology	
Chem 121.....	5(3-6)	Bact. 121.....	5(3-6)
Foods II		Dietetics	
Food and Nut. 106.....	5(3-6)	Food and Nut. 201.....	5(3-6)
Human Nutrition		Clothing I	
Food and Nut. 112.....	3(3-0)	Clo. and Text. 101.....	2(1-3)
Clothing II		Costume Design I	
Clo. and Text. 111.....	3(1-6)	Ap. Art 130.....	2(0-6)
Applied Design I		Textiles	
Ap. Art 101.....	3(1-6)	Clo. and Text. 116.....	3(2-3)
Applied Design II		House Furnishings	
Ap. Art 106.....	3(1-6)	Ap. Art. 108.....	2(1-3)
Interior Decoration and Furnishing		Principles of Art and Their Application	
Ap. Art 114.....	3(1-6)	Ap. Art 124.....	3(3-0)

35. Agriculture

FIRST SEMESTER		SECOND SEMESTER	
General Botany I		General Botany II	
Bot. 101.....	3(1-4, 2)	Bot. 105.....	3(1-4, 2)
Judging Market Live Stock		Judging Breeding Live Stock	
An. Husb. 132.....	2(0-6)	An. Husb. 138.....	2(0-6)
Elements of Dairying		Dairy Judging	
Dairy Husb. 101.....	3(2-3)	Dairy Husb. 104.....	1(0-3)
Organic Chemistry (Agr.)			
Chem. 120	3(2-3)		
Plant Pathology I		Principles of Feeding	
Bot. 205.....	3(1-4, 2)	An. Husb. 152.....	3(3-0)
Soils		Farm Crops	
Agron. 133.....	5(4-3)	Agron. 109.....	5(3-6)
Farm Poultry Production		Elements of Horticulture	
Poult. Husb. 101.....	2(1-2, 1)	Hort. 108.....	4(3-3)

36. Architecture**FIRST SEMESTER**

Engineering Drawing	
Mach. Design 101.....	2(0-6)
Elements of Architecture I	
Arch. 106A.....	3(0-9)
Object Drawing I	
Arch 111.....	2(0-6)
Design I	
Arch. 142.....	3(0-9)

SECOND SEMESTER

Descriptive Geometry	
Mach. Design 106.....	2(0-6)
Elements of Architecture II	
Arch. 107A.....	3(0-9)
Object Drawing II	
Arch 114.....	2(0-6)
Design II	
Arch. 144.....	3(0-9)

37. Manual Training**FIRST SEMESTER**

Engineering Drawing	
Mach. Design 101.....	2(0-6)
Descriptive Geometry	
Mach. Design 106.....	2(0-6)
Woodworking for Grammar Grades	
Shop 120.....	2(0-6)
Woodworking II for High Schools	
Shop 130.....	2(0-6)
Forging I	
Shop 150.....	1(0-3)
Foundry Practice	
Shop 160.....	1(0-3)
Machine Tool Work I	
Shop 170.....	2(0-6)
Machine Tool Work III	
Shop 193.....	1(0-3)
Farm Motors	
Ag. Engr. 125, 126.....	3(2-3)
Machine Drawing I	
Mach. Design 111.....	2(0-6)

SECOND SEMESTER

Engineering Woodwork I	
Shop 101.....	1(0-3)
Woodworking I for High Schools	
Shop 125.....	2(0-6)
Wood Turning	
Shop 135.....	2(0-6)
Pattern Making	
Shop 145.....	1(0-3)
Machine Tool Work II	
Shop 192.....	2(0-6)
Metallurgy	
Shop 165.....	2(2-0)
Farm Buildings	
Ag. Engr. 103.....	3(1-6)
Surveying I	
Civ. Engr. 102.....	2(0-6)

45. Milling Industry**FIRST SEMESTER**

Principles of Milling I	
Mill. Ind. 104.....	2(1-3)
Milling Practice I	
Mill. Ind. 109.....	3(1-6)
Wheat and Flour Testing	
Mill. Ind. 203.....	4(1-9)
Farm Crops	
Agron. 109.....	5(3-6)
Grain Marketing	
Ag. Ec. 203.....	3(3-0)
Grain Grading and Judging	
Agron. 108.....	2(0-6)
Quantitative Analysis A	
Chem. 250.....	3(1-6)
Organic Chemistry (Agr.)	
Chem. 120.....	3(2-3)

SECOND SEMESTER

Principles of Milling II	
Mill. Ind. 106.....	1(0-3)
Milling Practice II	
Mill. Ind. 110.....	2(0-6)
Advanced Wheat and Flour Testing	
Mill. Ind. 210.....	
Milling Qualities of Wheat and Other Cereals	
Mill. Ind. 211.....	2(2-0)
Experimental Baking A	
Mill. Ind. 204.....	2(0-6)
Quantitative Analysis B	
Chem. 251.....	3(1-6)
The Chemistry of Proteins	
Chem. 236A.....	3(2-3)

Bacteriology

Professor BUSHNELL
Professor GAINES
Assistant Professor FAY

Instructor HINSHAW
Instructor LAFENE
Graduate Assistant HATHAWAY

The Department of Bacteriology occupies parts of the first and second floors of Veterinary Hall. The space is divided into offices and private laboratories, an experiment station and research laboratory, a large general laboratory, incubator or temperature room, preparation room, and stock room. The laboratories are well lighted and equipped with gas, lockers, ice chests, sterilizers, wall cases, microscopes, and other modern facilities necessary for bacteriological work.

The instruction consists of lectures, recitations, demonstrations, and laboratory practice. Printed synopses of lectures and printed laboratory directions are furnished the students in some of the courses; in others textbooks are required. The department library contains textbooks on bacteriology and allied subjects, also the current files of the important technical periodicals relating to bacteriology. These are at the constant disposal of the students for reference. To those who desire graduate work the department offers excellent facilities.

Bacteriology is presented to the students as a biological science and as a practical factor in everyday life. In this subject only the simplest forms of life, consisting almost invariably of one-celled organisms, are studied. It is now possible to study these microscopical forms with ease and accuracy, thus paving the way for a more complete study and better understanding of cells in the aggregate. The second point of view from which this subject is approached is that of its practical application in agriculture, medicine, domestic science, and sanitation.

This department owns equipment valued at \$15,515.

COURSES IN BACTERIOLOGY

FOR UNDERGRADUATES

101. GENERAL MICROBIOLOGY. Sophomore or junior year, both semesters. Lectures, one hour; laboratory, six hours. Three semester credits. Prerequisite; Chemistry II (Chem. 102). Mr. Gaines and Mr. Lafene.

This general introductory course consists of lectures, recitations and demonstrations covering the morphological and biological characters, the classification and distribution of bacteria, factors necessary for the development of bacteria, culture media, cultural features, staining values, and fundamental principles of applied bacteriology.

Laboratory.—The student prepares culture media and becomes familiar with principles of sterilization and incubation, and with general laboratory technic. During the last half of the semester, organisms representing the different families and genera are studied microscopically, culturally, and biochemically. Also quantitative and qualitative examinations are made of milk, water, soil, etc. Laboratory deposit, \$10.

106. AGRICULTURAL MICROBIOLOGY. Junior year, both semesters. Lectures, one hour; laboratory, six hours. Three semester credits. Prerequisite: Organic Chemistry (Chem. 120). Mr. Gaines and Mr. Fay.

This is a general course consisting of lectures, recitations and demonstrations. The relation of microorganisms to agriculture is particularly emphasized. First, information is given concerning the nature of microorganisms; their biological characteristics, classification and distribution in nature; their influence upon the plant food in the soil; their relation to certain fermentations, etc. Later some emphasis is placed upon the relation of microorganisms to disease; sources and modes of infection; use of germicidal agents and general hygienic measures.

Laboratory.—In the laboratory, the student becomes familiar with methods of cultivating and studying bacteria, yeasts and molds. Various known forms are studied; methods for the quantitative and qualitative analysis of water, milk, etc., are given some attention. Some time is given to methods of sterilization and the use of germicidal agents. The aim of this course is to give the student a general working knowledge of the subject and to point out its relation to agriculture and the problems of everyday life. Laboratory deposit, \$10.

111. PATHOGENIC BACTERIOLOGY I. Sophomore year, second semester. Lectures, two hours; laboratory, six hours. Four semester credits. Prerequisite: Chemistry II (Chem. 102). Dr. Bushnell and Dr. Hinshaw.

This is primarily a general introductory course, consisting of lectures, demonstrations and recitations covering the distribution, the morphological and biochemical features of microorganisms; factors necessary for the development and cultivation of bacteria and the fundamental principles of the science as applied to veterinary medicine.

Laboratory.—The student first becomes acquainted with the general laboratory technic, comprising the preparation of media, methods of sterilization, incubation, inoculation, plating, isolating, and staining of bacteria. Different cultures of microorganisms are studied morphologically, culturally and biochemically. Quantitative and qualitative examinations of milk and of water are made in the latter part of the semester. Laboratory deposit, \$10.

116. PATHOGENIC BACTERIOLOGY II. Junior year, first semester. Lectures, two hours; laboratory, six hours. Four semester credits. Prerequisite: Pathogenic Bacteriology I. Dr. Bushnell and Dr. Hinshaw.

A study is made of the morphology, powers of resistance, pathogenesis, distribution, channels of infection, and means of dissemination of pathogenic bacteria, especially those related to the specific infectious diseases of animals; epizootic and epidemic diseases of unknown etiology are further treated. A detailed study is made of the manufacture, standardization, preparation for the market and use of vaccines, antitoxins, and other biological products related to the diagnosis, prevention, and treatment of specific infectious diseases; of susceptibility, immunity, and infection; of theories of immunity; of anaphylaxis, opsonins, precipitins, bacteriolysins and agglutinins.

Laboratory.—A study of the microscopical and cultural characteristics of pathogenic microorganisms; laboratory animal inoculations, autopsy, and diagnosis; prevention and treatment of specific infectious diseases; experimental production of opsonins, antitoxins, agglutinins, precipitins, and cytolytins; experiments showing the constitution and mode of action of these antibodies; production of active and passive anaphylaxis; methods for the production and standardization of biological products, such as diphtheria and tetanus antitoxin, bacterins, etc.; the application of the various phenomena and immunity in the diagnosis of infectious diseases; the identification of animal and vegetable proteins; complement fixation tests for glanders; opsonic technic, etc., comprise the laboratory work. Laboratory deposit, \$10.

121. HOUSEHOLD MICROBIOLOGY. Junior year, both semesters. Lectures, three hours; laboratory, six hours. Five semester credits. Prerequisite: Organic Chemistry HE (Chem. 121). Mr. Fay and Mr. Lafene.

This course consists of lectures, recitations and demonstrations relating to the classification, distribution, and the relative importance of bacteria. The morphological and biochemical characters of microorganisms are considered, together with a study of those factors necessary for the proper development of bacteria, and the fundamental principles of the science as applied to household economics. It is designed to give the student a more thorough knowledge of those microorganisms which are of importance in the household. The significance of microbial findings in the analysis of water, milk, and foods, also consideration of the conditions which tend to increase or decrease the bacterial content of food substances, are studied in detail. Some time is given to the principles of sanitation as applied to public-health problems. The class work is a more theoretical consideration of the problems undertaken in the laboratory.

Laboratory.—General laboratory technic, consisting of preparation of media, methods and principles of sterilization, incubation, plating, isolating and staining of microorganisms is first taken up. Studies of the morphological, cultural, and biochemical characteristics of different organisms are made. A study of microorganisms and their activities, both beneficial and harmful, in their relation to household economy; bacteriological study of water, milk, and foods; the determination of the potability of water; milk contamination, the effect of cooling upon the bacterial content of milk, pasteurization of milk, etc.; microscopical study of yeasts and molds; the spoilage of canned vegetables and fruits; methods of food preservation; the manufacture of vinegar; study of activities of various species of microorganisms; thermal death point; the germicidal action of various disinfectants, etc., are topics taken up in the laboratory work. Laboratory deposit, \$10.

FOR GRADUATES AND UNDERGRADUATES

201. SOIL MICROBIOLOGY. Elective, second semester. Lectures, one hour; laboratory, six hours. Three semester credits. Prerequisite: Course 101 or 106. Mr. Gainey.

This is an introductory course covering the principles of soil microbiology as defined at the present time, and fitting the student for independent research on microbial investigations of soil. The course includes a study of the influence of depth and character of soil, temperature, moisture, chemical reaction, aëration, and other factors upon the activities of soil microorganisms; and the influence of such phenomena as ammonification, nitrification, denitrification, symbiotic and nonsymbiotic nitrogen fixation upon crop production. Various texts are recommended as reference books.

Laboratory.—The laboratory work comprises the preparation of various special culture media and reagents necessary to conduct bacteriological analyses of the soil; qualitative and quantitative analysis and the laboratory study of ammonification, nitrification, denitrification, symbiotic and nonsymbiotic nitrogen fixation; plot experiments and field work illustrating the influence of various factors upon the bacterial flora and the inoculation of soil with symbiotic and nonsymbiotic nitrogen-fixing bacteria. Laboratory deposit, \$10.

206. HYGIENIC BACTERIOLOGY. Elective, first semester. Lectures, two hours, laboratory, six hours. Four semester credits. Prerequisite: General Agricultural, or Household Microbiology. Dr. Bushnell.

Pathogenic bacteria, especially those related to disease of man; channels of infection, and means of dissemination of pathogenic bacteria; epidemics, their cause and control; isolation, disinfection, and quarantine; prophylaxis against specific infectious diseases and important precautions necessary in the control of communicable diseases are studied. Various books are recommended as textbooks.

Laboratory.—The laboratory work comprises microscopical and cultural study of pathogenic bacteria; technic involved in the diagnosis of *Bacterium tuberculosis* in sputum; the culture of pathogenic anærobic bacteria; the isolation and identification of pathogenic bacteria from animal tissues, from pus and exudates; bacteriological examination of air, water, milk, sewage; interpretation of results, etc. Detailed studies are made of the manufacture, standardization, preparation and use of the various biological products related to the diagnosis, prevention and treatment of specific infectious diseases; of the theories of immunity, etc. The technic of clinical laboratory diagnosis is also carefully studied. Laboratory deposit, \$10.

211. DAIRY BACTERIOLOGY. Elective, second semester. Lectures, one hour; laboratory, six hours. Three semester credits. Prerequisite: General, Agricultural, or Household Microbiology. Mr. Fay.

Consideration is given to the bacterial flora of milk, butter, and cheese; to infectious diseases conveyed through dairy products; to bacterial contamination of milk by air, water, utensils, etc.; and to normal and abnormal fermentations in milk, their significance and control.

Laboratory.—The preparation of culture media necessary for dairy bacteriological work; milk contamination; quantitative and qualitative bacteriological analysis of milk; the microscopical and cultural characters of the types of microorganisms representing the flora of milk, butter, and cheese; types of milk-fermenting organisms; the examination of cream, wash water, and separator slime; the effect of temperature on the growth of milk bacteria; pasteurization of milk; and the examination of milk for the presence of *Bacterium tuberculosis*, leucocytes and streptococci are taken up in the laboratory work. Various texts are recommended as reference books. Laboratory deposit, \$10.

216. POULTRY BACTERIOLOGY. Elective, second semester. Lectures, one hour; laboratory, six hours. Three semester credits. Prerequisite: General or Agricultural Microbiology and Pathogenic Bacteriology I. Dr. Hinshaw.

Consideration is given to the etiology, sources, and modes of infection, prevention and cure of various microbial diseases of poultry; and to the microbial content of freshly-laid eggs, cold-storage eggs, and egg products, together with conditions tending toward increase or decrease of this microbial content.

Laboratory.—Microorganisms pathogenic for poultry; artificial production, diagnosis, and control of poultry diseases; and the microbial content of eggs and egg preparations produced and handled under various conditions, form the subject matter of the laboratory work. Laboratory deposit, \$10.

217. POULTRY DISEASES. Senior year, second semester. Lectures, two hours. Two semester credits. Prerequisites: Pathogenic Bacteriology I and II, and Therapeutics. (Surg. and Med. 162.) Dr. Hinshaw.

This course is designed particularly to meet the needs of the veterinarian. A brief study is first made of the anatomy of the fowl. This is followed by a study of poultry sanitation and hygiene, and a complete systematic study of the infectious diseases of all classes of domestic fowls. In this the following points are emphasized: Etiology, pathogenicity, prognosis, symptoms, morbid anatomy, treatment, immunity, and prevention. Some time is given to general diseases of a noninfectious nature. A study is also made of the external and internal parasites of domestic fowls. Minor surgical operations are also considered. From time to time the student is given the opportunity to make a complete study of the various specimens that are sent into the laboratory for diagnosis.

226. BACTERIOLOGICAL PROBLEMS. Elective, both semesters and summer school. One to four semester credits. Prerequisite: Course 101, 106, 111, or 121. Dr. Bushnell, Mr. Gainey, and Mr. Fay.

Students are assigned to special problems in the various phases of the subject. The credit obtained will depend upon the amount and quality of work done. Amount of deposit to be arranged with professor in charge.

230. BACTERIOLOGY SEMINAR. Elective, both semesters. One semester credit. One hour session each week. For prerequisites consult professor in charge. Dr. Bushnell.

At these meetings the members of the department and the more advanced students meet for papers and discussion on all phases of current research work in bacteriology, serology, and related subjects. Graduate students in this department may be assigned to this subject for credit; all others interested may visit the meetings at any time.

FOR GRADUATES

301. RESEARCH BACTERIOLOGY. Elective, both semesters. Credit to be arranged. Prerequisite: At least two of the outlined courses offered by the department. Dr. Bushnell, Mr. Gainey, and Mr. Fay.

Advanced students showing sufficient training, ability and interest in original research are admitted to this course, upon approval of the head of the department. The student is under the direct supervision of a faculty member of the department, and in consultation with him the subject for investigation is chosen and outlined.

Students showing the proper interest and ability are given an opportunity to do experiment-station and advanced research work, during vacation periods, under the direct supervision of a faculty member of the department.

Students desiring to take work leading to an advanced degree are given individual research problems. After the proper completion of such an investigation, the results are presented by the graduate faculty in the form of a thesis. Such a thesis, when accepted by the faculty, fulfills part of the requirements for a Master of Science degree. Amount of deposit to be arranged with the professor in charge.

Botany and Plant Pathology

Professor MELCHERS
 Professor MILLER
 Associate Professor DAVIS
 Associate Professor HAYMAKER
 Associate Professor GATES
 Assistant Professor DALBEY
 Assistant Professor WHITE

Instructor CASHEN
 Assistant MAUS
 Associate Pathologist FELLOWS*
 Associate Pathologist WEIMER*
 Assistant Pathologist JOHNSTON*
 Graduate Assistant NEWCOMB
 Graduate Assistant FICKE

The instruction given in the Department of Botany and Plant Pathology has a threefold purpose:

First, to give a training in botany for the general broadening of the student's knowledge.

Second, to give the student a training in the knowledge of plants that will serve as a foundation for his further College courses in agricultural subjects.

Third, to instruct and direct those students who desire to investigate such problems in plant life as affect agriculture. Investigations may be undertaken in plant pathology, plant physiology, taxonomy, and ecology of plants.

In the general courses each student is supplied with a compound microscope and with all the other accessories of a modern well-equipped botanical laboratory.

The laboratory for advanced study is provided with the general equipment for investigational work, and additional facilities are readily available for those who desire to pursue special lines of research.

The department has an excellent herbarium, especially complete for Kansas, and a botanical library containing the usual standard texts and the principal botanical journals.

The equipment owned by the department has a value of \$40,755.

COURSES IN BOTANY

FOR UNDERGRADUATES

101. GENERAL BOTANY I. Freshman year, first semester and summer school. Class work, one hour; laboratory, six hours.† Three semester credits. Mr. Melchers, Dr. Miller, Mr. Davis, Mr. Haymaker, Dr. Gates, Miss Dalbey, Mr. White, Miss Cashen, Miss Maus, and Miss Newcomb.

This is a course of lectures, combined with assignments in a required text and additional reference reading. The principal life functions of plants, response of plants, such as photosynthesis, digestion, respiration, transpiration, and growth, and the responses of plants to environmental conditions and physical stimuli, are studied. The anatomy of the plant, in so far as it relates to the functions concerned, is studied in some detail. In this course the student gains a general introductory knowledge of the functions and reactions of plants, and learns to regard them from the dynamic standpoint as working organisms. Text: *Textbook of General Botany*, by Holman and Robbins.

* In cooperation with the United States Department of Agriculture.

† Two of the required laboratory hours are employed in lecture and laboratory quizzes and reviews.

Laboratory.—A series of typical experiments is followed out in the laboratory and in the greenhouse. Each student is furnished with a set of the necessary apparatus, and learns to apply quantitative methods to the study of functions. Laboratory outlines are furnished by the department. Laboratory deposit, \$3.50.

105. GENERAL BOTANY II. Freshman year, second semester and summer school. Class work, one hour; laboratory, six hours.* Three semester credits. Mr. Melchers, Mr. Davis, Mr. Haymaker, Dr. Gates, Miss Dalbey, Mr. White, Miss Cashen, Miss Maus, and Miss Newcomb.

The lectures are designed to give the students a general knowledge of some of the more important botanical facts and discoveries, with their application to closely related sciences and to human welfare. The significance of bacteria, fungi, and other microorganisms in our daily life; the more important laws governing plants in relation to their environment; fundamental laws and facts of genetics and plant breeding; the theories of evolution; and general phenomena of plant life are discussed. Text: *Textbook of General Botany*, by Holman and Robbins.

Laboratory.—The aim of the laboratory work is to give students a general knowledge of plants as to form, structure, habits, adaptations and relationships to other organisms. Wherever possible, the plants are studied as they actually occur in nature. The work covers a study of the morphology of the typical representatives of the great groups of the plant kingdom, the ecological factors affecting plants, and their identification under both winter and summer conditions by the use of an identification key. Laboratory outlines are furnished by the department. Laboratory deposit, \$3.50.

126. MEDICAL BOTANY. Sophomore year, first semester. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: High-school botany or its equivalent. Dr. Gates.

This is a lecture, laboratory and reading course dealing with poisonous plants. The lecture includes a study of the principal stock-poisoning plants of the range; losses due to native poisonous plants, methods of identification, habitat, poisonous properties, and methods of control and eliminations.

Laboratory.—The laboratory work follows the work presented in the lectures, and consists chiefly of a study of the native poisonous plants of the United States, but chiefly of the Western states. Laboratory charge, \$1.50.

FOR GRADUATES AND UNDERGRADUATES

202. FRUIT-CROP DISEASES. Elective, first semester. Class work, one hour; laboratory, three hours.† Two semester credits. Prerequisite: Plant Pathology I. Not offered in 1926-'27. Mr. Haymaker.

The class work consists of a series of lectures dealing with diseases affecting fruit crops of all kinds. Special emphasis is laid on measures and methods for controlling these diseases by means of spraying, sanitation, and varietal resistance. The preparation and practical application of the standard sprays are considered. Text: *Manual of Fruit Diseases*, by Hesler and Whetzel.

Laboratory.—This consists of a detailed study of each disease affecting the major fruit crops, together with a detailed microscopic study of the organism causing the disease. The course is especially valuable for those studying horticulture or those expecting to specialize in plant pathology. Laboratory charge, \$2.

204. MYCOLOGY I. Elective, first semester. Class work, two hours; laboratory, six hours.* Four semester credits. Prerequisite: Plant Pathology I. Mr. White.

* Two of the required laboratory hours are employed in lecture and laboratory quizzes and reviews.

† One of the required laboratory hours is employed in lecture and laboratory quizzes and reviews.

The class work consists of a series of lectures on the classification of fungi, their relationship to one another, and their morphology. Special emphasis is laid on those fungi which cause plant disease. Some attention is given also to the physiology of fungi, infection, isolation, pure culture methods, etc. This course is designed to train those who wish to become more familiar with the classification of fungi and their morphology and physiology. It is essential for those who wish to follow plant pathological work professionally.

Laboratory.—The laboratory work runs parallel with the class work and consists of a detailed study of the genera of fungi. Considerable outside reading is expected. A reading knowledge of French and German is of help in this connection, but it is not required. Laboratory charge, \$5.

205. PLANT PATHOLOGY I (or ECONOMIC PLANT DISEASES). Junior year, first semester and summer school. Class work, one hour; laboratory, six hours.* Three semester credits. Prerequisites: General Botany I and II. Mr. Melchers, Mr. Haymaker, and Mr. White.

The diseases affecting the chief economic crops of field, orchard, and garden are studied in considerable detail. The etiology of the various diseases and their most evident symptoms are considered. The student learns to recognize at sight the principal plant diseases he is likely to encounter on the farm, in the nursery, and in market-garden work. Nonparasitic and bacterial diseases are considered to some extent, but the time is devoted chiefly to the more important diseases caused by the fungi, the life histories of which are studied in some detail. Preventive measures are considered in each case. An extensive collection of preserved pathological material is available.

Laboratory.—Practical work in the recognition of all the more common plant diseases of the farm, orchard, and garden is accompanied by detailed microscopic studies of diseased tissues and identification of the fungous pathogens which cause them. Complete laboratory outlines, which likewise serve as a text in this course, are furnished by the department. Laboratory charge, \$2.50.

208. PLANT PHYSIOLOGY I. Sophomore year and elective, first semester. Class work, three hours. Three semester credits. Prerequisite: General Botany I and II, and Chemistry I and II. Dr. Miller.

This course consists of a series of lectures on the more important phases of plant physiology. Such subjects as the root systems of plants, absorption, wilting coefficient, resistance to drought, transpiration, water requirement, photosynthesis, respiration, digestion, and growth are discussed in detail. The subject matter of plant physiology that pertains to agriculture is especially emphasized. The course is designed to give students a broad knowledge of the functions of plants and the more important factors which influence them. The work is supplemented by discussions, reference readings, and special reports.

209. PLANT PHYSIOLOGY II. Elective, second semester. Laboratory work, six hours.* Two semester credits. Prerequisite: Plant Physiology I. Dr. Miller and Mr. Davis.

This course is supplementary to Plant Physiology I, and is planned to give a knowledge of the methods used in obtaining experimental data in regard to the more common functions of plants. The course is of interest to students who intend to teach botanical subjects or who expect to carry on experimental work with plants. Laboratory charge, \$5.

212. PROBLEMS IN BOTANICAL INSTRUCTION. Elective, summer school. By appointment. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: Ten credit hours in botany or in courses of botanical nature. Mr. Haymaker.

* Two of the required laboratory hours are employed in lecture and laboratory quizzes and reviews.

The course is designed especially for high-school teachers and students specializing in botany. The subject-matter is of the same general nature as that taught in elementary courses in college botany, but will be studied in much greater detail than would be possible in under-graduate courses. Advanced work in the morphology, anatomy, physiology, taxonomy, and diseases of plants is offered. Special methods of teaching technique in presenting botany to high school and college students is emphasized. The course may be used in fulfilling the educational requirements for the state teacher's certificates. Text: Holman and Robbins' *Textbook of General Botany*. Laboratory charge, \$1.50.

215. PLANT HISTOLOGY. Elective, second semester. Laboratory, six hours. Two semester credits. Prerequisite: General Botany I or II. Not offered in 1926-'27. Miss Dalbey.

This course is planned to provide a thorough training in the principles and practice of microtechnical methods in botany, including the killing, fixing, and embedding of plant material, microtome work, and the staining and mounting, by various methods, of a tolerably complete and characteristic series of permanent slides, representing the vegetative and reproductive tissues of typical plants, taken from all the principal groups. Time will be devoted to a careful microscopic study of the slides prepared during the course. Text: Chamberlain's *Plant Histology*. Laboratory charge, \$3.50.

218. FIELD BOTANY. Elective, summer school. By appointment. Class, field, laboratory and library work, five hours. Three semester credits. Prerequisites: Botany I and II. Mr. Haymaker.

The aim in this course is to study plants in the field, as they occur under natural conditions. The morphological characteristics, the distribution, the habits of plants, and their relation to different environmental conditions are studied. The nature and botanical characteristics of plants of economic importance are studied in some detail. Excursions are made to nearby localities to study and identify the vegetation of prairies, woodland and swamps. Keys are used to identify trees, shrubs, weeds, and other plants. The poisonous or medicinal properties of native plants are studied through the use of bulletins, textbooks, and periodicals on the subject. Attention is given to methods of collecting and preserving specimens for classroom work. Text: Gray's *New Manual of Botany*. Laboratory charge, \$1.50.

220. BOTANICAL SEMINAR. Elective, both semesters. One hour session each week. One semester credit. For prerequisites consult professor in charge.

This subject matter is outlined at the beginning of each semester, and consists of the presentation of investigational work in botany, including the important branches of plant pathology, plant physiology, plant ecology, taxonomy, morphology, and genetics. Fundamental papers along botanical lines are reviewed and a digest is presented. It is expected that graduate students who are taking major or minor work in the Department of Botany will attend these sessions and take part in its programs.

225. TAXONOMIC BOTANY OF THE FLOWERING PLANTS. Elective, first semester. Class work, one hour; laboratory, six hours.* Three semester credits. Prerequisite: General Botany I and II. Dr. Gates.

The class work consists of a series of lectures dealing with the terms employed, the development of the more important systems of classification, and a consideration of families of plants.

Laboratory.—Selected flower types representing the principal orders and families of plants are studied and plants are identified in the field and in the laboratory. Laboratory charge, \$2.

228. PLANT ECOLOGY. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: General Botany I and II. Dr. Gates.

* Two of the required laboratory hours are employed in lecture and laboratory quizzes and reviews.

The class work consists of a series of lectures dealing with the structure and dynamics of vegetation.

Laboratory.—With the opening of vegetation in the spring, field trips are taken to selected places. Laboratory charge, \$1.50.

230. **PHYSIOLOGICAL PHENOMENA IN THE GERMINATION OF SEEDS.** Elective, first semester. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: General Botany I and II. Not offered in 1926-'27. Mr. Davis.

This is a course in plant physiology in which the seed is used as the basis of the work in the laboratory. A study is made of the different factors in germination, as to water requirement, temperature, oxygen supply, light, permeability of seed coats by water, solutes, and gases; dormancy, agencies in so-called after-ripening, enzymes, etc. This course is of special interest to students in agronomy, or those who expect to take up work in connection with grain mills, seed houses, etc. Laboratory charge, \$2.50.

232. **BOTANICAL PROBLEMS.** Elective, both semesters and summer school. From one to five semester credits. Prerequisites: General Botany I and II, and approval by the head of the department. Mr. Melchers, Dr. Miller, Mr. Davis, Mr. Haymaker, Dr. Gates, Miss Dalbey, Mr. White, and Miss Cashen.

In some instances a student may wish to pursue a special field of work which is not definitely represented by one of the undergraduate elective courses listed. Such a course may be arranged for upon consultation with the instructor. Laboratory charge, \$2.50.

234. **PHYTOGEOGRAPHY.** Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: General Botany I and II. Not offered in 1926-'27. Dr. Gates.

The class work consists of a series of lectures dealing with the distribution and characteristics of vegetation.

240. **FIELD-CROP DISEASES.** Elective, second semester. Class work, one hour; laboratory, three hours.† Two semester credits. Prerequisite: Plant Pathology I. Mr. Melchers.

The class work consists of a series of lectures dealing with the historical development of phytopathology and a series of lectures considering the various factors entering into the problem of disease resistance in plants. Breeding for resistance is given consideration and the most important literature on the subject is discussed.

Laboratory.—This consists of a detailed microscopic and symptom study of the fungous, bacterial, and nonparasitic plant diseases attacking cereal and forage crops other than those considered in Plant Pathology I. All the literature pertaining to these diseases is reviewed, and detailed notes are required as part of the laboratory work. A major paper is required on some subject pertaining to breeding for disease resistance in cereals or forage crops. The course is of value to those who wish to pursue agronomic work, or for those expecting to specialize in plant pathology. Laboratory charge, \$2.

245. **VEGETABLE DISEASES.** Elective, second semester. Class work, one hour; laboratory, three hours.† Two semester credits. Prerequisite: Plant Pathology I. Not offered in 1926-'27. Mr. Melchers.

The class work consists of a series of lectures dealing with the problem of disease resistance in plants. Breeding for disease resistance is considered and the progress that has been made in vegetables is discussed. The most important literature bearing on the subject is reviewed.

Laboratory.—This consists of a detailed microscopic and symptom study of the fungous, bacterial, nonparasitic and degenerative diseases attacking vegetables. All literature pertaining to these diseases is reviewed and notes are

† One of the required laboratory hours is employed in lecture and laboratory quizzes and reviews.

required as part of the laboratory work. A major paper is required on some subject pertaining to breeding for disease resistance in vegetables. This course is of special value to students in horticulture, or for those expecting to specialize in plant pathology. Laboratory charge, \$2.

265. LITERATURE OF BOTANY. Elective, both semesters. Class work, one hour. One semester credit. Prerequisites: General Botany I and II, Plant Pathology I. Mr. Haymaker.

The aims in the course are as follows: (1) To become acquainted with the more important sources of botanical literature, including the texts, monographs, etc., of noted authors; (2) to study the periodicals containing articles relating to botany, noting the types of articles accepted by each, the presentation of subject matter, etc.; (3) to learn to use the publications containing citations and abstracts of papers, by preparing bibliographies covering assigned problems; (4) to become acquainted with the work of modern botanists by reviewing the articles appearing in current periodicals, experiment station reports, etc. Class work consists of recitations, the presentation of reports, and the preparation of a semester paper covering a problem of importance. The course is designed particularly for those students who are preparing to take advanced work in botany. Graduate students majoring in botany are expected to take this course. Those taking the work the first semester may continue the course for credit the second semester.

FOR GRADUATES

301A. PLANT PATHOLOGY III. Elective, second semester. Class work, one hour; laboratory, six hours.* Three semester credits. Prerequisite: Mycology I. Not offered in 1926-'27. Mr. White.

This course is one in phytopathological technic. Its purpose is to give the advanced student an opportunity for making a closer and more extended study of the pathogenic organisms which cause plant disease. Considerable attention is devoted to the preparation of various kinds of culture media, isolation and culture of pathogenic organisms, nutrition of fungi, studies in enzyme secretion and action, micrometry, incubation and infection phenomena, etc. The course is especially designed for those who intend to pursue plant pathology as a profession, either as teachers or investigators in experiment stations. Laboratory outlines are furnished by the department. No special text will be required. Laboratory charge, \$4.

302. PLANT PATHOLOGY IV. Elective, first and second semester and summer school. Laboratory, nine hours.* Three semester credits. Prerequisite: Plant Pathology III. Mr. Melchers and Mr. White.

This course involves original research. Problems are chosen by the student along some lines in which he is interested. A careful worked-out report which summarizes the investigation undertaken is required at the end of the semester. Laboratory charge, \$2.

308. INVESTIGATIONS IN PLANT TAXONOMY AND PLANT ECOLOGY. Elective, first and second semesters. Laboratory work, including conferences and field work, from six to twenty-four hours. From two to eight semester credits. Dr. Gates.

Graduate students and especially qualified undergraduates are admitted to this course upon approval of application. This course involves original research in a problem, chosen by or assigned to the student. The results are embodied in a written report presented at the end of the course. Laboratory charge, \$2.

310. RESEARCH IN BOTANY. Elective, both semesters and summer school. From one to twelve semester credits. Mr. Melchers, Dr. Miller, Mr. Davis, Mr. Haymaker, Dr. Gates, Miss Dalbey, Mr. White, and Miss Cashen.

* Two of the required laboratory hours are employed in lecture and laboratory quizzes and reviews.

Research problems in the various fields of botany may be outlined. A member of the department staff, acting as major instructor, is in charge. Upon completion of the work it may be submitted in part or as a whole toward a thesis. Laboratory charge, \$3.

Chemistry

Professor KING
 Dean WILLARD
 Professor HUGHES
 Professor BRUBAKER
 Professor COLVER
 Associate Professor TAGUE
 Assistant Professor LATSHAW
 Assistant Professor VAN WINKLE
 Assistant Professor HALL
 Assistant Professor KEITH
 Assistant Professor PERKINS
 Assistant Professor PALMER
 Instructor HARRISS

Instructor BRUNER
 Instructor SELLERS
 Instructor LASH
 Instructor WAMPLER
 Instructor MASSENGALE
 Instructor BROWN
 Instructor MARLOW
 Instructor PYCHA
 Instructor WAKEFIELD
 Instructor TOLLE
 Instructor HARRIS
 Associate Feed Analyst TITUS

All of the industries are becoming more and more dependent for their highest successes upon intelligent application of the physical and biological sciences, and the social sciences are making their greatest progress by tracing their phenomena back to the physical and chemical changes that accompany them. A study of chemistry and physics is therefore essential to any understanding of the processes of nature or of human industry. In the instruction in chemistry the aim is to insist upon a mastery of the chief concepts of the pure science through the agency of textbook drill, accompanied by demonstrations in the lecture room, and experimental observation by the student himself in the laboratory. As the course proceeds, illustrations of chemical principles are drawn from the industrial processes of the chemical, agricultural, domestic, and other arts, thus impressing upon the mind the practical nature of the study. The ultimate object of instruction in this science is to develop in the student the power to form independent judgments upon the manifold problems of daily life in which chemistry plays a part.

The lecture rooms are amply equipped for experiments and demonstrations, and the laboratories are designed to accommodate 936 students each semester in freshman work and qualitative analysis. The laboratories for more advanced work provide space for 324 students, and are well supplied with general and special facilities. The state work in foods, feeding stuffs, and fertilizers, and the chemical investigations of the Experiment Station in soils, crops, animal nutrition, etc., afford unusually good opportunities for students to obtain experience in practical chemistry. In all of the laboratory work the student is required to give the designated amount of time, and at least a certain amount of work must be satisfactorily performed in order to obtain credit.

The Department of Chemistry possesses equipment valued at \$63,015.

COURSES IN CHEMISTRY

FOR UNDERGRADUATES

101. CHEMISTRY I. Freshman year, both semesters and summer school. Lectures and recitations, three hours; laboratory, six hours. Five semester credits. Prerequisite: High-school Physics. Dr. King, Dr. Keith, Miss Harriss, Miss Bruner, Mr. Sellers, Mr. Lash, Mr. Wampler, Mr. Massengale, Mr. Marlow, Mr. Pycha, and Mr. Tolle.

This work begins the study of general chemistry, and is designed, with that of the succeeding semesters, to give the student a knowledge of the fundamental principles of chemistry. As all subsequent progress in this science requires a working knowledge of its principal theoretical conceptions, the principles of nomenclature, the significance of formulas, chemical equations,

etc., much attention is given to these, while at the same time the practical uses of the substances, and the processes used in metallurgy, engineering, agriculture, and other arts are emphasized. McPherson and Henderson's *A Course in General Chemistry* is used as a textbook, this semester's work covering the first 388 pages. The text is supplemented by lectures and is amply illustrated by experimental demonstrations.

Laboratory.—As far as time permits, the student performs independently experiments touching the preparation and properties of the more important substances. Preference is given to those operations which illustrate important principles, and the student is required, as far as possible, to study experiments in that light. In this, as in all other laboratory work in chemistry, the objects are to illustrate chemical phenomena, and to teach care in manipulation, attentive observation, logical deduction, and discrimination and accuracy in recording results and conclusions. The student is required to give the designated amount of time, and a minimum amount of work must be satisfactorily performed in order to obtain credit. *Laboratory Exercises in Elementary Chemistry*, by William McPherson, is used as the laboratory guide. Laboratory deposit, \$10.

102. CHEMISTRY II. Freshman year, both semesters and summer school. Lectures and recitations, three hours; laboratory, six hours. Five semester credits. Prerequisite: Chemistry I. Teachers same as for Chemistry I.

The work in this course for the first half of the semester is a completion of the study of general chemistry begun the preceding semester. The last quarter of the semester is devoted to the study of the general principles of qualitative analysis as outlined in an *Elementary Treatise on Qualitative Analysis*, by Baskerville and Curtman.

Laboratory.—In the laboratory the student studies the ordinary methods of separation and detection of the more common metals, nonmetals, acids, bases, and salts. The teaching of analysis as such is a secondary object, although the student is held to the exact observation and careful reasoning required in ascertaining the composition of single substances and mixtures. The effect of the course is to broaden, strengthen, and unify the student's ideas of general chemistry. Laboratory deposit, \$10.

105. CHEMISTRY (VET.). Freshman year, both semesters. Lectures and recitations, three hours; laboratory, six hours. Five semester credits. Mr. Wampler.

This course deals with the fundamental laws and theories of chemistry, the elements and their inorganic compounds, and lays emphasis on the application of chemistry to the arts and industries. Both the metals and nonmetals are studied, but the treatment is less detailed than in Chemistry I and II.

Laboratory.—The laboratory work is intended to give the student training in manipulation and first-hand knowledge of the important laws of chemistry and the properties of substances studied, by use of appropriate experiments which the student himself performs. Laboratory deposit, \$10.

106. ORGANIC CHEMISTRY (VET.). Freshman year, second semester. Lectures and recitations, three hours; laboratory, six hours. Five semester credits. Prerequisite: Chemistry (Vet.). Dr. Palmer.

This course is open only to students in the Division of Veterinary Medicine. It includes a brief study of some of the important classes of organic compounds and a more detailed study of one or more representative members of several classes. Some attention is given to the physiological and toxological effects of certain organic compounds.

Laboratory.—In the laboratory the student prepares a few typical organic compounds and studies their physical and chemical properties. The laboratory directions which are used have been prepared and are supplied by the department. Laboratory deposit, \$10.

107 and 108. CHEMISTRY E-I AND E-II. Freshman year, first and second semesters, respectively. Lectures and recitations, three hours; laboratory, three hours. Four semester credits each. Prerequisite: High-school physics. Dr. King, Dr. Van Winkle, Mr. Brown, Mr. Pycha, Mr. Wakefield, and Mr. Harris.

These courses cover the work of general chemistry and qualitative analysis. During the first semester the entire time of the lectures, recitations, and laboratory is devoted to general chemistry. During the second semester the time is divided between general chemistry and qualitative analysis; the majority of the lectures and recitations are given over to general chemistry, while a few of the lectures and recitations and all of the laboratory time are devoted to qualitative analysis. In all courses emphasis is placed upon those fundamental principles of chemistry which have a special bearing upon engineering and engineering material. Text: Deming's *General Chemistry*.

Laboratory.—During the first semester the experimental work covers the topics taken up in the lectures and recitations. Text: *A Combination Laboratory Manual and Notebook*, by W. A. Van Winkle.

During the second semester the time is devoted to qualitative analysis. After a systematic study of the chemistry of the more common metals and acids a study of the analysis of alloys, minerals and ores is taken up. Text: *Outline of the Methods of Qualitative Chemical Analysis*, by R. J. Carney, supplemented by mimeographed notes. Laboratory deposit, \$7.50.

110. GENERAL CHEMISTRY. First semester. Lectures and recitations, three hours; laboratory, six hours. Five semester credits. Prerequisite: High-school Physics. Dr. King and Mr. Wampler.

This course is designed to give those students not taking additional chemistry a general knowledge of some of the principal laws and theories of the science, as well as the preparation, properties, and uses of some of the important metallic and nonmetallic substances. It will serve as a prerequisite for subjects not requiring an extended knowledge of chemistry, and as a means of furnishing a reading knowledge to those who do not expect to specialize in physical science.

Laboratory.—The work in the laboratory is arranged to parallel that of the lecture and recitation. It includes the actual preparation and study of the properties of many of the elements and compounds mentioned in lecture. Applications of some of the laws are also made. Laboratory deposit, \$10.

120. ORGANIC CHEMISTRY (AGR.). Sophomore year, both semesters. Lectures and recitations, two hours; laboratory, three hours. Three semester credits. Prerequisite: Chemistry II. Dr. Colver and Dr. Palmer.

This course is given for the students in the Division of Agriculture, and includes a careful study of the aliphatic series of hydrocarbons, alcohols, ethers, aldehydes, ketones, organic acids, esters, fats, waxes, carbohydrates, and proteins. Attention is directed to the characteristic properties and relationships of these various classes of compounds and typical members of each group are studied particularly from the standpoint of structure, laboratory preparation and chemical properties as shown by their reactions. Emphasis is placed upon the work bearing upon agricultural pursuits. Text: Norris, *Organic Chemistry*, in part, accompanied by lectures.

Laboratory.—The laboratory work is arranged to parallel the study in the classroom, and includes the preparation of a limited number of organic compounds and a study of their properties and reactions. The experiments include work with fats, carbohydrates, and proteins. The laboratory directions which are used have been prepared and are supplied by the department. Laboratory deposit, \$7.50.

121. ORGANIC CHEMISTRY (HE). Sophomore year, both semesters. Lectures and recitations, three hours; laboratory, six hours. Five semester credits. Prerequisite: Chemistry II. Dr. Colver and Dr. Palmer.

This course is for students in the Division of Home Economics and is outlined to give a firm foundation for advanced work in foods and nutrition. A systematic study is made of the more important classes of organic compounds, particularly the aliphatic hydrocarbons, alcohols, ethers, aldehydes, ketones, organic acids, fats, soaps, sugars, starch and proteins. In addition to a study of aliphatic compounds a brief consideration is also given to several series of aromatic compounds. Especial attention is given to those organic compounds which are used for clothing, fuel, light, antiseptics, disinfectants, anæsthetics, medicine, solvents, in the commercial manufacture of other important products, as well as to many other compounds which contribute to a fuller understanding of the systematic relations existing among all organic compounds. Text: Norris, *Organic Chemistry*, in part, accompanied by lectures.

Laboratory.—In the laboratory the student prepares one or more representative examples of most of the classes of compounds taken up in the classroom. A study is made of their physical properties and their chemical properties as shown by typical reactions. The experiments include work with fats, carbohydrates and proteins. The laboratory directions which are used have been prepared and are supplied by the department. Laboratory deposit, \$10.

FOR GRADUATES AND UNDERGRADUATES

202. INORGANIC PREPARATIONS. Junior year and elective, both semesters. One semester credit for each three hours of laboratory work. Prerequisite: Chemistry II or Chemistry HE-II. Dr. Brubaker.

Students of Advanced Inorganic Chemistry are advised to take this course. It consists in the preparation and purification of some typical inorganic compound, together with those of more complex composition and compounds of the rarer elements. Laboratory deposit, \$10.

203 and 204. INDUSTRIAL CHEMISTRY I AND II. Senior year and elective, first and second semesters, respectively. Offered in 1923-'24 and alternate years thereafter. Class work, three hours; laboratory, six hours. Five semester credits each semester. Prerequisite: Organic Chemistry. Dr. Brubaker.

This course treats the more important technical processes. Considerable attention is given to general operations and the machinery employed. The more important commercial manufacturing industries are then taken up, including, with others, the production of alkalies, acids, glass, clay products, cement, paint, pigments, oils, varnish, soap, gas, paper, leather, petroleum, sugars, starch and the products of fermentation and the destructive distillation of wood and coal. Textbook: *Manual of Industrial Chemistry*, by Rogers and Aubert.

Laboratory.—The laboratory work consists of the quantitative analysis of raw materials and industrial products. Laboratory manual: *Quantitative Analysis*, by Edw. G. Mahin. Laboratory deposit, \$10.

205. INDUSTRIAL ELECTROCHEMISTRY. Junior year and elective, second semester. Offered when there is a sufficiently large demand. Class work, two hours. Two semester credits. Prerequisite: College courses in general chemistry and physics. Dr. Brubaker.

In this course are treated briefly the principles of voltameters, electrochemical methods of analysis, electroplating, electrotyping, and the production of metallic objects by electroplating methods. This is followed by fuller treatment of electrolytic refining of metals, the manufacture of various industrial products by electrolytic and electrothermic methods, primary cells, the lead storage battery, the Edison storage battery, the electrometallurgy of iron and steel, and the fixation of atmospheric nitrogen. Textbook: Thompson's *Applied Electrochemistry*.

206. PHYSICAL CHEMISTRY. Junior year, first semester. Lectures and recitations, three hours; laboratory, six hours. Five semester credits. Prerequisites: Organic Chemistry, and Quantitative Analysis; and although not a prerequisite, calculus is recommended. Dr. King and Dr. Hall.

This course is especially adapted to those students desiring a broader knowledge of the more fundamental laws of chemistry. A brief study is made of the modern conception of the atom and radioactive phenomena. A more extensive study is made of the relations found to exist with matter in the gaseous, liquid and solid states. Emphasis is placed upon the following phenomena: Osmosis; solution, including colloids; surface tension; adsorption; equilibria; thermochemistry; ionization; hydrolysis, electromotive force and hydrogen ion concentration.

Laboratory.—The laboratory follows very closely the subject matter of the lectures. Laboratory deposit, \$10.

207. ADVANCED INORGANIC CHEMISTRY. Sophomore year and elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Chemistry II or Chemistry HE-II. Dr. Keith.

The course consists of a thorough study of the facts of chemistry and their theoretical interpretations according to the views of the present day. Special stress is placed upon the properties of the elements as a basis for methods of classification, and upon the rarer elements and compounds. Students electing this course are advised to take Inorganic Preparations (Chem. 202). Text: *Modern Inorganic Chemistry*, by J. W. Mellor.

208. HISTORY OF CHEMISTRY. Junior year, second semester. Lecture work, one hour. One semester credit. Prerequisite: Physical Chemistry (Chem. 206). Dr. Willard.

These lectures deal with the history concerning the development of the principal laws and theories of chemistry, special emphasis being placed upon the failures and triumphs of the founders of chemical science.

209. SURFACE TENSION AND RELATED PHENOMENA. Elective and graduate, first or second semester, when requested by a sufficient number. Lectures, two hours. Two semester credits. Prerequisite: Physical Chemistry (Chem. 206). Dr. King.

This course of lectures deals with surface tension phenomena. Attention is devoted to methods of measuring surface tension, to surface energetics, and particularly to the relation of surface tension to adsorption, and colloidal formation.

210. CHEMICAL STATICS AND DYNAMICS. Elective and graduate, second semester, when requested by a sufficient number. Lectures and assigned reading, two hours. Two semester credits. Prerequisites: Approved courses in Physical Chemistry and Calculus. Dr. King.

This course of lectures deals with the general topics of chemical equilibria, velocity of chemical reactions, hydrolysis, catalysis, etc.

211. PAINT OILS AND PIGMENTS. Elective and graduate, first semester, by appointment. Lectures and assigned readings, two hours. Two semester credits. Prerequisites: Satisfactory courses in Organic Chemistry and Quantitative Analysis. Dr. King.

This course consists of a series of lectures and assigned readings on the extraction, purification, and properties of the oils commonly used in paints, on the manufacture and properties of paint pigments, and on a general survey of the products employed as protective coverings for both wood and metal.

213. COLLOIDAL CHEMISTRY. Elective and graduate, second semester; given when requested by a sufficient number. Lectures, two hours. Two semester credits. Prerequisite: Physical Chemistry (Chem. 206.) Dr. Tague.

This course is designed to briefly cover the field of colloidal phenomena. It includes suspensoids and emulsoids, optical and electrical properties of colloids, Brownian movement, action of electrolytes on colloids, adsorption and surface phenomena, and a short review of the method for the preparation of colloids.

215. CHEMICAL THERMODYNAMICS. Elective, second semester, when requested by a sufficient number. Lectures and assigned readings, three hours. Three semester credits. Prerequisites: Approved courses in Physical Chemistry and Calculus. Dr. Keith.

The object of this course is to present those fundamental principles of thermodynamics which are particularly applicable to chemistry. Among the subjects discussed are, the first and second laws of thermodynamics and their applications to fusion, evaporation, phase rule, chemical equilibrium, chemical affinity, electromotive force, surface tension and adsorption.

218. ORGANIC CHEMISTRY I. Sophomore year, first semester. Lectures, two hours; laboratory, six hours. Four semester credits. Prerequisite: Chemistry II. Dr. Colver.

This course is for those students who expect to take a second semester of organic chemistry. The aliphatic hydrocarbons, alcohols, ethers, aldehydes, ketones, acids, esters, amides, acylhalides, acid anhydrides, amines, halogen substituted acids, amino acids, hydroxy acids, aldehyde acids, ketone acids, hydroxy aldehydes, hydroxy ketones, and related compounds are considered particularly from the standpoint of structure, methods of laboratory and commercial preparation, reactions, and uses. Special attention is given to such topics as structural, geometrical, and optical isomerism, and the use of acetoacetic ester and malonic ester in organic synthesis. Reference: Perkin and Kipping's *Organic Chemistry*.

Laboratory.—The laboratory work parallels the lectures and includes the preparation, purification, and reactions of one or more typical examples of most of the groups of compounds, studied in the classroom. The laboratory directions which are used have been prepared and are supplied by the department. Laboratory deposit, \$10.

219. ORGANIC CHEMISTRY II. Sophomore year, second semester. Lectures, two hours; laboratory, six hours. Four semester credits. Prerequisite: Organic Chemistry I. Dr. Colver.

This course is a continuation of Organic Chemistry I and takes up in analogous manner the structure, methods of laboratory and commercial preparation, reactions and uses of the aromatic compounds. Particular attention is also given to the orientating influence of various groups, the structure and reactions of the diazonium compounds, and a brief study is made of the different classes of dyes, the alkaloids, the terpenes, and a few heterocyclic compounds.

Laboratory.—In the laboratory the student carries out various preparations that illustrate the reactions which are characteristic of aromatic compounds, such as bromination, sulfonation, nitration, acetylation, diazotization, and replacement and coupling of the diazonium group. A portion of the laboratory work includes the determination of carbon, hydrogen, and nitrogen in pure unknown organic compounds by the combustion method. Laboratory guide: Noyes' *Organic Chemistry for the Laboratory*. Laboratory deposit, \$10.

223. ORGANIC PREPARATIONS. Senior year, first semester. Laboratory, three to fifteen hours. One to five semester credits. Prerequisite: Organic Chemistry II. Dr. Colver.

The compounds prepared in this course are so chosen as to give the student a thorough knowledge of the fundamental principles of synthetic organic chemistry. Laboratory deposit, \$10.

224. QUALITATIVE ORGANIC ANALYSIS. Elective, second semester; given when requested by a sufficient number. Laboratory, six hours. Two semester credits. Prerequisite: Organic Chemistry II. Dr. Colver.

This is primarily a laboratory course designed to impress upon the student's mind the characteristic reactions of the various classes of organic compounds. The first few weeks are spent in carrying out class reactions, using known compounds; the remainder of the semester is devoted to the classification and

identification of pure, unknown substances and mixtures. Laboratory guide: Kamm's, *Qualitative Organic Analysis*. Laboratory deposit, \$10.

225. STEREOISOMERIC AND TAUTOMERIC COMPOUNDS. For graduate and advanced students in chemistry, second semester; given when requested by a sufficient number. Lectures, two hours. Two semester credits. Prerequisite: Organic Chemistry II. Dr. Colver.

The course consists of lectures and assigned readings upon such special topics of organic chemistry as optical isomerism, particularly the older and more recent methods of determining the configuration of the asymmetric carbon atoms of sugar; geometrical isomerism; and ketoenol tautomerism.

226. CARBOCYCLIC AND HETEROCYCLIC COMPOUNDS. For graduate and advanced students in chemistry, second semester; given when requested by a sufficient number. Lectures, two hours. Two semester credits. Prerequisite: Organic Chemistry II. Dr. Colver.

The course consists of lectures and assigned readings upon carbocyclic and heterocyclic compounds. In the study of the carbocyclic compounds the structure, orientation, methods of synthesis, and reactions of benzene, naphthalene, anthracene, and derivatives are considered in much greater detail than is possible in an elementary course. The heterocyclic compounds studied include furane, pyrrol, thiophene, pyridine, quinoline, isoquinoline, purine, pyrimidine, hydantoin, and some structurally related substances, such as certain classes of dyes, the alkaloids, and uric acids.

228. SPECIAL REACTIONS OF ORGANIC COMPOUNDS. For graduate and advanced students in chemistry, first semester. Given when requested by a sufficient number. Lectures, two hours. Two semester credits. Prerequisite: Organic Chemistry II. Dr. Colver.

This course consists of lectures and assigned readings dealing with some of the less common reactions which take place with certain aliphatic and aromatic compounds.

230. PRINCIPLES OF ANIMAL NUTRITION. Elective and graduate, second semester. Class work, three hours. Three semester credits. Prerequisite: Organic Chemistry. Dr. Hughes.

This course gives a thorough study of the relations of animals to matter and energy, and the physiological principles involved. Study of the researches which have established the principles of nutrition constitutes the ground work of the course.

231. PHYSIOLOGICAL CHEMISTRY. Senior year, elective and graduate, first semester. Lectures and recitations, three hours; laboratory, six hours. Five semester credits. Prerequisite: An acceptable course in organic chemistry. Dr. Hughes.

This course is designed to meet the needs of students who expect to specialize in nutrition or in one of the biological sciences. It is a systematic study of the synthetic and analytical chemical changes that accompany the physiological processes of animals and plants. The chemical properties of food and body substances, and their general specific functions; the changes that take place in digestion, assimilation and elimination, and the means by which these are brought about; enzymes and their functions; the blood and lymph; general metabolism, and the interrelations of organs, are among the important topics studied. Text: Mathews' *Physiological Chemistry*.

Laboratory.—The laboratory work is designed to familiarize the student with the compounds and processes discussed in the lectures and recitations. Laboratory guide: Mathews' *Physiological Chemistry*. Laboratory deposit, \$10.

232. PHYSIOLOGICAL CHEMISTRY I. Senior year, first semester. Class work, three hours; laboratory, six hours. Five semester credits. Prerequisite: Organic Chemistry. Dr. Hughes.

This course is designed to meet the needs of students who expect to specialize in nutrition or one of the biological sciences. It treats of the chemistry of carbohydrates, lipins and proteins, and the chemical changes which these undergo during the processes of digestion and metabolism.

Laboratory.—The laboratory work is designed to familiarize the student with the compounds and processes discussed in the class work. Laboratory deposit, \$10.

233. **PHYSIOLOGICAL CHEMISTRY II.** Senior year, second semester. Class work, three hours; laboratory, six hours. Five semester credits. Prerequisite: Physiological Chemistry I. Dr. Hughes.

This is a continuation of Physiological Chemistry I. It includes the chemistry of the body tissues and excretions.

Laboratory.—The laboratory work includes a qualitative and quantitative study of the tissues and excretions discussed in the class work. Laboratory deposit, \$10.

234. **BIOCHEMICAL PREPARATIONS.** Senior year, second semester. Laboratory work, fifteen hours. Five semester credits. Prerequisites: Organic Chemistry II, and Physiological Chemistry I. Dr. Hughes.

This course includes the isolation, purification, and analysis of a number of compounds which are of importance in biochemistry and nutrition. Laboratory deposit, \$10.

235. **PATHOLOGICAL CHEMISTRY.** Elective and graduate; given when requested by a sufficient number. Class work, two hours. Two semester credits. Prerequisite: An approved course in physiological chemistry. Dr. Hughes.

This course presents the chemical facts pertaining to abnormal nutritional processes. The chemical factors involved in the causation, progress and results of disease are discussed under the following heads: Inflammation, degeneration, infection, anæmia, tuberculosis, dyspepsia, typhoid fever, jaundice, nephritis, diabetes, gout, rheumatism, intoxication.

236A. **THE CHEMISTRY OF THE PROTEINS.** Elective and graduate, first semester; given when requested by a sufficient number. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: An approved course in organic chemistry. Dr. Tague.

This course consists of a study of the chemistry of the proteins, particularly as regards their sources, isolation, purification and uses, together with their derivatives and degradation products. Laboratory deposit, \$7.50.

238. **CHEMISTRY OF ENZYME ACTION.** Elective and graduate, first semester. Lectures, two hours. Two semester credits. Prerequisite: Physical Chemistry. Dr. Hughes.

A brief review of catalysis is made, and this is followed by a study of the physical and chemical properties of enzyme preparations and the reactions catalyzed by them. The work of this course is adapted particularly to students in biology.

240. **ADVANCED QUALITATIVE ANALYSIS.** Elective and graduate, first semester; given when requested by a sufficient number. Class work, one hour; laboratory, six hours. Three semester credits. Prerequisite: Chemistry II. Dr. Brubaker.

This course is designed to broaden the student's knowledge of chemistry by a systematic study of the properties of the acid and basic elements and their compounds as shown in a detailed study of systematic analysis. Many of the rarer elements are included. A study of the application of chemical theory to analytical reactions is taken up in considerable detail with the aim of familiarizing the student with the important theories as applied to analytical procedure. Reports are made on assigned reference work. Laboratory deposit, \$10.

241. **QUANTITATIVE ANALYSIS.** Sophomore year, second semester. Class work, one hour; laboratory, twelve hours. Five semester credits. Prerequisite: Chemistry II or its equivalent. Dr. Brubaker.

The subject matter considered in this course is practically the same as that given in courses 250 and 251, and is arranged for students taking one of the chemistry curricula. Laboratory deposit, \$10.

242. **FIRE ASSAYING.** Junior year, first semester. Laboratory work, six hours. Two semester credits. Prerequisite: Quantitative Analysis. Dr. Brubaker.

In this course the student becomes familiar with the ordinary methods of fire assaying. Some attention is also paid to wet assaying. Fire assays of ores containing metals such as copper, zinc, lead, bismuth, tin, silver, and gold are made. Laboratory deposit, \$10.

243. **GAS ANALYSIS.** Junior year, first semester. Laboratory work, three hours. One semester credit. Prerequisite: Quantitative Analysis. Dr. Brubaker.

The work in this course acquaints the student with the use of standard apparatus in the analysis of gases. Analyses of air, flue and furnace, and illuminating gases are made. Laboratory deposit, \$7.50.

245. **MICROCHEMICAL METHODS OF ANALYSIS.** Elective and graduate, given when requested by a sufficient number. Laboratory, three hours. One semester credit. Prerequisites: Elementary Organic Chemistry, and Quantitative Analysis I. Dr. Brubaker.

The microscope is a very useful instrument in chemical analysis. The technical chemist finds it indispensable, and its applications are steadily increasing. The object of this course is to teach the student the various methods of using the microscope in chemical analysis, both qualitative and quantitative, applied to both inorganic substances and to vegetable or animal products. Laboratory deposit, \$7.50.

250. **QUANTITATIVE ANALYSIS A.** Elective and graduate, first semester. Class work, one hour; laboratory, six hours. Three semester credits. Prerequisite: Chemistry II. Dr. Brubaker.

This course is the first half of a year's work and covers the general procedure of gravimetric analysis, together with a discussion of chemical theory as applied to quantitative reactions. The work consists of a selected series of gravimetric determinations designed to develop accuracy in a number of operations and to introduce the procedures and principles applicable to the quantitative determination of many other substances. Reports are also made on assigned work for the study of methods of analysis not taken up in class. Textbook: *Quantitative Analysis*, by Edward G. Mahin. Laboratory deposit, \$10.

251. **QUANTITATIVE ANALYSIS B.** Elective and graduate, second semester. Class work, one hour; laboratory, six hours. Three semester credits. Prerequisite: Quantitative Analysis A. Dr. Brubaker.

This course covers the general procedures used in volumetric analysis, including the preparation of standard solutions and their use in neutralization reactions, oxidation and reduction reactions and precipitation reactions. Volumetric calculations and the theory and applications of indicators are studied in detail. Textbook: *Quantitative Analysis*, by Edward G. Mahin. Laboratory deposit, \$10.

252A. **CHEMISTRY OF SOILS AND FERTILIZERS.** Senior year, first semester. Laboratory, six hours. Two semester credits. Prerequisite: Quantitative Analysis I or equivalent. Dr. Perkins.

This course is planned to give the student a knowledge of the most important chemical methods used in the analysis and investigations of soils and fertilizers. Laboratory deposit, \$10.

253A. CHEMISTRY OF CROPS. Senior year, second semester. Laboratory, six hours. Two semester credits. Prerequisites: Organic Chemistry and Quantitative Analysis I, or equivalent. Dr. Perkins.

This course takes up the most important chemical methods used in the analysis and investigations of substances present in plants and plant products. Laboratory deposit, \$10.

254. DAIRY CHEMISTRY. Elective and graduate, first semester. Class work, one hour; laboratory, six hours. Three semester credits. Prerequisites: Organic Chemistry, and Quantitative Analysis A (Chem. 250). Mr. Titus.

The class work is centered chiefly upon the following: A detailed study of the chemical compounds present in milk, butter, cheese, and other dairy products; chemical changes effected by conditions of handling dairy products; a review of literature relating to recent investigational work in dairy chemistry.

Laboratory.—The laboratory exercises are designed to give the student a working knowledge of the most important chemical methods used in the analysis and investigation of dairy products. Laboratory deposit, \$10.

256. INSECTICIDES AND FUNGICIDES. Elective and graduate; given when requested by a sufficient number. Lectures and assigned reading, two hours. Two semester credits. Prerequisite: Satisfactory courses in organic chemistry and quantitative analysis. Mr. Latshaw.

This course consists of a series of lectures and assigned reading on the manufacture of spray materials, the chemistry involved in mixing and the theory of their toxic actions.

257. FOOD ANALYSIS. Junior year, second semester; given when requested by a sufficient number. Laboratory work, nine hours. Three semester credits. Prerequisites: Organic Chemistry, and Quantitative Analysis A. Dr. Brubaker.

This course includes the quantitative methods employed in the analysis of the various kinds of foodstuffs. It also includes practice in testing for the presence of adulterants, preservatives, and coloring materials. Laboratory deposit, \$10.

260. ADVANCED QUANTITATIVE ANALYSIS. Junior year and elective, first semester. One credit for each three hours of laboratory work. Prerequisites: Quantitative Analysis A and B. Dr. Brubaker.

Under this heading provision is made for the election of any kind of quantitative chemical work not otherwise designated. The various research and state laboratories afford a large opportunity for advanced work. Laboratory deposit, \$10.

270. CHEMISTRY PROBLEMS. Elective, both semesters and summer school. Individual problems to fulfill the thesis requirements of students in agricultural chemistry, biochemistry, and industrial chemistry curricula are taken up in this course.

275. CHEMISTRY SEMINAR. Once a week, throughout the year, the officers of the department, with the more advanced students and such others as wish to, meet for papers and discussions upon topics representing the progress of chemical science, chiefly as found in the current journals. The preparation of subjects for presentation at these meetings may be made a part of the credit work of advanced students.

FOR GRADUATES

301. CHEMICAL RESEARCH. Excellent opportunities are offered students to undertake research work in chemistry. Such work is being constantly conducted in the laboratories of the department in connection with the Agricultural and Engineering Experiment Stations. The State Food Laboratory and the laboratories for analysis of feeds and fertilizers are also accessible to students desiring research along such lines. Much emphasis is placed upon research in the department, and all graduate students whose training is adequate are encouraged to participate. Students working out their master's theses in

the Department of Chemistry are assigned to this course. Work is offered in the following lines:

Agricultural Chemistry. Dr. King, Mr. Latshaw, and Dr. Perkins.

Industrial and Engineering Chemistry. Dr. Brubaker and Dr. Van Winkle.

Analytical Chemistry. Dr. Brubaker and Mr. Latshaw.

Organic Chemistry. Dr. Colver and Dr. Palmer.

Biochemistry. Dr. Hughes and Dr. Tague.

General and Physical Chemistry. Dr. King, Dr. Hall, and Dr. Keith.

Economics and Sociology

Professor KAMMEYER
Professor BURR

Assistant Professor ANDERSON
Instructor SPURRIER

Vocational training alone does not fully prepare a student for his life work, nor for the acceptable discharge of his duties as a citizen. It is necessary that he should have at least a general knowledge of the economic and social conditions under which he will live and work, in order that he may become a useful member of society. The state needs men and women trained for citizenship. It is the purpose of the Department of Economics and Sociology to plan and direct its work with this need in view.

A department library of well-selected books and pamphlets bearing on economics, sociology, and statistics is at the disposal of the students, and is used for collateral readings, book reviews, and reports.

The department owns equipment valued at \$691.

COURSES IN ECONOMICS

FOR UNDERGRADUATES

101. ECONOMICS. Junior and senior years, both semesters and summer school. Class work, three hours. Three semester credits. Dr. Kammeyer, Mr. Anderson, and Mr. Spurrier.

This is a course in the fundamentals of economic science, including a study of man's wealth-getting and wealth-using activities as they manifest themselves in the consumption, production, exchange, and distribution of commodities and services. Budgets, factors and expenses of production, money, banking, wage systems, labor organizations, rent, interest and profits are some of the leading topics for study and class discussion. These phenomena are here studied in conjunction with the laws or social conventions which control or influence them, such as the federal-reserve systems, the farm-loan act, legal restrictions concerning commerce, strikes, child labor, trusts, monopolies, and the like. The application of economic principles to such subjects as taxation, socialism, insurance, etc., is also considered. Supplementary reading of current literature, reference books, the keeping of notes, and periodical written reports are required. Text: Ely's *Outlines of Economics*.

106. BUSINESS ORGANIZATION. Senior year and elective, both semesters. Class work, one hour. One semester credit. Prerequisite: Economics. Dr. Kammeyer.

Individual proprietorship, partnership and corporation as forms of business organization and management; the advantages and disadvantages of each, and legislative restrictions are studied in this course. The selling plans, advertising methods and systems of credits and collections used by typical manufacturing and distributive industries are made the basis of study and reports. Attention is given also to the origin and operation of markets and exchanges, to cost accounting, and special systems of wage payment. Text: Lansburgh's *Industrial Management*.

116. MONEY AND BANKING. Elective, both semesters and summer school. Class work, two hours. Two semester credits. Prerequisite: Economics. Dr. Kammeyer and Mr. Anderson.

The first half of this course is devoted to a study of the nature, history and functions of money; its place as a factor in man's economic progress, and its importance as such in his business activities as organized to-day; money standards and systems, monometalism, bimetalism, limping standard, paper standard, gold-exchange standard; coinage and coinage laws; instruments of credit, bills of exchange, drafts; clearing houses. The second half of the course takes up the subject of banking. Banking in its historic forms is briefly considered as a preparation for a more detailed study of the federal-reserve system, the federal farm-loan system, and state banks, particularly Kansas state banks. To this is added a study of savings banks, trust companies, building and loan associations and other institutional forms of credit. Text: Holdworth's *Money and Banking*.

121. ECONOMIC GEOGRAPHY. Elective, first semester and summer school. Class work, three hours. Three semester credits. Prerequisite: Economics. Mr. Anderson.

This is a discussion of the important facts of the economic world and a study of production and trade as they are influenced by geographical conditions. The geography of the more important commercial products of farm, range, forest, mine, factory, and sea; transportation and manufactures; great commercial and manufacturing centers, and types of commercial nations are considered. Stress is given to the natural resources of the United States as factors in the national development. This includes the current movement to conserve natural resources; the improvement and extension of waterways; the control of water power and water supply. Text: Smith's *Industrial and Commercial Geography*.

126. BUSINESS MANAGEMENT. Elective, both semesters and summer school. Class work, two hours. Two semester credits. Prerequisite: Economics, or to be taken concurrently. Not open for credit to students who have taken course 106. Dr. Kammeyer and Mr. Spurrier.

Plant location and structure; the organization and management of industrial forces; distribution of manufactured goods, with especial attention given to the problems involved in relations of manufacturers, middlemen and consumers; the organization of the sales department; sales management and the art of selling; typical advertising campaigns of different classes of producers; costing and its spread to the different elements of production, are subjects studied in this course. Text: Kimball's *Principles of Industrial Organization*.

131. COST ACCOUNTING. Junior year and elective, first semester and summer school. Class work, two hours. Two semester credits. Mr. Anderson.

Following a review of the principles of accounting, a general survey of the more important principles of cost accounting is made. This course is concerned particularly with the subject of production costs. The student is expected to keep the principles of costing in mind throughout the whole course, to the end that he may be able to adapt these working principles to concrete problems. Attention is given to the calculation and the distribution of overhead costs, and to the organization of cost systems. Practical problems are given for solution and as means of illustrating and applying the principles. Text: Castenholz's *Cost Accounting Procedure*.

FOR GRADUATES AND UNDERGRADUATES

213. PUBLIC FINANCE. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Economics. Mr. Anderson.

This course embraces a study of public revenues and expenditures; financial administration of government; financing emergencies; the historical development of revenue systems; public indebtedness; budgets; proposed reforms in local, state, and national taxation, and recent tendencies in the direction of reform, with special reference to the United States. The shifting and incidence

of taxes is also made a subject of study. The aim is to give the student a knowledge of past and existing revenue systems, especially in the United States, and to acquaint him with the fundamental principles of the science of public finance. Text: Lutz's *Public Finance*.

229. TRANSPORTATION PROBLEMS. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Economics. Mr. Anderson.

After a brief review of the development of transportation and a survey of railroad organization, this course constitutes especially a study of railroad transportation from the standpoint of rates and their regulations in the United States. Conditions of competition in the railroad industry; discriminations in rate making, both justifiable and unjustifiable, and pooling agreements, are subjects of special study. The need for governmental supervision of the industry, and the establishment and work of the Interstate Commerce Commission are studied. Actual cases of discriminations in rates which have been tried by the Interstate Commerce Commission are considered in order to bring out the development of the policy of the Interstate Commerce Commission, as well as to trace the increasing importance and power of the commission in the railroad industry. Text: Jones' *Principles of Railway Transportation*.

233. LABOR PROBLEMS. Elective, both semesters. Class work, two hours. Two semester credits. Prerequisite: Economics, or Sociology. Mr. Burr.

The history, organization, functions, and legal status of labor unions in the United States and in the principal countries in Europe are discussed. Statistics and judicial decisions relating to strikes, boycotts, picketing, arbitration, etc., are subjects of study and investigation. The course also includes a study of the various plans that have been proposed and tried for the more equitable distribution of wealth, such as coöperation, profitsharing, industrial partnership, etc. Text: Hoopingarner's *Labor Problems in Industry*.

240. INSURANCE. Elective, both semesters. Class work, two hours. Two semester credits. Prerequisite: Economics. Mr. Spurrier.

This is a course in the fundamentals of insurance. Types of insurance organizations and of insurance policies are studied. The field covered includes life insurance in all its forms; accident and health insurance; liability and compensation insurance; fire insurance; marine insurance; and other forms of casualty insurance of comparatively recent development, such as automobile, title, and credit insurance, and corporate bonding. The purpose of the course is to promote more intelligent buying of insurance; a wider recognition of the necessity of insurance education in the training of prospective business men; and to offer preparatory training to those who expect to take up insurance as a profession. Instruction is based on Riegel and Loman's *Insurance Principles and Practice* which is used as a text.

245. MARKETING PRACTICE. Elective, both semesters. Class work, two hours. Two semester credits. Prerequisite: Economics. Mr. Spurrier.

This course begins with a consideration of marketing functions, such as assembling and grading of products, storing, transportation, financing and risk taking, stimulation of demand, and merchandising. Following this is a study of marketing agencies and methods by means of which products are moved from producer to consumer. This involves the selection of marketing channels and other media of distribution such as the jobber, organized exchanges, and coöperative marketing. Consideration is given also to basic marketing systems and to retailing as carried on by department, specialty, and chain stores, and mail-order houses. The course concludes with a study of marketing problems of the individual business; prices and price policies, sales planning and management, salesmanship and advertising campaigns. Text: White and Hayward's *Marketing Practice*.

248. ECONOMIC PROBLEMS. Elective by appointment. Credit and hours arranged by consultation with the head of the department. Prerequisites: Economics, and one two-semester credit course in advanced economics. Dr. Kammeyer, Mr. Anderson, and Mr. Spurrier.

FOR GRADUATES

301. **RESEARCH IN ECONOMICS.** Elective, both semesters and summer school. Credit and hours arranged in conference with head of the department. Prerequisites: Such courses as the problem undertaken may require. Dr. Kam-meyer, Mr. Anderson, and Mr. Spurrier.

Graduate students who enroll in this course may elect for original investigation any acceptable problem in the general field of economics.

COURSES IN SOCIOLOGY

FOR UNDERGRADUATES

151. **SOCIOLOGY.** Elective, both semesters and summer school. Class work, three hours. Three semester credits. Mr. Burr.

A careful study is made of the fundamental principles of social life as related to other scientific principles. Special consideration is given to their practical application to social action and organization. While proper attention is given to social pathology; poverty, its causes and remedies; crime, its causes and prevention; and to remedial legislation and correctional agencies—special emphasis is placed upon normal constructive social evolution. The processes of socialization, social forces, and social control, particularly in their relation to commercial, industrial and professional leadership, receive special stress. The purpose is to give the student sufficient knowledge of the origins, processes, and meanings of social action to lead him to more specialized study if he so elects, or otherwise to enable him to become an intelligent and leading factor in either urban or rural community life. Problems and opportunities are given for original investigation. Assigned library readings and written reports are required. Text: Hayes's *Introduction to Sociology*.

156. **RURAL SOCIOLOGY.** Elective, first semester. Class work, three hours. Three semester credits. Mr. Burr.

The student should, preferably, precede this course by one in sociology. The principles of sociology are applied to rural conditions. A careful review is made of the history of the country life movement. A special study is made of the social values and problems of the rural community, including the home, the school, the church, societies and organizations, and the relation of the state to general rural welfare. Special emphasis is placed upon the study of the community as such, its normal area, the relationship between city and country, with theories and methods for unifying and socializing the enlarging community. The social effect of new rural economic movements is briefly dealt with. The purpose of the course is to enable the student to qualify for a more specialized study of rural organization, or to become an intelligent and leading factor as a citizen in a rural community. Text: Gillette's *Rural Sociology*.

FOR GRADUATES AND UNDERGRADUATES

257. **SOCIAL PROBLEMS.** Elective, both semesters and summer school. Class work, two hours. Two semester credits. Prerequisite: Sociology. Mr. Burr.

Social activities and social legislation and constructive methods of dealing with present social conditions are studied. In the early part of the course a general study is made of social conditions growing out of immigration, modern industry, city developments, and population movements. Next is taken up a study of charity and reform organization, including special attention to "case-taking." Such organized activities are studied with reference to both urban and rural problems. Further attention is given to the condition and care of the wards of society; deaf, blind, epileptic, insane, criminal; delinquent, dependent, and defective children; and the laws and institutions seeking to solve the problems involved. The purpose is to give the student a working knowledge of these social problems, and qualify him, if he so wishes, for a position of professional service in social and industrial welfare organization. Instruction is by lectures, text and library work. Opportunity is given

for original investigation and practical experience. Text: Grove's *Social Problems and Education*.

267. COMMUNITY ORGANIZATION. Elective, second semester and summer school. Class work, three hours. Three semester credits. Prerequisite: Sociology. Mr. Burr.

A study in detail is made of organizations now working in the community field on a rural, civic, county, state, and national basis. The work is considered from the standpoint of local economic and social development. The functions of the local community are classified, each function carefully analyzed, and a study made of the organizations and projects by means of which the community performs its various functions. The student is guided in a study of his own community on a functional basis. About one-third of the course will consist of a series of lectures on rural leadership. The course is especially adapted to the needs of county agents, home demonstration agents, welfare officers, county health nurses, and the like. Instruction is given by means of class discussions, library work, and lectures. Text: Burr's *Rural Organization*.

270. ADVANCED RURAL SOCIOLOGY. Elective. By appointment. Three semester credits. Prerequisite: Rural Sociology. Mr. Burr.

This course is a continuation of Rural Sociology and includes a wide field of reading in the literature of rural life. Original research work is carried out and a thesis is prepared.

275. ECONOMIC AND SOCIAL SURVEYS. Elective. By appointment. Credit and hours of work arranged in consultation with the head of the department. Prerequisite: Economics or Sociology. Mr. Burr.

Communities are surveyed for the assembling of facts concerning trade, communication and transportation, church activities, school conditions, etc. The course includes reading, field research work, and the preparation of a thesis.

FOR GRADUATES

351. RESEARCH IN SOCIOLOGY. Elective, both semesters and summer school. Credit and hours of work arranged in consultation with the head of the department. Prerequisites: Such courses as the problem undertaken may require. Mr. Burr.

Graduate students who enroll in this course may elect for original investigation any acceptable problem in the field of sociology.

Education

Professor HOLTON*
Professor ANDREWS**
Professor WILLIAMS
Professor PETERSON
Professor STRICKLAND
Associate Professor BRAINARD

Associate Professor DAVIDSON
Assistant Professor RUST
Instructor MAUST
Assistant FRITZ
Doctor HOLTZ

The courses in this department have for their controlling purpose the professional training of teachers. Two types of course are offered: (1) courses that give the broad, fundamental principles upon which public education is based, and (2) courses that develop technic and skill in school management and the organization of the subject matter of the curricula. All courses are based upon the proposition that education supported by public taxation should function in social and vocational efficiency. The department possesses equipment valued at \$2,230.

The State Board of Education has set up the following standards or their equivalents for the certification of teachers:

* Absent on leave, 1925-'26.

** Acting department head, 1925-'26.

1. Three-year Certificates Renewable for Life.

- a. Complete four years of College work with degree.
- b. At least eighteen hours of the four years' work must be taken in the Department of Education, as follows:

(1) Three semester hours in Psychology or Methods, three in Educational Administration, and three in Educational Psychology.

(2) Nine semester hours elected from the Department of Education.

- c. Credit obtained in college courses in the teaching of special subjects will be accepted to the extent of three semester hours to apply on the required credits in Education, provided that these courses are conducted with the approval of the College Department of Education and are offered in the junior or senior year, with preliminary preparation as follows:

English.—Not less than fifteen semester hours of college credit, following at least three high-school units.

Foreign Languages.—Not less than fifteen semester hours of college credit in the language in which the teachers' course is taken, following at least three high-school units or equivalent in some foreign language or languages.

Mathematics.—Not less than fifteen semester hours of college credit, following at least two high-school units.

Physical Science.—Not less than ten semester hours of college credit in the science in which the teachers' course is taken, following at least two high-school units or equivalent in physical science.

Biological Science.—Not less than ten semester hours of college credit in the science in which the teachers' course is taken, following at least two high-school units or its equivalent in biological science.

History.—Not less than ten semester hours of college credit, following at least two high-school units or equivalent.

In any of the above, four semester hours of college credit will be regarded as the equivalent of one high-school unit.

- d. Valid in any elementary or high school in Kansas.

2. Three-year Certificates Renewable for Three-year Periods.

- a. Complete at least sixty hours of College work, including three semester hours in Psychology, three in Educational Administration, and three in Methods of Teaching or equivalent courses in the Department of Education which may be acceptable to the State Board of Education.

Not more than nine semester hours of education will be accepted on transcripts showing only sixty hours of credit.

- b. Valid in any elementary school, junior high school or high school offering not more than a two-year course of study.

3. Certificates for Teachers and Supervisors of Public-school Music.

- a. Complete at least sixty hours of College work, including the following:

(1) Not less than twenty-eight semester hours in technical courses in Music.

(2) Three semester hours in Psychology, three in Educational Administration, and three in General Methods of Teaching.

(3) Not less than eight semester hours in methods of Teaching Public-school Music.

- b. Valid for three years and may be renewed for three-year periods.

4. Certificates for Teachers and Supervisors of Physical Education.
 - a. Complete at least two years of College work, including the following:
 - (1) Not less than twenty-eight semester hours in the Department of Physical Education.
 - (2) Three semester hours in Psychology, three in Educational Administration, and three in General Methods of Teaching.
 - b. Valid for three years and may be renewed for three-year periods.
5. Certificate for Teachers and Supervisors of Manual Training.
 - a. Complete at least two years of College work, including the following:
 - (1) Not less than twenty-eight semester hours in the Department of Shop Practice.
 - (2) Three semester hours in Psychology, three in Educational Administration, and three in General Methods of Teaching.
 - b. Valid for three years and may be renewed for three-year periods.
6. Certificates for Teachers of Vocational Agriculture.
 - a. Complete four years of College work, including the following:
 - (1) Not less than forty-two semester hours in technical agriculture.
 - (2) Eighteen semester hours in the Department of Education: viz., three in Psychology, three in Educational Administration, three in Educational Psychology, three in Agricultural Education, three in Special Methods in Agriculture, and three in Supervised Observation and Teaching.
 - b. Valid for three years and may be renewed for life.
7. Certificates for Teachers of Vocational Home-making.
 - a. Complete four years of College work, including the following:
 - (1) Thirty-four semester hours in technical home economics, as required in the curriculum in Home Economics, and six semester hours of electives: viz., three semester hours in Child Welfare, and three semester hours in Practice Work in Household Management.
 - (2) Eighteen hours in the Department of Education: viz., three in Psychology, three in Educational Administration, three in Educational Psychology, three in Vocational Education, three in Special Methods in Home Economics, and three in Supervised Observation and Teaching.
 - b. Valid for three years and may be renewed for life.

COURSES IN EDUCATION

FOR UNDERGRADUATES

Psychology A, B, and C are parallel courses in introductory psychology. The content of these courses is fundamentally the same, but the emphasis differs according to the preparation and needs of various groups of students as indicated below. Only one of these three courses may be taken for credit.

101. **PSYCHOLOGY A.** Freshman and sophomore years, first or second semester. Class work, three hours. Three semester credits. Required for three-year state certificate renewable for three-year periods, and elective for freshman and sophomore students in agriculture, engineering, and industrial journalism. Mr. Brainard and Miss Maust.

This course is an introduction to the fundamental facts and principles of general psychology. It involves a study of the physiological and neural basis of behavior; innate and acquired tendencies to reaction; the nature of the learning process and the methods and conditions which favor rapid and effec-

tive learning; individual differences as related to vocational and personal efficiency.

102. **PSYCHOLOGY B.** Freshman year, first semester. Class work, three hours. Three semester credits. Required for certificate in public school music. Mr. Brainard.

This course is based upon the same facts and principles as course 101, but draws largely from musical material for illustration and application. The course includes experimental work in the analysis and measurement of musical talent and bears directly upon the teaching and learning of vocal and instrumental music.

103. **PSYCHOLOGY C.** Junior year and elective, first or second semester. Class work, three hours. Three semester credits. Required for state three-year certificate renewable for life, and elective for junior and senior students in agriculture, engineering, and industrial journalism. Miss Maust.

This course is based upon the same general content as course 101 with some additional materials in the applications of psychology. More attention is given to the methods by which new facts are discovered and interpreted.

105. **EDUCATIONAL ADMINISTRATION A.** Elective. Class work, three hours. Three semester credits. Required for state life certificate and for the three-year certificate renewable for three-year periods. Only one of the Educational Administration courses may be taken for credit. Mr. Fritz.

This course is a study of the organization of state, city and county school systems. The organization of school systems in Kansas, both rural and city, receives careful consideration. The study of the school laws of Kansas forms an important part of the course.

106. **EDUCATIONAL ADMINISTRATION B.** Elective, first or second semester. Class work, three hours. Three semester credits. Only one of the Educational Administration courses may be taken for credit. Dr. Williams.

This course is similar to course 105 in that it discusses the general principles of educational administration in a democracy, but differs from it in that it gives special emphasis to the administration and supervision of vocational agriculture, home-making, and trades and industry. Students preparing to teach these subjects should take this course rather than course 105.

109. **EDUCATIONAL PSYCHOLOGY.** Elective, first or second semester, junior or senior year. Class work, three hours. Three semester credits. Prerequisite: General Psychology. Dr. Strickland.

This course deals with the native equipment of human beings which serves as a basis for education, individual differences, and the psychology of learning. This course is required for the three-year certificate renewable for life.

111. **METHODS OF TEACHING A.** Freshman year, first or second semester. Class work, three hours. Prerequisite or parallel: General Psychology. Three semester credits. Mr. Brainard.

This course is designed particularly for those who wish to teach in grades or junior high school on the three-year certificate renewable for three-year periods, and is required for this certificate. The course deals with the problems of subject matter, its presentation, class-room organization and procedure. Special emphasis is given to the junior high school viewpoint.

112. **METHODS OF TEACHING B.** Elective, first or second semester, junior or senior year. Class work, three hours. Three semester credits. Prerequisite: General Psychology. Dr. Strickland.

This course is elective for those who expect to teach upon completion of the four-year college course. It deals with the problems of subject matter, its presentation, classroom organization and procedure. Special emphasis is given to the high-school viewpoint.

113. **HISTORY OF EDUCATION A.** Elective. Class work, three hours. Three semester credits. Mr. Fritz.

This course attempts an outline survey of the development of educational institutions and practice in Europe and America. Institutional history rather than theory is emphasized. An effort is made to present the history of education as a conscious evolution of society.

118. EDUCATIONAL SOCIOLOGY A. Elective, first or second semester. Class work, three hours. Three semester credits. Mr. Holton.

This course deals with the concrete objectives of education considered as a process of social adjustment; the meaning of education in a democracy; the educative functions of the home, the community, the church and the school; the school as a special environment; the meaning of labor and leisure; cultural and vocational education; intellectual and practical studies; and physical and social studies.

119. EDUCATIONAL SOCIOLOGY B. Elective, first or second semester. Class work, three hours. Three semester credits. Mr. Holton.

This course is similar to course 118 in general principles of education in a democracy, but differs from it in that it deals with the concrete objectives in vocational agriculture, home-making, and trades and industry. Students preparing to teach these subjects should take this course rather than course 118.

125. VOCATIONAL EDUCATION A. Elective, first or second semester. Class work, three hours. Three semester credits. Required of all candidates for state teachers' certificates who are preparing to teach agriculture, home economics, manual training or industrial subjects. Prerequisite: Educational Administration. Dr. Williams.

A comparative study is made of the provisions for the different phases of vocational education in Kansas and other states and countries, and of the principles underlying such education. The relation of vocational education to the community, county, state, and nation, and the part to be played by each in its development is emphasized. Types of schools, courses of study, adjustment of school work to community needs, and the equipment and administration of the differing vocational schools and classes are studied. The aim of the course is to fit the student to plan, teach, and administer or supervise vocational work, especially in high schools. The plans and requirements of the state and federal boards for vocational schools and classes are carefully studied.

132. SPECIAL METHODS IN THE TEACHING OF HOME ECONOMICS. Elective, first or second semester. Class work, three hours. Three semester credits. Required of all candidates for the state vocational home-making certificate, and expected of all candidates for the state teachers' certificate who are preparing to teach either vocational home-making or general home economics. Prerequisites: Foods I and II, Clothing I and II, and Psychology. Mrs. Rust.

This course applies the principles of teaching to the selection and development of home-economics subject matter in lessons for all types of pupils and to the conduct of laboratory and classroom exercises. The handling of the school and home projects is particularly stressed.

136. SPECIAL METHODS IN THE TEACHING OF AGRICULTURE. Elective, second semester. Class work, three hours. Three semester credits. Required of all candidates for state teachers' certificates who are preparing to teach agriculture. Prerequisite: Psychology. Mr. Davidson.

Training in planning lessons, organizing materials, and conducting class, laboratory, and field instruction work in vocational agriculture is the purpose of this course. The work includes observation, criticism, and reports of class work done in high schools visited; outlining the agricultural course, determining content material for the enterprises included, arranging in seasonal sequence, and planning procedure in presentation of subject matter. Special attention is given to the selection of equipment, apparatus, and materials suitable for properly establishing and conducting a vocational agricultural department. The project in its various phases is studied from standpoint of aim, planning, supervision, correlation with class work, records, and evaluation. Consideration is given methods of stimulating, supervising, and evaluating

home practice work. Such subjects as the community survey, prevocational work, agricultural clubs, community fairs, agricultural library, and departmental records are given careful study.

140. SPECIAL METHODS IN THE TEACHING OF INDUSTRIAL ARTS SUBJECTS. Elective, second semester. Class work, three hours. Three semester credits. Expected of all candidates for the state teachers' certificate who are preparing to teach industrial subjects. Prerequisite: Mechanical Drawing II, Woodworking II, and Educational Psychology. Dr. Williams.

The various lines of work included under the head of industrial arts are studied and a series of progressive lessons worked out in each of these lines emphasizing important elements. A study is made of the various materials employed and the methods of utilizing them for the needs of pupils. The arrangement of courses, the outlines and presentation of assignments, the preparation of assignments, the preparation of laboratory material and the conduct of laboratory exercises are taken up. The work includes recitations, class discussions, assigned readings, and written reports.

141. SPECIAL METHODS IN THE TEACHING OF PHYSICS. Elective. Class work, two hours; laboratory, three hours. Three semester credits. Mr. Raburn.
(See Department of Physics, course 224.)

142. SPECIAL METHODS IN THE TEACHING OF MATHEMATICS. Elective. Class work, three hours. Three semester credits. Mr. Stratton.
(See Department of Mathematics, course 122.)

143. SPECIAL METHODS IN THE TEACHING OF HISTORY. Elective, first or second semester. Class work, two hours. Two semester credits. Mr. Iles.
(See Department of History, course 127.)

144. SPECIAL METHODS IN THE TEACHING OF ENGLISH. Elective, second semester and Summer School. Class work, three hours. Three semester credits. Mr. Davis and Miss Rice.
(See Department of English, course 134.)

145. SPECIAL METHODS IN ARITHMETIC. Class work, two hours. Summer term only. Two semester credits. Miss Hyde.
(See Department of Mathematics, course 123.)

150. HISTORY OF PHILOSOPHY. Elective, first semester. Class work, three hours. Three semester credits. Limited to junior, senior and graduate students. Dr. Andrews.

The development of philosophy, its relation to general culture, scientific theory, education and politics will form the basis of this course. To help the student formulate values and interpret his own experience is the purpose of the course. The course will form a brief outline of philosophical thought from Thales to modern times.

160. SUPERVISED TEACHING IN HOME ECONOMICS. Elective, first or second semester. Three semester credits. Limited enrollment. Prerequisites: Foods I and II, Clothing I and II. Prerequisite or parallel: Special Methods in the Teaching of Home Economics. Mrs. Rust.

This course is required of all those qualifying to teach vocational home-making and is urged upon those who are qualifying for the state teachers' certificate for teaching general home economics. Supervised teaching is carried on in the sewing and cooking class of the Manhattan high school.

161. SUPERVISED OBSERVATION AND TEACHING IN AGRICULTURE. Elective, first or second semester. Three semester credits. Expected of all candidates for state teacher's certificates who are preparing to teach agriculture. Prerequisites: Educational Psychology, and Special Methods in the Teaching of Agriculture. Mr. Davidson.

Students expecting to teach are required to do three weeks observation and practice teaching in vocational agricultural classes in the Manhattan high school, and other high schools by arrangement. In addition, one class period

through the semester is required for group study of classroom problems. Double supervision by the College instructor and vocational teacher in the practice department is given. Both instructors criticize lesson plans and presentation.

163. SUPERVISED OBSERVATION AND TEACHING IN SCIENCE. Elective, first or second semester for junior or senior students. Three semester credits. Prerequisites: Methods of Teaching, or Educational Psychology, and at least ten hours of college credit in the science to be taught. Dr. Strickland.

This course is designed for those preparing to teach science in high schools. Three weeks' observation and practice teaching in a science are required. In addition, one class period through the semester is devoted to a group study of lesson plans, special methods and devices, organization of courses, etc.

FOR GRADUATES AND UNDERGRADUATES

201. RURAL LIFE AND EDUCATION. Elective, first or second semester. Class work, three hours. Three semester credits. Prerequisite: Educational Administration. Mr. Davidson.

This course deals with an historical and social study of rural life. A careful study of the institutions and organizations that have contributed to rural life development is made. The evolution from the one-room rural school to the rural high school and consolidated schools is carefully studied. A careful review is made of farmers' organizations and all forms of organized community life in the open country, in so far as they bear on the problems of public education.

204. RURAL SECONDARY EDUCATION. Elective, first or second semester. Class work, three hours. Three semester credits. Prerequisite: Educational Administration. Dr. Williams.

This course deals with the administration, organization, and conduct of rural secondary schools. A brief historical study is made of rural secondary education with special emphasis given in the study of objectives of junior and senior high-school organization. The curriculum, as well as methods of organizing and conducting rural secondary schools, are stressed. Field problems in rural secondary education are set up and a certain amount of field work will be required in connection with the course.

208. THE PSYCHOLOGY OF CHILDHOOD AND ADOLESCENCE. Elective, first or second semester. Class work, three hours. Three semester credits. Prerequisite: Psychology A, B, or C. Mr. Brainard.

The purpose of this course is to give a clearer understanding of the interests and activities of childhood and adolescence, with an appreciation of their significance for learning and for the development of those habits, attitudes, purposes, and standards of conduct which constitute character. The course includes a study of the following topics: Norms of physical development, inherited traits, habit formation, the learning process, play, the social instincts of childhood and adolescence, and the development of intelligence and morality. The course will be conducted in two sections: Section A, in which the emphasis will be placed upon the psychology of childhood, and section B, in which the emphasis will be placed upon the psychology of adolescence.

211. MENTAL MEASUREMENTS. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Psychology. Dr. Peterson.

This course deals with the methods and devices employed and the more significant results so far obtained in the measurement of mental alertness, special aptitudes, and character traits. It includes a study of the values and limitations of mental measurements in meeting some of the crucial problems of vocational and educational guidance, classification and promotion in the schools, segregation and treatment of mental defectives and delinquents, employment, immigration, racial antipathy, etc. Each student has an oppor-

tunity to obtain practical experience in giving tests and in the statistical evaluation and interpretation of results.

212. EDUCATIONAL TESTS AND MEASUREMENTS. Elective, first or second semester. Class work, three hours. Three semester credits. Prerequisites: General Psychology, and Educational Psychology. Dr. Strickland.

This course is a study of the problems of measuring achievement as distinguished from intelligence testing. The values of tests as teaching tools, the errors to be avoided, the technique of constructing and using standardized and objective tests, and the interpretation of results are given consideration.

213. ABNORMAL PSYCHOLOGY. Elective, senior year, second semester. Class work, three hours. Three semester credits. Prerequisite: Psychology C or D. Dr. Peterson.

This course is devoted mainly to a study of such manifestations of faulty integration of bodily activities and mental functions as are found in hysteria, dreams, hypnotism, trances, multiple personality, etc. Critical attention is also given to certain questionable concepts of abnormal psychology which are found in current literature and to prevalent practices in dealing with mental disorders.

215A. APPLIED PSYCHOLOGY. Elective, first or second semester. Class work, three hours. Three semester credits. Prerequisite: Psychology. Dr. Peterson.

A study is made of the psychological conditions of personal, industrial and business efficiency as determined by observation and experiment in such special fields as advertising, salesmanship, employment, scientific management, etc. Special attention is given to the use of psychological tests in employment, vocational guidance, etc.

216. ADVANCED PSYCHOLOGY. Elective, first or second semester. Class work, three hours. Three semester credits. Prerequisite: Psychology. Miss Maust.

The fundamental problems, methods, and interpretations of general psychology are studied critically in this course.

217. EXPERIMENTAL PSYCHOLOGY. Elective, first or second semester. Class work, three hours. Three semester credits. Prerequisite: Advanced Psychology. Dr. Peterson.

As an introduction to the types of problems encountered and to the basic methods of procedure essential to the analysis of the thought processes, a study is made of a few representative experiments in animal and sensorimotor learning. This is followed by a survey of the experimental literature on the higher mental processes with special attention to the more objective studies in the experimental analysis of the thought processes. Approximately half the time is devoted to laboratory work.

219. THE CURRICULUM. Elective, first or second semester. Class work, three hours. Three semester credits. Prerequisite: Six hours in education. Limited to junior, senior, and graduate students. Dr. Andrews.

An attempt is made in this course to discover the fundamental requirements of our modern life upon the schools. A search is made for educational objectives in the light of the above requirements and a catalogue of these objectives is attempted. Each subject in the curriculum is examined for its minimum essentials both in the elementary school and the high school. The course proceeds through readings, research on community problems, and lectures.

221. EXTENSION METHODS AND PROBLEMS. Elective, second semester. Class work, two hours. Two semester credits. Dr. Williams and members of the Extension Division.

The origin and development of extension work, its aim and purposes and relation to other general educational activities are briefly reviewed. The organization and administration of extension work under the Smith-Lever law and the part taken by colleges and the Department of Agriculture; types of extension work conducted by bankers, railroads, manufacturers, and other agencies; and future problems of extension work, are studied.

223. STATISTICAL METHODS APPLIED TO EDUCATION. Elective. Class work, three hours. Three semester credits. Prerequisite: Six hours in education. Limited to junior, senior, and postgraduate students. Dr. Andrews.

The aims of the course are: (1) to organize material and data of educational experience and research for statistical interpretation; (2) to develop skill and confidence in the use of statistical methods; (3) to provide discussions and interpretations of statistical methods employed in scientific studies in education; (4) to give experience in the computation of statistical constants and to develop the ability of graphical representations and interpretation.

226. VOCATIONAL EDUCATION B. Elective, second semester and summer school. Class work, three hours. Three semester credits. Dr. Williams.

An intensive study is made of the administration and supervision of the different fields of vocational education, including agriculture, home-making, trade, and industrial and commercial education. A study of curricula and curriculum building in the different vocational fields in relation to community needs is emphasized. The work consists of lectures, reports, and class discussions. Each student is required to choose a project and to carry on special investigation in this chosen field.

230A. VOCATIONAL GUIDANCE. Elective, first or second semester, and summer school. Class work, three hours. Three semester credits. Prerequisites: Educational Administration, Psychology, and Vocational Education. Dr. Williams.

This course is designed for those preparing to teach in junior or senior high schools in vocational or prevocational subjects. The aim of the course is twofold: First, to put the student in touch with the best methods and practices now used in the field of pupil guidance in study of vocations and career planning; and second, to make analysis of a number of the more desirable trades, professions, and business callings.

235. THE TECHNIC OF MENTAL TESTING. Elective, first or second semester. Class work, one hour, laboratory, six hours. Three semester credits. Prerequisites or parallel courses: Mental Measurements, and Statistical Methods. Dr. Peterson.

This course is designed to equip the student with the knowledge and experience necessary for the effective and reliable use of the principal tests and scales for the measurement of general intelligence and special abilities. A thorough study is made of the methods of giving and scoring the Standard Revision of the Binet Scale, with practice under the observation of the instructor until sufficient reliability is secured. The principal standard group tests of intelligence and special abilities are also analyzed and finally given and scored under observation. Much attention is given to the choice of tests for specific purposes and the tabulation and interpretation of scores. Students who successfully complete this course are awarded a certificate in Mental Testing.

240. SOCIAL PSYCHOLOGY. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: Psychology A, B, or C. Dr. Peterson.

This course deals with the reactions of individuals to the behavior of their fellow beings. This involves a study of the genesis and motivation of group habits, such as language, money, customs, conventions, fashions, laws, etc., and of group norms of capacity and achievement as they affect the relations of social classes, nationalities, and races.

245. THE JUNIOR HIGH SCHOOL. Elective, summer school. Class work, three hours. Three semester credits. Limited to junior, senior and graduate students. Dr. ———.

This course is a study of the origin and development of the junior high school. It considers the educational and social bases of the intermediate school, its methods of teaching, its administration and discipline. Careful

attention is given to the curriculum of the junior high school and its articulation with both the elementary and the senior high school.

FOR GRADUATES

301 and 302. **EDUCATIONAL SEMINAR I AND II.** Open to candidates for the master's degree. First and second semester, respectively. Class work, two hours. Four semester credits on completion of both courses. Prerequisites: Psychology, and Educational Administration. Mr. Holton and other members of the graduate faculty.

The work consists of lectures, reports and class discussions. Each member of the seminar chooses a topic early in the term for special investigation. Preliminary reports are made to the class from time to time and the final results of the study are embodied in a carefully prepared report.

303. **EDUCATIONAL SOCIOLOGY C.** Open to candidates for the master's degree. Both semesters and summer session. Class work, three hours. Three semester credits. Mr. Holton.

This course has for its purpose the discovery of the fundamental social objectives for the curricula in high schools and colleges.

306. **EDUCATIONAL ADMINISTRATION C.** Open to candidates for the master's degree and other properly qualified students. Class work, three hours. Three semester credits. By appointment. Dr. Andrews.

Fundamental problems in public school administration are assigned to each student for investigation and report. Among these are finance, the construction of curricula, supervisory functions of principals and superintendents, school health, educational legislation, the relation of the school to nonschool agencies, building programs, school surveys, organizations of boards of education and other problems which may be of interest.

307. **HISTORY OF EDUCATION B.** Elective. Class work, three hours. Three semester credits. Dr. Andrews.

The course surveys the history of education in the United States, with a consideration of the more important present-day problems in the organization, administration and adjustment of public education in the light of historical development. A critical introduction to American education.

310A. **PSYCHOLOGY OF TEACHING AND LEARNING.** First or second semester. Three semester credits. Dr. Peterson.

This is a graduate course organized at the suggestion of members of the College faculty who desire to improve scholastic standards in the College through a closer conformity of procedure to the laws and conditions of economical learning. An analysis is made of the various forms of learning and of the conditions favorable to the rapid development and effective functioning of knowledge, skills, attitudes and purposes. Emphasis is placed chiefly upon those conditions of learning which are directly under the individual or collective control of college and high-school instructors. Methods and devices for directing and motivating the work of students through the objectification of aims and achievements are given special consideration in the light of the results of mental tests and educational measurements made in our own College and elsewhere.

315. **SUPERVISION IN HOME ECONOMICS.** Open to candidates for the master's degree. Class work by appointment. Two semester credits. Prerequisites: Psychology, Methods in Teaching Home Economics, and experience in teaching home economics.

The work consists of the study of the problems which a supervisor or director of home economics in the public schools must meet, such as the standardization of work; relation of supervisor to teacher; modernizing of plant and equipment; and course of study.

325. **RESEARCH IN EDUCATION.** Required of all candidates for the degree of Master of Science whose major work is in the Department of Education. First and second semesters. Hours of work and credit arranged in conference with the head of the department.

The problem selected for research and investigation must be approved by the Graduate Council.

330. **AGRICULTURAL EDUCATION B.** Elective, first or second semester. Class work, three hours. Three semester credits. Dr. Williams.

This is a research survey course in the field of agricultural education, and is required of all candidates for the degree of Master of Science whose major work in the Department of Education is in the field of agricultural education.

COURSES IN RELIGIOUS EDUCATION

The purpose of courses in religious education is twofold: first, to train students in the method of establishing social control through the implanting of ideals in childhood, and nurturing them carefully through youth, in order to develop a generation of those who would live under the guidance of propulsion of religious and moral ideals, and thus achieve the highest social usefulness; and second, to serve as a basis for preministerial or prereligious vocational training.

The following courses, while acceptable for elective credit in College curricula, will not be accepted by the State Board of Education as professional subjects in education required for a state teacher's certificate:

180. **RELIGIOUS EDUCATION A.** Elective, first semester. Class work, two hours. Two semester credits. Doctor Holtz.

This course comprises a study of the origin of the Bible; the Bible as a social inheritance; the Old Testament history with special emphasis upon the social message of the prophets; the New Testament with attention given to the social teachings of Christ.

182. **RELIGIOUS EDUCATION B.** Elective, second semester. Class work, two hours. Two semester credits. Doctor Holtz.

The fundamental instincts, the physiological and psychological characteristics of the various stages of development, and the best methods of moral and religious instruction suited to these stages are studied in this course.

184. **RELIGIOUS EDUCATION C.** Junior or senior, elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Psychology. Doctor Holtz.

A study is made of the recognized principles underlying modern religious education; the organization of Sunday schools, the subject matter best adapted to each department of the organization; and the application of modern methods of teaching. Given 1923-'24 and alternate years thereafter.

English

Professor DAVIS
Professor CONOVER
Professor ROCKEY
Professor MATTHEWS
Professor RUSSEL
Associate Professor RICE
Associate Professor FAULKNER
Assistant Professor STURMER
Assistant Professor ELCOCK

Instructor GARVEY
Instructor BOWER
Instructor RUSHFELDT
Instructor ABERLE
Instructor BOGUE
Instructor CALLAHAN
Instructor PARKER
Instructor BUNDY

Ability to think accurately and speak well, and capacity to appreciate the world's best literature are recognized essentials of a liberal education. The work of the Department of English is to acquaint the student with the best standards of English practice and appreciation and to encourage him to maintain these standards in all his work. To this end the department offers studies in cultural and technical English and special drills in expressing thought freely and effectively in matters touching the vital interests of the student. The study of the English language and literature is thus made the means of increasing his power and efficiency.

The equipment owned by the department is valued at \$2,323.

COURSES IN ENGLISH LANGUAGE

FOR UNDERGRADUATES

101. COLLEGE RHETORIC I. Freshman and sophomore years, both semesters and summer school. Class work, three hours. Three semester credits. Prerequisite: Three units of high-school English. Mr. Davis, Mr. Conover, Mr. Rockey, Mr. Matthews, Dr. Russel, Miss Rice, Mr. Faulkner, Miss Sturmer, Miss Elcock, Miss Bower, Miss Garvey, Miss Rushfeldt, Miss Aberle, Miss Bogue, Mr. Callahan, Mrs. Parker, and Mr. Bundy.

Beginning with a study of the selection of material, the planning, and the writing of compositions, this course reviews the essentials of correct and effective diction and sentence structure. The study of the sentence is accompanied by the writing of themes, largely narrative and expository, and business letters. Use of the library is suggested by prescribed and suggested reading lists. The aim of the course is to relate English composition to the student's real language needs. Texts: Thomas, Manchester, and Scott, *Composition for College Students*; Smart, *Handbook of Effective Writing*; *Adventures in Essay Reading*; and Greever and Bachelor, *Century Book of Selections*.

104. COLLEGE RHETORIC II. Freshman year, both semesters. Class work, three hours. Three semester credits. Prerequisite: College Rhetoric I. Mr. Davis, Mr. Conover, Mr. Rockey, Mr. Matthews, Dr. Russel, Miss Rice, Mr. Faulkner, Miss Sturmer, Miss Elcock, Miss Bower, Miss Garvey, Miss Rushfeldt, Miss Aberle, Miss Bogue, Mr. Callahan, Mrs. Parker, and Mr. Bundy.

This course is a continuation of College Rhetoric I. It begins with a study of paragraph structure. It then presents the basic principles of argument, description, and narration. Frequent themes are written upon practical as well as literary subjects. The aim of the course is to raise student standards in English, both in appreciation and in practice. Texts: Thomas, Manchester, and Scott, *Composition for College Students*; and Greever and Bachelor, *Century Book of Selections*.

107. SPECIAL ENGLISH. Freshman year, both semesters. Classes formed when need arises. Class work, three hours. No credit. Miss Rice, Miss Elcock, and Miss Aberle.

This course is a review of the essentials of English composition, accompanied by drills in sentence structure and in idiomatic expression, by special exercises, and by consultations. It is required of any student assigned to College Rhetoric I or College Rhetoric II who within the first few weeks of the work of that course shows that he is unable to express his ideas clearly and accurately. Textbook: Smart, *Handbook of Effective Writing*.

110. ENGINEERING ENGLISH. Senior year, both semesters; not open to freshmen and sophomores. Class work two hours. Two semester credits. Prerequisite: College Rhetoric II. Mr. Rockey, Mr. Matthews, and Mr. Faulkner.

This is an advanced course in English particularly adapted to the needs of engineers. The general problems of engineering writing are discussed. Specific assignments are made in the writing of business letters relating to engineering and in the preparation of technical manuscripts and reports. Essays of special value to the engineer are read and analyzed. Text: Watt and McDonald, *Composition of Technical Papers*.

113. ADVANCED COMPOSITION I. Elective, first semester. Class work, two hours. Two semester credits. Prerequisite: College Rhetoric II. Mr. Conover and Mr. Matthews.

In this course special emphasis is given to the subject of exposition. The subjects of the themes required are taken as far as possible from the student's particular field of work. Models of reports, explanations, and general expository work are carefully studied. Text: Curl, *Expository Writing*.

116. **ADVANCED COMPOSITION II.** Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Advanced Composition I. Mr. Conover and Mr. Matthews.

Narrative writing is studied in this course, both in its relation to the other forms of composition and as an independent form. The practical forms of narrative are studied in detail, and attention is given to the short story.

122. **COMMERCIAL CORRESPONDENCE.** Elective, both semesters and summer school. Class work, three hours. Three semester credits. Prerequisite: College Rhetoric II. Mr. Davis, Mr. Matthews, Mr. Faulkner, and Mr. Callahan.

This course comprises a thorough review of the routine types of business correspondence and a study of the writing of adjustment, credit, collection, and sales letters. A close study is made of the principles of effective writing as they are found applied in the best writing in the commercial world. Text: Hotchkiss and Kilduff, *Advanced Business Correspondence*.

123. **WRITTEN AND ORAL SALESMANSHIP.** Elective, both semesters. Class work, three hours. Three semester credits. Prerequisites: College Rhetoric II, Commercial Correspondence. Mr. Davis, Mr. Matthews, Mr. Faulkner, and Mr. Callahan.

This course continues the work of Commercial Correspondence. Special attention is paid to the writing of follow-up systems of sales letters and to the composition and display of circular material and catalogues. The basic principles of advertising and the psychology of selling are emphasized. Special practice is given in the various forms of sales talks, and actual sales practice with commercial concerns is arranged for. Texts: Kitson, *The Mind of the Buyer*; and Ferris and Collins, *Salesmanship*.

128. **ORAL ENGLISH.** Elective, first semester and summer school. Class work, three hours. Three semester credits. Prerequisite: College Rhetoric I. Mr. Rockey and Mr. Matthews.

This course offers a study of the principles of oral composition as applied in conversation and informal discussion. Especial attention is paid to the correction of the grammatical faults of everyday speech and to the application of rhetorical principles to informal speech and discussion. For subject matter students are directed to current happenings, with particular attention to such cultural subjects as painting, music, and literature.

134. **METHODS OF TEACHING ENGLISH.** Elective, second semester and summer school. Class work, three hours. Three semester credits. Prerequisite: College Rhetoric II. Mr. Davis, Miss Rice, and Miss Elcock.

This course is planned to meet the needs of those who are called upon to teach English in connection with the applied sciences. The course of study, the application of English instruction to life needs, and definite methods of motivating English instruction are especially considered. Text: Stratton, *Methods of Teaching English*.

137. **AGRICULTURAL ENGLISH.** Senior year, first semester. Class work, three hours. Three semester credits. Prerequisite: College Rhetoric II. Mr. Davis, Mr. Conover, Mr. Matthews, and Mr. Faulkner.

This course consists of a rapid review of the essentials of English composition as applied to the business writing of the modern farmer. Business correspondence, bulletin writing, the organization of short business talks, and the basic principles of farm advertising are considered. The problems of writing that confront the county agent, the high-school teacher of agriculture, and the farm manager are made the subject of discussion and practice.

FOR GRADUATES AND UNDERGRADUATES

202. **CRITICAL WRITING.** Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: College Rhetoric II. Mr. Matthews.

This course is intended primarily for those students who plan to make book reviewing and musical and art criticism a part of their professional journalistic

work. To familiarize the student with the materials and methods of criticism, representative examples are studied from the field of English and American literature, from leading modern critics, and from standard newspapers and magazines. Assignments to musical programs and art exhibits on the campus, and the writing of reviews of books published by members of the faculty are a part of the work.

207. TECHNICAL WRITING. Elective, second semester. Work arranged by appointment. Two semester credits. Prerequisite: One of the following courses: 113, 116, 122. Mr. Davis, Mr. Conover, Mr. Matthews, and Mr. Faulkner.

This course is planned to help students properly to record and to report technical work. It is adaptable to the needs of advanced students, particularly those in agriculture, engineering, and the sciences. Fundamental principles of technical and scientific writing are studied in connection with such practice as will necessitate clearness, accuracy, and effectiveness.

225. THE LIGHT ESSAY. Elective, first semester and summer school. Class work, two hours. Two semester credits. Prerequisite: College Rhetoric II. Mr. Davis.

This course is intended primarily for students who wish to make writing a life profession or who wish to do light essay writing in connection with their journalistic work. Much writing practice with essays and sketches from current standard magazines as models, is required. The writing of humor is stressed.

251. THE SHORT STORY I. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: English Literature. Miss Rice.

This course comprises a study of the world's best short stories, and gives practice in writing sketches and short stories. The elements of the story—plot, setting, action, and characterization—are especially emphasized. Text: Pitkin, *Short Story Writing*.

252. THE SHORT STORY II. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: The Short Story I. Miss Rice.

This course is a continuation of Short Story I. Special stress is laid upon the preparation of the short story for publication. A study of the short story in America is made, giving special attention to types, characteristics, and tendencies. A special study of the standards set by leading magazines is a feature of the work, and market problems are considered. Texts: O'Brien, *The Advance of the American Short Story*; and Heydrick, *Americans All*.

FOR GRADUATES

Classes in courses listed under the graduate group are organized whenever the demand for them is sufficient. When the demand does not justify the organization of a class, the work may be arranged for by appointment. Special arrangements for work should be made with the head of the department.

301. HISTORY OF THE ENGLISH LANGUAGE I. Elective, first semester. Class conference, two hours. Two semester credits. Prerequisite: English Literature. Mr. Conover.

This course offers a study of the origin and development of the English language. Special emphasis is placed on Old English. Texts: Wyld, *Historical Study of the Mother Tongue*; and Bright, *Anglo-Saxon Reader*.

302. HISTORY OF THE ENGLISH LANGUAGE II. Elective, second semester. Class conference, two hours. Two semester credits. Prerequisite: English Literature. Mr. Conover.

This course is a continuation of History of the English Language I. Special emphasis is placed on Middle English and Modern English. Texts: Wyld, *Historical Study of the Mother Tongue*; and Emerson, *Middle English Reader*.

304. RESEARCH IN APPLIED ENGLISH. Elective, second semester. Class conference, two hours. Two semester credits. Prerequisite: English Literature. Mr. Davis.

Individual assignments are made in the fundamental fields of research in applied English. The student is required to carry on an original investigation and to make an acceptable report of his research work.

COURSES IN ENGLISH LITERATURE

FOR UNDERGRADUATES

172. ENGLISH LITERATURE. Sophomore year, both semesters and summer school. Class work, three hours. Three semester credits. Prerequisite: College Rhetoric II. Mr. Davis, Mr. Conover, Mr. Rockey, Mr. Matthews, Dr. Russel, Miss Rice, Mr. Faulkner, Miss Sturmer, Miss Elcock, Miss Bower, Miss Garvey, Miss Rushfeldt, Miss Aberle, Miss Bogue, Mr. Callahan, Mrs. Parker, and Mr. Bundy.

In this course the students are made familiar with the principles of literary appreciation and are taught to apply them to representative texts in narrative, lyric, and dramatic poetry, as well as in fiction, the essay, and the oration. The work of the course is intensive; notebooks are kept and frequent tests are given. Texts: Heydrick, *How to Study Literature*; and Cunliffe, Pyre, and Young, *Century Readings in English Literature*.

175. AMERICAN LITERATURE. Sophomore year, both semesters and summer school. Class work, three hours. Three semester credits. Prerequisite: English Literature. Mr. Davis, Mr. Conover, Mr. Rockey, Mr. Matthews, Dr. Russel, Miss Rice, Mr. Faulkner, Miss Sturmer, Miss Elcock, Miss Bower, Miss Garvey, Miss Rushfeldt, Miss Aberle, Miss Bogue, Mr. Callahan, Mrs. Parker, and Mr. Bundy.

This course consists of a study of the masterpieces of American prose and poetry. The aims are to apply the principles of literary appreciation studied in English Literature to standard selections from American Literature, and to familiarize the students with the best contemporary American poetry, drama, and fiction. Texts: *A Short History of American Literature*, based upon *The Cambridge History of American Literature*; and Pattee, *Century Readings in American Literature*.

181. HISTORY OF ENGLISH LITERATURE. Junior year, both semesters. Class work, three hours. Three semester credits. Prerequisite: English Literature. Mr. Davis, Mr. Conover, Mr. Rockey, Mr. Matthews, Dr. Russel, Miss Rice, Mr. Faulkner, Miss Sturmer, and Miss Elcock.

This course presents a study in the history of English literature by means of lectures, discussions of the texts, and class reports on assigned reading. The aim is not only to apply principles of literary appreciation to standard selections, but also to study the work of the individual author in relation to the period in which he lived. Texts: Albert, *A History of English Literature*; and Cunliffe, Pyre, and Young, *Century Readings in English Literature*.

FOR GRADUATES AND UNDERGRADUATES

260. CHAUCER. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: English Literature. Miss Elcock.

This course includes a study of the life, times, and characteristic language of Chaucer. The chief emphasis, however, is placed upon the study of his principal works. Texts: Chaucer, *Complete Works*; and Chaucer, *Selections*. (Greenlaw.)

262. MILTON AND THE PURITAN REVOLT. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: English Literature. Miss Elcock.

This course consists of a study of the life and times of Milton and his chief works. It investigates the conflict in the seventeenth century between the

reverence for authority in government, religion, and literature, and the growing spirit of intellectual inquiry. Texts: Milton, *Complete Poetical Works* (Moody); and Milton, *Of Education, Areopagitica, The Commonwealth* (Lockwood).

265. AMERICAN SURVEY. Elective, second semester. Class work, two hours. Two semester credits. Prerequisites: English Literature, American Literature. Dr. Russel.

This course offers an advanced study in the history of American literature similar to that offered in English Survey I and II. Beginning with Colonial literature the course continues through the period of the Civil War down to the close of the first quarter of the twentieth century.

271. THE ENGLISH BIBLE. Elective, both semesters and summer school. Class work, three hours. Three semester credits. Prerequisite: English Literature. Mr. Conover.

In this course the different kinds of literature found in the English Bible are studied. Especial attention is paid to the narrative of the Old Testament, poetry, wisdom literature, and the book of Job. Text: Moulton, *The Modern Reader's Bible*.

273. SHAKESPEAREAN DRAMA I. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: English Literature. Mr. Davis and Miss Sturmer.

This course aims to familiarize the student with the life and times of Shakespeare and the background of Shakespearean tragedy. Intensive study is given to five of Shakespeare's tragedies: Macbeth or Othello, Hamlet, King Lear, Coriolanus, and Romeo and Juliet. Texts: Baker, *The Development of Shakespeare as a Dramatist*; and Brooke, Cunliffe, and MacCracken, *Shakespeare's Principal Plays*.

274. SHAKESPEAREAN DRAMA II. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: English Literature. Mr. Davis and Miss Sturmer.

An intensive study is made of five of Shakespeare's comedies: The Winter's Tale, As You Like It, Twelfth Night, Cymbeline, and The Tempest. Collateral readings include earlier comedy, Shakespearean comedy, that of his contemporaries, and present-day criticism of Shakespeare. Texts: Nielson and Thorndike, *The Facts about Shakespeare*; and Brooke, Cunliffe and MacCracken, *Shakespeare's Principal Plays*.

Shakespearean Drama I is not a prerequisite for the course in Shakespearean Drama II.

276. ENGLISH ESSAYISTS OF THE EIGHTEENTH AND NINETEENTH CENTURIES. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: English Literature. Mr. Davis and Mr. Conover.

In this course two periods of especially notable English prose are considered. Among the authors discussed are Swift, Addison, Steele, Johnson, Burke, Lamb, Hazlitt, DeQuincey, Wilson, Newman, Ruskin, Spencer, Huxley, Pater, and Wilde.

278. THE ENGLISH ROMANTIC REVIVAL. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: English Literature. Mr. Rocky.

This course offers a study of the chief poetical works of Wordsworth, Shelley, Keats, Coleridge, and Byron. Some consideration is given to the period as a revival of romanticism. Texts: Complete poetical works of Wordsworth, Shelley, Keats and Byron.

280. WORLD CLASSICS I. Elective, first semester. Class work, three hours. Three semester credits. Prerequisites: English Literature, and American Literature. Mr. Faulkner, Dr. Russel, and Miss Elcock.

This course consists of a study of the literary masterpieces (in translation) of early times, particular attention being paid to Greek and Latin classics.

The aim is to acquaint the student with that literature of the ancient world which has been of the foremost importance in forming the world's cultural ideas. Special reports, class discussions, lectures, and library readings comprise the work. Texts: Richardson and Owen, *Literature of the World*; and Showerton and Cunliffe, *Century Readings in Ancient Classical and Modern European Literature*.

281. WORLD CLASSICS II. Elective, second semester. Class work, three hours. Three semester credits. Prerequisites: English Literature, and American Literature. Mr. Faulkner, Dr. Russel, and Miss Elcock.

This course offers a study of the literary masterpieces (in translation) of western Europe. Particular attention is paid the works of Italian, Spanish, French, and German writings that have attained lasting world fame. Special reports, class discussion, lectures, and library readings comprise the work. Texts: Richardson and Owen, *Literature of the World*; and Showerton and Cunliffe, *Century Readings in Ancient Classical and Modern European Literature*.

283. CONTEMPORARY FICTION. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: American Literature. Mr. Conover.

This course consists of a study of the more important British and American fiction since Hardy. Representative novels are read, reported upon, and discussed. Texts: Manley and Rickert, *Contemporary British Literature* and *Contemporary American Literature*; and Van Doren, *Contemporary American Novelists*.

284. CONTEMPORARY DRAMA. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: American Literature. Mr. Conover.

The aim in this course is to show the development of the drama since Ibsen, and to give the student an acquaintance with the types of modern drama and with the works of important English, Irish, and American dramatists. Text: Dickinson, *Chief Contemporary Dramatists* (First Series).

286. THE NOVEL I. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: American Literature. Dr. Russel and Miss Elcock.

This course comprises a study of the English novel, including the discussion of its historic development, its relation to other forms of fiction, and its place in contemporary literature. Especial attention is given to representative works of modern writers, both English and American. Text: Cross, *The Development of the English Novel*.

287. THE NOVEL II. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: The Novel I. Dr. Russel and Miss Elcock.

This course is a continuation of The Novel I. A review of the essentials in the study of the novel is given, and readings of representative modern novels are continued, with definite class reports.

288. ENGLISH SURVEY I. Elective, first semester. Class work, two hours. Two semester credits. Prerequisite: History of English Literature. Mr. Davis, Mr. Conover, and Dr. Russel.

This course offers an advanced study in the history of English literature. Beginning with Anglo-Saxon times, the course continues through the Middle English period down to the close of the Elizabethan period. Basic text: *The Cambridge History of English Literature*.

290. ENGLISH SURVEY II. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: English Survey I. Mr. Davis, Mr. Conover, and Dr. Russel.

This course is a continuation of English Survey I. It traces the rise of Puritanism and its influences on English literature. Emphasis is placed upon

the classical movement. A brief survey is made of romanticism and its development. Basic text: *The Cambridge History of English Literature*.

293. BROWNING AND TENNYSON. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: English Literature. Mr. Rockey.

This course offers a study in the interpretation of the most important poetic works of Alfred Tennyson and of the most important of the poetic and dramatic works of Robert Browning. Texts: Tennyson, *Complete Poetical Works* (Cambridge edition); and Browning, *Complete Poetical Works* (Cambridge edition).

297. CONTEMPORARY POETRY. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: History of English Literature. Mr. Conover.

This course comprises a brief study of the new poetry movement, and includes a reading and study of the leading poetic creations and representative writers of new poetry. The course also includes some practice in the writing of poetry.

298. PROBLEMS IN THE TEACHING OF ENGLISH. Elective, summer school. Class work, three hours. Three semester credits. Prerequisites: Fifteen hours of English and nine hours of Education. Mr. Davis and Miss Elcock.

This course offers a study of the history of the teaching of English both in England and America, an investigation of English curricula in representative high schools of the United States, and a thorough consideration of the subject matter for both composition and literature courses in the high-school teaching of English. It is primarily adapted to the needs of those who have taught English and wish to enlarge their teaching background, but experience in teaching is not a prerequisite.

299. RESEARCH IN ENGLISH. Advanced students with acceptable fundamental training may, with the approval of the head of the department, undertake original investigation in some definitely prescribed field of English literature or applied English. Such work must be pursued under the direct supervision of some member of the faculty of the department, and the final results may be used to fulfill the thesis requirements for the master's degree. Students doing research in English will be required to give evidence of approved training in the subject and to have a broad general knowledge of English literature. Mr. Davis, Mr. Conover, Mr. Rockey, Mr. Matthews, and Dr. Russel.

FOR GRADUATES

315. RESEARCH IN THE LITERATURE OF INDUSTRY. Elective, first semester. Class work, two hours. Two semester credits. Prerequisite: Nineteenth Century Literature. Mr. Davis and Mr. Conover.

This is an investigation and research course based upon a careful study of the development of the distinctive literature of industry.

Entomology

Professor DEAN
Professor McColloch
Associate Professor SMITH

Assistant Professor PARKER
Instructor BRYSON

In all courses a special effort is made to make the student realize that he is studying living things which form a part of his daily environment, and upon which his welfare in many cases vitally depends. In courses in which both class and laboratory instruction is given, the closest correlation is striven for, and wherever possible the same form is studied simultaneously in laboratory and class. The student is led to integrate his classroom knowledge with local animal life by means of frequent and carefully planned field excursions and by the free use of vivaria in laboratory and museum. The courses offered are intended to awaken in the student a keen appreciation of the general principles underlying insect life, of the life economy of the more beneficial as well as the more injurious species, and of the general principles governing methods for their control.

Standard anatomical charts, a representative collection (especially of local species), a high-grade lantern for the projection of lantern and microscope slides, a large and excellent series of lantern slides (many of them colored), and a series of microscope slides are available for illustration. Compound and dissecting microscopes sufficient for the needs of laboratory classes have been provided.

Facilities for advanced work are provided for graduate students and others who expect to pursue the subject professionally. An advanced laboratory is equipped with individual desks, binocular microscopes, compound microscopes, rotary microtome, imbedding ovens, drawing apparatus, and a supply of glassware and reagents sufficient for histological work and for research. A well-equipped insectary is available for training in insectary methods. An air-conditioning machine in the insectary adds materially to the possibilities for experimental work. A field station with all the necessary equipment provides means for the study of insects under normal field conditions.

The department owns equipment valued at \$18,099.

COURSES IN ENTOMOLOGY

FOR UNDERGRADUATES

111. **APICULTURE.** Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: General Entomology. Dr. Parker.

This course comprises a general study of the structure, life history, general behavior, activities, and products of the honeybee. Special attention is given to practical beekeeping, the best methods used among beekeepers being discussed. A study is made of bee diseases and of the standard methods to be used in their eradication and control. A study is also made of the relation of bees to agriculture and horticulture. Laboratory charge, 75 cents.

116. **MILLING ENTOMOLOGY.** Junior year, first semester. Class work, one hour. One semester credit. Mr. Dean.

This is a study of the insect pests of flour mills, elevators, granaries, warehouses, and bakeries, and of the standard methods to be used in dealing with them. The course consists of lectures and special reference reading. Inspection trips are made to flour mills and warehouses.

FOR GRADUATES AND UNDERGRADUATES

201. **HORTICULTURAL ENTOMOLOGY.** Elective, first semester. Class work, two hours. Two semester credits. Prerequisite: General Entomology. Dr. Parker.

This is a study of the most important insect pests of orchard, garden and forest, and of standard methods for controlling their ravages. The class work consists of lectures and the study of references.

203. GENERAL ENTOMOLOGY. Junior and senior years and elective, both semesters and summer school. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: General Zoölogy. Mr. Dean and Mr. Bryson.

This is a study of the elementary anatomy and physiology of insects, complete enough to give a thorough understanding of the life history and habits of the most important species and the general principles upon which the control of these economic forms is based. It is a study of the more important general facts about insects as a class; the main characters of the different orders and groups; how they survive and multiply; and how the structure and habits of one group render it susceptible to certain measures of control, while in other groups entirely different measures are necessary. The class work consists of lectures and of text and special reference study. Laboratory charge, \$1.

206. GENERAL ECONOMIC ENTOMOLOGY. Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: General Entomology. Mr. McColloch.

This is a study of the life economy of the more important economic insects, of methods to be used in dealing with them, and of the literature of economic entomology. The student is made familiar with our present knowledge of the most important of our injurious insects, with the sources of economic literature, and with methods commonly used in the investigation of problems in economic entomology. The class work consists of lectures, and of text and special reference reading.

Laboratory.—The laboratory work consists of the formation and study of a collection of injurious insects, and insect breeding. This work naturally involves much field study, in the course of which the student gains a first-hand acquaintance with the more important injurious insects at home in nature. Laboratory charge, 50 cents.

211. INSECT MORPHOLOGY I. Elective, first semester. Class work, one hour; laboratory, six hours. Three semester credits. Prerequisite: General Entomology. Dr. Smith.

This course deals exclusively with the external anatomy of representative insects belonging to a number of orders. The types studied are selected so as to present the essentials of the structure of the exoskeleton and to afford a basis for the courses in taxonomy and for professional studies in hexapod morphology. Laboratory charge, \$1.

212. INSECT MORPHOLOGY II. Elective, first semester. Laboratory, nine hours. Three semester credits. Prerequisite: Insect Morphology I. Dr. Smith.

This course is designed for those advanced students who desire more thorough preparation in the essentials of insect anatomy than is provided for in Insect Morphology I. More extensive studies of detailed external and internal anatomy are made and preparation is afforded for advanced work in taxonomy and research in morphology. Laboratory charge, \$1.

216. PRINCIPLES OF TAXONOMY. Elective, second semester. Lectures, one hour. One semester credit. Prerequisites: (1) For students taking Taxonomy of Insects I: General Entomology and Insect Morphology I. (2) For students taking Taxonomy of Vertebrates: General Zoölogy. All students registering in Taxonomy of Insects I must also register for this course. Courses cannot be taken separately. Dr. Smith.

This course of lectures deals with the fundamental principles of modern taxonomy. The following subjects are considered in detail: Systems of classification; terminology of taxonomic groups; criteria of species and genera,

binomial nomenclature, pre-Linnæan and modern nomenclature; international code of zoölogical nomenclature, and other codes; laws of priority; and modern tendencies in taxonomy.

217. TAXONOMY OF INSECTS I. Elective, second semester. Laboratory, six hours. Two semester credits. Prerequisites: General Entomology and Insect Morphology I. Students registering for this course must also register for the course in Principles of Taxonomy. Dr. Smith.

This is a study of the general principles of the classification of representative insects. The purpose of the course is so to familiarize the student with the literature, methods and ideals of classification that he will be able to identify unknown forms and to pursue advanced taxonomic studies. Laboratory charge, 50 cents.

218. TAXONOMY OF INSECTS II. Elective, second semester. Laboratory, nine hours.—Three semester credits. Prerequisites: Taxonomy of Insects I and Insect Morphology II. Dr. Smith.

This course provides for a more comprehensive preparation in the field of insect taxonomy. At the discretion of the instructor, the work may be taken in such a way that either a broader acquaintance with insects and the principles of classification is afforded, or intensive work may be done on selected groups. Laboratory charge, 50 cents.

221. ADVANCED GENERAL ENTOMOLOGY. Elective, first semester. Class work, three hours. Three semester credits. The class work consists of lectures, assigned readings, and written reports. Prerequisite: General Entomology. Dr. Smith.

The purpose of this course is to give the advanced student a comprehensive view of the broad biological aspect of the subject and an understanding of the relation of insects to the complex of environmental factors. The various subdivisions of entomology are correlated and used as a basis in the presentation of general principles as well as illustrating the problems of maintenance and the various ways in which insects have solved them. The course includes, in part, a detailed consideration of the following: Phylogeny of insects and their relatives; metamerism; reproduction; gynandromorphism; parthenogenesis, pædogenesis; polyembryony; respiration, temperature; embryology; internal and external metamorphosis; metabolism; aquatic insects, their evolution; adaptations and activities; regeneration; experimental work with insects; insect parasitism; color and coloration; insects in relation to other organisms; insect behavior; and geological and geographical distribution.

226. MEDICAL ENTOMOLOGY. Elective, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: General Entomology. Dr. Smith.

The subject matter of this course deals with insects and other arthropods as transmitters and disseminators of disease, attention being confined to that phase of the subject which pertains to the health of man. Emphasis is placed on the various important species of insects which are related to disease, the pathogenic organisms and their relation to insects, and the preventive measures which have, up to date, proved most effective. Some attention is also given to the important theories which underlie this subject and to important investigations in progress at the present time.

Laboratory.—The laboratory work consists of a careful study of insects and other arthropods which may affect the health of man directly, and of those which may be instrumental in the dissemination of disease; also a study of the causative organisms of certain insect-borne diseases and the methods by which these organisms are transmitted. Laboratory charge, \$1.

227. ADVANCED APICULTURE A. Elective, summer school. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: Apiculture. Dr. Parker.

This course is given during the summer school and is a continuation of Api-

culture. The principles of bee behavior discussed in the beginning course are studied under actual conditions during the active season. Practical work is given in the manipulation of bees during the production of the honey crop, in swarm-control methods, and making increase in the colony. Queen rearing is studied and practical applications of the work are made. Laboratory charge, 50 cents.

228. **ADVANCED APICULTURE B.** Elective, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: Apiculture (Ent. 111) or its equivalent. Dr. Parker.

This course is a continuation of Apiculture (Ent. 111). The primary object of the course is to make a detailed study of the principles of bee behavior, and how these are related to practices of good beekeeping, special attention being given to the different forms of the behavior exhibited by the bees throughout the different seasons of the year, and the beekeeping practices which should be adopted to conform to this behavior. Since it begins in the first semester, problems that apply particularly to that time of the year are taken up, such as preparation for wintering, feeding for winter, and winter protection. Observations are made on the merits and demerits of different systems of wintering. Extracting honey, preparing it for market, marketing, and other advanced subjects are studied. Laboratory charge, 50 cents.

231. **ENTOMOLOGICAL AND ZOÖLOGICAL LITERATURE.** Elective, first semester. Lectures, two hours. Two semester credits. Prerequisite: General Entomology. Dr. Smith.

This course deals with the literature of entomology, special consideration being given to bibliographical works and their uses. Since the literature of entomology is, to a considerable extent, inseparably associated with that of zoölogy, the course is of equal importance to the students of both subjects. The course is designed primarily to meet the needs of advanced undergraduates and graduate students who are beginning research work. General and special bibliographical sources, foreign and American scientific journals and serials, and the construction of special bibliographies according to approved methods constitute the chief subjects for consideration. All advanced students of entomology and zoölogy are expected to take this course.

234. **INSECT PHYSIOLOGY.** Elective, second semester. Class work, two hours. Two semester credits. Prerequisites: Insect Morphology II, Cytology or Histology, and Physiological Chemistry. Dr. Parker.

The course gives the advanced student a broad view of the functions of the various physiological units of insects. It deals with the respiration, metabolism, reproduction, muscular activity, nervous responses, sense organs, circulation, glandular systems, and metamorphosis of these animals. Instruction is given by means of lectures, reports, and assigned readings.

236. **ZOÖLOGY AND ENTOMOLOGY SEMINAR.** Elective, both semesters. One two-hour session each week. One semester credit. Prerequisite: Consult seminar committee.

This course consists in the presentation of original investigations, reviews of papers appearing in current journals, summaries of recent advances in the various fields, and discussion of the various aspects of the fundamental problems of modern biology.

238. **ENTOMOLOGICAL PROBLEMS.** Elective, both semesters. Two to four semester credits. Prerequisites: Consult instructors. Mr. Dean, Mr. McColloch, Dr. Parker, Dr. Smith, Dr. Painter, and Mr. Bryson.

Students having sufficient training may, with the approval of the head of the department, study a special problem in one of the following subjects: Insect life history, insect control, insect classification, apiculture, insects injurious to stored grain and milled products, household insects. Such work must be pursued under the direct supervision of some members of the departmental staff.

FOR GRADUATES

316. RESEARCH IN ENTOMOLOGY. Advanced students having sufficient fundamental training may, with the approval of the head of the department, undertake original investigation in one of the following fields of entomology: Taxonomy, morphology, economic entomology. Such work is pursued under the direct supervision of some member of the departmental faculty and the final results may, if of sufficient merit, be used to fulfill the thesis requirement for the master's degree. The special students may, if willing and capable, be drawn into the research work of the Agricultural Experiment Station during the summer vacation and receive training in the investigation of economic problems. Prerequisites: (1) For research in taxonomy and morphology: General Entomology, Insect Morphology I, Taxonomy of Insects I, and Cytology. (2) For research in economic entomology: General Entomology, General Economic Entomology, Insect Morphology I, and Taxonomy of Insects I. Mr. Dean, Mr. McColloch, Dr. Parker, Dr. Smith, Dr. Painter, and Mr. Bryson.

Geology

Professor NAROURS
Associate Professor SPERRY

The materials and agencies that have made the earth are studied in the field and class, and by means of maps, charts, and specimens. The purpose in these courses is to arouse in the student an appreciation of the general principles involving a study of the structure and history of the earth and the forces at work on it.

Some charts, a series of lantern slides, a representative collection of fossils, minerals, and rock specimens, and a surrounding country rich in fossils and exhibiting considerable variety of hill, valley and stream, limestone, glacial drift, sand dunes and two igneous outcrops, are available for illustrative purposes.

COURSES IN GEOLOGY

FOR UNDERGRADUATES

102. ENGINEERING GEOLOGY. Junior year and elective, first semester. Class work, three hours; laboratory, three hours. Four semester credits. Open for only two semester credits to students who have credit in Geol. 103. Prerequisites: Chemistry 105, or its equivalent. Mr. Sperry.

The class work consists of a study of the general principles of structural and dynamic geology, and of rocks in respect to their mineral composition, structural properties, changes in weathering, etc. It is given by lectures, textbooks, and references. Text: Ries and Watson, *Engineering Geology*.

Laboratory.—The laboratory work comprises the observation and description of such structural and dynamic features as the locality affords, a study of topographic and geologic maps and of the principal rocks and their constituents. Occasional excursions are made to more distant points. Laboratory charge, \$1.50.

103. GENERAL GEOLOGY. Freshman year and elective, both semesters. Class work, three hours. Three or four field trips during each semester. Three semester credits. Not open to students who have credit in Geol. 102. Prerequisite: Chem. 105 or 110, or an equivalent course. Mr. Sperry.

This course consists of a study of the structure of the earth and of the agencies which modify the materials and determine the topographic features, with some of the history as indicated by the records in the rocks. A brief study of rock-forming minerals is made. Text: Cleland, *Physical and Historical Geology*. Laboratory charge, \$1.50.

FOR GRADUATES AND UNDERGRADUATES

202. HISTORICAL GEOLOGY. Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: General or Engineering Geology, General Zoölogy, and General Botany, or equivalent. Mr. Sperry.

In this course is presented the procession of physical and biological events through which the earth has gone. Stress is laid on the philosophical side of earth history. Text: Pirsson and Schuchert, *Textbook of Geology*.

Laboratory.—The laboratory work comprises the collection and study of local fossils, and their application in the identification of the rock measures, the study of museum specimens and of paleogeographic maps. Laboratory charge, \$1.50.

206. ECONOMIC GEOLOGY. Elective, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: General Geology and General Chemistry. Mr. Sperry.

This course treats of the origin and mode of occurrence of nonmetallic minerals, including coal and petroleum, and of metallic mineral deposits.

Laboratory.—The laboratory work comprises the identification and study of the ore-forming minerals, and map studies of the economic areas. Laboratory charge, \$1.50.

209. CRYSTALLOGRAPHY AND MINERALOGY. Elective, first semester. Class work, two hours; laboratory, six hours. Four semester credits. Prerequisites: General Geology and General Chemistry. Mr. Sperry.

The purpose of this course is to acquaint the student with the fundamentals of crystallography, physical mineralogy, and blowpipe analysis for the identification of minerals. Text: Dana-Ford, *Textbook of Mineralogy*. Laboratory charge, \$1.50.

History and Civics

Professor PRICE
Professor ILES
Professor JAMES
Associate Professor PEINE*

Assistant Professor CORRELL
Instructor ALSOP
Assistant GIVIN

Training for citizenship, breadth of view, historic-mindedness, fairness of judgment and general culture are constant and specific aims of each course offered by the Department of History and Civics. As a result of the training received in these courses the student is better prepared to understand and appreciate the institutions in the midst of which he lives and which he is a part. He is also prepared to act more wisely his part as a leader in good citizenship wherever his lot may be cast. In our modern age and self-governing nation, and in an institution supported by the state and nation, it would seem to be the imperative duty of every student to secure specific training for wise and effective leadership in the governmental affairs of the state and nation that are thus preparing him for life and its duties.

Equipment valued at \$840 is owned by this department.

COURSES IN HISTORY

FOR UNDERGRADUATES

103. AMERICAN HISTORY LECTURES. Elective, summer school. Two one-hour lectures a week. No credit. Mr. Price.

This series of lectures follows the outline given in *An American History Notebook*, which is used as the basis for the work in American History I, American History II, and American History III. Therefore this course is directly helpful to students taking any one of these three courses. To stu-

* Resigned May 31, 1926.

dents taking only one of the above-named courses, these lectures give some insight as to the content of the other two courses. Since *The American History Notebook* has been adopted by the State Textbook Commission for use in the schools of the state, these lectures are also directly helpful for any student who expects to teach American history either in the grades or in high school. Only those who are regularly assigned to this course are permitted to attend the lectures; and when the student is assigned, regular attendance is required. There are no recitations and no examinations connected with this course. Students are permitted to ask questions at the close of each lecture. The course is based on Price's *An American History Notebook*.

105. AMERICAN INDUSTRIAL HISTORY. Sophomore and senior years, both semesters and summer school. Class work, three hours. Three semester credits. Mr. Peine and Mr. Correll.

This course traces the history of American agriculture, manufactures, and commerce with related activities from their colonial beginnings to the present. It includes a survey of the physical basis for American history, the growth of population and its expansion across the continent, and the reflection of these things on our industrial, social, and political life. European developments, especially the industrial revolution and the expansion of commerce, are studied for the light they throw on American history. Finally, throughout the course an attempt is made to trace the growth of our national industrial organization and its present-day aspects. This course is based on a text, such as Faulkner's *American Economic History*, and the student is held responsible for the contents of his text and for assigned work and lectures.

110. HISTORY OF COMMERCE AND INDUSTRY. Optional or elective, first semester. Class work, three hours. Three semester credits. Mr. Peine.

The evolution of industry and commerce from primitive beginnings to present-day organization is traced in broad outline. In effect, this course presents an economic survey of world history. From noneconomic conditions among peoples in a collectional stage of development, the story of human progress is carried rapidly through nomadic, village, and town economy. The commerce of ancient and medieval peoples is briefly reviewed in reference to economic institutional development. The growth of regional specialization since the period of geographical discoveries and the expansion of international trade are studied. Most attention is naturally given to the modern period because of the immense significance in the present order of the development of the national state, manufacturing, transportation, and credit finance.

115. EUROPE (1500 TO 1815). Elective, first or second semester. Class work, three hours. Three semester credits. Mr. Correll.

This course traces the evolution of modern institutions from the close of the renaissance to the opening of the nineteenth century. The principal movements studied are the commercial revolution, through which European trade turned from Mediterranean to Atlantic ports; the Reformation; the earlier phases of the development of political democracy through the Puritan revolt in England and the French Revolution; and the Napoleonic era. Text: Hayes, *Political and Social History of Modern Europe*, Vol. 1.

121. ENGLISH HISTORY. Sophomore year, both semesters and summer school. Class work, three hours. Three semester credits. Not open for credit to students who offer English history for entrance; such students should take History 226 or some other three-hour College course in history. Mr. James.

This is a general survey of the whole field of English history with some emphasis on the modern period. It includes the outlines of political history and the essentials of English constitutional development. Special attention is given to the development of the empire, to the English background of American history, and to the industrial and social development of the English people. The work is based on Cross's *A Shorter History of England and Greater Britain*, with lectures and assigned readings.

126. **CURRENT HISTORY.** Freshman year, both semesters and summer school. Class work, one hour. One credit each semester. Open as elective for not to exceed a total of four semester credits. Mr. Price, Mr. Iles, Mr. James, Mr. Correll, Miss Alsop, and Miss Givin.

The content of this course differs each semester from that of any other semester. The course is based on *The Review of Reviews* and *Current History*, and is supplemented by background material and specially important daily news. The course is so conducted as to give a wide outlook on the world of to-day, and a better understanding of the conditions and institutions in the midst of which we live. It includes a study of the essentials of American and foreign governments, of international relations, of international law, of biography, of industrial developments, and of the larger world issues. It directs the student to good habits of news reading of the right sort.

130. **THE WORLD SINCE 1914.** Elective, both semesters and summer school. Class work two hours. Two semester credits. Mr. Iles, Mr. James, Mr. Correll, and Miss Alsop.

The aim of this course is to enable the citizen to understand better the world of to-day. The course begins with a study of the world setting of 1914. It considers what nations entered the World War, and why; the new methods and the enormous cost of this war; the making and the provisions of the treaty; the organization and activities of the League of Nations; together with a study of international relations, and economic, social and political reconstruction and readjustments since the war. A brief study of China, Japan and questions of the Pacific area is included.

In any curriculum where two hours of Current History are required, one-half of this course may be substituted for one hour of Current History, the other half remaining elective.

FOR GRADUATES AND UNDERGRADUATES

201. **AMERICAN HISTORY I (or BEGINNINGS OF THE AMERICAN NATION).** Junior and senior years, both semesters and summer school. Class work, three hours. Three semester credits. Prerequisite, when taken for graduate credit: three semester credits of college history. Mr. Price.

This course gives special emphasis to the industrial phases of the origin and development of American nationality and democracy to the end of the War of 1812. It also includes our constitutional and political development, especially with reference to origin, basis, cause, and effect. It aims to develop historic-mindedness; that is, training the student to put himself in the other fellow's place and understand fairly "the why." Why we became an independent nation; our westward expansion; the establishing of nationality, and the development of government by the people, are phases definitely emphasized. Instruction is given by means of lectures, readings, and recitations, based on *An American History Notebook*, by R. R. Price.

202. **AMERICAN HISTORY II (or WESTWARD EXPANSION AND SECTIONALISM).** Elective, both semesters and summer school. Class work, three hours. Three semester credits. Prerequisite, when taken for graduate credit: three semester credits of college history. Mr. Price.

This course concerns itself with the industrial conditions, the issues and the leaders of the middle period of our history, from the close of the war of 1812 to the Civil War. Among the subjects investigated are the industrial and political conditions in America after the War of 1812; the Missouri Compromise; the antislavery agitation; the Webster-Hayne debate; South Carolina nullification; annexation of Louisiana, Florida, and especially Texas; the Mexican War, and the resulting preponderance of the slavery issue; the Compromise of 1850; the Kansas-Nebraska bill and the early Kansas struggle "to the stars through difficulties," including the various constitutions and the final admission to statehood, the origin of the Republican party; the election of 1860; and the events leading immediately to the secession of the Southern

States. Instruction is by means of lectures, recitations, and readings, based on *An American History Notebook*, by R. R. Price.

203. AMERICAN HISTORY III (or THE NEW INDUSTRIAL AGE). Elective, second semester and summer school. Class work, three hours. Three semester credits. Prerequisite, when taken for graduate credit: three semester credits of college history. Mr. Price.

This course opens with a review of the industrial conditions in America just before the Civil War; next a careful examination is made of the industrial effects of that war; finally a study of the political and governmental activities of the last half-century is made in the light of the industrial conditions and developments of the period. Manufactures, commerce, and especially agriculture, are examined, particularly with reference to the South and West. The new developments in political parties and the new devices in self-government are studied. The new America with its spirit of nationality, its emphatic self-government, and its new world power and responsibility, are studied in the light of the new industrial developments. Instruction is imparted by lectures, recitations, assigned readings, and special reports, based on Price's *American History Notebook*.

204. AMERICAN AGRICULTURAL HISTORY. Elective, first semester and summer school. Class work, three hours. Three semester credits. Prerequisite, when taken for graduate credit: three semester credits of college history. Mr. Peine.

This course is intended primarily for students in the Division of Agriculture. It devotes itself chiefly to the history of American agriculture. The course starts with a study of European background and Indian beginnings. It traces and compares the agricultural development of New England, the South and the central colonies during the colonial period; then follows the westward movement into the prairie regions of the Mississippi valley, with the distinctive American developments in methods, live stock, and especially farm machinery. The course gives special consideration to the South with its cotton, to the Northwest with its wheat, to the Southwest with its live stock, and to the corn belt with its varied industries. A special study is made of the last quarter-century, when varied industries, more intensive farming, and the high cost of living are replacing extensive mining of the soil, with its remarkable era of low cost of living, its sudden accumulation of wealth, and its rapid development of civilization. The relation of all this to our own state is constantly kept in view. This course should be supplemented by the course in American Political History. Instruction is given by lectures and recitations, readings, and reports, based primarily on Schmidt and Ross, *Readings in the Economic History of American Agriculture*.

206. AMERICAN POLITICAL HISTORY. Elective, first semester. Class work, two hours. Two semester credits. This course is especially intended to supplement course 204 or course 105; it is not open for credit to students who have credit in course 202. Prerequisite, when taken for graduate credit: three semester credits of college history. Mr. Iles.

This course gives the story of the origin, development, leaders, and function of political parties in America, and studies the issues and results of the more important presidential elections. It traces the growth of nationality and the development of self-government through American history, but with special reference to present tendencies. This is a very desirable course for any one who would understand and appreciate present political and governmental conditions and tendencies. The basic text for this course is Woodburn's *Political Parties and Party Problems in the United States*.

207. LATIN AMERICA. Elective, both semesters and summer school. Class work, two hours. Two semester credits. Prerequisite, when taken for graduate credit: three semester credits of college history. Mr. James.

The history, government, industrial and social conditions of Mexico, Central America and the South American nations, and the interrelations of each

of these and the United States, are studied in this course. Particular attention is given to contemporary Latin America. Lectures, assigned readings and quizzes.

223. MODERN EUROPE (SINCE 1814). Sophomore and junior years and elective, both semesters and summer school. Class work, three hours. Three semester credits. Prerequisite, when taken for graduate credit: three semester credits of college history. Mr. Iles.

This course traces the evolution of the modern European nations since 1814, with special attention to political organization, industrial development, and colonial expansion. Political problems and social and economic adjustments due to the Great War are included. Recitations, lectures, and assigned readings. Text: Hayes' *A Political and Social History of Modern Europe*, Vol. II, with special studies on the World War.

225. HISTORY OF THE HOME. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite, when taken for graduate credit: three semester credits of college history. Miss Alsop.

This course includes the history of the primitive family; the Hebrew family; the family life of the Greeks and of the Romans; and the history of the home and family during the Middle Ages, including the influence of the Christian church. Next, the history of the English family in the seventeenth and eighteenth centuries and of the American colonial home is studied. This is followed by a study of the industrial revolution and its effects upon family life. Finally, the history of the family during the nineteenth century, the present situation and tendencies are examined. The course is based primarily on Goodsell's *History of the Family*, supplemented by lectures and special studies.

226. THE BRITISH EMPIRE. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Entrance credit in English history or three hours college credit in history, preferably History 121. Prerequisite, when taken for graduate credit: three semester credits of college history. Mr. James.

This course deals with the English phase of the European expansion movement, giving due consideration to the forces and influences promoting the "swarming of the English" overseas. The growth and development of the English provinces into self-governing colonies and the union of these into practically independent dominions is given detailed consideration. Finally, the drawing together of the widely scattered English peoples into a British Commonwealth of Nations under the stress of outside pressure, and the significance of this fact in the struggle for democracy, receives attention.

228. IMMIGRATION AND INTERNATIONAL RELATIONS. Elective, first semester. Class work, two hours. Two semester credits. Prerequisite, when taken for graduate credit: three semester credits of college history. Mr. Price.

The title of the course suggests its content. It includes a study of the causes and the effects—economic, social, and political—of the coming of the foreigner to our shores, including the colonial period, the middle period, and the period since our Civil War, with special reference to the recent changes both as to the character of the immigrants and as to the conditions in Europe and in America that effect the number and quality of immigrants. The second part of the course includes a clear survey of the important epochs in our diplomatic history. The entire course deals with subjects of greatest moment to our nation, especially since the World War, subjects that should be correctly understood by every citizen, but especially by those who are to be our leaders. The first part of this course is based upon such works as Orth *Our Foreigners* and Fairchild *Immigration—A World Movement and Its American Significance*. The text for the second part is Adams, *A History of the Foreign Policy of the United States*. This course is conducted by lectures, recitations, and reports on assigned readings.

232. PROBLEMS IN HISTORY INSTRUCTION. Elective, summer school. Class work, two hours. Two semester credits. Mr. Iles.

This course has two aims: (1) To acquaint teachers of history and civics with the methods and devices most useful in these courses; (2) To introduce advanced students to the principles of historical criticism and to the methods of using historical material. A part of the work is based upon Tryon, *The Teaching of History in Junior and Senior High Schools*, and upon the committee reports that have guided the development of history courses in the United States. The different texts in history and civics are critically compared as to points of excellence or weakness, including lectures on the content of viewpoint of each. Information is given as to the best available illustrative material and helps in the teaching of history and civics. The course reveals the evolution in the writing of history, and the growing importance of history and civics in the modern school curriculum, together with the improving viewpoints as to content of both the history and civics courses. For the more advanced students special attention is paid to the bibliography of history, to the better known collections of sources, and to the more approved methods of taking and using notes in teaching and writing history.

This course may be taken for three hours of graduate credit. Any student taking this course for three hours of graduate credit must have had as a prerequisite ten semester credits in history and nine semester credits in education. These graduate students will be required to work out a series of problems from first-hand material.

FOR GRADUATES

301. RESEARCH IN HISTORY. Elective, both semesters and summer school. One to six semester credits. For prerequisites in each case, consult instructor. Mr. Price, Mr. Iles, Mr. James, Mr. Peine, and Mr. Correll.

Work in this course consists of individual research problems in European or American history, including international relations. The conclusions will generally take the form of a thesis.

COURSES IN CIVICS

FOR UNDERGRADUATES

151. AMERICAN GOVERNMENT. Junior and senior years, both semesters and summer school. Class work, three hours. Three semester credits. Mr. Iles.

This course in civics, or actual government, reviews definitely the fundamental principles and operations of our state and national governments, including the essential principles of constitutional law, but gives special emphasis to the actual present-day conditions and movements in our governmental and political life. Among the subjects especially studied are the initiative and referendum, suffrage and primary elections, the recall, city government and government of territories, the regulation of commerce, conservation of national resources, national defense, taxation and finance, the actual methods of congressional activity, and the function, organization, power, and importance of political parties in our government. The course is based primarily on Munro's *The Government of the United States* supplemented by Mott's *Materials Illustrative of American Government*. Throughout this course special and definite attention is given to recent and current events in governmental activities.

152. AMERICAN NATIONAL GOVERNMENT. Elective, first semester. May be substituted for course 151. Class work, three hours. Three semester credits. Mr. Iles.

This course deals chiefly with the mechanism, functions and control of the government of the United States, but considerable attention is paid also to principles and problems. The course meets the requirements of three semester credits in government, and with course 153 affords a comprehensive study of American government, national, state and local. Students who have credit for course 151 cannot receive additional credit for either course 152 or 153.

153. AMERICAN STATE GOVERNMENT. Elective, second semester. May be substituted for course 151. Class work, three hours. Three semester credits. Mr. Iles.

In this course attention is limited to state and local government, and special attention is given to functions and problems. Courses 152 and 153 are based on good modern texts, with lectures and assigned readings.

155. OUR NATIONAL AND STATE CONSTITUTIONS. Elective, summer school. Class work, two hours. Two semester credits. Mr. Iles.

This course is intended especially for teachers who are now required by law to teach the constitution of the United States. The State texts are supplemented by an abundance of illustrative material intended to be specially useful in presenting the subject to pupils. This course is also of value to any student who may be preparing for a course in law.

160. COMMERCIAL LAW. Junior year, both semesters. Class work, one hour. One semester credit. Mr. Correll.

This course is designed solely for those curricula that require only one hour of business law. In the main, the subjects forming the content of Business Law A and B are here considered, only the most fundamental principles being studied.

Business Law A may be substituted for Commercial Law, and where the requirements of the curricula permit, the extra credit used as an elective. Text: Bays' *Business Law*.

161. BUSINESS LAW A. Both semesters and summer school. Class work, two hours. Two semester credits. Mr. Peine.

This is fundamentally a course in contracts and sales, preceded by a careful consideration of the nature of law in general and the scope of the laws of business. A text is used in Business Law A and B, but emphasis is placed upon the concrete legal problems of business as illustrated in actual cases.

162. BUSINESS LAW B. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Business Law A. Mr. Peine.

The general field covered by this course is the law of credit relations and the law of business organization, with a brief consideration of the law of property. Subjects included are negotiable instruments, guaranty, damages, dissolution, agency, partnership, corporations, bailments, insurance, property.

175. FARM LAW. Elective, first semester. Class work, two hours. Two semester credits. Mr. Peine.

The application of the laws of real and personal property to the business of farming makes up the major part of this course. Among the topics studied are the ownership of the farm, boundaries, water rights including irrigation, mortgages, leases, ownership of crops and live stock, rights of the government under inspection and quarantine laws, liability for damages done by domestic animals, sale and transportation of farm products, insurance. A brief analysis of the elements of contracts is made as an aid to those who have had no previous work in business law. By special arrangement, this course may be taken for credit by one who has had Business Law A and B.

FOR GRADUATES AND UNDERGRADUATES

252. COMPARATIVE GOVERNMENT. Elective, first semester. Class work, two hours. Two semester credits. Mr. Iles.

This course comprises a study of the leading features, especially with regard to administration, of certain European governments such as England, France, and Germany, and a comparison of essential features with government in the United States. It is planned to supplement and round out the course in American Government. Text: Macy and Gannaway's *Comparative Free Government* or Holt's *Introduction to the Study of Government*.

256. INTERNATIONAL LAW. Elective, second semester. Class work, two hours. Two semester credits. Mr. James.

This course includes a discussion of the fundamental principles of international law and international relations; and rights and obligations, public and private, in time of peace and in time of war, are studied, especially in the light of recent developments, such as the Hague conferences. Text: Lawrence, *Principles of International Law*.

FOR GRADUATES

351. RESEARCH IN GOVERNMENT. Elective, both semesters and summer school. One to six semester credits. For prerequisites in each case, consult instructor. Mr. Price, Mr. Iles, Mr. James, Mr. Peine, and Mr. Correll.

Work in this course consists of individual research problems in national or local government, American or European, including studies in comparative government or international law. The conclusions generally take the form of a thesis.

Industrial Journalism and Printing

Professor CRAWFORD*
Professor ROGERS
Professor KEITH
Assistant Professor AMOS

Assistant Professor BROWN
Instructor SALISBURY
Instructor HEMPHILL

The work in industrial journalism and printing is designed to accomplish two purposes—the preparation of students in other fields to do occasional writing for newspapers and other periodicals on subjects of special interest; and the training of students fundamentally interested in journalism for positions on farm journals, newspapers, and other publications, particularly where writing on agriculture and other industrial subjects is in demand. The instruction considers the requirements of newspapers, agricultural papers, trade publications, and general magazines, and the ethical problems of the profession of journalism. *The Kansas Industrialist*, the official paper of the College, is under the editorial and mechanical direction of the department. The office of *The Kansas State Collegian*, the student semiweekly newspaper, is in the department practice room. *The Brown Bull*, a humorous magazine which has aroused much favorable comment among newspaper men, is published by students in the department. Students write also for general newspapers, farm journals, and magazines.

Attention is given to the mechanical side of the profession in the instruction in printing, two semesters of which are required of all students taking the curriculum in industrial journalism. Printing has been taught in the institution continuously since 1874—the longest period during which instruction in the subject has been given in any American college.

The equipment for instruction in journalism and printing is that of a practical publishing and printing plant. This department owns equipment valued at \$14,716.

A large amount of timely agricultural and other information is furnished regularly to Kansas newspapers, farm journals, and other publications. Special assignments are covered for these periodicals, and special inquiries are answered.

All students enrolled in the curriculum in industrial journalism and all students electing journalism practice or laboratory courses pay a laboratory charge of \$1.50 a semester.

COURSES IN PRINTING

FOR UNDERGRADUATES

101. PRINCIPLES OF TYPOGRAPHY I. Freshman year, first semester. Class work, two hours; laboratory practice, three hours. Three semester credits. Mr. Keith and Mr. Amos.

* Absent on leave, year 1925-'26; resigned June 30, 1926.

The course comprises a study of the case, the point system, and the measurement of type and stock. The history of printing is presented and a study is made of the development of the various typographical styles. Practice is given in setting straight matter. Emphasis is laid on accuracy.

104. PRINCIPLES OF TYPOGRAPHY II. Freshman year, second semester. Class work, two hours; laboratory practice, three hours. Three semester credits. Mr. Keith and Mr. Amos.

The work of the preceding course is continued, a study being made of type faces and the typography of advertisements and head display. The principles of effective make-up are treated. The use of cost systems in printing offices receives attention.

108. AD. COMPOSITION I. Elective, first semester. Laboratory, six hours. Two semester credits. Prerequisite: Principles of Typography II. Mr. Keith and Mr. Amos.

This course consists of a study of the principles of display and design as applied to newspaper and magazine advertisements. Practical work is given in setting ads. for magazines, and newspapers are studied and criticised.

111. AD. COMPOSITION II. Elective, second semester. Laboratory, six hours. Two semester credits. Prerequisite: Ad. Composition I. Mr. Keith and Mr. Amos.

This course is a continuation of Ad. Composition I. More complicated work is studied.

114. JOB COMPOSITION I. Elective, first semester. Laboratory, six hours. Two semester credits. Prerequisite: Principles of Typography II. Mr. Keith and Mr. Amos.

In this course the differences in the requirements for job composition and ad. composition are emphasized. The proper selection of type faces, borders, and ornaments is considered. The work consists of setting jobs and locking them up for the pressroom.

118. JOB COMPOSITION II. Elective, second semester. Laboratory, six hours. Two semester credits. Prerequisite: Job Composition I. Mr. Keith and Mr. Amos.

In this course color work, tabular forms, and other complicated kinds of job work are studied.

122. PLATEN PRESSWORK I. Elective, first semester. Laboratory, six hours. Two semester credits. Prerequisite: Ad. Composition I or Job Composition I. Mr. Keith and Mr. Amos.

This work consists of practical platen presswork under ordinary printing-office conditions. The student is taught to feed press and make ready the jobs, and is given instruction in selection of inks and the care of printing rollers.

126. PLATEN PRESSWORK II. Elective, second semester. Laboratory, six hours. Two semester credits. Prerequisite: Platen Presswork I. Mr. Keith and Mr. Amos.

This work is a continuation of Platen Presswork I. The student is given more advanced work in mixing inks and in color work.

131. CYLINDER PRESSWORK I. Elective, first semester. Laboratory, six hours. Two semester credits. Prerequisite: Platen Presswork II. Mr. Keith and Mr. Amos.

In this course the student is taught the fundamentals for work on all kinds of cylinder presses. He is taught how to make the work ready and how to feed, and is given instruction in the general care and handling of cylinder presses.

136. CYLINDER PRESSWORK II. Elective, second semester. Laboratory, six hours. Two semester credits. Prerequisite: Cylinder Presswork I. Mr. Keith and Mr. Amos.

This is a continuation of Cylinder Presswork I.

139. PRINTING PAPERS AND SUPPLIES. Elective, first semester, on permission of the instructor. Laboratory, six hours. Two semester credits. Mr. Keith and Mr. Amos.

This course is intended to give the student the fundamental knowledge necessary for the proper selection and efficient buying and handling of printing supplies. Practical work is also given in figuring and cutting stock for the pressroom.

FOR GRADUATES AND UNDERGRADUATES

201. PRINTING COST ACCOUNTING. Elective, second semester, on permission of the instructor. Class work, two hours. Two semester credits. Prerequisite: Consult instructor. Mr. Keith.

Cost-finding systems adapted to various sizes and kinds of printing plants are studied in detail in this course. The figuring of costs, the economical routing of work through the plant, the purchase of stock and other supplies, and other problems of management are treated. All books and records commonly kept in printing offices are studied.

COURSES IN INDUSTRIAL JOURNALISM

151. ELEMENTARY JOURNALISM. Sophomore year, first semester. Class work, two hours. Two semester credits. Mr. Salisbury and Miss Hemphill.

This course is intended to give the student practical experience in the fundamentals of news writing. Methods of obtaining news of various types, the writing of the lead, and the general styles of the news story are carefully considered.

154, 155, 158, 159. JOURNALISM PRACTICE I, II, III, IV. These courses comprise laboratory practice accompanying courses 151, 161, 167, 179. Sophomore and junior years. Six hours. Two semester credits for each course. Prerequisite for each semester is the work of all preceding semesters in Journalism Practice. Mr. Crawford, Mr. Rogers, Mr. Brown, Mr. Salisbury, and Miss Hemphill.

The work in Journalism Practice follows closely the other courses in journalism with which it is taken. Students are required to gather news, both assigned and unassigned, and to write the stories in the department workroom. The College campus is divided into "runs," which the students must cover at regular intervals, and assignments are given at specific times. The work given is suited to the advancement of the student. As he progresses in his work he is required not only to obtain news and feature stories, but to edit copy, to read proof, to write heads, to prepare editorials, to select matter worthy of reprint, and to perform other duties required in newspaper and magazine offices. Emphasis is laid on popular treatment of industrial subjects. The instructor in charge gives the students training in looking up references and in handling technical subjects simply but accurately, and also makes specific criticism on the work done by the students.

161. INDUSTRIAL WRITING. Sophomore year, second semester. Class work, two hours. Two semester credits. Prerequisite: Elementary Journalism. Mr. Salisbury and Miss Hemphill.

This course applies the principles of journalism to the treatment of industrial subjects, such as are found in agriculture, engineering, home economics, and more general scientific research. The work of the College and the Experiment Stations afford the basis for study and practice.

164. AGRICULTURAL JOURNALISM. Junior year, both semesters. Class work, one hour. One semester credit. Mr. Rogers and Mr. Brown.

The course is intended to supply students in the curriculum in agriculture with sufficient knowledge of the principles of news writing, as applied to agriculture, to enable them to become occasional contributors to newspapers and farm journals. Much practice in agricultural writing is given in the course.

167. **INDUSTRIAL FEATURE WRITING I.** Junior year, first semester. Class work, two hours. Two semester credits. Prerequisite: Industrial Writing. Mr. Rogers.

This course takes up the feature story, with careful attention to both the informative and the entertaining type. The principles underlying the feature story are applied to writing on agricultural and other industrial subjects. The demands of newspapers, farm journals, and general magazines for writing of this character are analyzed.

171. **INDUSTRIAL FEATURE WRITING II.** Junior year, second semester. Class work, two hours. Two semester credits. Prerequisite: Industrial Feature Writing I. Mr. Brown and Miss Hemphill.

The course deals specifically with agricultural journals, trade journals, and other publications of highly specialized character. The writing which is done in the course is done for publications of these types, and the students are required to submit their material to editors. A beginning is made in the study of the desk work required on a technical journal, including the handling of copy, the use of illustrations, and the principles of make-up from the editorial standpoint.

179. **PRINCIPLES OF ADVERTISING.** Junior year, second semester. Class work, three hours. Three semester credits. Prerequisite: For Industrial Journalism students, Industrial Writing; for Rural Commerce students, Written and Oral Salesmanship. Mr. Davis, of the Department of English, and Mr. Keith.

This course considers the fundamentals of advertising as a part of modern business. The study of the goods to be advertised, the analysis of the market, the psychology of advertising, the preparation of advertising copy, and other important matters are taken up. The student is required to make application of the principles brought out in the course.

182. **THE RURAL PRESS.** Elective, both semesters. Class work, three hours. Three semester credits. Prerequisite: Elementary Journalism. Mr. Brown.

This course is designed to acquaint the student with the nature and needs of the community newspaper, giving special attention to its presentation of the agriculture and rural life in its field. In addition to studying representative community newspapers, students write news stories and items gathered on the campus and intended for publication. They are required to act as correspondents for Kansas community newspapers.

185. **HIGH SCHOOL NEWSPAPERS AND ANNUALS.** Elective, Summer School. Two semester credits. Mr. Brown.

This course is intended primarily for the high-school instructor who teaches news writing, and who supervises the publication of the high-school newspaper and yearbook. The principles of news writing are taken up and practice is required. An intensive study of high-school newspapers and yearbooks is made. Problems of financing the high-school newspaper and yearbook and of staff organization are given attention.

FOR GRADUATES AND UNDERGRADUATES

250. **ADVERTISING PRACTICE.** Elective, first semester. Class work, two hours. Two semester credits. Prerequisite: Principles of Advertising. Mr. Davis, of the Department of English, and Mr. Keith.

This course consists of practice in advertising writing. Special attention is given to copy and display problems. Practical problems found in the advertising of student activities and of local merchants are worked out, and students in the course are required to do actual commercial work.

251. **CIRCULATION AND ADVERTISING PROMOTION.** Senior year, first semester. Class work, three hours. Three semester credits. Prerequisite: Industrial Feature Writing II. Mr. Keith.

This course deals with the business management of periodical publications. The building up of circulation and the soliciting of advertising receive special

emphasis. Premiums and other plans for increasing circulation are discussed. The advertising agency, the circulation analysis, and the fixing of advertising rates are treated.

254. COPY READING. Senior year, first semester. Laboratory practice, six hours. Two semester credits. Prerequisite: Industrial Feature Writing II. Mr. Brown and Mr. Salisbury.

The course continues the work begun in Industrial Feature Writing II, and gives practice in the work required of the copy reader, whether on a newspaper, an agricultural journal, or some other publication. A study is made of newspaper style and of magazine and book style, the distinction between the two being clearly pointed out. The writing of heads and titles and proof reading receive detailed attention. A large amount of copy is actually handled in class, and papers of various types are made up as practice assignments.

255. CONTEMPORARY THOUGHT. Senior year, first semester. Class work, three hours. Three semester credits. Prerequisite: Industrial Feature Writing II, or its equivalent in other curricula. Mr. Rogers.

This course seeks to correlate and unify various subjects that have been previously studied in college. Endeavoring to present without bias contemporary developments and contemporary figures in science, the arts, and philosophy, the course is intended to aid the student in forming the habit of independent thinking. It thus serves both as a preparation for the following course in editorial practice and as an aid to the student in beginning his life as a practical journalist. Lectures by authorities in various fields and by the instructor in charge, assigned readings, papers, and class discussions are included in the course.

257. EDITORIAL PRACTICE. Senior year, second semester. Class work, two hours. Two semester credits. Prerequisite: Copy Reading. Mr. Salisbury.

The course deals not only with the writing of editorials suitable for farm papers, trade papers, and newspapers, but with the conduct of the editorial offices of a periodical publication. Students obtain instruction and practice in writing the matter commonly prepared by the editorial staff of a paper, including editorials, paragraphs, and exchange matter. The acceptance and rejection of contributions receive consideration. Editorial policies and their influence form the subject of careful discussion.

260. ETHICS OF JOURNALISM. Senior year, second semester. Class work, two hours. Two semester credits. Prerequisite: Circulation and Advertising Promotion. Mr. Rogers.

The course treats the ethics of journalism as exemplified in the use of contributed matter, in the work of the reporter or staff writer, in the editorial conduct of the paper, and in the handling of circulation and advertising. The federal and state laws relating to periodical publications, to advertising, to libel, and to author's rights, including the federal law of copyrights, are treated. The attitude of periodical publications on matters of ethics and law is observed at first hand by the students.

265. MATERIALS OF JOURNALISM. Elective, first semester. Class work, two hours. Two semester credits. Mr. Brown.

This is a course intended primarily for the general student who desires to obtain a knowledge of the principal newspapers and magazines, and to be able to form judgments as to the accuracy and adequacy of news reports and other published matter. The materials handled by the publications, the methods of treatment, and the character of the editorial comment are carefully presented. Attention is given to the several types of journalism.

270. MAGAZINE FEATURES. Elective, second semester, on permission of the instructor. Class work, two hours. Two semester credits. Mr. Rogers, Mr. Brown, and Miss Hemphill.

The course is intended for advanced students who desire to prepare literary work suitable for publication in magazines. The matter of the courses is

varied to suit the needs and desires of the students, emphasis being laid upon such types of magazine writing as members of the class wish to practice.

274. HISTORY OF JOURNALISM. Elective, first semester. Class work, two hours. Two semester credits. Prerequisite: One semester of college American History. Miss Hemphill.

This course deals with the history of journalism from its beginning and with the history of printing so far as this is concerned with periodical publications. Most of the time of this course is given to journalism in England, Canada and the United States, though some attention is given to publications of other countries. The differentiation of journalism in the nineteenth century, and the several types which arose because of this are the subjects of careful study. Particular attention is given to the fields of agricultural and trade journalism.

278. JOURNALISM SURVEYS. Elective, second semester. Laboratory work, six hours. Two semester credits. Mr. Rogers.

This course comprises the careful investigation of the periodical reading matter of communities. The information obtained is carefully tabulated, and studies are made of the relation of the reading matter to the industrial, economic, social, and moral life of the communities.

282. COLUMN CONDUCTING. Elective, second semester. Class work, two hours. Two semester credits. Given when requested by a sufficient number. Mr. Davis, of the Department of English.

The course deals with the conducting of the so-called column, humorous or semiserious. This affords opportunity for writing paragraphs, light verse, and similar material. Practice in writing humor constitutes the principal work of the course; but as a basis for this, studies are made of the humorous magazines and of humor in other periodicals.

286. CURRENT PERIODICALS. Elective, second semester. Class work, two hours. Two semester credits. Mr. Brown.

The course comprises a study of current periodicals of various types. Special emphasis is laid on the material that they contain and the nature of its appeal to the reader. It is a nontechnical course, intended to give general students some knowledge of the field of current periodical literature.

FOR GRADUATES

351. RESEARCH IN INDUSTRIAL JOURNALISM. Both semesters. Class work, two to five hours. Two to five semester credits. Mr. Rogers.

Special courses will be arranged to meet the specific needs and desire of individual graduate students. These courses will in general embody creative literary work or detailed research in specialized journalism.

Library Economics

Librarian SMITH
Associate Librarian DERBY
Reference Librarian DAVIS
Loan Librarian BISCHOP

Reference Assistant AUSTIN
General Assistant REYNOLDS
Loan Assistant BROWN

The Library supplements the work of every department of the College. It is a storehouse of knowledge for every student. It supplies information and the latest results of scientific research for every instructor. The Library is thus essential to the College, forming, as it were, a center from which its various activities radiate.

In order that the Library may perform its functions with the highest degree of efficiency it is necessary that instruction be given regarding its use. With this thought in mind a course is offered the purpose of which is to familiarize the student with scientific, up-to-date methods in the use of books and to acquaint him with the best general reference books as well as with standard works on various subjects. Placed at the beginning of his College course it

should tend to increase largely his efficiency in study throughout the entire course.

The books and pamphlets in the library are valued at \$247,900; other equipment has a value of \$32,829.

COURSES IN LIBRARY ECONOMY

FOR UNDERGRADUATES

101. LIBRARY METHODS. Freshman year, both semesters. Class work, one hour. One semester credit. Associate Librarian Derby, Miss Davis, Miss Austin, Miss Reynolds, Miss Brown, and Miss Bischof.

This course consists of lectures on classification and arrangement of books in the Library; card catalogues; the principal works of reference, such as dictionaries, encyclopedias, atlases, and standard works in history, literature, economics, quotations, statistics, etc.; public documents and their indexes; indexes to periodicals, etc. Instruction is given, also, in methods of indexing current reading for purposes of future reference.

Mathematics

Professor REMICK
Professor WHITE
Professor STRATTON
Assistant Professor HYDE
Assistant Professor LEWIS
Assistant Professor LYONS
Instructor HOLROYD

Instructor ROWE
Instructor JAMES
Instructor MOSSMAN
Instructor STALEY
Instructor CHILCOTT
Instructor ZERBY

In an institution that stands as an exponent of the industrial type of education, mathematics should occupy an important place. Training in the exact science is valuable not only for its own sake but also on account of its manifold applications. On this basis the courses in mathematics are offered primarily with the following ends in view: (1) the attainment of mental power and accuracy in the interest both of general culture and special application; (2) the acquirement of facts and processes that will provide the student with an indispensable tool for further scientific and technical study.

As several of the curricula of the College are formulated on the assumption that a half-year of solid geometry will have been taken in high school, classes in this subject are provided for students who are deficient in this respect. College credit on electives is allowed for this work.

The equipment owned by this department is valued at \$738.

COURSES IN MATHEMATICS

FOR UNDERGRADUATES

101. PLANE TRIGONOMETRY. Freshman year, first and second semesters. Class work, three hours. Three semester credits. Prerequisites: Plane Geometry, and one and one-half years of high-school Algebra. Mr. Stratton, Miss Hyde, Mr. Lewis, Mr. Lyons, Miss Holroyd, Mr. James, Miss Mossman, and Mr. Staley.

This course treats of the functions of acute angles, right triangles, goniometry, oblique triangles, practical problems. Text: Rothrock's *Plane and Spherical Trigonometry*.

104. COLLEGE ALGEBRA. Freshman year, both semesters. Class work, three hours. Three semester credits. Prerequisites: Plane Geometry, and one and one-half years of high-school Algebra. Mr. Stratton, Miss Hyde, Mr. Lewis, Mr. Lyons, Miss Holroyd, Mr. James, Miss Mossman, and Mr. Staley.

Elementary topics, functions and their graphs, quadratic equations are rapidly reviewed. The further treatment includes the subjects of complex numbers, theory of equations, permutations and combinations, partial fractions, logarithms, and determinants. Text: Hawke's *Higher Algebra*.

107. COLLEGE ALGEBRA A. Freshman year, second semester. Class work, five hours. Five semester credits. Prerequisites: Plane Geometry and one year of high-school Algebra. Mr. Stratton, Miss Hyde, Mr. Lewis, Mr. Lyons, Miss Holroyd, Mr. Janes, Miss Mossman, and Mr. Chilcott.

After a brief review of elementary subjects, a thorough treatment of quadratics, ratio, proportion, progressions, and the binomial theorem for positive exponents is given. The remainder of the course follows closely the chief content of course 104. Text: Wells and Hart's *Second Course in Algebra*, enlarged edition.

110. PLANE ANALYTICAL GEOMETRY. Sophomore year, first semester. Class work, four hours. Four semester credits. Prerequisites: Plane Trigonometry, and College Algebra. Mr. White, Mr. Stratton, Miss Hyde, and Mr. Lyons.

This course treats of coördinate systems, projections, loci, straight line, conics, parametric and empirical equations, with a discussion of the general equation of the second degree. Text: Roberts and Colpitts' *Analytical Geometry*.

119. CALCULUS. Sophomore year and elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Analytical Geometry. Mr. Remick and Mr. Stratton.

This course is designed especially for students intending to teach secondary mathematics and for those interested in the natural sciences. It includes a brief treatment of the fundamental principles of both branches of calculus, practice with the standard formulas of differentiation and their application to geometry and mechanics. Integration of the usual elementary forms is followed by the idea of the definite integral and a few of the more important applications.

122. SPECIAL METHODS IN THE TEACHING OF MATHEMATICS. Elective, second semester. Class work, three hours. Three semester credits. Mr. Stratton.

As its name indicates, this course is intended primarily for those who are planning to teach elementary mathematics. Emphasis is given to pedagogical questions, with some reference to the historical course of development. A discussion of the best methods of teaching arithmetic, algebra, and geometry; a study of the report of prominent mathematical organizations, especially those of the international commission; a comparison of the curricula of different schools—these are some of the matters which receive attention. An examination is made of books and articles on the teaching of mathematics. The course proceeds by lectures, readings and reports on assigned topics.

123. SPECIAL METHODS IN ARITHMETIC. Elective, Summer School. Class work, two hours. Two semester credits. Miss Hyde.

This course is intended for rural- and grade-school teachers, and has for its scope the work of the first six grades. Discussion of the best methods of presenting the various topics; use of standardized and practice tests; supplementary work; and the best method of adapting the state text to the minds of the pupils, are some of the phases of the work which receive attention. The course proceeds by lectures, assignments for special reports, and investigation of articles in educational journals. Text: Thorndyke's *The New Methods in Arithmetic*.

126. ELEMENTS OF STATISTICS. Elective, first semester. Class work, three hours. Three semester credits. Mr. White.

This course consists in the study of the parts of algebra most needed as a basis for statistical work, followed by a development of the elementary principles used in the analysis of statistical data. Use is made of farm bulletins, agricultural reports, etc. The work proceeds by lectures, readings, and recitations.

131. INSTITUTIONAL ACCOUNTING. Elective, second semester. Class work, three hours. Three semester credits. Mr. Stratton.

This course treats of accounting for institutions such as colleges, schools,

clubs, societies, industrial and social organizations. The practice work includes preparation for publication of statements of income and expenditure, balance sheets, treasurer's reports, financial data and statistics, and of the annual returns of net income required under the federal income-tax law. A study is made of the mathematics of investments, the handling of endowment and trust funds, and the preparation of budgets. The work proceeds by lectures, discussions, written reports, and exercises.

137A. ACCOUNTING. Freshman year, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Mr. Rowe and Mrs. Zerby.

An introduction to accounting adapted for students who have had little or no bookkeeping. The fundamental principles of bookkeeping are presented along with practice sets which emphasize the structure and significance of the accounts which make up the balance sheet and statement of profit and loss. Text: McKinsey's *Bookkeeping and Accounting*, Vol. I.

140A. ACCOUNTING PRACTICE I. Sophomore year, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: Accounting or one year of high-school bookkeeping. Mr. Rowe.

This course includes a study of the principles and structure of accounts and is designed to give power to analyze commercial accounts and statements. A complete study of the accounting process is taken up from the recording of transactions to the summarization of statements. Special attention is given to the adjustments for accrued, deferred, and prepaid items. Problems and practice sets are used in the laboratory period as an application of principles to practice. Text: Kester's *Accounting Theory and Practice*.

143A. ACCOUNTING PRACTICE II. Sophomore year, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Mr. Rowe.

The course includes a study of partnership and corporation accounting of problems peculiar to them. It also considers the valuation of balance-sheet items with especial reference to depreciation, inventories, and intangibles. A few other miscellaneous topics such as controlling accounts are also treated. The laboratory work consists in working out a complete set of books for a corporation. Text: Kester's *Accounting Theory and Practice*.

150. MATHEMATICS OF INVESTMENT. Junior year, second semester. Class work, three hours. Three semester credits. Prerequisite: Accounting Practice II. Mr. Rowe.

This course deals with the calculation of compound interest, and includes the study of annuities, methods of measuring depreciation, and the determination of the price at which bonds should be bought to yield a market rate of interest. The amortization of premiums and the accumulation of discount on bonds are considered with special reference to their accounting significance. Some attention is given to life insurance actuarial problems. Text: Putnam's *Mathematics of Finance*.

156. ADVANCED ACCOUNTING I. Elective, second semester, alternating with Advanced Accounting II. Class work, three hours. Three semester credits. Prerequisite: Accounting Practice II. Mr. Rowe.

The first half of this course consists of a study of the Federal income tax. Considerable practice is given in the preparation of personal and corporation income-tax returns. The second half of the course consists of a study of the accounting systems used in various types of business enterprises, including banks, department stores, public utilities, etc. A term paper is required. Texts: Government Bulletin 65, *Regulations Relating to the Income Tax*, and Gordon and Lockwood's *Accounting Systems*.

160. ADVANCED ACCOUNTING II. Elective, second semester, alternating with Advanced Accounting I. Class work, three hours. Three semester credits. Prerequisite: Accounting Practice II. Mr. Rowe.

This course involves in part a study of the advanced theory of accounts

and in part the solution of problems selected largely from certified public-accountant examinations in the various states. A term paper is required. Text: Kester's *Accounting Theory and Practice*, Vol. II.

FOR GRADUATES AND UNDERGRADUATES

The following courses are available on request by a sufficient number of students. Numbers 201, 204, 205, 210, and 213 are offered each year.

201. DIFFERENTIAL EQUATIONS. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Calculus II. Mr. Remick.

This course is designed for those who may wish to extend their study of mathematics beyond the usual first course in calculus, and also for those intending to take advanced work in physics, mechanics, or engineering. The various standard types of differential equations are considered, together with the usual applications. Text: Cohen's *Differential Equations*.

203. THEORY OF STATISTICS. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: Elements of Statistics, or its equivalent. Mr. White.

This course includes a study of the theory of probability applied to statistical problems; frequency curves, correlation theory, curve fitting, problems of random sampling. Actual practice is given with data from biology, agronomy, physics, etc. The work proceeds by lectures, readings, and reports.

204. METHOD OF LEAST SQUARES AND THEORY OF MEASUREMENT. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Calculus II. Mr. Remick and Mr. White.

This course includes a study of the law of error based on the theory of probability and the probability curve; adjustment of observations by the method of least squares; development of precision measures; distribution of errors; and Gauss' method of substitution in the solution of normal equations. The solution of a number of problems is required.

205. CALCULUS I. Sophomore year and elective, second semester. Class work, five hours. Five semester credits. Prerequisite: Plane Analytical Geometry. Mr. Remick, Mr. White, Mr. Stratton, and Mr. Lyons.

The usual topics of differential calculus are considered together with integration of standard forms, definite integrals, rational fractions, and integration by parts. This course contains problems closely related to the work of engineering students. Text: Love's *Differential and Integral Calculus*.

206. CALCULUS II. Junior year and elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Calculus I. Mr. Remick, Mr. White, Mr. Stratton, and Mr. Lyons.

In the division of the subject emphasis is laid upon the applied side. Problems involving areas, lengths, surfaces, and volumes are treated by processes of single integration. The idea of successive and partial integration is applied to areas, moments, centers of gravity, surfaces, volumes, etc. The types of differential equations which the student of engineering is most likely to meet with in his subsequent work are briefly discussed. Text: Love's *Differential and Integral Calculus*.

207. SOLID ANALYTICAL GEOMETRY. Elective, second semester. Class work, three hours. Three semester credits. Prerequisites: Plane Analytical Geometry, and Calculus II. Mr. White.

The topics treated include coördinates of points in space and their transformations, and involve the usual discussion of lines and planes. The standard types of quadratic surfaces are considered together with their classification and principal properties. Text: Snyder and Sisam's *Analytical Geometry of Space*.

210. ADVANCED CALCULUS I. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Calculus II. Mr. White.

This course considers primarily special topics in integral calculus, including

various methods of integrating elementary forms, a discussion of definite integrals with attention to the gamma and beta functions, and applications to lengths and areas. Text: Osgood's *Advanced Calculus*.

213. ADVANCED CALCULUS II. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: Advanced Calculus I. Mr. White.

This is a continuation of course 210, including further applications to geometry and mechanics, a treatment of line, surface, and space integrals, and a discussion of elliptic integrals. Text: Osgood's *Advanced Calculus*.

216. THEORY OF EQUATIONS. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Calculus II. Mr. Remick.

The course presupposes familiarity with the elements of the classical theory of the subject and treats particularly the modern development based upon the ideas connected with substitution groups and leading to the discussion of the solution of the general algebraic equation from the standpoint of the Galois theory. Text: Cajori's *Modern Theory of Equations*.

FOR GRADUATES

The following courses are available by appointment:

301. THEORY OF FUNCTIONS OF A COMPLEX VARIABLE. Elective, second semester. Class work, three hours. Three semester credits. Prerequisites: Advanced Calculus II and Differential Equations. Mr. Remick.

The usual line of topics is treated through lectures, discussions, and reports.

306. THEORETICAL MECHANICS. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Calculus II. Mr. Stratton.

It is assumed that the student entering upon this course is familiar with certain preliminary ideas found in textbooks on general physics, and the subject of mechanics is treated in its relation to mathematical analysis.

311. PROJECTIVE GEOMETRY. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: Analytical Geometry. Mr. White.

This course includes a treatment of the fundamental forms, projective relations, point rows, and pencils of the second order, poles and polars, properties of conics, and involution.

316. ADVANCED DIFFERENTIAL EQUATIONS. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Differential Equations. Mr. Remick.

This is a continuation of course 201. It includes a treatment of special topics, such as the equations of Legendre, Bessel, and Ricatti, together with applications.

321. LIE THEORY OF DIFFERENTIAL EQUATIONS. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: Differential Equations. Mr. Remick.

This course is an introduction to Lie's theory of one-parameter groups, with special reference to its application to the solution of the various types of differential equations.

326. CALCULUS OF VARIATION: Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Differential Equations. Mr. Remick.

The course includes a treatment of some of the standard problems of maxima and minima wherein a definite integral affords the fundamental form of expression.

331. MATHEMATICAL RESEARCH. First and second semesters. Required of all candidates for the master's degree whose major work is in the department of mathematics. Hours of work and credit are to be arranged in consultation with the head of the department.

Department of Military Science and Tactics

Professor BUGBEE, Lt. Col. Inf., U. S. A.
 Associate Professor PEIRCE, Maj. C. A. C., U. S. A.
 Associate Professor JONES, Capt. Inf., U. S. A.
 Assistant Professor BOWEN, Capt. Inf., U. S. A.
 Assistant Professor SPENCER, Capt. C. A. C., U. S. A.
 Assistant Professor WERTZ, Capt. C. A. C., U. S. A.
 Assistant Professor WALTZ, Capt. Inf., U. S. A.
 Assistant Professor FITZGERALD, Capt. V. C., U. S. A.
 Assistant Professor MCGARRAUGH, First Lieut. C. A. C., U. S. A.
 Assistant Professor SIMS, First Lieut. Inf., U. S. A.
 Supply Officer CLAEREN, Maj. O. R. C.
 Instructor COFFEE, Staff Serg. C. A. C., U. S. A.
 Instructor CONNOLLY, Staff Serg. Cav., U. S. A.
 Instructor PUGH, Serg. Inf., U. S. A.
 Mechanic WILSON, Pvt. First Cl., Spec. 4th Cl., C. A. C., U. S. A.

Since this College is one of the beneficiaries of the act of congress of 1862, military tactics is required in the College curricula. All young men of age, not physically disqualified, are required to take military training four full hours a week for two years. A student entering as a junior or above is held for military science for the time necessary to complete the remainder of his College course unless this period is reduced by military credits accepted from another institution.

Students enrolling in military courses who were members of junior units, R. O. T. C., at military academies or high schools, or those receiving military training while enrolled in government-aided schools (section 55c, national defense act, and section 1225, Revised Statutes) may apply for advanced credit examinations on the basis of one semester for each semester of training at a military academy; or for one semester for each year of training at a high school or government-aided school; provided there is stationed at these schools a regular officer of the United States Army; and provided further that no credit will be given beyond the basic course, which comprises the first four semesters of the College (freshman and sophomore years). (See "Advanced Credits.")

Requests for excuse from military science, or for postponement of the work, are acted upon by the president of the College. Such requests are presented through the student's dean, and the president obtains the advice of the professor of Military Science and Tactics, who thoroughly investigates each case on its merits and makes his recommendation to the president. Requests based on physical condition must be accompanied by a recommendation made by the College physician. Students excused from military science on any account are assigned to an equivalent amount of some other College work instead. Students permitted to postpone military science for any reason are not thereby excused, but must make it up later.

The act of congress of June 3, 1916, known as the national defense act, provides for the establishment in civil institutions of a Reserve Officers' Training Corps (R. O. T. C.).

The object of this provision is stated as follows:

"The primary object of establishing units of the Reserve Officers' Training Corps is to qualify, by systematic and standard methods of training, students at civil institutions for reserve officers. The system of instruction, herein prescribed, presents to these students a standard measure of that military training which is necessary in order to prepare them to perform intelligently the duties of commissioned officers in the military forces of the United States, and it enables them to be thus trained with the least practicable interference with their civil careers.

"Units of the senior division may be organized at civil institutions which require four years of collegiate study for a degree, including state universities and those state institutions that are required to provide instruction in military tactics under the provisions of the act of congress approved July 2, 1862,

donating lands for the establishment of colleges where the leading object shall be practical instruction in agriculture and the mechanic arts, including military tactics.

"Units of the junior division may be organized at any other public or private educational institution."

An infantry unit, a coast artillery unit and a veterinary unit of the Reserve Officers' Training Corps have been established in this College.

Members of the R. O. T. C. will receive the benefits mentioned below:

1. SENIOR DIVISION, BASIC COURSE (freshmen, sophomores). Each student of these classes will be furnished with complete uniform, and equipment for his use during the course. The articles remain the property of the United States and must be accounted for and turned in by each student at the close of each college year. Shoes are not furnished. Each student should provide himself with a pair of high tan shoes, not laced boots, before entering College as they will be required immediately upon his admission.

A laboratory fee of 35 cents per semester is charged all students assigned to military training.

Corporals are selected from the sophomores and specially qualified freshmen.

A six weeks' training camp, which is normally held at Fort Snelling, Minn., is optional for this course.

2. SENIOR DIVISION, ADVANCED COURSE (students who have completed the two years' Basic Course). The student who continues in the R. O. T. C. after completing the Basic Course will receive the following benefits:

He will receive a special uniform.

He will receive commutation of subsistence at the rate of 30 cents per day, provided he executes an agreement to complete the Advanced Course, or continue in the course during the remainder of his time in College, and to take the course in camp training during such period, prescribed by the Secretary of War. The camps referred to involve no expense on the part of the student. In addition, a complete summer uniform will be issued and he will be paid at the rate of 70 cents per day for not to exceed six weeks, and five cents per mile to and from camp to cover travel expenses.

After graduation he will be eligible for appointment by the President of the United States as a reserve officer of the army, and if so appointed he may, under certain conditions, be appointed and commissioned a second lieutenant in the regular army with pay at the rate of \$125 per month, with the usual allowances. (Ration allowance is \$18 and allowance for quarters, \$40.)

In order to elect the Advanced Course, R. O. T. C., a student must have the recommendation of the president of the College, his dean, and the professor of military science and tactics.

The corps of cadets at present is organized as one regiment. A military band is also provided for, the members of which must be thoroughly trained in military tactics. Assignments to the military band are made upon recommendation of the bandmaster, who has charge of the technical instruction.

Officers and higher noncommissioned officers are selected from the students taking the Advanced Course, R. O. T. C., according to class standing. This selection is made from among those cadets who have been most studious and soldierlike in the performance of their duties, and the most exemplary in their general deportment.

Students who are regularly enrolled in the Advanced Course of the Senior Division receive three semester credits of elective work toward graduation for each semester of military training taken beyond the Basic Course.

This department possesses equipment valued at \$2,296. In addition, the department is the custodian of federal government equipment valued at \$300,000.

COURSES IN MILITARY SCIENCE AND TACTICS

FOR UNDERGRADUATES

Senior Division R. O. T. C.

BASIC COURSES, INFANTRY

101. INFANTRY I. Freshman year, first semester. Lectures, recitations, and military drill, four hours a week. One and one-half semester credits. Prerequisite: None. Lieutenant Sims.

The work of this course is divided as follows:

(a) *Practical*. Physical training, infantry drill, bayonet training, preliminary marksmanship.

(b) *Theoretical*. Recitation: Military courtesy, national defense policy, infantry drill regulations.

102. INFANTRY II. Freshman year, second semester. Lectures, recitations, and military drill, four hours a week. One and one-half semester credits. Prerequisite: Infantry I. Lieutenant Sims.

This course includes a study of infantry drill regulations, rifle marksmanship, personal combat, scouting and patrolling, and is divided as follows:

(a) *Practical*. Infantry drill, scouting and patrolling, and rifle marksmanship.

(b) *Theoretical*. Rifle marksmanship, lectures on scouting and patrolling, military courtesy and customs, military hygiene, and first aid.

103. INFANTRY III. Sophomore year, first semester. Lectures, recitations, and military drill, four hours. One and one-half semester credits. Prerequisites: Infantry I and II. Captain Bowen and Lieutenant Sims.

The course includes a study of infantry drill, leadership, interior guard duty and infantry weapons, and is divided as follows:

(a) *Practical*. Acting as instructors of freshmen in infantry drill, automatic rifle firing and musketry problems.

(b) *Theoretical*. Sketching and map reading (panoramic and plane), weapons of the infantry platoon, scouting, and patrolling.

104. INFANTRY IV. Sophomore year, second semester. Lectures, recitations, and military drill, four hours. One and one-half semester credit. Prerequisite: Infantry II. Captain Bowen and Lieutenant Sims.

The work of this course includes study of infantry drill and maneuvers, musketry (continued), infantry weapons, command and leadership, hygiene and sanitation. It embraces:

(a) *Practical*. Infantry platoon problems, musketry, infantry weapons, demonstration of their uses and mechanisms, hygiene and sanitary inspections, practice in command and leadership.

(b) *Theoretical*. Study of infantry weapons, modern hygiene, and sanitary methods, diseases, and interior guard duty.

ADVANCED COURSES, INFANTRY

109. INFANTRY V. Junior year, first semester. Lectures, recitations, and military drill, five hours. Three semester credits. Prerequisites: Infantry I, II, III, and IV. Captain Waltz.

This course embraces a study of field engineering, tactics and military law.

(a) *Practical*. Leadership and instruction in all basic course subjects.

(b) *Theoretical*. Study and recitation, field engineering, tactics and interior guard duty.

110. INFANTRY VI. Junior year, second semester. Lectures, recitations, and military drill, five hours. Three semester credits. Prerequisite: Infantry V. Captain Waltz.

This course comprises a study of infantry accompanying weapons, machine guns, 37-mm. guns, light mortars, organization, command and leadership, and law, and is divided as follows:

(a) *Practical*. Same as in course 109 (Infantry V).

(b) *Theoretical*. Mechanism and use of accompanying weapons, law (military and civil), rules of land warfare.

111. INFANTRY VII. Senior year, first semester. Lectures, recitations, and military drill, five hours. Three semester credits. Prerequisite: Infantry VI. Captain Jones.

This course comprises a study of military history, administration, organization, command and leadership, and is divided as follows:

(a) *Practical*. Command and leadership, basic course.

(b) *Theoretical*. Study and recitation, military history, administration and organization, and combat principles.

112. INFANTRY VIII. Senior year, second semester. Lectures, recitations, and military drill, five hours. Three semester credits. Prerequisite: Infantry VII. Captain Jones.

The course embraces study of minor tactics, pistol marksmanship, commands and leadership. It is divided as follows:

(a) *Practical*. Command and leadership, basic course subjects, tactical problems, pistol range problems.

(b) *Theoretical*. Military tactics, practical problems, mechanism and nomenclature, automatic pistol (caliber .45), military law, 37-mm. gun, 3-inch trench mortar.

NOTE.—Advanced-course students are required to attend one camp. This comes normally at the end of the junior year, and is held normally at Fort Snelling, Minn.

BASIC COURSES, COAST ARTILLERY

(For students of the Division of Engineering only)

113. ARTILLERY I. Freshman year, first semester. Lectures, recitations, and practical instruction, four hours. One and one-half semester credit. Prerequisites: None. Lieutenant McGarraugh.

The work of this course is the same as for course 101 (Infantry I).

114. ARTILLERY II. Freshman year, second semester. Lectures, recitations, and practical instruction, four hours. One and one-half semester credit. Prerequisites: Artillery I or Infantry I. Lieutenant McGarraugh.

The work of this course is the same as for course 102 (Infantry II).

115. ARTILLERY III. Sophomore year, first semester. Lectures, recitations, and practical instruction, four hours. One and one-half semester credit. Prerequisite: Artillery II or Infantry II. Captain Wertz.

The work of this course is divided as follows.

(a) *Practical*. Infantry instruction, heavy artillery and anti-aircraft artillery.

(b) *Theoretical*. Infantry drill regulations, artillery matériel.

116. ARTILLERY IV. Sophomore year, second semester. Lectures, recitations, and practical instruction, four hours. One and one-half semester credit. Prerequisite: Artillery III. Captain Wertz.

The work of this course is divided as follows:

(a) *Practical*. Section (a) of course 115 continued.

(b) *Theoretical*. Section (b) of course 115 continued; motor transportation, and orientation.

ADVANCED COURSES, COAST ARTILLERY

(For students of the Division of Engineering only)

117. ARTILLERY V. Junior year, first semester. Lectures, recitations, and practical instruction, five hours. Three semester credits. Prerequisite: Artillery IV. Captain Spencer.

The course is divided into—

(a) *Practical*. Duties as cadet officers and noncommissioned officers in connection with courses 113, 114, 115, and 116; field engineering, artillery matériel, orientation.

(b) *Theoretical*. Gunnery, matériel and orientation.

118. ARTILLERY VI. Junior year, second semester. Lectures, recitations, and practical instruction, five hours. Three semester credits. Prerequisite: Artillery V, and Plane Trigonometry. Captain Spencer.

This course is divided into—

(a) *Practical*. Section (a) of course 117 continued.

(b) *Theoretical*. Section (b) of course 117 continued, administration, military hygiene, military policy.

119. ARTILLERY VII. Senior year, first semester. Lectures, recitations, and military drill, five hours. Three semester credits. Prerequisite: Artillery VI. Major Peirce.

The course is divided into—

(a) *Practical*. Duties as cadet officers and noncommissioned officers; artillery matériel, orientation, motor transportation.

(b) *Theoretical*. Administration, gunnery, tactical employment of artillery, motor transportation.

120. ARTILLERY VIII. Senior year, second semester. Lectures, recitations, and military drill, five hours. Three semester credits. Prerequisite: Artillery VII. Major Peirce.

This course is divided into—

(a) *Practical*. Section (a) of course 119; gunnery.

(b) *Theoretical*. Military law, gunnery, military policy, field engineering.

NOTE.—Advanced-course students are required to attend one camp. This comes normally at the end of the junior year and is held normally at Fort Monroe, Va.

BASIC COURSES, VETERINARY CORPS

(For students in the Division of Veterinary Medicine only)

121. MILITARY SCIENCE (VET.) I. Freshman year, first semester. Lectures, recitations, and military drill, four hours. One and one-half semester credit. Prerequisites: None. Captain FitzGerald.

The work of this course is divided as follows:

(a) *Practical*. Same as course 101 (Infantry I).

(b) *Theoretical*. Organization and policies of the U. S. army, military art.

122. MILITARY SCIENCE (VET.) II. Freshman year, second semester. Lectures, recitations, and military drill, four hours. One and one-half semester credit. Prerequisite: Course 121. Captain FitzGerald. The work of this course is divided as follows:

(a) *Practical*. Same as course 102 (Infantry II).

(b) *Theoretical*. Organization and administration, sanitation, logistics, first aid.

123. MILITARY SCIENCE (VET.) III. Sophomore year, first semester. Lectures, recitations, and military drill, four hours. One and one-half semester credit. Prerequisite: Military Science (Vet.) II. Captain FitzGerald.

The work of this course is divided as follows:

(a) *Practical*. Same as section (a) of course 102; duties of privates and noncommissioned officers of the veterinary corps demonstrated.

(b) *Theoretical*. Tactics, logistics.

124. MILITARY SCIENCE (VET.) IV. Sophomore year, second semester. Lectures, recitations, and military drill, four hours. One and one-half semester credit. Prerequisite: Course 123. Captain FitzGerald.

The work of this course is divided as follows:

(a) *Practical*. Same as courses 102 (Infantry II) and 123.

(b) *Theoretical*. Organization and administration; sanitation; military art, logistics, first aid.

ADVANCED COURSES, VETERINARY CORPS

(For students in the Division of Veterinary Medicine only)

129. MILITARY SCIENCE (VET.) V. Junior year, first semester. Lectures and recitations, three hours. Three semester credits. Prerequisite: Course 124. Captain FitzGerald.

This course is divided into—

(a) *Practical*. Duties of junior officers demonstrated.

(b) *Theoretical*. Organization and administration, sanitation, and animal management.

130. MILITARY SCIENCE (VET.) VI. Junior year, second semester. Lectures and recitations, three hours. Three semester credits. Prerequisite: Course 129. Captain FitzGerald.

This course is divided into—

(a) *Practical*. Continuation of section (a), course 129.

(b) *Theoretical*. Sanitation, including inspection of meat and food products.

131. MILITARY SCIENCE (VET.) VII. Senior year, first semester. Lectures and recitations, three hours. Three semester credits. Prerequisite: Course 130. Captain FitzGerald.

This course is divided into—

(a) *Practical*. Continuation of section (a), course 129.

(b) *Theoretical*. Hospitals, hospitalization, and sanitation.

132. MILITARY SCIENCE (VET.) VIII. Senior year, second semester. Lectures and recitations, three hours. Three semester credits. Prerequisite: Course 131. Captain FitzGerald.

This course is divided into—

(a) *Practical*. Continuation of section (a), course 129.

(b) *Theoretical*. Communicable diseases, forage inspection, organization and administration (continued), résumé of entire course.

NOTE.—Advanced-course students are required to attend one camp. This comes normally at the end of the junior year, and is held normally at Fort Snelling, Minn.

Modern Languages

Professor CORTELYOU
Associate Professor LIMPER
Assistant Professor HESSE

Instructor WILLMANN
Instructor BROWNELL
Instructor TOLLE*

The study of modern foreign languages serves a number of purposes. It gives the student general training and culture; it throws helpful side lights upon English, his mother tongue; and it gives him important aid in scientific research. It is desired that the instruction in modern languages here given be as practical as possible, without, however, failing to encourage an appreciation of modern foreign literature. The plan of instruction in general is a combination of the grammatical and conversational methods, each of which has its own special advantages.

A number of literary and scientific periodicals published in French, Spanish, and German are received by the College Library, and afford the student excellent opportunity to amplify his reading knowledge of these languages.

Students who have had French, Spanish, or German in high school are required, as a rule, to take more advanced courses as their elective or required work in that language. Those who have had one year of a foreign language in high school should be assigned to the second course here; those who have had two years in high school should consult the head of the department regarding assignment to advanced work here.

The department equipment is valued at \$520.

COURSES IN GERMAN

FOR UNDERGRADUATES

101. GERMAN I. Freshman and junior years and elective, first semester. Class work, three hours. Three semester credits. No prerequisite. Dr. Cortelyou and Mr. Limper.

In the work of this course there are included the study of articles, declensions and nouns and pronouns, the indicative mode of weak verbs, sentence order, and the comparison of adjectives. Frequent reviews enable the student to digest the facts presented, while the abundant conversation and written work subserves the same end. Text: *Vos' Essentials of German* (first eighteen lessons).

102. GERMAN II. Freshman and junior years and elective, second semester. Class work, three hours. Three semester credits. Prerequisite: German I, or its equivalent. Dr. Cortelyou and Mr. Limper.

Students are repeatedly drilled on the grammatical constructions already emphasized in German I, of which this course is a continuation. The remaining important grammar points are studied. Essential facts of grammar are insisted upon, but German is taught as a living language. Written translations from English into German are frequent. Text: *Vos' Essentials of German* (completed).

111. GERMAN READINGS. Senior year and elective, first semester. Class work, three hours. Three semester credits. Prerequisite: German II, or its equivalent. Dr. Cortelyou and Mr. Limper.

This course embraces readings of easy, idiomatic selections from modern authors. Grammatical drill is continued. German conversations based on the texts read are frequent. Text: *Aehrenlese*, by Bierwirth and Herrick.

FOR GRADUATES AND UNDERGRADUATES

201. GERMAN SHORT STORIES. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: German Readings. Offered when requested by a sufficient number. Dr. Cortelyou and Mr. Limper.

The material read in this course comprises a number of short stories of

* Second semester, 1925-'26.

considerable interest, by such modern authors as Auerbach, Niese, Goldhammer, La Roche, Leander, Scheffel, and Polenz.

206. GERMAN COMEDIES. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: German Readings. Offered when requested by a sufficient number. Dr. Cortelyou and Mr. Limper.

The course comprises the reading of recent one-act comedies of literary merit, and of a realistic, lively, and cleanly humorous nature, including the following: Julius Rosen's *Ein Knopf*, Gustav von Moser's *Ein Amerikanisches Duell*, Hugo Mueller's *Im Wartesalon erster Klasse*, and Emil Pohl's *Die Schulreiterin*. Exercises in conversation and sight reading are occasionally introduced. Text: Manley and Allen's *Four German Comedies*.

226. GERMAN CLASSICS. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Course 201 or 206. Offered when requested by a sufficient number. Dr. Cortelyou.

This is a course introductory to a study of the German classics. Two or three of the simpler works of classic authors, such as Lessing's *Minna von Barnhelm* and Goethe's *Hermann und Dorothea*, are translated in the work of this term. Textbooks: Lessing's *Minna von Barnhelm*, edited by von Minckwitz and Wilder, and Goethe's *Hermann und Dorothea*, edited by Allen.

231. GERMAN PROSE. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Course 201 or 206. Offered when requested by a sufficient number. Dr. Cortelyou.

This course is designed to give the student facility in the rapid translation of fairly easy prose. A number of modern short stories are read. Besides the more formal work, there are sight translations of easy selections. Text: Allen and Batt's *Easy German Stories*, Vols. I and II.

237. SCIENTIFIC GERMAN I. Senior year and elective, first semester. Class work, four hours. Four semester credits. Prerequisite: German II. Dr. Cortelyou.

This course is designed as an introduction to the vast field of scientific publications appearing in German. It consists chiefly in translating miscellaneous scientific articles, especially those dealing with chemistry and physics. Text: Wright's *German Science Reader*.

COURSES IN FRENCH

FOR UNDERGRADUATES

151. FRENCH I. Sophomore and senior years and elective, both semesters and summer school. Class work, three hours. Three semester credits. Mr. Limper and Miss Brownell.

The first two class periods are devoted to learning the phonetic symbols and a number of useful French expressions. Conversation is used merely as a means to the acquisition of a reading knowledge of French. The fundamentals of grammar are covered in this and the succeeding course. Text: Lamb's *Inductive French Grammar*, complete edition (first twenty-five lessons).

152. FRENCH II. Sophomore and senior years and elective, both semesters and summer school. Class work, three hours. Three semester credits. Prerequisite: French I, or one year of high-school French. Mr. Limper and Miss Brownell.

This course is a continuation of French I. The grammar is completed, special attention being given to irregular verbs. Reading and conversation are continued throughout the course. Text: Lamb's *Inductive French Grammar* (completed).

161. FRENCH READINGS. Elective, first semester and summer school. Class work, three hours. Three semester credits. Prerequisite: French II. Mr. Limper and Miss Brownell.

This is especially a reading course, the purpose being to enlarge the student's vocabulary. Grammar is reviewed and considerable time is devoted to conversation. Texts: Labiche et Martin's *Le Voyage de Monsieur Perrichon* and Hugo's *Les Misérables*.

FOR GRADUATES AND UNDERGRADUATES

251. FRENCH SHORT STORIES. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: French Readings or two years of high-school French. Mr. Limper and Miss Brownell.

The purpose of this course is to introduce the student to modern French literature. The modern short story, since it covers so large a range of subjects, also offers excellent material for the enlargement of the vocabulary. Stories by such writers as Daudet, Maupassant, and Zola are read. Text: Buffum's *French Short Stories*.

256. THE FRENCH DRAMA. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: French Readings. Mr. Limper.

A few of the outstanding plays of the seventeenth, eighteenth, and nineteenth centuries by Molière, Corneille, Beaumarchais, Labiche et Martin, and Hervieu are read in this course. The place that these plays occupy in the history of the French drama is brought out by lectures and collateral reading.

261. FRENCH COMPOSITION AND CONVERSATION. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: Twelve hours of college French, or the equivalent. Offered when requested by a sufficient number. Mr. Limper.

This course is for those who desire to acquire fluency in writing and speaking French. The class period is devoted to practice in the spoken language. Written themes are required as preparation for each recitation.

270. TEACHERS' COURSE IN FRENCH. Elective; offered when requested by a sufficient number. Class work, three hours. Three semester credits. Prerequisite: Consult instructor. Mr. Limper.

The subject matter of this course includes the following: The anatomical basis for the production of the sounds peculiar to the French language; methods of presenting grammar, with a thorough and systematic review of the subject; a careful examination of the various French reading texts used in the state; and methods of conducting a *cercle français*, and material to be used in it.

COURSES IN SPANISH

FOR UNDERGRADUATES

176. SPANISH I. Elective, both semesters and summer school. Class work, three hours. Three semester credits. Miss Hesse, Miss Willmann, and Mrs. Tolle.

In this course nouns, adjectives, pronouns, demonstratives, and numerals are treated and the indicative mode of verbs is studied. The course is largely conducted in Spanish, the student gradually acquiring a fair-sized and practical vocabulary. Texts: Olmsted's *First Course in Spanish* and reader.

177. SPANISH II. Elective, both semesters. Class work, three hours. Three semester credits. Prerequisite: Spanish I, or one year of high-school Spanish. Miss Hesse and Miss Willmann.

In addition to study of grammar which is here completed, considerable reading is done. Stress is laid upon training the ear to understand spoken Spanish. Texts: Olmsted's *First Course in Spanish* and Olmsted and Sirich's *First Spanish Reader*.

180. SPANISH READINGS. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Spanish II. Miss Hesse and Miss Willmann.

A thorough study is made of one or two of the best works in Spanish

literature from the more modern writers. One hour a week is devoted entirely to conversation and composition, the subjects being taken from current topics of the day. Texts: Mármol's *Amalia*, edited by Corley, and Alarcon's *El Final de Norma*.

195. SPANISH CONVERSATION. Elective, both semesters. Class work, two hours. Two semester credits. Prerequisite: Spanish Readings, or its equivalent. Miss Hesse and Miss Willmann.

The purpose of this course is to develop in the student an ability to speak Spanish and to understand the spoken language. Various books, magazines and papers provide the material used in the classroom.

FOR GRADUATES AND UNDERGRADUATES

272. SPANISH SHORT STORIES. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: Spanish Readings. Miss Hesse and Miss Willmann.

An effort is made in this course to give a glimpse into the realm of Spanish literature without the necessity of reading various long novels and histories of literature. The stories here read are chosen from the most eminent of modern Spanish authors, such as Bèquer, Trueba, Alarcón, Valdés, and Ibañez. The rich and varied vocabulary here offered has both literary and practical value and furnishes ample material for conversation. Text: *Spanish Short Stories*, by Hills and Reinhardt.

275. THE SPANISH NOVEL. Elective, first semester. Class work, three hours. Three semester credits. Prerequisite: Spanish Short Stories, or its equivalent. Miss Hesse.

An endeavor is made to give a panoramic view of the Spanish novel in the several periods of Spanish literary production. Class work consists of lectures, reading in class, and outside readings.

280. THE SPANISH DRAMA. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: Spanish Short Stories, or its equivalent. Miss Hesse.

A general view is given to the drama produced in Spain's best literary periods. Class work consists of lectures, class readings, and reports on readings done outside the class period.

Music

Professor WHEELER
Associate Professor SMITH*
Associate Professor LAMONT
Associate Professor LINDQUIST
Assistant Professor GORDON
Assistant Professor HARTMAN
Assistant Professor PAINTER
Assistant Professor PASMORE

Assistant Professor SAYRE
Instructor THORNBURG
Instructor MCKITRICK
Instructor CONOVER
Instructor SMITH
Instructor SCHOBEL
Instructor GRAHAM
Instructor JEFFERSON

The aim of the Department of Music is, to be of vital value in the life of every student. The department strives to create and foster a love and appreciation for the best in music and to give to students that broader culture and more complete education which is gained through academic and professional and vocational training combined with musical and artistic study. Believing that this can be accomplished to a much greater degree by having artistic performers among us, courses are offered which will prepare those who so desire to be efficient in some chosen musical line. Students enrolled in the department participate in the musical contributions to the public programs of the College, and such participation is a part of their training and study. The Department of Music is provided with equipment to the value of \$19,362.

* Absent on leave, 1925-'26.

METHODS OF INSTRUCTION

Instruction in voice and instrumental music is given in private lessons. No two students have the same mental, physical or artistic capacity, and their individual capabilities can be neither properly nor fully developed without painstaking personal attention. The best results are dependent on a close adaptation to the individual needs of the pupils, and this, of course, cannot be gained in classes, as is the case in the individual lessons. The effectiveness of the methods used is demonstrated by the interest and progress of the pupils.

All theoretical work is taught in classes. These and some other classes in the Department of Music are free to any student in the institution.

CREDITS

Students taking work in the Department of Music to a sufficient extent are allowed credits on their electives in the Divisions of General Science, Home Economics, and Agriculture, while substitutions in Music, with the approval of the dean, may be made in the Division of Engineering, as follows: For Voice or some instrument, two hours each semester; for Musical History, two hours each semester; for Harmony, two hours each semester; for Counterpoint, Musical Form and Musical Analysis, two hours each semester; for Chorus, Orchestra or Band, one hour each semester; for Public-school Music Methods, two hours each semester. Any student having a full assignment may, upon recommendation of the director of music together with the approval of the student's dean, take music without credit.

Students coming from other schools to enter our courses in music may be sufficiently advanced as players or singers to enter the second or third year of the regular music curricula but prohibited therefrom owing to their lack of knowledge of theory. If such students enter the first year of the theoretical course, their progress as players and singers is not retarded, but it would be much to their advantage to make special theoretical preparation in the hope of qualifying for more advanced standing.

Applicants for freshman standing in the four-year music curricula must pass an examination over certain required work. Examinations also will be held at the close of each year before advanced standing is allowed. A list of this examination material may be had by writing the director of the Department of Music.

PRELIMINARY PIANO TRAINING

Preliminary training in piano is undertaken by two classes of students. The first class consists of College students not able to meet the College entrance requirements in piano, and of high-school students. The second consists of children; they take one hour of class work each week, supplementing private lessons.

Special training is given in rhythm, sight reading, scale building, melody writing, ear training, and appreciation. This work aims to develop in the student a natural means of expression through music and to furnish the right foundation for a musical education.

AUXILIARY PIANO TRAINING

Attendance at a one-hour auxiliary class alternate weeks is required of all students majoring in piano. Frequent opportunity for playing is given here and a study is made of musical terminology and of the development of piano literature.

THEORETICAL COURSES IN MUSIC

The aim of theoretical courses is to give the student an intelligent conception of music through the study of its historical development and scientific constructions in either composition or interpretation

FOR UNDERGRADUATES

101, 102. **HARMONY I AND II.** Freshman year, first and second semesters, respectively. Lectures, one hour; recitations and supervised study, two hours. Two semester credits for each. Prerequisite: Music fundamentals or its equivalent. Mr. Gordon.

This course includes in the first semester a review of the major and minor scales, intervals, the construction and progression of the primary triads and their inversions; the dominant seventh and its progressions and inversions, harmonizing melodies and bases, a certain amount of original work and elementary instrumentation. The second semester's work deals with the subordinate triads and their sevenths in progression and inversions and the beginnings of modulation. An effort is made the second semester to write as many original exercises as possible.

103, 104. **HARMONY III AND IV.** Sophomore year, first and second semesters respectively. Lectures, one hour; recitations and supervised study, two hours. Two semester credits for each. Prerequisite: Harmony II. Mr. Gordon.

In this course an effort is made to present the remainder of the work in modulation, the altered and mixed chords and embellishments in the first semester in order that the second semester may be spent in the study of the works of the masters, and in writing original exercises and small compositions.

105, 106, 107 and 108. **EAR TRAINING AND SIGHT SINGING I, II, III AND IV.** Freshman and sophomore years, first and second semesters, respectively. Class work, two hours. Two semester credits in the music curricula; no credit elsewhere. Prerequisite: Same as for Harmony I. Miss Hartman.

This course is a study in the reading and hearing of intervals, chords, and rhythmical forms.

108A. **COUNTERPOINT.** Junior year, first and second semesters. Class work, two hours. Two semester credits. Prerequisite: Harmony IV. Mr. Gordon.

This course includes a study of melody writing, the association of melodies in simple counterpoint, leading at the end of the first semester to the writing of original two- and three-part inventions.

109. **MUSICAL FORM AND ANALYSIS.** Junior year, first and second semesters. Class work, two hours. Two semester credits. Prerequisites: Harmony IV and Counterpoint. Mr. Gordon.

In the semester's work in Form and Analysis an effort is made to give the student a general conception of the various forms used in composition. Study is made of the music of Bach, Haydn, Beethoven, Schumann, Mendelssohn, Chopin and others.

112, 113. **HISTORY AND APPRECIATION OF MUSIC I AND II.** Freshman year, first and second semesters, respectively. Class work, three hours. Three semester credits for each course. Mr. Lamont.

A modern text forming the basis of this work is supplemented by lectures, library research, extensive use of the victrola, and recitals by the faculty. This course is correlated wherever possible with corresponding political events, and the development of the fine arts in general. The aim is to give the student definite knowledge of each of the musical periods, the style of music peculiar to each, and contact with the great personalities.

117. **CONDUCTING I.** Junior year, first semester, music curricula, and second year, second semester, public-school music curriculum. Class work, one hour. One semester credit. Mr. Wheeler.

Practical training is given in the essentials of good conducting. This includes the correct method of indicating all forms of rhythm, the seating arrangements of bands, orchestras, and choruses, and a practical illustration of the use of this information in the various ensemble organizations of the College. The value of such a course can be readily appreciated by anyone who has tried to do conducting.

118. VOCAL COMPOSITION. Elective, second semester. Class work, one hour; six hours of preparation. Two semester credits. Prerequisites: Harmony I, II, III and IV. Mr. Gordon.

Rhythm and tone color in poetry are studied comprehensively. Original musical settings are written for the different poetic forms. Vocal solos, duets, trios and quartets are composed, both with and without piano accompaniment.

119. INSTRUMENTAL COMPOSITION. Elective, second semester. Class work, one hour; six hours of preparation. Two semester credits. Prerequisites: Harmony I, II, III and IV, and Counterpoint. Mr. Gordon.

This is an advanced study in composition. Music is written for all instruments, both in solo and ensemble.

120, 121. PUBLIC-SCHOOL MUSIC I AND II. First year, first and second semesters, respectively. Lectures and research, two hours. Two semester credits for each course. Prerequisite: An understanding of musical notation and the piano keyboard. Miss Hartman.

These courses are given for the training of teachers of music in the public schools. They meet the requirements of the state of Kansas for such training.

122, 123. PUBLIC-SCHOOL MUSIC III AND IV. Second year, first and second semester, respectively. Lectures, research, and practice teaching, two hours. Two semester credits for each course. Miss Hartman.

These courses are a continuation of Public-school Music I and II.

124, 125. PUBLIC-SCHOOL MUSIC V AND VI. Junior year, first and second semesters respectively. Lectures, research and practice teaching, two hours. Two semester credits for each course. Prerequisites: Public-school Music I, II, III, and IV. Miss Hartman.

These courses are a continuation of Public-school Music I, II, III and IV.

126, 127. PUBLIC-SCHOOL MUSIC VII AND VIII. Senior year, first and second semesters, respectively. Lectures, research, and practice teaching, two hours. Two semester credits for each course. Prerequisites: Public-school Music V and VI. Miss Hartman.

These courses are a continuation of Public-school Music I to VI.

128. CONDUCTING II. Junior and senior elective, both semesters. Class work, one hour. One semester credit. This course is given only when there is a sufficient demand for the work. Prerequisites: Harmony I, II, III, and IV, and Conducting I. Mr. Wheeler.

This is a continuation of Conducting I, course 117.

130. INSTRUMENTATION. Senior year, first semester. Class work, two hours. Two semester credits. Prerequisites: Harmony I and II. Mr. Wheeler.

All the instruments of the band and orchestra are studied with relation to their characters, ranges and functions. Simple and familiar compositions are scored for small ensemble, viz., string trio, quartet, quintet, and for wind quartet and sextet.

133. ORCHESTRATION. Senior year, second semester. Class work, two hours. Two semester credits. Prerequisites: Harmony I, II, and IV, and Counterpoint. Mr. Wheeler.

The writing of music for the orchestra and the band is studied. Analytic and synthetic study is made of music scores.

140. NORMAL PIANO METHODS. Junior year, first semester. Class work, two hours. Two semester credits. Miss Painter.

Discussion of the principles and processes involved in the various phases of piano study as a means of music education. Teaching material for the piano is studied and there is frequent observation of lessons given in the preliminary piano classes of the College.

145. METHODS OF TEACHING MUSIC. Junior year, first semester. Lectures, research and demonstration, one hour. One semester credit. Mr. Wheeler, Mr. Lamont, Mr. Lindquist, and Miss Painter.

This course is designed for public-school music students majoring in some instrument and preparing to teach it as an accredited subject in high school. It is taught in separate divisions for piano, voice, violin and the other instruments of band and orchestra. The course comprises a study of methods of teaching fundamental technic, selection of teaching materials, and the outlining of courses of study.

PRACTICAL COURSES IN MUSIC

FOR UNDERGRADUATES

155. **MUSICAL FUNDAMENTALS.** Elective, both semesters. Class work, one hour. One semester credit. Mr. Gordon.

This course is presented to meet the needs of many students who come to us each year with a desire for some training in music, but with no knowledge of music notation and without sufficient time or money to devote to a regular musical instruction course. The work consists largely of class singing, the study of note values, rhythm, scales, intervals, key signatures, etc., and the application of this knowledge to the singing of part songs.

160A to 160H. **VOICE I TO VIII.** Two private lessons each week; twelve hours of preparation. Four semester credits for each course. Mr. Lindquist, Mr. Sayre, Miss Schobel, and Mrs. Conover.

An entrance examination is prerequisite to this course, and prospective students should write the head of the Department of Music for a list of the material required. This course is intended for students having special talent, and its purpose is to give sound technical training in the use of the vocal mechanism. The production of tone in singing is governed by certain fundamental, explainable laws of phonetics and breath control. Teaching the intelligent use of these laws is the constant objective of these courses. Coaching is given in the singing of French, Italian and German songs; but the greater part of the work is in English, and pure enunciation of the mother tongue is constantly stressed. The effort is to develop capable teachers and good performers and thus to lay the foundation for further artistic development.

161A to 161H. **VOICE A-I TO A-VIII.** Freshman year, first semester to senior year, second semester, public-school music curriculum, and elective. Two private lessons each week; six hours of preparation. Two semester credits. Mr. Lindquist, Mr. Sayre, Miss Schobel, and Mrs. Conover.

The instruction in this course follows the same plan as that pursued in courses 160A to 160H, but less preparation is required.

163A to 163H. **VOICE B-I TO B-VIII.** Freshman year, first semester to senior year, second semester, and elective. One private lesson each week; six hours of preparation. One semester credit for each course. Mr. Lindquist, Mr. Sayre, Miss Schobel, and Mrs. Conover.

The instruction in this course follows the same plan as that pursued in courses 161A to 161D, with but one lesson per week instead of two.

165A to 165H. **VIOLIN I TO VIII.** Two private lessons each week. For freshmen and sophomores, twelve hours of preparation, four semester credits for each course. For juniors and seniors, twenty-four hours of preparation, six semester credits for each course. Mr. Lamont.

This course is reserved for the student who shows an especial talent for the violin and enters college technically equipped to begin the study of the standard works of violin literature. No special method is advocated, it being the aim of the department to make the method conform to the particular needs of the pupil rather than the pupil to the method. A graceful and natural style is insisted upon, however, and the outline of study is so planned that an equilibrium of technique, and sound, fine musicianship are developed.

166. **VIOLIN A.** Elective in College curricula. Two private lessons each week; six hours of preparation. Two semester credits. Mr. Lamont.

This course is open to the entire student body of the College. There are no prerequisites. Fundamentals are very carefully presented.

167. VIOLIN B. Elective in College curricula. One private lesson each week; six hours preparation. One semester credit. Mr. Lamont.

This course is the same as Violin A, with but one lesson a week, rather than two.

168A, 168B. VIOLIN ENSEMBLE I AND II. Junior year, first and second semesters, respectively. Class work, two hours. Two semester credits. Prerequisites: Freshman and sophomore violin, viola, violoncello, or contrabass, or the equivalent. Mr. Lamont.

This is a practical course in the playing of string duets, trios, quartets, and other ensemble compositions.

170A to 170H. PIANO I TO VIII. Two private lessons each week. Minimum preparation, twelve hours. Four semester credits. Miss Painter, Mrs. Pasmore, Mr. Graham, Miss Jefferson, and Miss McKitrick.

An entrance examination is prerequisite to this course, and prospective students should write the head of the Department of Music for a list of material required. This course is intended for students having special talent, and its purpose is to give a sound technical foundation; to cultivate a thinking musicianship; to acquaint students with a general amount of the best music literature; to develop capable teachers and good performers and thus to furnish the foundation upon which the superstructure of the artist may be built. The instruction as outlined for each year is a conservative estimate of what a student of average talent is expected to accomplish. Every two weeks a supplementary playing class is held, open to all piano student recommended for admission by their teacher. Opportunity is given for frequent playing; study of music terminology; discussion of how to study and the development of knowledge of piano literature.

172A to 172H. PIANO A-I TO A-VIII. All four years public-school music, voice curriculum and elective. Two private lessons each week; six hours preparation minimum. Two semester credits. For public-school music students an entrance examination is prerequisite. Miss Painter, Mrs. Pasmore, Mr. Graham, Miss Jefferson, and Miss McKitrick.

Attention is given to sight reading and accompaniment for public-school music students and to developing a medium grade of pianistic performance. Students having sufficient talent to carry this course as a major subject throughout four years and fulfilling certain requirements may be granted a certificate to teach piano as an accredited subject in high school. See course 145.

174A to 174H. PIANO B-I TO B-VIII. All four years of public-school music curriculum, voice curriculum and elective. One private lesson each week; six hours of preparation. One semester credit. Mrs. Pasmore, Miss Thornburg, Mr. Graham, Miss Jefferson, Miss McKitrick, and Miss Smith.

The entrance requirements are the same as for course 172A, and instruction follows the same plan.

175A to 175D. PIANO C-I TO C-IV. This course is designed for students who cannot meet the entrance requirements for courses 170A, 172A, and 174A. No credit. The work may be done in one semester or may require longer, according to the ability and previous training of the student.

176A to 176H. PIANO ENSEMBLE I TO VIII. Required throughout the piano curriculum. One hour each week. No credit. Mrs. Pasmore and Miss McKitrick.

During the first and second years this work is in classes of four, for practice in sight reading and ensemble playing. Orchestral work arranged for eight hands are the chief material used. During the third and fourth years the work is done partly in classes of four, but develops into two-piano work;

training for accompaniment and ensemble with various groups of orchestral instruments.

180A to 180H. **ENSEMBLE I TO VIII.** One course each semester throughout the music curricula. Class work, one hour. One semester credit for each course. Mr. Wheeler.

The required ensemble work may be taken in Choral Society (courses 190A to 190H), Orchestra (courses 193A to 193H), or College Band (courses 196A to 196H). For further information concerning this work, see these courses.

182. **WIND INSTRUMENTS.** Elective, both semesters. Two private lessons each week; six hours of preparation. Two semester credits. Mr. Wheeler, and Mr. Gordon.

In this course opportunity is offered for the study of any wind instrument. Both the Albert and the Boehm systems of clarinet playing are used. The instruction begins with elementary scale and technical study and extends over the more difficult literature written for wind instruments.

183. **WIND INSTRUMENTS A.** Elective, both semesters. One private lesson each week; six hours of preparation. One semester credit. Mr. Wheeler, and Mr. Gordon.

Instruction in this course is the same as that in course 182 with but one lesson per week instead of two.

184A to 184F. **RECITAL I TO VI.** Sophomore, junior, and senior years. Courses I, II, III, and V, carry no credit; courses IV and VI carry two semester credits each.

These courses are required of each student in each of the three four-year music curricula. In the second semester of the junior and senior years (courses IV and VI) the student gives an entire solo recital.

186A, 186B. **REPERTOIRE I AND II.** Junior and senior years, voice curriculum. Class work, two hours. Two semester credits. Mr. Lindquist.

These courses present an exhaustive study of vocal literature of all periods. Songs are prepared out of class and presented in class for criticism. Classes in this course are limited to a maximum membership of eight.

188. **PRACTICE TEACHING OF MUSIC.** Junior year, second semester. Class work, two hours. Two semester credits. Mr. Wheeler, Mr. Lamont, Mr. Lindquist, and Miss Painter.

Students in the piano, violin, voice and public-school music curricula are required to do practice teaching in private classes during the second semester of the junior year.

MUSICAL ORGANIZATIONS

The existence of an organization of individuals is justified by the service such a body renders. The musical organizations of this College are second to none in the colleges of America. Students are here given a rare opportunity to study the great musical compositions that have been written for various ensemble combinations, and to render very real service to the College and community as well as to themselves in the presentation of public programs.

190A to 190H. **CHORAL SOCIETY I TO VIII.** This group of courses covers four years. Weekly rehearsals, all special rehearsals and public performances. One semester credit for each course. Prerequisite: Ability to read musical notation and to sing in tune. Mr. Wheeler.

The College Chorus presents the "Messiah" each fall and some standard oratorio or cantata in the Spring Festival.

THE MEN'S GLEE CLUB. The Men's Glee Club is composed of about thirty of the best men's voices in the College. Membership is open to the best voices that try out from the whole College. This organization is available for a limited number of concert engagements throughout the state. Mr. Lindquist.

THE WOMEN'S GLEE CLUB. This is an organization of the young women of the College. The voices are selected in the same manner as are those of the Men's Glee Club. Mrs. Conover.

193A to 193H. ORCHESTRA I TO VIII. This group of courses covers all four years of the curriculum. Regular rehearsals, all special rehearsals and public performances. One semester credit for each course. Mr. Wheeler.

The College Orchestra is a definite organization in which discipline prevails and permanent membership with regular attendance is insisted upon. This body maintains a correct and well-balanced instrumentation, containing all the instruments of the modern symphony orchestra. The work is highly educational, and offers in the preparation of concerts and performances with the Choral Society the actual experience and routine necessary for efficient orchestra playing. Membership is open to all in the College who are capable of playing acceptably.

196A to 196H. BAND I TO VIII. This group of courses covers all four years of the curriculum. Regular rehearsals, all special rehearsals and public performances. One semester credit for each course. Mr. Wheeler.

The College Band plays for all military functions and major athletic events. In addition to this, several concert appearances on the campus are made during early fall and in the spring. The band plays the musical settings for the annual May Fete.

Fees in Music

Two lessons each week for a semester:

Piano	\$40,	\$34,	\$30, or \$27
Voice	45,	40,	34, 30, or \$27
Violin	40 or	26	
Other orchestral instruments	40,	34, or	26

One lesson each week for a semester:

Piano	\$22,	\$16,	\$19, or \$14
Voice	26,	22,	19, 16, or \$14
Violin	22 or	14	
Other orchestral instruments.....	22,	19, or	14

Physical Education and Athletics

Professor AHEARN
 Professor BACHMAN
 Associate Professor MORRIS
 Assistant Professor KNOTH*
 Assistant Professor CORSAUT

Assistant Professor ROOT
 Assistant Professor WASHBURN
 Assistant Professor WATSON
 Instructor WADE
 Graduate Assistant TRANT

The purpose of the Department of Physical Education and Athletics is to assist the students of the College to live to the best advantage, and so to aid them in the formation of hygienic habits that during their College course they may make profitable physical preparation for life. It is an urgent necessity that each student have an intelligent appreciation of the means requisite for the preservation of his health, in order that he may be able to formulate intelligently his own policy of health control.

All young men and all young women of the College are entitled to the privileges of the gymnasium, which is one of the largest in the West and is well equipped with all sorts of apparatus for physical training, with lockers, plunge baths, shower baths, and other accommodations. This department owns equipment valued at \$10,053.

In certain courses, as shown below, a locker deposit of \$2 is required. Upon return of lock, key, and towels a refund of \$1 is made in each case.

Equipment is furnished to acceptable candidates for varsity and freshman athletic teams. It is checked out to individual candidates and they are held

* Resigned January 31, 1926.

responsible for it. It must be returned when called for by the property clerk. Failure to return or replace equipment when called for subjects the offender to a fine or to other disciplinary action.

PHYSICAL EDUCATION FOR MEN

Physical education is required of all freshmen and sophomores unless excused for disability by the College physician. After the requirement is completed, advanced work may be elected for a total of four hours of credit.

Students excused from the required physical education give an equivalent amount of time to elective work.

PHYSICAL EXAMINATIONS

The work of the department is based largely upon a physical examination given each student when he enters upon the work of the department. A second examination is given at the close of his first year. All students, whether taking work in the department or not, are entitled to receive a physical examination and advice as to their physical condition.

The measurements taken and the tests given have each a definite purpose with reference to ascertaining the muscular condition of the individual. A diagnosis is also made of the vital organs to ascertain their functional conditions, and a complete inspection of the whole body is made to detect any weakness or deformity that may exist. Based upon the information thus obtained, advice is given and work is assigned to students in accordance with their physical needs, tastes, and capabilities. Delicate students and those suffering from functional disorders receive individual attention. Students organically sound are assigned work in a carefully graded and progressive system of gymnastics and athletics. All candidates for athletic teams should enroll in the department, submit to a thorough physical examination, and pass the grade tests before being allowed to compete for positions on the various teams. Students engaging in two or more sports during the school year must undergo a physical examination preliminary to participation in each sport. This is required in order that no student may engage in athletics to his own permanent physical injury. Each student may secure a copy of his physical measurements, and an anthropometric chart, showing in graphic form his development as compared with that of the average man.

Members of the teams, reporting regularly, are excused from regular class work, and are entitled to full credit in that portion of their work; but before the completion of the course at least two semesters' work must be done in the gymnasium. Credit, the equivalent of a one hour subject, is given and counts toward the College degree. The individual's grade rests largely on the basis of attendance, punctuality, earnestness, and application, but practical tests are also given.

Regulation uniforms must be worn in the gymnasium. Students are advised not to procure uniforms until after their arrival at the College.

Various grades of gymnastic and athletic exercises are offered by the department. The great variety of exercises offered is intended to meet all individual needs, capacities and tastes. A physical examination and test determine the grade or class of exercises for which a student is fitted.

COURSES IN PHYSICAL EDUCATION

FOR UNDERGRADUATES, MEN

103. PHYSICAL EDUCATION M-I. Freshman year, first semester. Two hours a week. Mr. Corsaut and Mr. Root.

Hygiene and social problems are discussed as an essential part of this course. This instruction gives an insight into the practical problems of daily healthy living from a personal point of view. Directions are given for avoiding the common ills of student life, and for maintaining the highest physical and

mental condition while in College, as well as for gaining the highest development of vital power and health for future duties.

During the winter the practical work is conducted indoors, and consists of light and heavy gymnastics, which are selected with a view to obtaining progressive effect upon the bodily organism. During the fall a man may select Rugby football or soccer football. Beginning about December first the work consists of the following:

a. *Free Calisthenics*. Exercises are selected for their different effects upon the bodily organism, and are arranged in the order of increasing difficulty. They involve hygienic or body-building work, educative movement, and corrective or remedial exercises. Both the Swedish and the German systems are used.

b. *Light Apparatus*. Training is given in the use of Indian clubs, dumbbells, wands, bar bells, etc.

c. *Heavy Apparatus*. Graded exercises are given on parallel bars, vaulting bars, bounce board and mat, side and long horse, high and low horizontal bars, traveling and flying rings, etc.

d. *Indoor Athletics*. Instruction is given in all indoor track events preparatory to indoor track meets.

e. *Games*. There are included basket ball, indoor baseball, volley ball; also other games of more recreative nature.

Locker deposit, \$2.

104. PHYSICAL EDUCATION M-II. Freshman year, second semester. Two hours a week. Mr. Corsaut and Mr. Root.

This course is a continuation of Physical Training M-I. Baseball, track and field athletics are given in the spring as soon as weather conditions permit outdoor work. A part of the regular instruction for the spring semester is in swimming. A passing grade must be made in this phase of the work also. Locker deposit, \$2.

105. PHYSICAL EDUCATION M-III. Sophomore year, first semester. Two hours a week. Mr. Corsaut and Mr. Root.

This course is a continuation of Physical Education M-II. It is required of all young men of the sophomore class. Locker deposit, \$2.

106. PHYSICAL EDUCATION M-IV. Sophomore year, second semester. Two hours a week. Mr. Corsaut and Mr. Root.

This course is a continuation of Physical Education M-III. It is required of all young men of the sophomore class. Locker deposit, \$2.

109. APPARATUS. Junior year, second semester. Practice, three hours. One semester credit. Mr. Washburn.

The exercises used are carefully selected and arranged and are based on such factors as age and physical development. The material covers free exercises on the various apparatus and simple fundamental apparatus stunts. Students assist in the teaching.

110. ADVANCED APPARATUS I. Elective, first semester. Gymnasium, three hours. One semester credit. Mr. Corsaut and Mr. Root.

This course is open only to those men who show ability as gymnasts. From this class men are picked for the gymnastic team. Tumbling and work on the various pieces of apparatus are given. Locker deposit, \$2.

111. ADVANCED APPARATUS II. Elective, second semester. Gymnasium, three hours. One semester credit. Mr. Corsaut and Mr. Root.

This is a continuation of Advanced Apparatus I. Locker deposit, \$2.

113. FIRST AID AND MASSAGE I. Sophomore year, first semester. Class work, two hours. Two semester credits. Mr. Washburn.

The different forms of injuries and their temporary protection, including dressing, bandaging, transportation of the injured, etc.; aid in case of accident,

and preparation of solutions, bandages, splints, etc., are studied. Instruction is by lectures, demonstrations, and practical work.

114. **FIRST AID AND MASSAGE II.** Junior year, first semester. Class work, two hours. Two semester credits. Mr. Washburn.

This course takes up more advanced phases of the work begun in course 113. Special attention is paid to school hygiene.

115. **MARCHING TACTICS AND CALISTHENICS.** Freshman year, first semester. Practice, three hours. One semester credit. Mr. Washburn.

Tactics are designed to serve a practical purpose, enabling the instructor to move his pupils about quickly and place them in any desirable formation for physical education activities and as patterns for various combinations. Tactics of the individual, of the rank, of the body of ranks, and of other more complex tactic bodies are studied.

Calisthenics consist of: Exercises in standing, kneeling, sitting, lying, and certain free exercises on apparatus (exercises for specific purposes only are given); exercises giving preparation for certain athletic events, swimming apparatus stunts, and games; exhibition work, consisting of carefully selected groups of physical exercises requiring thorough physical control and combined according to definite principles of composition, arranged with a view of interpreting musical themes and motives.

117. **CALISTHENICS.** Freshman year, second semester. Class work, one hour; practice, three hours. Two semester credits. Mr. Washburn.

This course is a continuation of the second half of course 115.

118. **CORRECTIVE EXERCISE.** Senior year, second semester. Class work, one hour. One semester credit. Mr. ———.

The work in this course includes the following studies: (a) measuring and testing the body, and methods of taking the strength and vitality tests; and (b) a study of normal growth and development; indications of impending deformities or diseases; methods of examining eyes, ears, nose, throat and teeth; demonstration of heart and lung sound; examination by inspection, palpitation, percussion and auscultation; and inspection for malnutrition, fecal and other infections, impaired elimination, effects of insufficient rest and sleep, and nervous instability, with a view of advising pupils in health matters and physical education activities.

119. **HYGIENE.** Junior year, second semester. Class work, two hours. Two semester credits. Mr. ———.

This course deals especially with the health of school children and teachers. Proper construction, furnishing and care of school building; use and necessity of playgrounds; all phases of child life and diseases; and care, cleaning, ventilation, and lighting of the gymnasium are considered. Students visit school buildings and give practical lectures as part of the course.

120. **PHYSICAL TRAINING SPECIALTIES.** Under this head come fencing, boxing, wrestling, offered as advanced work to those who have had not less than two semesters of work in the gymnasium. Hours are arranged with the instructor. Locker deposit, \$2.

121. **SWIMMING M-I.** Freshman year, second semester. Practice, three hours. One semester credit. Mr. Washburn.

The technic of breast, side, back, trudgeon, and crawl strokes are elucidated. Land exercises, diving, floating, water stunts, and supplementary water exercises are explained and practiced. Both the theory of teaching and actual practice are given. Beginners receive competent personal attention.

122. **SWIMMING M-II.** Sophomore year, second semester. Practice, three hours. One semester credit. Mr. Washburn.

Theory, practice teaching, and actual practice are included in this course. Conducting of swimming meets, and programs, Red Cross life-saving methods, water games, stunts, advance diving, and methods of teaching are discussed. Depending on their ability, students are required to teach or assist in teach-

ing all practical work. Land exercise, life saving, and resuscitation are explained. Swimming fifteen minutes continuously is required.

123. PHYSIOLOGY OF EXERCISE. Senior year, second semester. Class work, two hours. Two semester credits. Mr. ———.

Fundamentals of human physiology, with special reference to physiology of exercise, are studied in this course.

124. PHYSICAL DIAGNOSIS M. Senior year, second semester. Class work, two hours. Two semester credits. Mr. ———.

Students are taught to diagnose faulty conditions and, in cases that can be remedied by exercise, to give directions and write prescriptions of exercise.

126A. FOOTBALL I. Freshman year, first semester. Class work, one hour; practice, three hours. Two semester credits. Mr. Bachman.

The work of this semester is devoted to a study of the rules, theory, and practice of the fundamentals. In addition the matter of equipment, care and treatment of injuries, and the use of mechanical devices is discussed.

127. FOOTBALL II. Sophomore year, first semester. Class work, one hour; practice, three hours. Two semester credits. Mr. Bachman.

The work of this semester is devoted to a study of the various positions on a football team, generalship and field tactics, and the various systems of offensive and defensive football.

128. WRESTLING. Sophomore year, first semester. Practice, three hours. One semester credit. Mr. Washburn.

Graeco-Roman and "catch-as-catch-can" wrestling styles are taught. Students are made thoroughly familiar with all locks and breaks. The College competes in the Missouri Valley Athletic Association in all minor sports, and letters are awarded to team members winning matches.

130A. BASKET BALL. Freshman year, first semester. Class work, one hour; practice, three hours. Two semester credits. Mr. Corsaut.

The rules, technic of basket shooting, foul throwing, catching and passing, dribbling, reverse turn, different styles of play, offense, defense, team work, selection of players, training and equipment are covered by lectures, recitations, and discussions. Practice work is made to illustrate principles brought out in the classroom.

132. BOXING. Sophomore year, first semester. Practice, three hours. One semester credit. Mr. Washburn.

Individual and class instruction are given in the various modes of attack and defense, qualifying the students to teach amateurs the art of boxing. Training, wrestling and boxing tournaments, and related topics are discussed in lectures. Students arrange wrestling and boxing bouts and officiate.

135A. BASEBALL. Sophomore year, second semester. Class work, one hour; practice, three hours. Two semester credits. Mr. Corsaut.

Theory and technic are comprised in this course. Each position is taken up separately. Rules, schedules, equipment, strategy, signals, team organization, plays, and players are discussed.

136. PRACTICE COACHING I. Junior year, first semester. Practice, three hours. One semester credit. Mr. Bachman.

This course takes up actual practice in the coaching of football. The student is placed in charge of a group of men, and directs the teaching of the fundamentals, and offensive and defensive team play.

137. PRACTICE COACHING II. Junior year, second semester. Practice, three hours. One semester credit. Mr. Corsaut.

This course takes up the practice coaching of basket ball, and includes the actual direction and organization of the team under the supervision of a basket-ball coach. The problems of coaching are dealt with directly by the student.

138. PRACTICE COACHING III. Senior year, first semester. Practice, three hours. One semester credit. Mr. Ahearn and Mr. ———.

This course includes the practice coaching of swimming, boxing, wrestling, golf, and tennis, and direction of these sports, taking up the fundamentals of practice coaching of each.

139. PRACTICE COACHING IV. Senior year, second semester. Practice, three hours. One semester credit. Mr. Bachman and Mr. Corsaut.

The practice coaching in this course consists of actually coaching track and baseball under the supervision of the College coaches in these sports. The student has full charge of a team and supervises its organization and conduct.

140. TRACK AND FIELD SPORTS I. Freshman year, first semester. Class work, one hour. One semester credit. Mr. Bachman.

This course covers a discussion of the rules and theory of track and field events. The organization, conduct, officiating of meets, and construction of all track equipment are outlined. Training, dieting, equipment, and selection of material also are included in this course.

141. TRACK AND FIELD SPORTS II. Freshman year, second semester. Practice, three hours. One semester credit. Mr. Bachman.

The fundamentals of track and field sports are taught.

142. THEORY OF PHYSICAL EDUCATION AND PLAYGROUND MANAGEMENT. Elective, summer school. Lectures and recitations, one hour. One semester credit. Mr. Corsaut.

143. MASS ATHLETICS AND GROUP GAMES. Junior year, first semester. Class work, one hour. One semester credit. Mr. ———.

This course treats of mass athletics, including athletic competition entered into by large numbers of contestants. Group games of low organization and the classification of all games are studied. Simple song and rhythmic games for primary grades are discussed.

144A. CALISTHENICS AND GAMES. Elective, summer school. Lectures and recitations, three hours. Three semester credits. Mr. Corsaut.

In this course the following topics are studied: Calisthenics with and without hand apparatus, including gymnastic marching tactics; personal proficiency in execution and exactness of form; progression and value of system in these exercises; use of wands, clubs, dumb-bells, etc.; practice teaching; plays and games to meet the requirements of children of all ages; simple teams, group and competitive teams.

145. PLAYGROUND MANAGEMENT M. Sophomore year, second semester. Class work, one hour. One semester credit. Mr. Washburn.

This course includes the study of management and activities of the playground; arranging of programs, attendance, discipline, etc.; equipment of playgrounds; the arrangement of apparatus and places for games, track and field work, wading pools, etc. Municipal and industrial recreation centers are studied.

146A. ORGANIZATION AND ADMINISTRATION IN PHYSICAL EDUCATION M. Junior year, second semester. Lectures and recitations, one hour. One semester credit. Mr. Corsaut.

Problems in administration and organization of work in physical education are taken up. Intercollegiate, intramural, and mass athletics are studied. Sportsmanship and ethics are considered.

147. OFFICIATING. Junior Year, second semester. Class work, one hour. One semester credit. Mr. Ahearn.

This course deals with the best methods of officiating all inter-collegiate games. An exhaustive study of the rules with particular emphasis on the interpretation and spirit is one of the important features of this course. Football, baseball, basket ball, and track rules are discussed in detail.

148. **TEACHERS' COURSE IN PHYSICAL EDUCATION.** Elective, summer school. Lectures, recitations, and practice teaching. Three semester credits. Mr. Corsaut.

This is a general course in physical education which touches on all the phases of physical education. It gives the teacher a good working basis upon which to conduct this work in the high school.

149. **PRACTICE TEACHING OF PHYSICAL EDUCATION.** Senior year, first semester. Practice, three hours. One semester credit. Mr. ———.

In this course the students are required to take charge of the work of teaching physical education to a class of men.

PHYSICAL EDUCATION FOR WOMEN

All young women in the College are required to take two years of physical education unless excused by the College physician. Students excused from the required physical education courses do an equivalent amount of some elective work.

After the two years' required physical education have been completed, women have the privilege of electing physical education for a total of four credit hours; such elective work must be approved by their dean. Athletic Association points are awarded for elective work.

In addition to the required work in physical education, a four-year curriculum which leads to the degree of bachelor of science in physical education is offered. The purpose of this course is to train teachers who will understand the highest aims and ideals of physical education and who will be equipped to carry out those aims. The curriculum as outlined is a comprehensive one and includes not only specialized work in physical education, but also subjects of general cultural value. The possessor of a degree in physical education will be not only a specialist, but will also have a well rounded general education.

PHYSICAL EXAMINATIONS

Every girl registered in physical education is given a thorough examination before she is allowed to take work. The medical examination is given by the College physician and his staff, while the physical examination is given by members of the physical education staff. Physical defects, abnormalities, and weaknesses are noted and special classes are provided for students who need individual work. The complete examination is repeated every year for all girls who are assigned to special work, and the heart and lung examination is repeated for all girls.

A suit has been adopted which consists of all-white middy blouse, black tie, and black plaited bloomers. White tennis shoes with white rubber soles are used. For swimming, girls must have the regulation one-piece tank suit made from gray cotton covert, according to a pattern approved by the Department of Physical Education. Girls should not buy their swimming suits before arriving at Manhattan. For further information address Women's Department of Physical Education, K. S. A. C., Manhattan, Kan.

COURSES IN PHYSICAL EDUCATION

FOR UNDERGRADUATES, WOMEN

151A. **PHYSICAL EDUCATION W-I.** Freshman year, first semester. Lectures and gymnasium, three hours. One semester credit. Mrs. Van Zile, Miss Morris, Miss Watson, and Miss Wade.

Several lectures on hygiene and social problems are given under the direction of the dean of women.

The physical training part of this work is divided into one period of gymnastics and two periods of a sport or dancing which may be chosen by the student. Dancing and swimming are offered throughout the year and the following sports are given in season: Hockey, basket ball, baseball, volley ball, archery, tennis, track and field. Locker deposit, \$2.

152A. PHYSICAL EDUCATION W-II. Freshman year, second semester. Gymnasium, three hours. One semester credit. Prerequisite: Physical Education W-I. Miss Morris, Miss Watson, and Miss Wade.

This course is a continuation of Physical Education W-I.

153, 154. PHYSICAL EDUCATION W-III AND W-IV. Sophomore year, first and second semesters, respectively. Gymnasium, three hours. One semester credit for each course. Miss Morris, Miss Wade, and Miss Watson.

This work in these two courses is a continuation of that of courses 151A and 152A. More advanced work is given. Locker deposit, \$2.

156A to 156H. GENERAL TECHNIC OF GYMNASTICS I TO VIII. Freshman year, first semester to senior year, second semester. Practical work, three hours. One semester credit for each course. Miss Watson.

Practical work is given in gymnastics, apparatus work, dancing and sports. This is required of all girls registered in the curriculum in physical education. This course is not open as an elective.

158. FIRST AID. Sophomore year, first semester. Class work, one hour. One semester credit. Miss Wade.

The object of this course is to teach the prevention of accidents, and treatment of injuries in an emergency. Text: *Red Cross Text-Book on First Aid*.

160. FOLK DANCING I. Junior year, first semester. Practical work, three hours. One semester credit. Prerequisites: Phys. Ed. 151A, 152A, 153 and 154. Miss Morris.

This is an elementary course in folk and national dancing and singing games.

161. FOLK DANCING II. Junior year, second semester. Practical work, three hours. One semester credit. Prerequisite: Folk Dancing I. Miss Morris.

This is an advanced course in the study of folk dances and national dances.

163. THEORY AND TECHNIC OF DANCING. Senior year, second semester. Class work, one hour. One semester credit. Prerequisites: Folk Dancing II, and at least one semester of advanced dancing.

The place of dancing in education, the value of dancing as an art, and as a means of expression is studied. Dancing is correlated with music, literature, painting, and sculpture. Text: H'Doubler, *The Dance and Its Place in Education*.

165A. SPORTS TECHNIC I. Junior year, first semester. Class work, one hour. One semester credit. Prerequisite: One season of advanced hockey and advanced basket ball. Miss Watson.

The rules and principles of coaching hockey, soccer, and basket ball are studied. Practice is given in assisting with the coaching of college sports. Text: *Official Rule Books*.

165B. SPORTS TECHNIC II. Junior year, second semester. Class work, one hour. One semester credit. Prerequisites: One season of advanced baseball, field and track, and archery. Miss Wade and Miss Watson.

The rules and principles of coaching baseball, track and field, and archery are studied, and the students assist with college sports. Text: *Official Rule Books*.

165C. SPORTS TECHNIC III. Senior year, first semester. Class work, one hour. One semester credit. Prerequisites: One season of advanced swimming and tennis.

In this course the rules and principles of coaching swimming, tennis and volley ball are studied. The student also assists with college sports. Text: *Official Rule Books*.

168. METHODS OF TEACHING GYMNASTICS. Junior year, second semester. Class work, one hour. One semester credit. Prerequisites: General Technic I, II, III, and IV.

The selection, classification, arrangement, and progression of gymnastic exercises is considered. Practice teaching is given within the class. Text: Skarstrom, *Gymnastic Teaching*.

170. PHYSICAL DIAGNOSIS W. Junior year, first semester. Lectures and recitations, three hours. Three semester credits. Prerequisites: Anatomy, and Embryology and Physiology.

This course includes a study of the causes and symptoms of common diseases, deformities, and other abnormal conditions, so that the student may be enabled to recognize abnormal conditions. The course also includes a study of the methods of giving physical examinations.

172. THERAPEUTICS AND MASSAGE. Junior year, second semester. Lectures and recitations, one hour; laboratory, three hours. Two semester credits. Prerequisites: Anatomy, Kinesiology, and Physical Diagnosis.

Postural defects are studied and exercises are given for the correction of each. General and local massage is practiced for cases which can be treated by the Department of Physical Education.

174. PHYSIOLOGY OF EXERCISE. Senior year, second semester. Lectures, one hour; laboratory, three hours. Two semester credits. Prerequisites: Anatomy, and Embryology and Physiology.

The effect of exercise on the tissues, systems, and organs of the body is discussed. Text: McCurdy and McKenzie, *Physiology of Exercise*.

176. ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION W. Senior year, second semester. Class work, two hours. Two semester credits. Prerequisites: Playground Management, Sports Technic I, II, and III, Folk Dancing II, and Methods of Teaching Gymnastics.

The aims of physical education and the organization and administration of a department to meet those aims are studied. The course also includes an examination of the relation and responsibility to other departments. Outside readings and reports are required. Text: Williams, *Organization and Administration of Physical Education*.

177. CORRECTIVE GYMNASTICS. Practical work, three hours. One semester credit. Miss Wade.

This course is intended for those who have physical defects, abnormalities, and other weaknesses. Special exercises are given to students needing individual corrective work. Locker deposit, \$2.

178. FOLK DANCING. Elective, summer school. Lectures and practical work, two and one-half hours. One semester credit. Miss Morris and Miss Wade.

Lectures cover the following points: Origin and values of folk dancing, a brief historic background for the different nations, appropriate costumes, principles of teaching folk dances, use of folk dances in festivals.

Practical work consists of graded folk dances of different nations, and some practice teaching. A note book is required.

181A. PLAYS AND GAMES. Sophomore year, first semester. Practical work, three hours. One semester credit. Prerequisites: Phys. Ed. 151A and 152A. Miss Morris.

This course presents types of games suitable for different age periods. Methods of coaching and managing group contests are discussed. The chief purpose is to present material suitable for teaching. Text: Bancroft, *Games for the Playground, Home, School, and Gymnasium*.

182. PLAYGROUND MANAGEMENT W. Sophomore year, second semester. Lectures and recitations, one hour. One semester credit. Prerequisite: Plays and Games. Miss Watson.

This course includes discussions of the organization and administration of playground activities and equipment. The history of the playground movement and the various theories of play are also discussed. Text: Bowen and Mitchell, *The Theory of Organized Play*.

183. ELEMENTARY SCHOOL GYMNASTICS. Elective, summer school. Lectures and practical work, three hours. One semester credit. Miss Morris.

This course consists of lectures and discussions on the principles of selection, methods of teaching and organization of work in elementary schools; also practice of the activities used, and some practice teaching. A notebook is required.

185. INTERPRETATIVE DANCING. Elective, summer school. Class work and practical work, two and one-half hours. One semester credit. Miss Watson.

This course aims to teach dancing not dances, through logical, conscious control of body movements, motivated by music which has been studied and is understood. This study of music includes the simple, common rhythms, which are easily adapted to many uses. Locker deposit, \$2.

187. TECHNIC OF BASKET BALL, BASEBALL AND HOCKEY. Elective, summer school. Lectures and practical work, two and one-half hours. One semester credit. Miss Watson.

This course considers methods of coaching high-school students. A notebook is required.

188. TEACHING AND ADAPTATION OF PHYSICAL EDUCATION. Senior year, first semester. Lectures and recitations, three hours. Three semester credits. Prerequisites: Playground Management, Folk Dancing II, Sports Technic I, II and III, and Methods of Teaching Gymnastics.

The problems of physical education and general principles of leadership are studied. Material is adapted to meet the needs of various groups and to meet the aims and ideals of physical education. Text: Hetherington, *School Program in Physical Education*.

190. SWIMMING W. Elective, summer school. Open to all women students. No credit.

A section for those who know how to swim is conducted by Miss Watson. Miss Morris conducts a beginning class for those who do not know how to swim.

FOR UNDERGRADUATES, MEN AND WOMEN

192. HISTORY AND PRINCIPLES OF PHYSICAL EDUCATION. Sophomore year, second semester. Lectures and recitations, three hours. Three semester credits. Prerequisite: Sophomore standing. Mr. Washburn and Miss Morris.

A survey is made of the field of physical education from ancient to modern times. The aims and ideals of physical education and its relation to general education are studied. Text: Leonard and McKenzie, *History of Physical Education*.

194. KINESIOLOGY. Junior year, first semester. Lectures and recitations, three hours. Three semester credits. Prerequisite: Human Anatomy, (Zoöl. 123).

A study is made of the mechanics of movement. The elemental movements of the body are analyzed and the principles involved are applied to the teaching of physical education. Text: Bowen and McKenzie, *Applied Anatomy and Kinesiology*.

Physics

Professor HAMILTON
Professor RABURN
Professor FLOYD
Associate Professor CONVERSE
Associate Professor BRACKETT
Assistant Professor HARTEL*

Assistant Professor LYON
Instructor TAYLOR*
Instructor CHAPIN
Instructor AVERY
Instructor BARSTOW
Instructor LARSON

Recognizing the need of a thorough knowledge of the fundamental laws and principles involved in all physical changes, provision has been made, in the courses which follow, for both a theoretical and a practical treatment of the subject. Instruction is based upon the facts given in selected textbooks, and these topics are enlarged upon by lectures and illustrated by experimental demonstrations. The purpose is to give a training in exact reasoning, and a knowledge of principles that will be factors in the solution of problems in all branches of science as well as in everyday life.

The laboratory work which accompanies the courses in physics gives a student abundant opportunity to test the principal laws of the science; and, since he is expected to arrange and operate the apparatus, the work should enable him to acquire skill in manipulation, precision of judgment, and care in the use of delicate instruments. The laboratories are well arranged for the work, and the equipment provided is of a nature adapted to meet the requirement of accurate work in all courses. The manual in use in most of the courses is one prepared by the department to meet the exact conditions and equipment of the laboratory.

As the several curricula of the College are all formulated on the assumption that a year of elementary physics will have been taken in high school, classes in this subject are provided for students who are deficient in this respect. College credit on electives is allowed for this work.

The equipment owned by this department has a value of \$25,345.

COURSES IN PHYSICS

FOR UNDERGRADUATES

101. HOUSEHOLD PHYSICS. Freshman year, both semesters. Class work, three hours; laboratory, three hours. Four semester credits. Prerequisite: One year of high-school physics or its equivalent. Mr. Hamilton, Mr. Floyd, Miss Taylor, and Miss Avery.

This course consists of lectures and demonstrations, in which the laws relating to principles involved in appliances of the household are explained and illustrated. The work in heat is based upon thermometry, calorimetry, radiation, absorption, and methods of refrigeration and ventilation. The course includes a study of light, with its color phenomena and actinic effects; of some of the optical instruments used in scientific work; a study of electric lighting, and illumination, and of cost of operating many of the appliances used in the home, including suggestions for the proper use and care of electrical apparatus for the protection of the appliances and of the operator. Laboratory deposit, \$2.50.

120. PHOTOGRAPHY. Elective, both semesters. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: Training in physics and chemistry. Mr. Hamilton.

The importance of a record of exact details, as shown in a photograph, makes this work valuable to all scientists. The course gives the student some knowledge of the chemical and physical principles involved in the art, as well as practice in making good negatives and prints. The lecture and laboratory work deals with: Things to be considered in selecting a camera; proper exposures; composition of pictures; proper development of plates; tests of dif-

* Absent on leave, year 1925-'26.

ferent developers; retouching; reducing and intensifying negatives; printing and mounting; making lantern slides, bromide enlargement, and the prints best adapted for illustrated articles in newspapers and magazines: Laboratory deposit, \$2.50.

130. WIRELESS TELEPHONY. Elective, both semesters. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: Elementary Physics. Mr. Lyon.

The work includes a study of the most efficient types of receiving and transmission sets, a study of the fundamental principles of electric waves, and of the most important points to be observed in the erection of a good plant.

Laboratory.—A series of experiments is provided in which various radio circuits are assembled by the student from standard parts, and tried out for their transmitting or receiving properties. Laboratory charge, \$2.50.

133. METEOROLOGY. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Physics. Mr. Hamilton or Mr. Converse.

This course is designed to give an understanding of weather phenomena and of the underlying principles of weather forecasting. A special study is made of the factors that fix the climate of Kansas and of the United States. Applications of weather to agriculture and the teaching of general science and physiography are emphasized. In order to give the student practice in the use of weather apparatus and in handling meteorological data, laboratory exercises are included in the required work. Text: Milham's *Meteorology*.

135. GENERAL PHYSICS I. Sophomore year, first semester. Class work, three hours; laboratory, three hours. Four semester credits. Prerequisites: Elementary Physics and Plane Trigonometry. Mr. Floyd, Mr. Lyon, and Mr. Chapin.

This course, like the one following, is provided for those intending to specialize in scientific lines. It covers, in as thorough a manner as possible, the general principles involved in mechanics, sound, and heat. Text: Kimball's *College Physics*.

Laboratory.—The work is based upon laws and principles discussed in the classroom, and is so arranged that the students may have a practical illustration of the facts learned. Mr. Brackett, and Mr. Lyon. Laboratory charge, \$2.50.

140. GENERAL PHYSICS II. Sophomore year, second semester. Class work, three hours; laboratory, three hours. Four semester credits. Prerequisite: General Physics I. Mr. Floyd and Mr. Hartel.

This course includes a study of the theory of electricity and light. The class follows the subject as outlined in the text, but special emphasis is placed upon those parts that have an immediate bearing on the work of other sciences, such as electrolysis, thermal effects, relation of electrical and mechanical energy. Text: Kimball's *College Physics*.

Laboratory.—The work follows the subjects presented in the class and is conducted with a grade of apparatus that gives training in the use of the better class of instruments employed in scientific investigations. Laboratory charge, \$2.50.

145. ENGINEERING PHYSICS I. Sophomore year, both semesters. Class work, four hours; laboratory, three hours. Five semester credits. Prerequisites: Elementary Physics and Plane Trigonometry. Mr. Hamilton, Mr. Raburn, Mr. Brackett, Mr. Barstow and Mr. Larson.

This course in mechanics, sound and heat is intended to give the engineering students as thorough a working knowledge as possible of the fundamental units and laws involved in force, work, power, and energy; also the laws of simple machines, gases, and liquids as they occur in the transformation of force and energy. Text: Duff's *Physics*.

Laboratory.—The work consists of the use of apparatus to test the laws of inertia, moments of force, moments of torsion, elasticity, and rigidity, and

other laws and principles involved in mechanics and heat. Accurate measurements and carefully recorded data are required. Mr. Brackett, and Mr. Lyon. Laboratory charge, \$2.50.

150. ENGINEERING PHYSICS II. Sophomore year, both semesters. Class work, four hours; laboratory, three hours. Five semester credits. Prerequisite: Engineering Physics I. Mr. Hamilton, Mr. Raburn, Mr. Brackett, Mr. Barstow, and Mr. Larson.

This course treats of electricity and light. The work in electricity is of such a nature as to give the student working knowledge of the units employed, and of the fundamental laws; and to acquaint him with methods of producing a current, its uses, and the system by which electrical energy is measured. The principal phenomena of light, together with the laws that may have direct bearing upon light as a standard and method of measurement, are treated in this course. Text: Duff's *Physics*.

Laboratory.—The electrical work in this course includes measurements of resistances, a study of primary cells, and the transformation of mechanical into electrical energy. The work of light consists of a study of the laws of reflection and refraction, and measurements of wave lengths by means of the spectrometer, the use of the interferometer, and photometry. Laboratory charge, \$2.50.

155. DESCRIPTIVE ASTRONOMY. Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: Physics. Mr. Hartel.

This is an introductory course largely descriptive in character, designed primarily for those desiring such a general knowledge of the principal facts, theories, and methods of astronomy, as might be expected of every liberally educated person. At times laboratory periods may be substituted for class periods. Text: Molton's *Introduction to Astronomy*, also a pocket star guide for the study of constellations.

FOR GRADUATES AND UNDERGRADUATES

203. LABORATORY TECHNIC. Elective, summer school. By appointment. Laboratory, six hours. Two semester credits. Mr. Floyd.

This course includes saw filing and tool grinding; glass blowing, cutting, grinding, polishing, and cementing; metal filing, drilling, soldering and brazing; and making a set of punches, reamers, and cold chisels.

Students may, in certain cases, undertake problems chosen from the following, at a cost covering the raw materials: Making a mercury-in-glass barometer; a seconds pendulum; an accelerated motion machine; a fourteen-in-one laboratory tool; a Berthelot calorimeter; small induction coil; wireless apparatus; rheostats for power circuits; Langeub galvanometer; velocity of sound apparatus, photometer, etc. Laboratory deposit, \$2.50.

213. ACOUSTICS. Elective, first semester. Class work, one hour. One semester credit. Prerequisite: Engineering Physics II. Mr. Floyd and Mr. Brackett.

In this course a special study is made of the acoustic properties of buildings, of the architectural defects which give rise to poor acoustics, with a study of special methods used to avoid such troubles in construction of buildings or to correct them in constructed buildings.

220. MOLECULAR PHYSICS AND HEAT. Elective, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: One year of College Physics. Mr. Floyd or Mr. Raburn.

The subject of molecular physics is presented and utilized as a basis of an explanation of such phenomena as depend upon the interaction of molecules and such as are fundamental in the presentation of the mechanical theory of heat. Lectures, collateral reading, and recitations from the text are used as a means of presentation. Text: Edser's *Heat*.

Laboratory.—The laboratory work is based on the fundamental principles presented in the classroom.

222. **HARMONICS.** Elective, second semester. Class work, two hours. Two semester credits. Prerequisites: One year each of music and elementary physics. Mr. Hamilton and Mr. Floyd.

This course is given to students of music so that they may learn the fundamental principles of sound that are associated with harmony. It is a lecture and demonstration course that deals with many facts of interest relating to the construction of scales and chords. A clearer understanding of composition and of tone quality may be had if the physical laws of sound are understood.

224. **SPECIAL METHODS IN THE TEACHING OF PHYSICS.** Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. For credit towards the state teachers' certificate this must be taken in the student's senior year. Prerequisites: Educational Psychology and College Physics. Mr. Floyd and Mr. Brackett.

This course is intended for those who are either teaching or expecting to teach physics in secondary schools. This class work includes an analysis of the present status of physics and of physics instruction in our high schools, and is based upon a critical study of the state text as well as other modern texts that may be used as reference. Special effort is made to vitalize the work and to make it apply to everyday life. Lectures, library work, demonstrations and practice teaching are used as methods of directing the course.

Laboratory.—The laboratory work includes the formation and adaptation of courses suitable for either rural or city high schools.

230. **SPECTROSCOPY.** Elective, first semester. Class work, one hour; laboratory, six hours. Three semester credits. Prerequisites: College Physics and College Chemistry. Mr. Raburn and Mr. Floyd.

This is an advanced course in light, intended to cover the theory and use of the spectroscope and spectrometer as instruments for identifying elements or their compounds, when rendered incandescent, by means of their characteristic spectra or definite wave lengths.

Laboratory.—The laboratory work consists of calibration of prisms and gratings for ready use in chemical laboratories and also gives ample training in measuring wave lengths and in identifying the spectra of many substances.

231. **OPTICS.** Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: One year of College Physics. Mr. Hamilton or Mr. Floyd.

This course is designed for those who may wish to extend and to intensify the first College course in light. Reflection, refraction, interference, diffraction, and polarization are treated by means of lectures, demonstrations, collateral readings, and recitations. Text: Wood's *Physical Optics*.

Laboratory.—The laboratory work is based on the fundamental principles presented in the theory part of the course.

233. **RADIOACTIVITY AND THE ELECTRON THEORY.** Elective, second semester. Class work, three hours. Three semester credits. Prerequisites: College Physics and College Chemistry. Mr. Hamilton and Mr. Raburn.

The nature of the electron and its behavior in electric and magnetic fields, are studied. Temperature effects and behavior of the electron in cathode tubes using a hot cathode are discussed and studied in detail. The methods of determining the mass and velocity of electrons are developed from the historical standpoint. A study is made of the nature and effects of the various rays, including x-rays and ultra-violet rays and the emanations from the known radioactive substances.

235. **STORAGE BATTERIES.** Elective, second semester. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: Physics and Chemistry. Mr. Hamilton and Mr. Floyd.

In the lecture-recitation part of this course, the following are studied: The history and development of the storage cell, lead and other types of cells, characteristics and behavior of cells on charge and discharge, care and opera-

tion of storage batteries, and renewal of sulphated cells. Text: Lyndon's *Storage Batteries*.

Laboratory.—The laboratory work comprises the testing of batteries for efficiency, the rebuilding of broken-down cells, and the rejuvenation of sulphated cells.

240. **TEACHERS' COURSE IN ELECTRON THEORY, ALTERNATING CURRENTS AND RADIO.** Elective, summer school. Lectures and laboratory, two three-hour periods each week. Two semester credits. Prerequisite: Physics. Mr. Lyon.

Theory and practice in this course are closely correlated. Laboratory exercises immediately follow or are intermixed with each lecture. Experiments include examples of demonstration, use of models, properties of alternating-current circuits, rectifiers, transformers, transmitting and receiving radio circuits, and radio sets suitable for use in high school, and the construction of these appliances may be undertaken by members of the class under the direction of the instructor.

245. **RADIO MEASUREMENTS.** Elective, both semesters. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: College Physics, and an elementary course in radio or the equivalent. Mr. Lyon.

The work in this course is in standard radio measurements, such as the determination of tube characteristics, calculation and design of inductances and capacities, properties and designs of antennas, tuning of transmitting sets, wave lengths and calibration of receiving sets, decrement, etc. The lecture hour furnishes a certain amount of ground work for the laboratory. A student may arrange in this course to carry on an investigation in some special problem of radio.

250. **MODERN PHYSICS.** Elective, first semester. Lectures and recitations, two hours; library and discussions, three hours. Three semester credits. Prerequisites: One year of College Physics and one year of Chemistry. Mr. Brackett and Mr. Lyon.

The course comprises lectures and recitations on the great physical theories. The theories involved in the recent advances in physics are reviewed critically from the historical standpoint and the evidence for and against them is discussed. The course includes attendance upon public lectures and discussions relative to the subjects which have been given during the semester and the reporting and criticism of the same. Each member of the class is also assigned to read several texts and articles on modern physics and to report and discuss his findings before the class, each member reporting different material but keeping notes on the findings of all members.

FOR GRADUATES

301. **RESEARCH IN PHYSICS.** Elective, both semesters and summer school. One to six semester credits. Prerequisite: College Physics.

Students working for their master's degree and students preparing to enter commercial work in physics or to teach physics may be assigned to problems in original investigations. Advice and suggestions are given by the members of the Department of Physics and the material and apparatus necessary for carrying on the research are furnished. New and important fields are investigated.

Public Speaking

Professor HILL
Professor EMERSON*
Associate Professor SHINN**

Associate Professor SUMMERS
Instructor HEBERER
Instructor BURR

It is the constant effort of the Department of Public Speaking to relate the training in public speaking to the work of all other departments of the College and to harmonize it with the spirit of the College. With this object in view, students are trained in the presentation and discussion of the valuable ideas acquired in their various fields of study. The method pursued in this training is that of actual practice on the platform before an audience.

The department seeks to place itself at the service of those various organizations of the College which desire or need its assistance, and at the service of the communities of the state. In addition to its regular courses, it aims to make itself available as far as possible for individual rehearsals. It trains the orators of the College, coaches and directs college plays, and prepares intercollegiate debating teams. Students are urged to ally themselves with the organizations representing these various activities.

The equipment of this department has a value of \$353.

COURSES IN PUBLIC SPEAKING

FOR UNDERGRADUATES

101. ORAL INTERPRETATION. Elective, both semesters. Class work, two hours. Two semester credits. Dr. Hill and Mr. Shinn.

The purpose of the course is to enable the student to attain some proficiency in the art of oral interpretation. The training given seeks to develop a natural style. In connection with the practice work upon the platform the student is given such points of theory and such routine drill as are necessary for the development and use of the voice and for proper platform deportment.

102. DRAMATIC READING. Elective, both semesters. Class work, two hours. Two semester credits. Prerequisite: Oral Interpretation, or by arrangement with the head of the department. Dr. Hill, Mr. Shinn, and Miss Burr.

This course is a continuation of Oral Interpretation and involves a more advanced study of the principles of oral interpretation and their application to platform reading.

106. EXTEMPORE SPEECH I. Freshman and junior years, and elective, both semesters. Class work, two hours. Two semester credits. Dr. Hill, Dr. Emerson, Mr. Shinn, Mr. Summers, Mr. Heberer, and Miss Burr.

The work of this course consists in the preparation and delivery of short addresses based on prepared outlines. Careful preparation of material is required. The plan of the speech is made in advance, but the choice of language is left for the moment of speaking. Criticism and points of theory given by the instructor supplement the practice.

108. EXTEMPORE SPEECH II. Elective, second semester. Class work, two hours. Two semester credits. Prerequisite: Extempore Speech I, or its equivalent. Dr. Hill, Mr. Shinn, and Dr. Emerson.

This course continues the method of instruction and the underlying theory of Extempore Speech I. Special attention is given to the specific application of the principles of the former course to particular occasions, such as after-dinner occasions, conventions, and other types.

115. LECTURE RECITAL. Elective, both semesters. Two semester credits. Prerequisites: Oral Interpretation and Dramatic Reading, or by special arrangement with the head of the department. Dr. Hill.

* Appointed for year 1925-'26.

** Absent on leave, 1925-'26.

In this course the work consists of the preparation and delivery by the student of one extended lecture-recital, lecture, or address during the semester. This is supplemented by class lectures and practice, and by a study of types. It may include the preparation and delivery of short recitals.

121. ARGUMENTATION AND DEBATE I. Elective, both semesters. Class work, two hours. Two semester credits. Prerequisite: Extempore Speaking I, or by arrangement with the head of the department. Mr. Summers.

This course includes a systematic study of the fundamentals of argumentation as applied in debate; the making of debate outlines, collecting and organization of material, structure and style of the debate speech, and methods of refutation being especially emphasized. Each student will be given opportunity to participate in a number of classroom debates for criticism.

122. ARGUMENTATION AND DEBATE II. Elective, both semesters. Class work, two hours. Two semester credits. Prerequisite: Argumentation and Debate I, or by arrangement with the head of the department. Mr. Summers.

This course calls for study of the more technical phases of contest debating, and is intended primarily for those who expect to coach debate in high schools or colleges, or to participate in intersociety or intercollegiate debates. The outstanding problems of debate coaching, debate strategy and generalship, persuasion as used in debate, methods of increasing rebuttal effectiveness, and management of debates will be given especial attention. Each student will participate in a number of classroom debates for criticism; and will also be given some opportunity to gain experience in debate coaching or judging.

125. PARLIAMENTARY PROCEDURE. Elective, both semesters. Class work, two hours. Two semester credits. Mr. Summers.

College men and women are expected, in and out of college, to be able to organize and conduct meetings, and to take their part in deliberative assemblies. Three phases of the problem are emphasized: How to conduct a meeting as chairman; how to take part from the floor; and how to organize and work in committee, the chief method of present-day accomplishment in deliberative bodies. Class instruction is liberally supplemented with practice in all three fields. Text: Hall and Sturgis, *A Textbook on Parliamentary Law*.

130. DRAMATIC PRODUCTION I. Elective, both semesters. Class work, two hours. Two semester credits. Mr. Heberer.

This course is intended to answer the many fundamental questions which face every teacher and community leader when called upon to stage community entertainment. A historical background of the theater is first presented, followed by a brief study of the little-theater movement. Next are studied, how to choose a play, what material is available and where, fundamentals of directing, problems in high-school play production, suggestions and practice in the use of the equipment available in the average community, and how to improve that equipment. Actual practice in stagecraft is provided. Text: Andrews and Weirick's *Acting and Play Production*.

135. DRAMATIC PRODUCTION II. Elective, both semesters. Class work, two hours. Two semester credits. Prerequisite: Dramatic Production I must precede or be taken with this course. Mr. Heberer.

Building upon Dramatic Production I, the course specializes in a study of the method of directing. One or more visits back of the scenes at important productions supplement the study of the mechanics of production. Members of the class are given experience in various capacities in the production of at least five one-act plays. A definite problem in dramatic research is worked out by each student.

140. PAGEANT COMPOSITION. Elective, first semester. Class work, three hours. Three semester credits. Miss Burr.

This course is designed to give information on the history of community drama and pageantry, the forms which the art has taken in different times and

places, the recent and present tendencies, and the relation of the art to the modern community movement. Its place in the activities of school and church is especially stressed. Practice is given in finding materials and arranging them in proper form for community drama and pageantry production. Instruction is by class lectures, class discussion and library reference.

145. PAGEANT PRODUCTION. Elective, second semester. Class work, three hours. Three semester credits. Miss Burr.

Students are given training in the organization of pageant groups; the scheme of organization and financing; the finding of characters for different parts, costuming, and the proper relation of episodes and musical accompaniments. Opportunity for laboratory work in the course is found in programs on and off the campus which require contributions from the field of pageantry.

Zoölogy

Professor NABOURS
 Professor ACKERT
 Professor HARMAN
 Associate Professor JOHNSON
 Assistant Professor JEWELL
 Instructor GUNNS

Instructor ZIMMERMAN
 Graduate Assistant FISHER
 Graduate Assistant FOSTER
 Graduate Assistant INGERSOLL
 Graduate Assistant WALKER

The courses have been planned to give a fundamental knowledge of the structures, functions and relations of animals; information concerning the manner in which animals respond to the conditions of the environment; an appreciation of their human values; and a consideration of the problem of heredity and evolution.

General Zoölogy (course 105) constitutes a general survey, and forms an introduction to all lines in agriculture, general science, and home economics. Embryology and Physiology (201), Cytology (214), Advanced Embryology (220), Parasitology (208), Parasites and Public Health (218), Evolution and Heredity (217), Heredity and Eugenics (216), Human Physiology (235), and Historical Geology (Geol. 201) are preliminary to advanced work in animal breeding, animal husbandry, dairy husbandry, veterinary medicine, home economics, and nursing. Selections may be made among these courses and Embryology (219), Comparative Anatomy of Vertebrates (245), Ornithology (230), Field Zoölogy (205), Animal Ecology (211), Zoölogical Problems (203), Research in Zoölogy (301) and the Seminars (225, 227), by those who expect to do advanced work in zoölogy or entomology, or become teachers of biology.

The classrooms and laboratories are equipped with charts, models, microscopes, microtomes, paraffin baths and other apparatus both for elementary and advanced work, and a good natural history museum is available. A specially trained technician is in charge of equipment and available in matters connected with zoölogical technic. The equipment belonging to the department is valued at \$31,129.

COURSES IN ZOOLOGY

FOR UNDERGRADUATES

105. GENERAL ZOÖLOGY. Sophomore year, both semesters. Class work, three hours; laboratory, six hours. Five semester credits. Dr. Nabours, Dr. Ackert, Dr. Harman, Dr. Johnson, Dr. Jewell, and Miss Zimmerman.

The structures, functions, relations and evolution of types of both invertebrates and vertebrates are studied.

Laboratory.—Studies are made of animals in nature and in the laboratory; inquiries are made into structures and functions by means of dissections and experiments. Laboratory charge, \$3.

109. ZOÖLOGY AND EMBRYOLOGY (VET.) Freshman year, first semester. Class work, three hours; laboratory, six hours. Five semester credits. Dr. Johnson.

The first part of the semester is devoted to a general survey of the animal kingdom, with attention to classification, distribution, habitats and relations to each other and to man. The rest of the time is devoted to the consideration of the origin of the germ cells, fertilization, implantation, the development of membranes, and the nutrition of the fetus.

Laboratory.—Animals are observed in the field, vivaria and museum, and a comparative study is made of the organs and systems in a few selected types. Examination is made of germ cells, stages in fertilization and development of chick and pig embryos, and types of placentæ. Laboratory charge, \$3.

123. HUMAN ANATOMY. Sophomore year, first semester. Class work, five hours. Five semester credits. Miss Zimmerman.

Special attention is given to the human skeleton, muscular system, and the structure of internal organs. Dissectible models, skeletons, charts and living models are studied. Instruction is by lectures, recitations and demonstrations. Fee for materials, \$3.

FOR GRADUATES AND UNDERGRADUATES

201. EMBRYOLOGY AND PHYSIOLOGY. Sophomore year, both semesters. Class work, three hours; laboratory, six hours. Five semester credits. Prerequisites: Zoöl. 105 (General Zoölogy) or equivalent, and Chem. 121 (Organic Chemistry HE). Dr. Harman (Embryology) and Miss Zimmerman (Physiology.)

The course, depending upon the preceding work in zoölogy, falls into two closely related parts: (a) a study of the development of the germ cells, fertilization, origin of the germ layers, initiation and growth of organs and systems, establishment of fetal relations, and nutrition and growth with special reference to man; and (b) a study of the functions of the organs and systems of the human body, with special consideration of the digestive, respiratory, circulatory, nervous and urinogenital systems and organs of special sense.

Laboratory.—The laboratory work includes: (a) studies of the male and female germ cells, stages in the process of fertilization, the segmenting ovum, and whole mounts and serial sections of the chick and pig embryos in several stages of development, with demonstrations of types of mammalian fetal relations; and (b) experiments for the demonstration of the composition and functions of bone, blood, lymph, and the reaction of muscles, nerves, parts of the digestive, respiratory, excretory and other systems. Laboratory charge, \$3.

203. ZOÖLOGICAL PROBLEMS. Elective, both semesters. One or two semester credits. Dr. Nabours, Dr. Ackert, Dr. Harman, Dr. Johnson, Dr. Jewell, and Miss Zimmerman.

Individual problems in heredity, parasitology, cytology, embryology, and ecology are assigned by the instructors in charge.

205. FIELD ZOÖLOGY. Elective, first semester. Class work, one hour; laboratory or field work, six hours. Three semester credits. Prerequisite: Zoölogy 105. Dr. Jewell.

The work consists of the collection, identification and preservation of the various local animals with notes on their life histories, behavior and distribution. Laboratory charge, \$2.

206. ZOÖLOGICAL TECHNIC. Elective, first or second semester. Laboratory, three or six hours. One or two semester credits. Prerequisite: General Zoölogy (Zoöl. 105) or equivalent. Dr. Nabours and Mr. Gunns.

The work consists of methods in killing, fixing, imbedding, using microtome, staining, dehydrating and other processes in the preparation of microscopical slides, principles of photomicrography, museum mounting and labeling, and introduction of taxidermy. Laboratory charge, \$3.

208. PARASITOLOGY. Senior year, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: Zoölogy and Embryology (Vet.). Dr. Ackert.

A study is made of the biology, life histories and economic importance of the principal external and internal parasites of the domestic animals.

Laboratory.—The structural and functional adaptations of selected types of parasites are studied, and methods of diagnosis are utilized. Laboratory charge, \$2.

211. ANIMAL ECOLOGY. Elective, second semester. Lectures, one hour; laboratory and field work, six hours. Three semester credits. Prerequisites: General Zoölogy (Zoöl. 105) or equivalent. Dr. Jewell.

This course deals with the relation of animals to the complete environment. The associational method of study is used and the subject is considered from the descriptive, comparative and explanatory standpoints. Special attention is given to the dynamic factors of the environment and their effect on the present status and future changes of the animal community. The field work gives practice in the methods of field ecology and deals with the application of general principles to local conditions. The fundamental principles and other general aspects of the science are presented in the form of lectures. Laboratory charge, \$2.

214. CYTOLOGY. Elective, first semester. Lectures, two hours; laboratory, six hours. Four semester credits. Prerequisite: Zoöl. 201, or equivalent. Dr. Harman.

Methods of preparing the material for microscopical study, the development of the germ cells and theories of structures and functions of the different parts of the cell are matters considered in this course. The work forms a basis for studies in heredity and related subjects. Laboratory charge, \$3.

216. HEREDITY AND EUGENICS. Elective, first semester. Lectures and recitations, two hours. Two semester credits. Prerequisite: Zoölogy 105, or equivalent. Dr. Nabours.

This lecture and reading course deals with human inheritance and the interactions of nature and heredity.

217. EVOLUTION AND HEREDITY. Elective, second semester. Lectures, two hours; library reference reading and reports, three or six hours. Three or four semester credits. Prerequisites: Zoöl. 105 and Genetics (An. Husb. 221), or equivalent. Dr. Nabours.

This is a lecture and reading course dealing with the development of the idea of evolution; the evidence and the principal theories of the causes; problems of variation, heredity, and experimental evolution.

218. PARASITES AND PUBLIC HEALTH. Elective, second semester. Lectures and demonstrations, three hours in class. Three semester credits. Prerequisites: Zoöl. 105, or equivalent. Dr. Ackert.

This course deals with certain biological, pathological and prophylactic phases of the principal parasitic maladies, such as amebic dysentery, Texas fever, syphilis, sleeping sickness, dourine, nagana, and hookworm disease. Life histories and adaptation of protozoan parasites, and of tapeworms and round worms are considered.

219. EMBRYOLOGY. Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: Zoöl. 105, or equivalent. Dr. Harman and assistants.

The development of the germ cells, fertilization, origin of the germ layers, initiation and growth of systems of organs, establishment of fetal relations, and nutrition and growth in mammals are studied in this course.

Laboratory.—Studies of the male and female germ cells, stages in the processes of fertilization, the segmenting ovum, and whole mounts, serial sections, and reconstruction of the chick and pig embryos in several stages of growth, with demonstration of types of mammalian fetal relations, form the subject matter of the laboratory investigation. Laboratory charge, \$2.

220. **ADVANCED EMBRYOLOGY.** Elective, first semester. Lectures, two hours; laboratory, six hours. Four semester credits. Prerequisites: Zoöl. 105 and 201 or 109, or the equivalent. Dr. Harman.

This course consists of further study of the main facts of embryology, with special reference to their bearing upon biological theories, the consideration of embryological problems, and a comparative study of the physiology of reproduction in mammals, including man. Laboratory charge, \$3.

225. **ZOÖLOGY AND ENTOMOLOGY SEMINAR.** Elective, both semesters. One semester credit. Prerequisite: Zoöl. 105, or equivalent.

This course consists in the presentation of original investigations, reviews of papers appearing in current journals, summaries of recent advances in the various fields, and discussions of the various aspects of the fundamental problems of modern biology.

227. **GENETICS SEMINAR.** Elective, both semesters. One semester credit. Prerequisite: Zoöl. 105, or equivalent. Dr. Nabours, Dr. Warren, Mr. Parker, and Dr. Ibsen.

This course continues through the first and second semesters and includes the study and criticism of genetic experiments in plants and animals, the biological and mathematical methods employed, and validity of conclusions drawn.

230. **ORNITHOLOGY.** Elective, second semester. Class work, one hour; laboratory and field work, three hours. Two semester credits. Prerequisite: Zoöl. 105. Given in 1925-'26 and alternate years thereafter. Dr. Harman.

Birds are studied with reference to classification, habits, habitats, adaptations and economic importance.

Laboratory.—The mounted birds and skins of the museum are used in the application of the principles of classification and adaptation. Field excursions are made for the purpose of identifying birds and studying their habits, habitats and migrations. Laboratory charge, \$2.

235. **HUMAN PHYSIOLOGY.** Elective, first semester. Class work, three hours; laboratory, three hours. Four semester credits. Prerequisite: Zoöl. 105. Miss Zimmerman.

The fundamental principles and theories of the functions of muscle, nerve, circulation, digestion, respiration, secretion and excretion are discussed in this course. Laboratory charge, \$3.

240. **TAXONOMY OF PARASITES.** Elective, first semester. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: General Zoölogy (Zoöl. 105). Dr. Ackert.

This course deals with the structure of animal parasites; relation of certain animal groups; principles of classification; and identification of parasites of man and of domestic animals.

245. **COMPARATIVE ANATOMY OF VERTEBRATES.** Elective, second semester. Class work, one hour; laboratory, six hours. Three semester credits. Prerequisite: General Zoölogy (Zoöl. 105), or its equivalent. Dr. Johnson.

The skeletal, muscular, nervous, digestive, respiratory, circulatory, and urogenital systems and the sensory organs of vertebrates are considered in a comparative way.

Laboratory.—The student dissects a fish, an amphibian, a reptile, and a mammal in the laboratory. Laboratory charge, \$3.

FOR GRADUATES

301. **RESEARCH IN ZOÖLOGY.** Elective, both semesters and during the summer. One to five semester credits. Prerequisite: General Zoölogy (Zoöl. 105). Dr. Nabours, Dr. Ackert, Dr. Harman, Dr. Johnson, Dr. Jewell, and Miss Zimmerman.

Individual research problems are assigned in the fields of heredity and experimental evolution, parasitology, cytology, embryology, and ecology.

Special Courses for Teachers

At the present time teaching of vocational subjects in the public schools is undergoing great development. Many schools are introducing manual training, agriculture, food and nutrition, and clothing and textiles, and many others are extending the work hitherto given. The state law requiring the teaching of agriculture in the rural schools is also creating a strong movement in the same direction. There is an active demand for teachers who can handle such work successfully.

The College offers to graduates of other institutions, and indeed to all who have studied such subjects as may be prerequisite, unexcelled facilities for securing training in the industrial subjects indicated. Courses extending over one or two years may be arranged by means of which the student who is already prepared in English, mathematics, and to a certain extent in the sciences, may prepare himself to enter a broader and, frequently, a more remunerative field.

Nos. 31, 32, 35, 36 and 37 of the groups of electives in the Division of General Science exhibit groupings that illustrate the possibilities in work of this character, and other arrangements may be made. Those taking such courses will be cared for in the regular classes provided for other students, and no limitation is imposed except that the prerequisites for any subject must have been taken previously, here or elsewhere. These prerequisites are stated in this catalogue in connection with the description of each subject. The catalogue also shows the semester in which a subject is regularly given.

The conditions and requirements for the different classes of state certificates are stated in the introductory paragraphs for the **Department of Education**.

The course for persons who wish to prepare for teaching vocational agriculture under the Smith-Hughes law is outlined under the Division of Agriculture, and the course for those wishing to qualify as teachers of vocational home economics, under the same law, is given under the Division of Home Economics.

The Division of Home Economics

MARGARET M. JUSTIN, *Dean*

Modern research in the sciences and present-day development of the industries, arts, and professions have brought a recognition of the value of technical training as a part of the preparation for life's work. An educational plan which combines industrial, technical, and scientific subjects with the older general studies results to the student in the power to express, in everyday activities, the knowledge acquired in the classroom. It increases the capacity for productive work and develops the desire to realize in practical form the theories and principles studied. The aim of a collegiate course in home economics is not merely to increase the student's stock of information, but to stimulate interest in continued study or research, to train in accuracy in detail, to teach discrimination with regard to criteria by which to interpret results of work, and to cultivate an attitude of economic and social responsibility.

The course as outlined below is arranged to meet the needs of the following groups of students: Those who wish to teach, those who wish to enter graduate courses leading to technical or professional work, and those who wish to apply their knowledge to various problems of home life or in fields of industry and social service in which an understanding of home-economics subjects is essential to intelligent action. While emphasis is laid on the material and practical side of life, the training does not stop here. The young women are constantly reminded that life is not drudgery; that technical knowledge and scientific skill even fail to include the full meaning of education in its highest sense. They are taught that any training that fails to develop harmoniously body, mind, and spirit is inadequate and incomplete. They are brought face to face with ideals as well as with actualities, and are made to see that, while skillful labor gives dignity to life, grace, refinement, and self-poise are the highest requisites for true service.

The training given is as varied as it is broad. It includes a knowledge of the laws of health; an understanding of the sanitary requirements of the home; the study of values, both absolute and relative, of the various articles used in the home; the wise expenditure of money, time, and energy; the scientific principles underlying the selection and preparation of food; the right care of children; and the ability to secure efficient service from others. Instruction is methodical and thorough, and is suited to the circumstances of the students. Experience shows that such training teaches contentment, industry, order, and cleanliness, and fosters a woman's independence and feeling of responsibility.

The work in home economics includes:

A four-year curriculum, leading to the degree of Bachelor of Science.

A five-year curriculum leading to the degree of Bachelor of Science and a diploma in nursing.

CURRICULA IN HOME ECONOMICS

The training in the four-year curriculum is both general and specific. Since scientific training is fundamental in the intelligent and successful administration of the home, strong courses in the sciences are given as a foundation for the special training in home economics. To the end that well-rounded culture may be attained, courses in English, history, economics, sociology, and psychology receive due prominence. The time of the student is about equally divided among the purely technical subjects, the fundamental sciences, and studies of general interest. The courses in the related subjects are given in the different departments of the College, while the technical courses are given

by the home economics departments. In the junior and senior years opportunity is given for choice of electives, which makes it possible for students to specialize in some chosen line. To this end electives are to be chosen in groups combined logically in courses approved by the Faculty or by the student's dean.

The four-year curriculum is recommended for all who desire to teach home economics, or to enter any professional field in which home economics may be applied.

The five-year curriculum, offered in affiliation with the Charlotte Swift Hospital of Manhattan, enables the student wishing to take the Bachelor of Science degree and the full professional training in nursing to complete this work in five years. The first two years are spent at the College. The third and fourth years are spent at the Nursing School of the hospital, where both theoretical and practical training in nursing is given. During the fifth year required courses for the Bachelor of Science degree are completed at the College and electives are chosen which will prepare the student for the field of nursing in which she is most interested.

The demand for trained women to fill administrative and teaching positions in schools of nursing and to enter the various branches of public-health nursing is greater than the supply and offers a growing and attractive field of work for the college graduate.

Before entering upon this curriculum the student must report to the superintendent of the Hospital for a physical examination, and she must have her plan of study approved by the dean of the Division of Home Economics.

Further information concerning the work at the hospital may be obtained from the director of the Training School for Nurses of the Charlotte Swift Hospital, Manhattan.

The College does not assume the responsibility of insuring employment to graduates, but the latter rarely experience difficulty in obtaining remunerative positions.

Curriculum in Home Economics

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER

College Rhetoric I	
Engl. 101	3(3-0)
Chemistry I	
Chem. 101	5(3-6)
Applied Design I or Applied Design II	
Ap. Art. 101 or 106.....	3(1-6)
Foods I*	
Food and Nut. 101.....	3(1-6)or
Hygiene and Home Nursing	
Hshld. Econ. 103	3(2-3)
Library Methods	
Lib. Ec. 101.....	1(1-0)
Current History	
Hist. 126	1(1-0)
Physical Education W-I	
Phys. Ed. 151A	1(0-3)

SECOND SEMESTER

College Rhetoric II	
Engl. 104	3(3-0)
Chemistry II	
Chem. 102.....	5(3-6)
Household Physics	
Physics 101	4(3-3)
Clothing I*	
Clo. and Text. 101.....	2(1-3)or
House Furnishings	
Ap. Art. 108.....	2(1-3)
Costume Design I	
Ap. Art. 130	2(0-6)
Physical Education W-II	
Phys. Ed. 152A	1(0-3)

* Students should not select Clothing I and Foods I if Domestic Art and Domestic Science have been pursued in high school.

SOPHOMORE

FIRST SEMESTER

Organic Chemistry HE	
Chem. 121.....	5(3-6)
English Literature	
Engl. 172	3(3-0)
General Zoölogy	
Zoöl. 105	5(3-6)
Clothing II	
Clo. and Text. 111.....	3(1-6)
Physical Education W-III	
Phys. Ed. 153.....	1(0-3)

SECOND SEMESTER

Foods II	
Food and Nut. 106.....	5(3-6)
American Literature	
Engl. 175	3(3-0)
Embryology and Physiology	
Zoöl. 201	5(3-6)
Gardening	
Hort. 122	3(3-0)
Physical Education W-IV	
Phys. Ed. 154	1(0-3)

JUNIOR

FIRST SEMESTER

German I†	
Mod. Lang. 101	3(3-0)or
French I†	
Mod. Lang. 151	3(3-0)
Human Nutrition	
Food and Nut. 112.....	3(3-0)
Household Microbiology	
Bact. 121	5(3-6)
Economics	
Econ. 101	3(3-0)
Elective	3(-)

SECOND SEMESTER

German II†	
Mod. Lang. 102	3(3-0)or
French II†	
Mod. Lang. 152	3(3-0)
Household Management	
Hshld. Econ. 107.....	3(2-3)
Textiles	
Clo. and Text. 116.....	3(2-3)
Psychology C	
Educ. 103	3(3-0)
Elective	5(-)

SENIOR

FIRST SEMESTER

German Readings	
Mod. Lang. 111	3(3-0)or
French Readings	
Mod. Lang. 161	3(3-0)
American History I	
Hist. 201	3(3-0)
Dietetics	
Food and Nut. 201.....	5(3-6)
Elective	6(-)

SECOND SEMESTER

American Government	
Hist. 151, 152 or 153.....	3(3-0)
Sanitation and Public Health	
Hshld. Econ. 211	3(3-0)
Elective	11(-)

Curriculum in Home Economics and Nursing

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

FIRST SEMESTER

College Rhetoric I	
Engl. 101	3(3-0)
Chemistry (Vet.)	
Chem. 105	5(3-6)
Library Methods	
Lib. Ec. 101.....	1(1-0)
German I	
Mod. Lang. 101	3(3-0)
Psychology C	
Educ. 103	3(3-0)
Physical Education W-I	
Phys. Ed. 151A	1(0-3)

SECOND SEMESTER

College Rhetoric II	
Engl. 104	3(3-0)
Organic Chemistry (Vet.)	
Chem. 106	5(3-6)
General Zoölogy	
Zoöl. 105	5(3-6)
German II	
Mod. Lang. 102	3(3-0)
Physical Education W-II	
Phys. Ed. 152A	1(0-3)

† Students in the Division of Home Economics take a minimum of nine hours of French or German unless they have had previously one or more years high-school work in the language in question. In case French or German has been taken previously in high school only two more advanced courses of that language are required. Students who under these circumstances take less than nine semester credits in modern language are required to take additional elective hours, so that their total requirement is the same as for other students.

SOPHOMORE

FIRST SEMESTER	SECOND SEMESTER
Foods II Food and Nut. 106..... 5(3-6)	Physiological Chemistry Chem. 231 5(3-6)
Embryology and Physiology Zool. 201 5(3-6)	Household Physics Physics 101 4(3-3)
General Microbiology Bact. 101 3(1-6)	Current History Hist. 126 1(1-0)
American History I Hist. 201 3(3-0)	American Government Hist. 151, 152, or 153..... 3(3-0)
Physical Education W-III Phys. Ed. 153 1(0-3)	English Literature Engl. 172 3(3-0)
	Physical Education W-IV Phys. Ed. 154 1(0-3)

JUNIOR

(Replaced by two years at Charlotte Swift Hospital)

Theoretical and practical work during the time includes:

FIRST YEAR	SECOND YEAR
History and Ethics of Nursing	Surgery and Surgical Nursing and
Hospital Economics	Bandaging
Personal Hygiene	Obstetrics and Gynecology
Nursing Methods	Pediatrics
Anatomy	Diseases of Eye, Ear, Nose and Throat
Medical Nursing	Nervous and Mental Diseases
Communicable Diseases	Materia Medica
Special Therapeutics and Massage	Problems in Nursing
Human Nutrition Food and Nut. 112..... 3(3-0)	
(To be taken at College)	

SENIOR

FIRST SEMESTER	SECOND SEMESTER
(Specialized work in affiliated hospitals)	Dietetics
	Food and Nut. 201..... 5(3-6)
	American Literature
	Engl. 175 3(3-0)
	Sociology
	Econ. 151 3(3-0)
	Elective 6(-)

Groups of Electives for Students in the Division of Home Economics

The groups given below are selected with a view to training students for the vocations in which home economics may be directly applied.

A sufficient number of hours may be chosen from any group to fill the elective requirement, or a smaller number of hours may be taken from a group and, for the remaining elective hours, advanced courses of related subject matter may be chosen.

Music may be added to any group.

Advertising, Buying and Salesmanship

FIRST SEMESTER	SECOND SEMESTER
Applied Design II Ap. Art. 106..... 3(1-6)	Principles of Advertising Ind. Jour. 179 3(3-0)
Clothing Salesmanship Clo. and Text. 130..... 2(2-0)	Written and Oral Salesmanship Engl. 123 3(3-0)
Commercial Correspondence Engl. 122 3(3-0)	Applied Psychology Educ. 215A 3(3-0)
Oral English Engl. 128 3(3-0)	Accounting Practice I Math. 140A 3(2-3)
Industrial Feature Writing I Ind. Jour. 167 2(2-0)	Business Management Econ. 126 2(2-0)
Technical Writing Engl. 207 2(2-0)	

Certificate Requirements for Vocational Home Economics Teaching

FIRST SEMESTER		SECOND SEMESTER	
Educational Administration A or B		Educational Psychology	
Educ. 105 or 106	3(3-0)	Educ. 109	3(3-0)
Special Methods in Teaching of		Supervised Teaching in Home	
Home Economics		Economics	
Educ. 132	3(3-0)	Educ. 160	3(-)
Child Welfare		Practice Course in Household	
Hshld. Econ. 203.....	3(3-0)	Management	
Vocational Education A		Hshld. Econ. 116	3(-)
Educ. 125	3(3-0)	Electives	5(-)

Clothing and Textile Work

FIRST SEMESTER		SECOND SEMESTER	
Problems in Household Economics		Principles of Art and their	
Hshld. Econ. 243.....	2(2-0)	Application	
Clothing Salesmanship		Ap. Art. 124.....	3(3-0)
Clo. and Text. 130.....	2(2-0)	Labor Problems	
Hygiene of Clothing		Econ. 233	2(2-0)
Clo. and Text. 251.....	2 to 3	Clothing Economics	
American Industrial History		Clo. and Text. 237.....	2(2-0)
Hist. 105	3(3-0)	Social Problems	
		Econ. 257	2(2-0)

Designing and Decorating

FIRST SEMESTER		SECOND SEMESTER	
Object Drawing I		Object Drawing II	
Arch. 111	2(0-6)	Arch. 114	2(0-6)
Engineering Woodwork I		Engineering Woodwork II	
Shop 101	1(0-3)	Shop 103	1(0-3)
Photography		Principles of Art and their Ap-	
Physics 120	2(1-3)	plication	
Landscape Gardening I		Ap. Art 124	3(3-0)
Hort. 126	2(2-0)	Landscape Gardening II	
Principles of Typography I		Hort. 238	3(0-9)
Ind. Jour. 101	3(2-3)	Principles of Typography II	
		Ind. Jour. 104	3(2-3)
		Interior Decoration and	
		Furnishing	
		Ap. Art 114	3(1-6)

Food and Nutrition

(Research; Nutrition Specialist; Hospital Dietetics; Public Health Work;
Specialized Teaching)

FIRST SEMESTER		SECOND SEMESTER	
Physical Chemistry		Physiological Chemistry	
Chem. 206	5(3-6)	Chem. 231	5(3-6)
Microchemical Methods of Analysis		Biochemical Preparations	
Chem. 245	1(0-3)	Chem. 234	5(0-15)
Human Physiology		Quantitative Analysis	
Zoöl. 235	4(3-3)	Chem. 241	5(1-12)
Hygienic Bacteriology		Food Analysis	
Bact. 206	4(2-6)	Chem. 257	3(0-9)
Problems in Food Economics and		Histology I	
Nutrition I		Path. 101	3(1-6)
Food and Nut. 248.....	2 to 5	Food Economics and Nutrition	
Food Economics and Nutrition		Seminar II	
Seminar I		Food and Nut. 252.....	2(2-0)
Food and Nut. 251.....	2(2-0)	Methods of Investigation in Foods	
Field Work in Nutrition		and Nutrition	
Food and Nut. 215.....	2 to 3	Food and Nut. 265	2(1-3)
Bacteriological Problems		Parasites and Public Health	
Bact. 226	1 to 4	Zoöl. 218	3(3-0)

Home-making

FIRST SEMESTER	SECOND SEMESTER
Child Welfare Hshld. Econ. 203 3(3-0)	Interior Decoration and Furnishing Ap. Art 114 3(1-6)
Home Nursing Hshld. Econ. 109..... 1(0-3)	Principles of Art and their Ap- plication Ap. Art 124 3(3-0)
The Modern Family Hshld. Econ. 231 2(2-0)	Problems in Household Economics Hshld. Econ. 243..... 1 to 5
Sociology Econ. 151 3(3-0)	Rural Sociology Econ. 156 3(3-0)
Community Organization Econ. 267 3(3-0)	Clothing III Clo. and Text. 126..... 3(1-6)
Problems in Foods I Food and Nut. 243..... 1 to 3	Meats HE An. Husb. 176..... 1(0-3)

Home-making

(Special Rural Problems)

FIRST SEMESTER	SECOND SEMESTER
Poultry Bacteriology Bact. 216 3(1-6)	Small Fruits Hort. 110 2(2-0)
Rural Sociology Econ. 156 3(3-0)	Market Gardening Hort. 210 3(2-3)
Home Nursing Hshld. Econ. 109 1(0-3)	Dairy Bacteriology Bact. 211 3(1-6)
Community Organization Econ. 267 3(3-0)	Apiculture Ent. 111 3(2-3)
Meats HE An. Husb. 176..... 1(0-3)	Farm Sanitation and Water Supply Ag. Engr. 119..... 2(2-0)

Institutional Management

FIRST SEMESTER	SECOND SEMESTER
Institutional Management I Hshld. Econ. 221..... 3(1-6)	Institutional Management II Hshld. Econ. 227 3(3-0)
Commercial Correspondence Engl. 122 3(3-0)	Problems in Institutional Administration Hshld. Econ. 247..... 1 to 5
Oral English Engl. 128 3(3-0)	Institutional Marketing Hshld. Econ. 260 2(2-0)
Business Management Econ. 126 2(2-0)	Institutional Furnishings Ap. Art 116 3(1-6)
Technical Writing Engl. 207 2(2-0)	Institutional Accounting Math. 131 3(3-0)
Meats HE An. Husb. 176..... 1(0-3)	Written and Oral Salesmanship Engl. 123 3(3-0)
	Applied Psychology Educ. 215A 3(3-0)
	Labor Problems Econ. 233 2(2-0)

Lecturing and Demonstrating

FIRST SEMESTER	SECOND SEMESTER
Oral English Engl. 128 3(3-0)	Dramatic Reading Pub. Spk. 102..... 2(2-0)
Oral Interpretation Pub. Spk. 101..... 2(2-0)	Extempore Speech II Pub. Spk. 108..... 2(2-0)
Extempore Speech I Pub. Spk. 106..... 2(2-0)	Applied Psychology Educ. 215A 3(3-0)
Sociology Econ. 151 3(3-0)	Rural Sociology Econ. 156 3(3-0)
Technical Writing Engl. 207 2(2-0)	Community Organization Econ. 267 3(3-0)
Practice in Food Demonstrations Food and Nut. 117..... 1(0-3)	Industrial Writing Ind. Jour. 161 2(2-0)
Meats HE An. Husb. 176..... 1(0-3)	Methods for Extension Workers in Foods Food and Nut. 260 2(1-3)

Sanitary Science; Food and Market Inspection

FIRST SEMESTER		SECOND SEMESTER	
Hygienic Bacteriology		Dairy Chemistry	
Bact. 206	4(2-6)	Chem. 254	3(1-6)
Quantitative Analysis A		Food Analysis	
Chem. 250	3(1-6)	Chem. 257	3(0-9)
		Pathogenic Bacteriology I	
		Bact. 111	4(2-6)
		Meat Inspection	
		Path. 216	2(2-0)

Social Welfare Work

FIRST SEMESTER		SECOND SEMESTER	
Child Welfare		Labor Problems	
Hshld. Econ. 203.....	3(3-0)	Econ. 233	2(2-0)
Home Nursing		Rural Sociology	
Hshld. Econ. 109.....	1(0-3)	Econ. 156	3(3-0)
The Modern Family		Social Problems	
Hshld. Econ. 231.....	2(2-0)	Econ. 257	2(2-0)
Problems in Household Economics		Community Organization	
Hshld. Econ. 243.....	1 to 5	Econ. 267	3(3-0)
Sociology		Modern Europe	
Econ. 151	3(3-0)	Hist. 223	3(3-0)
Latin America		Immigration and International Relations	
Hist. 207	2(2-0)	Hist. 228	2(2-0)
Community Organization		Problems in Child Welfare	
Econ. 267	3(3-0)	Hshld. Econ. 253.....	1 to 5
Field Work in Nutrition			
Food and Nut. 215.....	2 to 3		

State Certificate Requirements for General Teaching

FIRST SEMESTER		SECOND SEMESTER	
Educational Administration A or B		Educational Psychology	
Educ. 105 or 106.....	3(3-0)	Educ. 109	3(3-0)
Additional Educational Courses.....		9(9-0)	

(NOTE.—Special Methods in the Teaching of Home Economics (3 hrs.) and Supervised Observation and Teaching in Home Economics (3 hrs.) are recommended for students who wish to teach home economics. Modern Europe or advanced English should be added by those expecting to teach these subjects. Additional courses may be chosen in the line of the student's interests.)

Applied Art

Professor HOLMAN
Instructor EVERHARDY*
Instructor ARNOLD

Instructor HARRIS
Instructor MORRIS

Taste is cultivated through the impressions received in everyday surroundings and not through the occasional visits to art galleries. We are not so sensitive to discords in color and line as we are to discords in sound, because we have not trained our eyes as we have our ears. "The study of design furnishes a means of exercising and thus developing good taste in connection with the things which make up environment of everyday life and of awakening appreciation in nature and in art." Home decoration is a study of the factors which produce beautiful surroundings that make for enjoyment and peace. Each course consists of lectures, studio laboratory work, field observation work, and reading.

This department owns equipment valued at \$6,906.

* Absent on leave, 1925-'26.

COURSES IN APPLIED ART

FOR UNDERGRADUATES

101. **APPLIED DESIGN I.** Freshman year, first semester. Class work, one hour; studio, six hours. Three semester credits. Miss Holman, Miss Everhardy, and Miss Arnold.

A study is made of the principles which control the use of color and the selection and arrangement of elements in the production of objects themselves and in their uses as parts of a whole. Many exercises are given in which clothing and home furnishings are scored as to design. A natural motif is adapted to material, function and form. Text: Batchelder's *Design in Theory and Practice*. Laboratory charge, 50 cents; key deposit, 25 cents.

106. **APPLIED DESIGN II.** Sophomore year, first semester. Class work, one hour; studio, six hours. Three semester credits. Prerequisite: Applied Design I. Miss Holman and Miss Everhardy.

A further study is made of harmonies, adaptation of natural motifs, and design as applied to fabrics and other materials. Art masterpieces and articles of common use are studied according to the principles of design and color. Text: Crane, *The Basis of Design*. Laboratory charge, 50 cents; key deposit, 25 cents.

108. **HOUSE FURNISHINGS.** Freshman year, second semester. Class work, one hour; studio, three hours. Two semester credits. Prerequisite: Applied Design I. Miss Holman and Miss Harris.

Design is the selection and arrangement of materials for the making of useful and beautiful things. The decorative phase of design is studied in the solving of problems which occur in the furnishings of the house. Key deposit, 25 cents.

114. **INTERIOR DECORATION AND FURNISHING.** Elective, second semester. Class work, one hour; studio, six hours. Three semester credits. Prerequisite: Applied Design II. Miss Holman and Miss Harris.

This is a study of color, form and arrangement of home furnishings. Wall coverings, carpets, pictures, furniture, etc., are discussed and studied so that the student may recognize and appreciate what is appropriate and beautiful. A study is made of fine arts, of handicrafts, and of the history of furnishings. Problems in spacing and coloring of side walls are discussed and are developed in water color and decorating materials. Laboratory charge, 50 cents; key deposit, 25 cents.

116. **INSTITUTIONAL FURNISHINGS.** Elective, second semester. Class work, one hour; studio, six hours. Three semester credits. Prerequisite: Applied Design II. Miss Morris.

A study is made of the fundamental principles of design, including color, form, and arrangement. These principles are applied to problems involving the selection and use of the following: Wall, floors, furniture, finishes, coverings, linen, china, and silver. Key deposit, 25 cents.

120. **SKETCHING.** Elective, second semester. Studio, six hours. Two semester credits. Prerequisite: Applied Design I. Miss Holman and Miss Harris.

Objects are sketched singly and in groups in the studio and out of doors. The media employed are pencil, charcoal, and brush. The aim is to train the student to see forms in perspective and to represent them with sufficient accuracy to apply in illustrating the more practical problems in the other courses in the department.

124. **PRINCIPLES OF ART AND THEIR APPLICATION.** Elective, second semester. Class work, three hours. Three semester credits. Prerequisite: Applied Design I. Miss Holman and Miss Arnold.

A general survey is made of art periods as an index to what the art quality is. An examination is made of the religious, political, and social aspects of

art expression. Architecture, furniture, textiles, sculpture, pictures, and the lesser art objects are compared as to their art quality. The modern fields of landscape, architecture, furnishings, clothing, advertising, etc., are surveyed. The principles controlling art expression are applied to these modern fields of life. Texts: Neuhaus, *The Appreciation of Art*; and Mullen, *The Approach to Art*.

130. COSTUME DESIGN I. Freshman year, both semesters. Laboratory, six hours. Two semester credits. Prerequisite: Applied Design I. Miss Arnold and Miss Morris.

This course embraces a study of color, line, form, and texture in modern dress. Individual requirements are considered. Historic costume is surveyed briefly by means of lectures and problems. This course is a design basis for garment selection and construction. Laboratory charge, 50 cents; key deposit, 25 cents.

134. COSTUME DESIGN II. Elective, both semesters. Laboratory, six hours. Two semester credits. Prerequisite: Costume Design I. Miss Arnold and Miss Morris.

As a continuation of Costume Design I this course reviews line, form, and proportion in modern costume and in the human figure as the structure upon which costume is built. Special problems in dress design are taken up. The **Hambidge Theory of Dynamic Symmetry** is used. Throughout the course stress is placed on color in modern and historic costume for the stage. Laboratory charge, 50 cents; key deposit, 25 cents.

FOR GRADUATES AND UNDERGRADUATES

201. PROBLEMS IN APPLIED DESIGN. Elective, summer school. Class work, one hour; studio work, six hours. Three semester credits. Prerequisites: Applied Design I and II, and Costume Design I and II, or equivalents. Miss Everhardy.

Special phases of decorative design are considered with reference to the previous training and the need of the student. The problems are developed through study of museum pieces.

206. SPECIAL METHODS IN TEACHING ART. Elective, summer school. Class work, one hour; studio work, six hours. Three semester credits. Prerequisite: Senior or graduate standing. Miss Holman.

This course is intended for the high school teacher who is correlating art with home economics subjects, and particularly for the teacher of art subjects connected with vocational training. Training is given through lectures and class discussions of methods, consideration of suitable laboratory equipment, the use of illustrative material, and the preparation of courses of study. Text: Bailey, *Art Education*.

211. PROBLEMS IN ADAPTATION OF PERIOD COSTUMES. Elective, first semester. Laboratory, six hours. Two semester credits. Prerequisite: Nine semester hours in Applied Design or related art. Consult instructor.

The course includes problems to develop taste in selection and use of historical material for modern dress, plays and pageants, and costumes adapted to age, personality, class, occasion, occupation, and various conditions of life. The required reports include notes, tracings, sketches, prints, and photographs.

Clothing and Textiles

Professor BAKER
Associate Professor COWLES
Assistant Professor DE ROSE

Assistant Professor POLSON
Instructor FECHT
Graduate Assistant HESS

Clothing is an important factor in both the physiological and psychological well-being of the individual and of the family. The wise selection of the clothing requires a high degree of skill in the application of hygienic, economic, and æsthetic principles. The preservation and care of clothing are based upon a practical knowledge of chemistry, entomology, and bacteriology. In the construction of garments, art, applied art, and technic are presented in their proper relations in order to train students in fundamental principles and enable them to utilize these principles in their everyday practices. In this department advanced courses are offered for students who wish electives which lead to vocational, professional, and business positions.

The equipment belonging to this department is valued at \$7,087.

COURSES IN CLOTHING AND TEXTILES

FOR UNDERGRADUATES

101. CLOTHING I. Freshman year, second semester. Class work, one hour; laboratory, three hours. Two semester credits. Miss Cowles, Mrs. De Rose, Miss Fecht, and Miss Polson.

The aim of this course is to train for efficient technic in handling sewing equipment and materials. Adaptation and use of commercial patterns, kinds, qualities, and quantities of materials are discussed. Some attention is paid to the elementary facts which underlie the successful selection of textile fabrics.

Laboratory.—The planning and construction of garments from wash materials for various purposes are taken up in the laboratory. Laboratory charge, \$1; key deposit, 25 cents.

111. CLOTHING II. Sophomore year, both semesters. Class work, one hour; laboratory, six hours. Three semester credits. Prerequisites: Clothing I and Costume Design I. Miss Cowles, Mrs. De Rose, and Miss Polson.

The class work consists of consideration of bases for the selection of clothing; clothing as a financial investment; comparison of home- and factory-made garments; clothing budgets in their relation to the rest of the income; clothing industries and clothing standards in their relations to the economic, social, and æsthetic life of the community. Emphasis is laid on principles of hygiene and sanitation as applied to clothing.

Laboratory.—The laboratory work consists of the planning of clothing budgets of individuals and of family groups as illustrated by the statistical family. Simple millinery problems are undertaken. Garments for children, men, and women are planned and constructed. Rapidity of construction and labor-saving methods are emphasized. Laboratory charge, \$1; key deposit, 25 cents.

116. TEXTILES. Junior year, both semesters. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: Organic Chemistry (Chem. 121), Clothing II, and Costume Design I. Miss Fecht.

This course considers the social and economic development of the textile industry, from the "industrial revolution" to the present time. The combination of art, science and mechanics that makes possible the elaborateness of modern textiles is given due attention. The principal aim of the course is the development of a clear and sound judgment in the selection of textile fabrics for household and personal use.

Laboratory.—Chemical, physical, microscopic tests on textile fibers, yarns, and fabrics form a large part of the laboratory work. These include the

simple tests that may be performed in any home, as well as technical, scientific tests requiring elaborate equipment. Laboratory charge, \$2.

126. **CLOTHING III.** Elective, both semesters. Class work, one hour; laboratory, six hours. Three semester credits. Prerequisites: Clothing I, or its equivalent, Clothing II, Textiles, and Costume Design I. Open to seniors and others upon consultation with the instructor. Miss Polson.

The course deals with the æsthetic and modish adaptation of materials to the individual, and aims to teach self-expression through dress. Several original designs in dressmaking and millinery are carried out in materials approved by the instructor. Students are allowed much freedom in the selection and execution of the problems. Laboratory charge, \$1.50; key deposit, 25 cents.

130. **CLOTHING SALESMANSHIP.** Elective, second semester. Offered in 1924-'25 and alternate years thereafter. Class work, two hours. Two semester credits. Prerequisites: Costume Design I and II, Clothing I, II and III, and Textiles. Miss Baker. Open to students upon consultation with the instructor.

This course provides an introduction to the problems which present themselves to those preparing for positions as executives in department stores, service managers in factories, or teachers of salesmanship in high schools. Study of department-store policies and systems, the psychology of selling, the responsibility of the sales person to the customer. Conferences and reports are required. Actual practice in department stores is very desirable for all students, for whom credit may be arranged if planned before registration.

140. **PROBLEMS IN ELEMENTARY CLOTHING TECHNIC.** Elective, both semesters. Class work, one hour; laboratory, by appointment. From one to three semester credits. Prerequisites: Clothing II and III, Costume Design I, and Textiles. Miss Baker.

Students are assigned problems in relation to the methods and qualities of technic of clothing construction and means of testing and grading progress in accomplishment. Required of all students planning to teach home economics. Laboratory charge, \$1; key deposit, 25 cents.

FOR GRADUATES AND UNDERGRADUATES

237. **CLOTHING ECONOMICS.** Elective, second semester. Class work, two hours. Two semester credits. Prerequisites: Economics (Econ. 101), Textiles, Clothing I, II and III, Sociology, Psychology, and American History III. Miss Baker.

This course includes a study of the organization of the clothing trades and industries; of wholesale and retail clothing markets; of wages and standards of efficiency in workmanship; conditions of work in the textile and clothing industries; standardization of fabrics; and legislation concerning textiles. Topics are assigned for reading and investigation and written reports are required.

246. **ADVANCED TEXTILES.** Elective, first semester. Class work, one hour; laboratory, six hours. Three semester credits. Prerequisites: Textiles, American History III, Clothing I, II and III, and Costume Design I. Miss Baker and Mrs. Hess.

Special work in the analysis of fabrics scientifically and commercially, is required. Students are assigned problems in addition to more detailed work in textiles and dyeing. Laboratory charge, \$3.

251. **HYGIENE OF CLOTHING.** Elective, first semester. From two to three semester credits. Prerequisites: Textiles, Embryology or Human Physiology, Microbiology, Psychology, Clothing I, II and III, and Costume Design I. Miss Baker.

Students are assigned special problems for investigation of Clothing in relation to health and its effect upon anatomical form, muscular development, and physiological functions.

256. PROBLEMS IN CLOTHING AND TEXTILES. Elective, both semesters. One to two semester credits. Prerequisites: Costume Design I and II, Clothing I, II and III, Textiles, Clothing Economics, and Hygiene of Clothing. Miss Baker and Miss Polson.

This course consists of an assigned problem in some phase of clothing or textiles, fabric analysis, physical experiment, costume study, or chemical analysis of fabric. Laboratory charge, \$2 and up, depending on the nature of the work.

260. LABOR IN THE CLOTHING AND TEXTILE INDUSTRIES. Elective, second semester. One semester credit. Prerequisites: Clothing II, Economics, and Textiles. Miss Cowles.

In this course, a study is made of old and modern methods of textile production and the problems arising from the conditions of labor, especially as they affect the mental, moral, and physical health of the worker, together with a discussion of methods used in bettering these conditions.

265. HISTORY OF COSTUME. Elective, first semester. Class work, one hour. One semester credit. Prerequisites: Costume Design I and II, and Textiles, or approval of instructor. Miss Polson.

Ancient and modern costumes with their various phases of development are studied. Special emphasis is placed on comparison of classes and the relative cost of living in the various ages.

270. CLOTHING IV. Elective, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: Costume Design II, Clothing I, II and III, Textiles, Psychology (Educ. 103), and Sociology (Econ. 151). Mrs. De Rose.

Sociological, historical, and philosophical aspects of costume are studied. Consideration is given to the relation of dress to civilization, architecture, religion, occupation, amusement, and the like. A special problem constitutes one phase of this course. Laboratory charge, \$2; key deposit, 25 cents.

275. ADVANCED CLOTHING ECONOMICS. Elective, second semester. From two to three semester credits. Prerequisites: Same as for Clothing Economics (course 237). Miss Baker.

Students are assigned special problems for investigation in the selection and care of textiles used in the home, in public or private institutions, or in the administration of clothing budgets for individual or family groups.

FOR GRADUATES

301. RESEARCH IN CLOTHING AND TEXTILES. Elective, both semesters. Two to ten semester credits. Prerequisites: Consult instructors. Miss Baker and Miss Cowles.

A research problem in the hygienic or economic aspects of clothing or an investigation of textiles may be chosen as the basis of a thesis for the master's degree. The nature of the problem will depend upon the problem courses which have been elected. Laboratory charge, \$5 and up, according to the nature of the work.

Food Economics and Nutrition

Professor **PITTMAN**
 Professor **KRAMER**
 Associate Professor **RUEY**
 Assistant Professor **DUNTON**

Instructor **BENNETT**
 Instructor **AHLBORN**
 Assistant **TUCKER**
 Graduate Assistant **DEY**

Food is one of the determining factors in the health of the individual and of the family. The selection of wholesome and economical food requires the constant application of chemistry and of sanitary science. The preparation and preservation of food involve processes dependent upon physics, chemistry, and bacteriology. In the modern science of nutrition and dietetics, the student learns the chemical and physiological principles involved in the nutritive processes of the body and the quantitative application of these principles in planning food for the individual and the group. Science, applied science, and practice are presented in their proper relations in order to train the student in fundamental principles and to enable her to gain by experience methods of translating these principles into her everyday household practices. Advanced courses in this department provide training for teachers of foods, dietitians, demonstrators, extension workers, and similar professions.

The equipment belonging to this department is valued at \$17,154.

COURSES IN FOOD ECONOMICS AND NUTRITION

FOR UNDERGRADUATES

101. **FOODS I.** Freshman year, both semesters. Class work, one hour; laboratory, six hours. Three semester credits. Prerequisite: entrance Physics; parallel, Chemistry I (Chem. 101). Miss Bennett, Miss Ahlborn, Miss Tucker, and Miss Dey.

The class work includes a brief survey of the history and development of fire, cookery, and cooking utensils, as well as a consideration of the principles involved in the different methods of cooking and in the preservation of foods.

Laboratory.—Practical cookery, illustrating the various methods of preparing foods, forms the basis of the laboratory work, which also includes the study of stoves, fuels, food preservation, and simple meal planning. Laboratory charge, \$4; key deposit, 25 cents.

106. **FOODS II.** Sophomore year, both semesters. Class work, three hours; laboratory, six hours. Five semester credits. Prerequisites: Organic Chemistry (Chem. 121), Foods I or a knowledge of cookery and the ability to use the laboratory equipment intelligently. Miss Pittman, Miss Bennett, Miss Ahlborn, and Miss Tucker.

This course, emphasizes the classification, composition, occurrence, and general properties of foodstuffs. Food values in relation to cost are considered, together with the legal and sanitary aspects of food products handled in commerce.

Laboratory.—Food products are handled in experiments which demonstrate the presence of the proximate principles and the various inorganic constituents, the changes they undergo in cooking, and their nutritive values as affected by admixture with other food materials. Recipes are compiled. Practice is given in judging food preparations. Cooking problems are attacked largely from the experimental angle. Laboratory charge, \$4.25; key deposit, 25 cents.

112. **HUMAN NUTRITION.** Junior year, both semesters. Lectures and recitations, three hours. Three semester credits. Prerequisites: Organic Chemistry (Chem. 121), Embryology and Physiology (Zoöl. 201), and Foods II.† Dr. Kramer.

This course comprises a study of the special characteristics and nutritive functions of the food constituents; the methods of investigation which have

† Students from other divisions desiring to elect Human Nutrition may substitute an equivalent number of hours in other sciences for Embryology and Physiology, and Foods II.

established the quantitative basis in dietetics; the digestive and metabolic processes and products with emphasis upon energy relations; the quantitative relations of the ash constituents; nitrogen and mineral balances; comparative economy in nutrition and growth of different types of food materials.

117. PRACTICE IN FOOD DEMONSTRATIONS. Elective, second semester. Laboratory, three hours. One semester credit. Prerequisite: Foods II. Miss Pittman, with the assistance of other members of the departmental faculty.

This course is designed to meet the needs of those who plan to enter extension work, to become commercial demonstrators of food products, or to teach food study. Instruction is given in the technic of food demonstrations, and each student is allowed opportunity for practice in various types of demonstrations. Laboratory charge, \$3; key deposit, 25 cents.

120. PROBLEMS IN ELEMENTARY FOODS TECHNIC. Elective, second semester. Laboratory work, three hours. One semester credit. Prerequisite: Senior standing. Miss Ahlborn.

All senior students who plan to teach foods are expected to elect this course. Various problems in elementary foods technique are presented in order to strengthen the general foods training and secure more effective teaching. Laboratory charge, \$3; key deposit, 25 cents.

FOR GRADUATES AND UNDERGRADUATES

201. DIETETICS. Senior year, both semesters. Class work, three hours; laboratory, six hours. Five semester credits. Prerequisites: Human Nutrition and Foods II. Miss Ruby, Miss Bennett, Miss Ahlborn, and Miss Tucker.

This course deals with the application of the principles of human nutrition to the practical feeding problems of the individual and the group. The following topics receive attention: daily food requirements in health and in disease throughout infancy, childhood, adolescence, adult life, and old age; typical dietaries for each period of life; milk formulæ; the problem of satisfying the diverse requirements in families and other groups.

Laboratory.—Studies of weight, measures, and cost of some of the common food materials; calculations and quantitative preparation of standard portions and combinations of foods; analyses of recipes; computation and scoring of dietaries with special regard to nutritive requirements for varying physiologic, economic, and social conditions; practice in marketing and serving comprise the work in the laboratory. (Graduate students are required to do an assigned problem in place of the practice in marketing and serving included in the laboratory for undergraduates.) Laboratory charge, \$6; key deposit, 25 cents.

205. DIETETICS FOR ABNORMAL CONDITIONS. Elective, second semester. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: Dietetics. Dr. Kramer and Miss Ruby.

Students who expect to qualify as professional dietitians, either in hospital work or elsewhere, should elect this course. In class discussions, a study is made of the varying dietetic requirements in different pathological conditions, such as diabetes, nephritis, gout, gastric ulcer, etc. Laboratory work involves demonstrations of special foods used in such conditions and dietaries are computed and scored. Laboratory charge, \$3; key deposit, 25 cents.

215. FIELD WORK IN NUTRITION. Elective, first semester. From two to three semester credits. Hours to be arranged. Prerequisites: Human Nutrition, and Dietetics. Miss Ruby and Miss Bennett.

This course comprises survey work along nutritional lines and corrective work with malnourished individuals, either separately or in groups. Laboratory charge, \$2.

243. PROBLEMS IN FOODS I. Elective, first semester. From one to three semester credits. Hours to be arranged. Prerequisites: Foods II and Human Nutrition. Miss Pittman and Miss Ahlborn.

Special problems are assigned to students for individual consideration. Laboratory charge, \$2 per credit hour; key deposit, 25 cents.

244. PROBLEMS IN FOODS II. Elective, second semester. From one to three semester credits. Hours to be arranged. Prerequisites: Foods II, and Human Nutrition. Miss Pittman and Miss Ahlborn.

This course may be taken as a continuation of course 243 or may be elected independently. Laboratory charge, \$2 per credit hour; key deposit, 25 cents.

248. PROBLEMS IN FOOD ECONOMICS AND NUTRITION I. Elective, first semester. From two to five semester credits, depending upon the nature of the problem. Conferences, laboratory work, and reports. Open to senior and graduate students. Dr. Kramer and Miss Ruby.

The work in this course may consist of an assigned problem in the nutritive value of foods; a feeding experiment; dietary studies; or practice in the methods commonly used in the simpler experiments in nutrition. Laboratory charge depends upon the problem chosen.

249. PROBLEMS IN FOOD ECONOMICS AND NUTRITION II. Elective, second semester. From two to five semester credits, depending upon the nature of the problem. Conferences, laboratory work, and reports. Open to senior and graduate students. Dr. Kramer and Miss Ruby.

This course may be taken as a continuation of course 248 or may be elected independently. Laboratory charge depends upon problem chosen.

251. FOOD ECONOMICS AND NUTRITION SEMINAR I. Elective, first semester. Class work, two hours. One or two semester credits. Prerequisite: Human Nutrition. Dr. Kramer.

This is a course of assigned reading and discussion of topics in the fields of food economics and nutrition. Special attention is given to recent literature, which bears upon problems in dietetics, in both normal and pathological conditions; upon growth and upon normal and subnormal nutrition in infancy and childhood. Feeding experiments are compared and discussed. A reading knowledge of modern languages, while not a fixed requirement, is urged as of especial advantage in this course.

252. FOOD ECONOMICS AND NUTRITION SEMINAR II. Elective, second semester. Class work, two hours. One or two semester credits. Prerequisite: Human Nutrition. Dr. Kramer.

This course may be taken as a continuation of course 251 or may be elected independently.

260. METHODS FOR EXTENSION WORKERS IN FOODS. Elective, second semester. Two semester credits. Hours to be arranged. Prerequisite: Dietetics. Miss Pittman.

This course deals with the origin and development of the extension field in home economics, but emphasizes particularly the food problems of the extension worker and suggests methods for handling them. Federal, state and county organizations are considered. Some field work is required.

265. METHODS OF INVESTIGATION IN FOODS AND NUTRITION. Elective, both semesters. Class work, one hour; laboratory, three hours. Two semester credits. Hours by appointment. Prerequisite: Dietetics. Dr. Kramer.

Class work includes a survey of current methods in use in investigation of foods and of problems in nutrition. Laboratory work offers opportunity for students to become acquainted with laboratory procedures in simple food analyses, digestion and metabolism experiments, and animal feeding technic. Laboratory charge, \$3; key deposit, 25 cents.

FOR GRADUATES

305. RESEARCH IN FOOD ECONOMICS AND NUTRITION. Elective, both semesters. Credit as arranged. Prerequisites: Consult instructors. Miss Pittman and Dr. Kramer.

Individual research problems are assigned, which may form the basis for the thesis submitted for a master's degree. Laboratory charge, \$5 and up, depending upon the problem chosen.

Household Economics

Professor LEAZENBY ENGLUND*
Assistant Professor BISHOP*
Assistant Professor BATES
Instructor DOBBS

Instructor STEWART
Graduate Assistant ADDY
Graduate Assistant CROSS

The successful administration of the home, whether it be for the family or for the larger institutional group, depends upon the wise expenditure of time, money, and effort, the maintenance of healthful and comfortable home conditions, and an appreciation of the importance of the family and the home and their relation to the rest of society. Through the courses in this department, therefore, training is given in household administration, in standards of living and the use of the family income, in institutional administration, in home nursing and sanitation, and in family and child welfare.

Students who wish to prepare themselves as social workers, directors of residence, cafeteria or lunch-room managers, hospital managers or dietitians, or teachers or demonstrators in home economics, will find suitable electives among the courses offered by this department.

The department owns equipment valued at \$19,047.

COURSES IN HOUSEHOLD ECONOMICS

FOR UNDERGRADUATES

103. **HYGIENE AND HOME NURSING.**‡ Freshman year, both semesters. Class work, two hours; laboratory, three hours. Three semester credits. Miss Dobbs.

Emphasis is placed upon personal hygiene as a means of maintaining and improving health in the home, and the best methods of caring for the sick in the home are discussed.

Laboratory.—The laboratory work consists of demonstrations and laboratory practice by the student in the home care of the sick, including such problems as bed-making, simple devices for the comfort of patient, bathing, etc., as well as a study of the treatment of emergencies. Laboratory charge, \$1.

107. **HOUSEHOLD MANAGEMENT.** Junior year, both semesters. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: Household Physics (Physics 101), Foods II (Food and Nut. 106), and Clothing II (Clo. and Text. III). Miss Bishop and Miss Cross.

The class work includes a study of the organization and simplification of housework through efficiency in house planning and construction, and in methods of housekeeping; standards of living and family expenditures, budgets, and accounts; problems of household service; experiments of coöperative laundering, kitchens, etc.; the amount of time necessary for housework; and the use of leisure time.

Laboratory.—Comparative studies are made of mechanical household appliances, convenient placing and grouping of equipment; durability and economy tests of cooking utensils, floor and wall finishes, and cleaning agents; and the gathering of data on time studies of various household tasks. Laboratory charge, \$1.

109. **HOME NURSING.** Elective, both semesters. Laboratory, three hours. One semester credit. Prerequisites: Household Microbiology (Bact. 121) and Embryology and Physiology (Zoöl. 201). Miss Dobbs.

Training is given, through class discussions and demonstrations and through laboratory practice by the student, in the home care of the sick and the treatment of injuries, wounds, and other emergencies. Laboratory charge, 50 cents.

* Resigned May 31, 1926.

‡ This course may be taken in place of Foods I, with the approval of the dean of the division.

114. POSITIVE CHILD HEALTH. Elective, both semesters. Class work, two hours. Two semester credits. For prerequisites, consult instructor. Miss Dobbs.

This course is adapted to principals and teachers, to physical education instructors, and to school nurses. Lectures, assigned readings, discussions, and actual demonstrations with school children make up the course. The following topics are considered: the public health aspects of school hygiene, the object of health development in educational systems, organization and administration of health work in public schools, and the teaching of hygiene by practical demonstration and the project method.

116. PRACTICE COURSE IN HOUSEHOLD MANAGEMENT. Elective, both semesters. Required of students who wish to qualify as home economics teachers under the Smith-Hughes requirement for vocational high schools. Three semester credits. Prerequisites: Household Physics (Physics 101) and Foods II (Food and Nut. 106). Prerequisite or parallel: Household Management. Consult instructor. Miss Bishop.

This course is conducted in the practice house. The students live in a group and perform the usual household tasks, including marketing, planning, cooking and serving meals, caring for the rooms, planning the household budget, and keeping the accounts.

FOR GRADUATES AND UNDERGRADUATES

203. CHILD WELFARE. Elective, both semesters. Required of students who wish to qualify as home economics teachers under the Smith-Hughes requirement for vocational high schools. Class work, three hours. Three semester credits. Prerequisites: Embryology and Physiology (Zoöl. 201), Household Microbiology (Bact. 121), Psychology (Educ. 103), Human Nutrition (Food and Nut. 112), Clothing II (Clo. and Text. 111), and Textiles (Clo. and Text. 116). Mrs. Leazenby Englund.

A study is made of the needs of the child and of the methods of meeting these needs through the care of the child in the home and through community and child-welfare activities. The topics considered include the health problems of mother and child, child mentality and management, play and recreation, child labor, juvenile delinquency, and the special needs of defective and dependent children.

211. SANITATION AND PUBLIC HEALTH. Senior year, both semesters. Class work, three hours. Three semester credits. Prerequisites: Household Physics (Physics 101), Embryology and Physiology (Zoöl. 201), Household Microbiology (Bact. 121). Mrs. Leazenby Englund and Miss Dobbs.

This course deals with the household as a factor in health conservation, emphasis being placed upon the interrelation of home and community health. It includes a study of the influence upon health of the location, ventilation, heating, lighting, and water supply of the house; the sanitary disposal of sewage and other wastes; housing conditions and their control; vital statistics; the prevention and control of communicable and noncommunicable diseases; mental hygiene; public health activities and administration in relation to the home.

215. HEALTH PROBLEMS OF CHILDHOOD. Elective, both semesters. Class work, one hour; field work, three or six hours. Two to three semester credits. Prerequisite: Dietetics. Prerequisite or parallel: Child Welfare. Mrs. Leazenby Englund and Miss Dobbs.

The course consists of lectures and recitations dealing with the basic theories underlying the health problems of childhood; and in the planning of health programs for children. Supervised field work is given the students in which they deal with practical problems and personally conduct health classes and programs.

221. INSTITUTIONAL MANAGEMENT I. Elective, both semesters. Class work, one hour; laboratory, six hours. Three semester credits. Prerequisite: Foods

II (Food and Nut. 106); prerequisite or parallel: Human Nutrition (Food and Nut. 112). Miss Bates and Miss Stewart.

This course deals with food problems of institutions, and includes the study of marketing, preparation of food, arrangement of menus, and cost of service for different types of institutions.

Laboratory.—The laboratory work is carried on in the College cafeteria, where food in large quantities is prepared for serving. Laboratory charge, \$1.

227. INSTITUTIONAL MANAGEMENT II. Elective, both semesters. Class work three hours. Three semester credits. Prerequisite: Institutional Management I. Miss Stewart.

This course includes a study of the various types of institutions; the qualifications and duties of the manager; the planning, equipping, and general care of buildings and rooms; the organization of work; the management of employees; institutional accounting; office management.

231. THE MODERN FAMILY. Elective, both semesters. Class work, two hours. Two semester credits. Prerequisite: senior or graduate standing. Consult instructor. Mrs. Leazenby Englund.

A study is made of the functions of the modern family, based upon a brief survey of the historical background, and of the various problems which confront it, such as marriage rates and marriage laws, birth rates, the influence of the death or illness of parents, of low wages, unemployment and bad housing, the employment of mothers, family neglect, desertion, and divorce. Special emphasis is placed on the conditions met by the social case worker and on social programs for the maintenance and improvement of family welfare.

243. PROBLEMS IN HOUSEHOLD ECONOMICS. Elective, both semesters. One to five semester credits. Prerequisite: Household Management. Consult instructor. Mrs. Leazenby Englund and Miss Bishop.

Special problems are selected for individual investigation in standards of living and family expenditures, housing, household equipment, organization and methods of housework, use of time freed from housework, or social aspects of the household and of the family. Conferences are held and reports are made at hours arranged by appointment.

247. PROBLEMS IN INSTITUTIONAL ADMINISTRATION. Elective, both semesters. One to five semester credits. Prerequisite: Institutional Management I. Prerequisite or parallel: Institutional Management II. Consult instructor. Miss Bates and Miss Stewart.

Special problems in the administration of cafeteria, lunch and tea rooms, dining halls, dormitories, clubs, and other institutions, are selected for individual investigation. Conferences are held and reports are made at hours arranged by appointment.

253. PROBLEMS IN CHILD WELFARE. Elective, both semesters. One to five semester credits. Prerequisite: Child Welfare. Consult instructor. Mrs. Leazenby Englund.

A special problem in some phase of child welfare is selected for individual investigation. Conferences are held and reports are made at hours arranged by appointment.

260. INSTITUTIONAL MARKETING. Elective, both semesters. Class work, two hours. Two semester credits. Prerequisite: Institutional Management I (Hshld. Econ. 221). Miss Stewart.

A study is made of producing areas, markets, and storage. The course also includes a study of both local and general marketing of fresh, canned, and dehydrated vegetables; major and minor meats; and fresh, canned, and dried fruits.

FOR GRADUATES

301. RESEARCH IN HOUSEHOLD ECONOMICS I. Elective, first semester. Two to ten semester credits. Prerequisites: Consult instructors. Professor Leazenby Englund, and Assistant Professor Bates.

An individual research problem is investigated in the field of household administration, institutional administration, child welfare, or family welfare. The work of the course may form part or all of the basis for the master's thesis.

306. RESEARCH IN HOUSEHOLD ECONOMICS II. Elective, second semester. Two to ten semester credits. Prerequisites: Consult instructors. Professor Leazenby Englund, and Assistant Professor Bates.

This course may be taken as a continuation of course 301, or may be elected independently. The work of the course may form part or all of the basis for a master's thesis.

Home Economics in the Summer School

In addition to instruction in various branches of home economics available to teachers during the regular College year, the College offers several courses in this subject in the Summer School. Instruction in these courses is intended to present correctly that which may be introduced successfully into graded schools and high schools. Students will be enrolled upon presentation of a teacher's certificate, or of a certified statement showing that two years' high-school work or its equivalent has been completed.

A special circular giving in detail the courses offered in the Summer School may be had by applying to the vice president of the College. See, also, the article on Summer School in this catalogue.

The Division of Veterinary Medicine

RALPH RALPH DYKSTRA, *Dean*

The College has one of the best-equipped schools of veterinary medicine in the West. It is rated in class "A" by the United States Department of Agriculture, which rating places it among the best in the United States and Canada. In addition to giving the student the best possible technical training in veterinary medicine, the course is designed to give the broad culture necessary for men who are to take their places in public affairs. Professional men, such as veterinarians, are placed in a more or less public relation to the communities they serve. They must have a broad groundwork in cultural and ethical training, which will win them the confidence and respect of their communities. Success is measured in something more than dollars and cents, and the man whose view of life is no broader than his profession adds but little to the world and its happiness. The training given by the College in veterinary science seeks to emphasize the value of the man as a man, as much as his value as a specialist.

The Division of Veterinary Medicine gives most of the technical work in the curriculum in veterinary medicine, a general description of which is given below. The division is housed in the Veterinary buildings, which were erected at a cost of over \$175,000, and are thoroughly equipped throughout. Veterinary Hall contains modern classrooms, and its laboratories possess the necessary appliances for illustrating the several subjects required. The mode of instruction is more specifically detailed in succeeding sections.

The policy adhered to in the instruction in all the departments is that the science of veterinary medicine is the foundation, and the art merely supplementary. A thorough drill is given in the foundation studies, and later in the curriculum practical application of these is made in actual field work. This result is a thoroughly scientific veterinary education.

In the arrangement of the schedule of the veterinary curriculum it is implied that the courses should be followed in regular sequence, as each year's work depends upon the work done the previous year. Certain courses, however, may be selected as electives if a student has the necessary prerequisites. These courses are mentioned in the list of electives.

THE CURRICULUM IN VETERINARY MEDICINE

Veterinary medicine has made remarkable advances within recent years, and is taking its place alongside human medicine as a science. In truth, medical science and veterinary science are but specialized branches of the same science, and must be developed together. The modern veterinarian takes his place in the community as a professional man of education and culture. With the general improvement of the live stock on the farms, and with the advance of live stock in value, there is constant increase in the demand for skilled physicians to care for them.

The veterinarian, while primarily trained to conserve the health of farm animals, has yet larger service to render in preventing disease common to both man and beast from being communicated from domestic animals to man. Moreover, he must see that the animals slaughtered for meat are healthy and that the products are handled under such conditions as to render them suitable for human food. The public is now demanding that milk and other food products be free from contamination and that they be incapable of transmitting dangerous diseases, like tuberculosis, typhoid fever, scarlet fever, and diphtheria. There is ample work for all of the thoroughly competent veterinarians that the colleges of the country will train.

The curriculum in veterinary medicine at the Agricultural College was established to give the young men of this state an opportunity to pursue these studies in an agricultural environment, where the facilities offered by other branches of the College would be at their command. While the instruction in this curriculum is largely technical, enough subjects of a general character are included to give a sound education and a broad outlook. Better to fit the veterinarian to deal wisely with the live-stock problems which he has to meet, he is required to take the work in live-stock feeding, breeding and judging, and in milk inspection, zoölogy, and embryology, in addition to his purely professional work.

The diploma from this school is recognized by the United States Department of Agriculture, by the United States Civil Service Commission, by the American Veterinary Medical Association, and by the various examining boards of the several states and territories of America where it has been presented.

THE CURRICULUM IN ANIMAL HUSBANDRY AND VETERINARY MEDICINE

The combined curriculum in animal husbandry and veterinary medicine has been outlined so that students may receive the degree of Bachelor of Science at the end of four years, and the degree of Doctor of Veterinary Medicine at the end of two years more, thus securing both degrees in six years.

Curriculum in Veterinary Medicine

The Arabic numeral immediately following the name of a subject indicates the number of semester credits, while the numbers within the parentheses indicate the number of clock hours a week of recitation and of laboratory, respectively. One credit a semester is allowed for the courses in clinics.

FRESHMAN

FIRST SEMESTER	SECOND SEMESTER
Anatomy I Anat. and Physiol. 102..... 4(2-6)	Anatomy II Anat. and Physiol. 107..... 9(4-15)
Histology I Pathl. 101 3(1-6)	Histology II Pathl. 106 3(1-6)
Chemistry (Vet.) Chem. 105 5(3-6)	Organic Chemistry (Vet.) Chem. 106 5(3-6)
Zoölogy and Embryology (Vet.) Zoöl. 109 5(3-6)	
Military Science (Vet.) I Mil. Tr. 121 1½(0-4)	Military Science (Vet.) II Mil. Tr. 122 1½(0-4)
Physical Education M-I Phys. Ed. 103 R(0-2)	Physical Education M-II Phys. Ed. 104 R(0-2)

SOPHOMORE

FIRST SEMESTER	SECOND SEMESTER
Anatomy III Anat. and Physiol. 111..... 5(1-12)	Anatomy IV Anat. and Physiol. 116..... 3(1-6)
Comparative Physiology I Anat. and Physiol. 221..... 5(4-3)	Comparative Physiology II Anat. and Physiol. 226..... 3(2-3)
Medical Botany Bot. 126 2(1-3)	Pathogenic Bacteriology I Bact. 111 4(2-6)
College Rhetoric I Engl. 101 3(3-0)	Pathology I Pathl. 202 3(2-3)
Dairy Judging Dairy Husb. 104 1(0-3)	Principles of Feeding An. Husb. 152 3(3-0)
Judging Market Live Stock An. Husb. 132 2(0-6)	Genetics An. Husb. 221 3(3-0)
Military Science (Vet.) III Mil. Tr. 123 1½(0-4)	Military Science (Vet.) IV Mil. Tr. 124..... 1½(0-4)
Physical Education M-III Phys. Ed. 105 R(0-2)	Physical Education M-IV Phys. Ed. 106 R(0-2)

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Surgery I		Surgery II	
Surg. and Med. 101.....	3(3-0)	Surg. and Med. 106.....	3(3-0)
Diagnósis		Diseases of Large Animals I	
Surg. and Med. 170.....	2(2-0)	Surg. and Med. 174.....	4(4-0)
Farm Poultry Production		Therapeutics	
Poult. Husb. 101	2(1-2, 1)	Surg. and Med. 162.....	4(3-3)
Materia Medica		Pathology III	
Surg. and Med. 157.....	4(4-0)	Path. 212	5(4-3)
Pharmacy		Clinics II	
Surg. and Med. 166.....	1(0-3)	Surg. and Med. 140.....	1(0-10)
Pathology II			
Path. 207	3(2-3)		
Pathogenic Bacteriology II			
Bact. 116	4(2-6)		
Clinics I			
Surg. and Med. 137.....	1(0-6)		

SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Surgery III		Surgery IV	
Surg. and Med. 111.....	3(3-0)	Surg. and Med. 116.....	3(3-0)
Diseases of Large Animals II		Infectious Diseases of Large Animals	
Surg. and Med. 177.....	5(5-0)	Surg. and Med. 181.....	5(5-0)
Jurisprudence		Diseases of Small Animals	
Anat. and Physiol. 161.....	1(1-0)	Surg. and Med. 186.....	2(2-0)
Pathology IV		Poultry Diseases	
Path. 214	3(2-3)	Bact. 217	2(2-0)
Meat Inspection		Operative Surgery	
Path. 216	2(2-0)	Surg. and Med. 121.....	1(0-3)
Parasitology		Obstetrics	
Zoöl. 208	3(2-3)	Surg. and Med. 131.....	3(3-0)
Clinics III		Dairy Inspection II	
Surg. and Med. 143.....	1(0-12)	Dairy Husb. 118	1(0-3)
		Clinics IV	
		Surg. and Med. 146.....	1(0-12)

ELECTIVES

FIRST SEMESTER		SECOND SEMESTER	
Applied Anatomy		Special Histology	
Anat. and Physiol. 206.....	1(0-3)	Path. 252	3(1-6)
Vaccine Manufacture I		Vaccine Manufacture II	
Path. 227	2(1-3)	Path. 230	2(1-3)

FIRST OR SECOND SEMESTER

Pathological Technic and Diagnosis I	
Path. 220.....	2(0-6)
Pathological Technic and Diagnosis II	
Path. 221.....	4(0-12)
Research in Pathology	
Path. 302.....	3 to 5(-)
Special Anatomy	
Anat. and Physiol. 201.....	4(1-9)
Problems in Physiology	
Anat. and Physiol. 215.....	3 to 5(-)

Curriculum in Animal Husbandry and Veterinary Medicine¹

The Arabic numeral immediately following the name of a subject indicates the number of semester credits; the first numeral within the parentheses indicates the number of hours a week of recitation; the second shows the number of hours a week to be spent at the laboratory exercise; and the third, where there is such, indicates the number of hours a week required for outside work in connection with the laboratory.

FRESHMAN

Freshman year of the Curriculum in Agriculture

SOPHOMORE

FIRST SEMESTER

General Zoölogy	
Zoöl. 105.....	5(3-6)
Anatomy I	
Ant. and Physiol. 102.....	4(2-6)
Soils	
Agron. 133.....	5(4-3)
Organic Chemistry (Agr.)	
Chem. 120.....	3(2-2)
Infantry I	
Mil. Tr. 103.....	1½(0-4)
Physical Education M-III	
Phys. Ed. 105.....	R(0-2)

SECOND SEMESTER

Pathogenic Bacteriology I	
Bact. 111.....	4(2-6)
Anatomy II	
Anat. and Physiol. 107.....	9(4-15)
Farm Crops	
Agron. 109.....	5(3-6)
Infantry II	
Mil. Tr. 104.....	1½(0-4)
Physical Education M-IV	
Phys. Ed. 106.....	R(0-2)

JUNIOR

FIRST SEMESTER

Embryology	
Zoöl. 219.....	3(2-3)
Anatomy III	
Anat. and Physiol. 111.....	5(1-12)
Histology I	
Path. 101.....	3(1-6)
Genetics	
An. Husb. 221.....	3(3-0)
Electives ²	3

SECOND SEMESTER

Principles of Feeding	
An. Husb. 152.....	3(3-0)
Anatomy IV	
Ant. and Physiol. 116.....	3(1-6)
Histology II	
Path. 106.....	3(1-6)
Agricultural Journalism	
Ind. Jour. 164.....	1(1-0)
Elements of Horticulture	
Hort. 108.....	4(3-3)
Electives ²	2

SENIOR

FIRST SEMESTER

General Entomology	
Ent. 203.....	3(2-3)
Agricultural Economics	
Ag. Ec. 101.....	3(3-0)
Comparative Physiology I	
Anat. and Physiol. 221.....	5(4-3)
Agricultural English ³	
Engl. 137.....	3(3-0)
Electives ²	2

SECOND SEMESTER

Agricultural Relationships ³	
Gen. Agric. 201.....	1(1-0)
Farm Organization	
Ag. Ec. 106.....	3(2-3)
Comparative Physiology II	
Anat. and Physiol. 226.....	3(2-3)
Pathology I	
Path. 202.....	3(2-3)
Electives ²	6

FIFTH YEAR

Junior year of the Curriculum in Veterinary Medicine

SIXTH YEAR

Senior year of the Curriculum in Veterinary Medicine

1. This curriculum is so arranged that students may receive the degree of Bachelor of Science (in agriculture) at the end of four years, and the degree of Doctor of Veterinary Medicine at the end of two more years.

2. All electives must be officially approved before assignment by both the head of the department of Animal Husbandry and the dean of the Division of Agriculture.

3. The courses in Agricultural English and Agricultural Relationships are open to seniors only.

Anatomy and Physiology

Professor BURT
Associate Professor McLEOD

This branch of veterinary medicine extends over the freshman and sophomore years for veterinary students, and one semester is required in the curriculum in agriculture.

The classroom instruction consists of lectures, quizzes and recitations and special dissection of the part under discussion, also a study of dissected specimens, various models, and the Azoux model of the horse. Mounted skeletons and limbs, and loose bones are abundant in the museum. The horse is taken as a type and the other domestic animals are compared with the horse. As often as necessary parts of other animals are dissected to show the differences.

The courses in anatomy require several lecture rooms, which contain models, skeletons, and bones of all kinds, and a thoroughly sanitary dissecting room equipped with all the latest materials necessary to give a course in anatomy second to none on the continent.

The equipment for instruction in physiology is ample to give the student a thoroughly comprehensive course of laboratory study.

In addition to numerous atlases and charts furnished by the College, the student is required to have Sisson's *Veterinary Anatomy* as a textbook. A dissecting guide is furnished by the department.

The department owns equipment valued at \$7,330.

COURSES IN ANATOMY

FOR UNDERGRADUATES

102. ANATOMY I. Freshman year, first semester. Class work, two hours; laboratory, six hours. Four semester credits. Dr. McLeod.

This course consists of osteology, or the study of bones. The bones of the horse are studied in detail and a comparative study of the bones of other domestic animals and also of man, is made. Drawings of the bones are made by the student in order that he may obtain a better mental picture of their shape and characteristic parts. The bones of the head are studied separately and collectively. Careful attention is given to the location and extent of the sinuses of the head. Laboratory deposit, \$3.

107. ANATOMY II. Freshman year, second semester. Class work, four hours; laboratory, fifteen hours. Nine semester credits. Prerequisite: Anatomy I. Drs. Burt and McLeod.

This course consists of myology, arthrology and splanchnology, or a study of the muscles, joints and viscera. The student is required to make a careful dissection of the muscles of the body, learning their location and attachments, relations one to another as well as their relations to other important structures. After the muscles are dissected and learned the student dissects the ligaments of the joints. The student also studies the viscera of the respective parts at the time of dissection of that part, *e. g.*, the student dissecting upon the fore limb and thorax will study the viscera of the thoracic cavity. Check cards and drawings indicating the different stages of dissection are kept, and the work checked at frequent intervals. Laboratory deposit, \$5.

111. ANATOMY III. Sophomore year, first semester. Class work, one hour; dissection, twelve hours. Five semester credits. Prerequisite: Anatomy II. Dr. Burt.

This course and Anatomy IV consist of the study of angiology and neurology and all parts not previously dissected. Having had osteology and myology, the student is now prepared to get an accurate mental picture of the distribution, location and relation of the blood vessels and nerves. As in Anatomy II, the subject is divided into three parts. During this semester two

parts will be dissected, leaving one part for Anatomy IV. Drawings are required as in Anatomy II. Laboratory deposit, \$5.

116. ANATOMY IV. Sophomore year, second semester. Class work, one hour; dissecting, six hours. Three semester credits. Prerequisite: Anatomy III. Dr. Burt.

This course is a continuation of Anatomy III. The student will now complete the dissection of every part of the subject, including special parts, as the foot, brain, eye, etc. In addition to the completion of the dissection of the horse, a comparative study of the principal structural differences of the various domestic animals, not studied concurrently with the previous courses, will now be made. Laboratory deposit, \$5.

FOR GRADUATES AND UNDERGRADUATES

201. SPECIAL ANATOMY. Elective, first or second semester. Class work, one hour; dissection, nine hours. Four semester credits. Prerequisite: Any of the courses in Anatomy and Physiology: 102, 107, 111, 116, and 131, or their equivalent. Dr. Burt.

This course is adaptable to the requirements of the line of work in which the student is specializing. The work consists of the study of any part of the horse, as the digestive system, the genital system, etc., or may take up the study of similar parts of the ox, sheep, pig, etc. For any one so desiring, poultry anatomy may be chosen.

206. APPLIED ANATOMY. Elective, first semester. Laboratory, three hours. One semester credit. Prerequisite: Anatomy IV. Dr. Burt.

This course is a link that connects the other courses in anatomy with operative surgery. It consists of the dissection of certain areas embraced in performing the various surgical operations, and the study of all the structures in each area and their relation one to another as they would present themselves during an operation rather than the relation of any structure with the rest of the body.

COURSES IN PHYSIOLOGY

FOR GRADUATES AND UNDERGRADUATES

215. PROBLEMS IN PHYSIOLOGY. Elective, both semesters. Three to five semester credits. Prerequisites: Anat. and Physiol. 131, 221, and 226 or their equivalent. Dr. Burt.

Individual investigational problems in the physiology of digestion, reproduction, endocrin glands, etc., are assigned.

221. COMPARATIVE PHYSIOLOGY I. Sophomore year, first semester. Class work, four hours; laboratory, three hours. Five semester credits. Prerequisites: For veterinary students, Anat. and Physiol. 102 and 107, and Chem. 106; for other students, an approved course in organic chemistry. Drs. Burt and McLeod.

This course treats of the physiology of domestic animals, beginning with the study of the blood, heart, blood vessels, and continuing with the ductless glands and internal secretions, respirations, digestion, and absorption. Textbook: *A Manual of Veterinary Physiology*, by Fred Smith, or *Essentials of Veterinary Physiology*, by Paton and Orr, or any standard textbook on Physiology.

Laboratory.—The laboratory work consists of a practical application of the knowledge derived in the classroom. The laboratory is equipped with all necessary material and apparatus, such as kymograph, manometers, tambours, inductoriums, signal magnets, and electric clocks, to make the work interesting and practical, as well as instructive. Many experiments are made by the students upon themselves as well as upon the domestic animals. Graphic records are made by the students of the blood pressure, rate and amplitude of the pulse, and respiration; also the changes produced by stimulating certain

nerves, exercise, changes in position, the action of certain drugs, etc. The time of coagulation of the blood of various species of animals and the conditions that influence the rapidity of coagulation are considered. The secretion of the various digestive juices, the conditions that will influence the rate of their secretion and their actions are studied in detail. Laboratory directions are furnished the student. References: *Practical Physiology*, Pembry; Halliburton's *Essentials of Chemical Physiology*; *Manual of Physiology*, Stewart; *Urine of the Horse and Man*, Fish; and other standard textbooks on physiology. Laboratory deposit, \$3.

226. COMPARATIVE PHYSIOLOGY II. Sophomore year, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: For veterinary students, Anat. and Physiol. 107 and Chem. 106; for other students, an approved course in organic chemistry. Drs. Burt and McLeod.

The work of this semester is a continuation of Anat. 221, and treats of the urine and urinary system, nutrition, animal heat, muscular and nervous systems, locomotion, generation and development, growth and decay. Textbook: Smith's *Manual of Veterinary Physiology*, or *Essentials of Veterinary Physiology*, by Paton and Orr, or any standard textbook on physiology.

Laboratory.—The work done exemplifies the lectures given in the classroom. Graphic records are made of the normal muscle contraction, the changes brought about by fatigue, tetanus, variations in temperature, application of drugs, etc. The conductivity of the nerves, nerve blocking, the effects of anæsthetics upon the conductivity of the nerves, reflexes, and other phenomena relating to the nervous system are studied. The composition of the normal urine and the tests applicable for the detection of abnormal constituents in pathologic urine are carefully considered. Directions and references are the same as in the laboratory course in Comparative Physiology I. Laboratory deposit, \$3.

COURSES IN ANATOMY AND PHYSIOLOGY

FOR UNDERGRADUATES

131. ANATOMY AND PHYSIOLOGY. Sophomore year, first semester. Lectures and recitations, two hours; laboratory, three hours. Three semester credits. Drs. Burt and McLeod.

This combined course is intended principally for students in agriculture, and treats chiefly of physiology of the domestic animals; however, sufficient anatomy is taught to enable the student to thoroughly comprehend the correlation between the two subjects, and the physiologic relations existing among the various organs of the body.

Special emphasis is placed on the physiology of digestion, absorption metabolism, and excretion, so that the student may have a good foundation to understand the principles of feeding, etc., but due consideration is paid to the functions of the circulatory, respiratory, and nervous systems, etc. Text: Smith's *Manual of Veterinary Physiology*. Laboratory charge, \$1.

COURSES IN JURISPRUDENCE

FOR UNDERGRADUATES

161. JURISPRUDENCE. Senior year, first semester. Class work, one hour. One semester credit. Dr. Burt.

This course deals with the veterinarian's legal responsibilities, with national and state live-stock laws, quarantine regulations, etc. Text: Hemenway's *Veterinary Law*; also rules and regulations issued by state and federal authorities.

Pathology

Professor LIENHARDT
Associate Professor SCOTT

Assistant Professor KITSELMAN
Instructor LEASURE

The Department of Pathology presents courses in histology, pathology and meat inspection. The instruction is presented by lectures or recitations, laboratory periods, and demonstrations which are carried out by the use of the projectoscope, and by autopsies.

The laboratory is fully equipped and entirely up to date. The equipment consists of microtomes, paraffin ovens, microphotographic and projection apparatus, centrifuge, shaking machine, sterilizers, etc. Each student is furnished a drawer, microscope, prepared slides for study, and all other essentials needed for study in the laboratory courses.

The department is also in possession of a fairly complete pathological museum, which contains specimens of organs and tissues that show lesions typical of the various infections, and some noninfectious diseases. These specimens are used in the study of pathology, and together with the specimens sent in from over the state and fresh material from the immediate vicinity they furnish ample material for the course in pathology.

The department library contains text and reference books on pathology and allied subjects, also the current files of the important technical periodicals relating to pathology. These books are at the constant disposal of the student for reference.

The course in meat inspection together with the allied subjects required for a degree in veterinary medicine make the student eligible to take the civil-service examination for meat inspection. In this course visits are made to packing plants in Topeka and Kansas City.

The equipment owned by the department is valued at \$14,362.

COURSES IN HISTOLOGY

FOR UNDERGRADUATES

101. HISTOLOGY I. Freshman year, first semester. Class work, one hour; laboratory, six hours. Three semester credits. Drs. Lienhardt and Sawyer.

The first part of the semester is spent upon the care and manipulation of the microscope, in the use of which the student must become proficient. This is followed by a microscopical examination of cotton, woolen, silk and linen fibres, bubbles of air, and drops of oil, to enable the student to recognize these when they are accidentally mounted with tissue. The fundamental tissues are next studied: epithelial tissues with regard to form, structure, arrangement and location; connective tissues with regard to structure and location, including bone development and teeth and their development; muscular tissue, voluntary, involuntary, and cardiac; nerve tissue, the structures and forms of its cells, of medullated and nonmedullated nerve fibers; spinal cord; the blood vessels, heart, and lymphatic vessels. Blood corpuscles are studied with regard to size, shape, and structure, including each kind of white corpuscles. Also, the blood-forming organs, as bone-marrow, lymph glands, and spleen, are studied. The histology of the digestive tract is studied, included study of the mouth, the tongue, the taste buds, the parotid, the submaxillary and sublingual, the thyroid and thymus glands, and the œsophagus. In this semester the student studies and mounts sixty-five slides, some of which are teased, and many of which are sectioned in paraffin and celloidin. Textbook: *Histology*, by Stohr, or *Histology*, by Bailey. Laboratory deposit, \$3.

106. HISTOLOGY II. Freshman year, second semester. Class work, one hour; laboratory, six hours. Three semester credits. Drs. Lienhardt and Sawyer.

In this semester the student takes up the study of the stomachs of the dog, the horse, and the ox; the small intestines—duodenum, jejunum, and ileum; the large intestines—cæcum, colon, rectum and anus; liver, the pancreas, the respiratory tract—nasal mucous membrane, larynx, trachea, bronchi and lungs;

the urinary organs—kidney, ureter; bladder, urethra; the male and female genital organs; the skin and its appendages; the suprarenal gland; the medulla; the cerebellum; the cerebrum; the eye; and the ear. During this semester the student stains, mounts, studies with microscope and makes drawings of the above-mentioned tissues. Some of the tissues studied are injected with gelatin mass to bring out the blood vessels. Textbook: *Histology*, by Stohr, or *Histology*, by Bailey. Laboratory deposit, \$3.

FOR GRADUATES AND UNDERGRADUATES

252. SPECIAL HISTOLOGY. Elective, second semester. Class work, one hour; laboratory, six hours. Three semester credits. Dr. Lienhardt.

This course is arranged to meet the requirements of those who are desirous of taking a histology course dealing with specific organs, as those concerned with digestion, respiration, etc. Tissues are fixed, dehydrated, imbedded, sectioned, stained, and mounted, and are studied after being properly prepared.

COURSES IN PATHOLOGY

FOR GRADUATES AND UNDERGRADUATES

202. PATHOLOGY I. Sophomore year, second semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: Path. 106 and Anat. and Physiol. 126. Drs. Lienhardt and Leasure.

The course in general pathology extends over two semesters and treats of the history of pathology, predisposition, immunity, congenital and inherited disease, cause of disease, course and termination of disease. Text: *Comparative General Pathology*, by Kitt. Laboratory deposit, \$3.

207. PATHOLOGY II. Junior year, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisites: Path. 106 and 202, Anat. and Physiol. 126, and Bact. 111. Drs. Lienhardt and Leasure.

This course is a continuation of Pathology I and treats of circulatory disturbances, cardiac difficulties, hyperæmia, hemorrhage, dropsy, œdema, thrombosis, embolism, and alteration of the blood; disturbances in metabolism, fever, necrosis, atrophy, cloudy swelling, fatty changes, inflammation, calcification and concrement formation; and processes of repair, tumors, and functional disturbances. Text: *Comparative General Pathology*, by Kitt. Laboratory deposit, \$3.

212. PATHOLOGY III. Junior year, second semester. Class work, four hours; laboratory, three hours. Five semester credits. Drs. Lienhardt and Sawyer.

This course is devoted to special pathology and pathological technic; collecting, fixing, hardening, embedding in celloidin and paraffin sections of fresh, frozen, and embedded tissues; and a study of the method of preserving gross specimens. Considerable time is devoted to a consideration of stains and the method of staining. This work is followed by special pathology, which includes the macroscopic and microscopic examination of the following tissues in many of the pathological conditions to which they are subject: cardiac muscle, skeletal muscle, the liver, the kidney, the bladder, the pancreas, the lungs, the digestive tract, the serous membranes, the vascular system, the lymph nodes, the spleen, bone, skin, and genital organs. The students study and make drawings of the above-mentioned tissues. Textbooks: *Pathology*, by Delafield and Prudden; *Pathologische Anatomie*, by Kitt; and *Pathology*, vol. II, by Adami and Nichols. Laboratory deposit, \$3.

214. PATHOLOGY IV. Senior year, first semester. Class work, two hours; laboratory, three hours. Three semester credits. Drs. Lienhardt and Leasure.

This course is devoted to the pathology of the infectious diseases and to laboratory diagnosis. Post-mortem examinations are made on all animals dying in the hospital, at the College barns and in the neighborhood. The students attend and take turns in holding the autopsy. Each student is expected to keep a written record of the pathological changes, also of the microscopic findings. The above work is done under the direction of the pathologist in

charge. Text: *Pathology of Infectious Diseases*, by Moore. Laboratory deposit, \$2.50.

216. MEAT INSPECTION. Senior year, first semester. Class work, two hours. Two semester credits. Dr. Kitselman.

The course in meat inspection is designed to prepare men for national, state, and local sanitary work, which is being more strongly urged and demanded every day. The kinds and classes of stock, the traffic and transportation of animals, their inspection before death, their slaughter, the normal conditions of healthy animals, the disease discernible at the time of slaughter, the disposition of the condemned from economic, hygienic and sanitary standpoints, and different preparations and methods of preservation, adulterations, sanitary laws and regulations, and other points bearing upon the question of healthful meat production, are considered. Visits are made to the local slaughtering establishments, and to the large packing plants in Topeka, Kansas City, or Wichita. Text: Edelman's *Meat Hygiene*, translated by Mohler and Eichorn.

220. PATHOLOGICAL TECHNIC AND DIAGNOSIS I. Elective, first and second semesters. Laboratory, six hours. Two semester credits. Prerequisite: Path. 212. Drs. Lienhardt and Leasure.

This course consists of practice in post-mortem and laboratory diagnosis. The various methods of empedding and staining tissues are carried out upon the large collection of material which the laboratory contains, as well as the material which is constantly coming into the laboratory from various parts of the state. Laboratory deposit, \$3.

221. PATHOLOGICAL TECHNIC AND DIAGNOSIS II. Elective, first and second semesters. Laboratory, twelve hours. Four semester credits. Drs. Lienhardt and Sawyer.

This course is a continuation of Path. 220. Laboratory deposit, \$3.

227. VACCINE MANUFACTURE I. Elective, first and second semesters. Class work, one hour; laboratory, three hours. Two semester credits. Prerequisite: Bact. 116. Dr. Scott.

This course takes up the theory and practice of immunization as applied to blackleg and hog cholera. The laboratory work consists in the isolation and identification of the blackleg organism and of related anaërobes and in the practical production of blackleg biological products and anti-hog-cholera serum and virus. Laboratory deposit, \$3.

230. VACCINE MANUFACTURE II. Elective, first and second semesters. Class work, one hour; laboratory, three hours. Two semester credits. Dr. Scott.

This course consists of a series of lectures on the preparation and standardization of various veterinary biological products, such as tuberculin, bacterial vaccines, and bacterins. The laboratory work consists in the production of some of these products and in special work on blackleg biological products and anti-hog-cholera serum and virus. Laboratory deposit, \$3.

FOR GRADUATES

302. RESEARCH IN PATHOLOGY. Elective, both semesters. Three to five semester credits. Prerequisites: Path. 101, 106, 202, 207, 212, and 220, and Chem. 235, or their equivalent. Dr. Lienhardt.

This course includes individual research problems in pathology of the nervous system, eye and ear; also investigational work on disease caused by a filterable virus. The course is available as a master's thesis course. Laboratory deposit, \$3.

Surgery and Medicine

Professor DYKSTRA
Associate Professor McLEOD
Associate Professor FRICK

Instructor BULLARD*
Instructor FRANK

For instruction in surgery and clinics the equipment is excellent. The veterinary hospital, recently completed at a cost of more than \$100,000, is equipped with every modern appliance for surgical operations and diagnosis of animal diseases. The hospital has capacity for more than fifty horses or cattle, and in addition, it can accommodate fifty small animals, such as sheep, swine, cats, dogs, etc. In addition to the foregoing, members of the clinical staff, accompanied by students, make trips into the surrounding country to give veterinary attention to ailing patients. In this way the students come in contact every year with the diseases of animals and their treatment. The work is always under the guidance of proficient practitioners.

For the study of materia medica and pharmacy there is a general pharmacy laboratory containing all the drugs used in the practice of veterinary medicine and a practicing pharmacy where medicines are compounded for the everyday practice connected with the College.

This department owns equipment to the value of \$3,379.

COURSES IN SURGERY

FOR UNDERGRADUATES

101. SURGERY I. Junior year, first semester. Class work, three hours. Three semester credits. Dr. Dykstra.

This course includes methods of restraint; asepsis and antisepsis; anæsthesia, both local and general; inoculations, bandaging, massage, controlling hemorrhage; division of tissues and the uniting of wounds; injections of medicines into the subcutaneous tissues, blood streams, trachea, spinal canal. Animal dentistry is taken up very thoroughly, in so far as it constitutes an important part of the veterinarian's work. The students have free access to a large number of museum specimens of abnormal teeth. Also, many dental patients are presented at the College hospital for treatment.

106. SURGERY II. Junior year, second semester. Class work, three hours. Three semester credits. Dr. Dykstra.

This course considers in regular order the surgical diseases of the head, neck, thorax, abdomen, stomach and bowels, urinary organs, and organs of generation.

111. SURGERY III. Senior year, first semester. Class work, three hours. Three semester credits. Dr. Dykstra.

During this course particular attention is paid to causes, symptoms, and treatment of lameness. It considers in detail fractures and their reduction, diseases of joints, tendons and sheaths, muscles and fascia, and surgical diseases of the foot. It includes lectures on horse-shoeing.

116. SURGERY IV. Senior year, second semester. Class work, three hours. Three semester credits. Dr. Dykstra.

Surgery as taught during this course includes special operations, such as neurectomies, autoplasties, desmotomies, actual cauterization, tenotomies, myotomies, enterotomy and enteroanastomosis, and surgery of the eye. Reference books: Dollar's *Regional Veterinary Surgery*; Merillat's *Veterinary Surgery*, Vols. I, II, and III; Williams' *Surgical Operations*; Fleming's *Operative Veterinary Surgery*, Parts I and II; White's *Restraint of Domestic Animals*.

121. OPERATIVE SURGERY. Senior year, second semester. Laboratory, three hours. One semester credit. Drs. Dykstra and Frick.

* Resigned Feb. 1, 1926.

Old horses are purchased by the department, placed on the operating table, anæsthetized, and over one hundred operations are performed upon them. During this work the student is required to observe a careful technic, such as antisepsis, and, in fact, performs the operation as thoroughly and completely as possible. It is a very practical course and fits the student for surgical work in actual practice. Laboratory charge, \$5.

COURSES IN OBSTETRICS

FOR UNDERGRADUATES

131. OBSTETRICS. Senior year and elective, second semester. Class work, three hours. Three semester credits. Prerequisites: Anat. and Physiol. 116 and Zoöl. 109, or Anat. and Physiol. 131 and Zoöl. 219. Dr. McLeod.

This course discusses in detail the physiology of pregnancy, anatomy of the generative organs, care and hygiene of pregnant animals, sterility, diseases incidental to pregnancy, diseases of new-born animals, care of newborn animals, abnormal presentations during parturition, surgery of obstetrics, etc. This work is supplemented by demonstrations on an obstetrical phantom and foetus; in addition, the College farm and surrounding agricultural territory furnish an abundance of actual material. References: Williams' *Veterinary Obstetrics*, Williams' *Surgical and Obstetrical Operations*, De Bruin's *Bovine Obstetrics*, and Fleming's *Veterinary Obstetrics*.

COURSES IN CLINICS

FOR UNDERGRADUATES

137. CLINICS I. Junior year, first semester. Laboratory, six hours. One semester credit. Drs. Dykstra, Frick, and Bullard.

A free clinic which affords an abundance of material is conducted. All species of domesticated animals are presented for treatment. These patients are assigned in regular order to the senior students for diagnosis and treatment; clinic sheets are provided, on which are recorded the history, symptoms, pulse, temperature, respiration, diagnosis, prognosis, treatment, and the unsoundness, defects or blemishes of the animal. The clinician in charge discusses all the abnormal conditions present in the patient, thus assisting the student to develop his powers of observation. The junior students assist the senior students and, in addition, are required to master, by practical experience, the restraint of animals, bandaging, etc. The compounding of prescriptions, the preparation of antiseptics and other medicinal agents, is taken in charge by the junior students. Laboratory deposit, \$5.

140. CLINICS II. Junior year, second semester. Laboratory, ten hours. One semester credit. Drs. Dykstra, Frick, and Bullard.

This work is a continuation of Clinics I. Laboratory deposit, \$5.

143. CLINICS III. Senior year, first semester. Laboratory, twelve hours. One semester credit. Drs. Dykstra, Frick, and Bullard.

Patients left at the hospital for treatment are assigned to seniors, who are required to administer all medicines, change dressings of surgical wounds, etc. All work is performed under the direct supervision of the clinician in charge. Numerous country calls are received by the Division of Veterinary Medicine. These are taken care of by one of the clinicians, who is always accompanied by one or more senior students. This phase of the work is particularly valuable, as it gives the student practical experience under actual conditions. Laboratory deposit, \$5.

146. CLINICS IV. Senior year, second semester. Laboratory, twelve hours. One semester credit. Drs. Dykstra, Frick, and Bullard.

This work is a continuation of Clinics III. Laboratory deposit, \$5.

COURSES IN MATERIA MEDICA

FOR UNDERGRADUATES

157. **MATERIA MEDICA.** Junior year, first semester. Class work, four hours. Four semester credits. Dr. Bullard.

This course includes definitions of terms, modes of action of drugs in general, their method and rapidity of absorption and elimination, physiological and chemical incompatibilities, etc. The drugs and medicinal agents are grouped according to their action. The lecturer discusses the origin, physical properties, active constituents, and official preparations of the medicinal agents.

162. **THERAPEUTICS.** Junior year, second semester. Class work, three hours; laboratory, three hours. Four semester credits. Prerequisite: *Materia Medica*. Dr. Bullard.

The student is thoroughly drilled in the physiological and therapeutic action of the various drugs both on the healthy and on the diseased animal. A course in toxicology is included in this work, and takes up the symptoms and the treatment of poisons frequently encountered in veterinary practice. The science of posology, or dosage, is considered of the utmost importance, and a liberal amount of time is devoted to it, the proper dose of the crude drug and its preparation for horses, cows, dogs, cats and swine being considered.

166. **PHARMACY.** Junior year, first semester. Class and laboratory work, three hours. One semester credit. Dr. Bullard.

In the lectures the meanings of the various pharmaceutical terms are discussed. Various systems of weights and measures, and the conversion of one system into another, are taught. Official preparation of each is studied in regular order. Particular stress is placed upon prescription writing, the student being taught to avoid incompatibilities, to give nouns the proper case ending, and to understand the meanings of certain Latin phrases. In the laboratory work the principles of filtration, percolation, hot-water and sand baths, etc., are taught. The student is required to prepare at least one of each of the following preparations: An infusion, a decoction, a tincture, a wine, a syrup, a fluid extract, a liniment, an emulsion, a liquor, an aqua, a spirit, an ointment, an electuary, and a cataplasm. In addition, a thorough course in the compounding of prescriptions is afforded at the clinic, where all medicines are prescribed and compounded by the students, under guidance of the instructor in charge. Reference works: *U. S. Pharmacopœia*; Maltbie's *Practical Pharmacy*; Remington's *Practice of Pharmacy*; Fish's *Exercises in Materia Medica and Pharmacy*. Laboratory deposit, \$3.

COURSES IN MEDICINE

FOR UNDERGRADUATES

170. **DIAGNOSIS.** Junior year, first semester. Class work, two hours. Two semester credits. Dr. Frick.

This is a course preparatory to the study of medicine proper. It takes up in detail the different diagnostic methods employed for the detection of diseases, including auscultation, percussion, palpation, and inspection, and also treats of the normal and abnormal abdominal and thoracic sounds, including diagnostic inoculations as an aid to the detection of disease.

174. **DISEASES OF LARGE ANIMALS I.** Junior year, second semester. Class work, four hours. Four semester credits. Dr. Frick.

The noninfectious diseases of the respiratory organs of the larger animals are studied in this course, taking up in regular order the nasal and accessory cavities, and larynx, bronchi, lungs, and pleura.

177. **DISEASES OF LARGE ANIMALS II.** Senior year, first semester. Class work, five hours. Five semester credits. Dr. Frick.

This course is devoted to the noninfectious diseases of the mouth, salivary

glands, œsophagus, stomach and intestines, liver, pancreas and peritoneum of the larger animals. This is followed by diseases of the urinary organs, of the circulatory organs, diseases of metabolism, of the nervous system, of the organs of locomotion, of the skin, and of the eye.

181. INFECTIOUS DISEASES OF LARGE ANIMALS. Senior year, second semester. Class work, five hours. Five semester credits. Dr. Frick.

In contradistinction to the preceding courses in medicine, the distinctly infectious and contagious diseases of the larger domesticated animals are discussed. The following order is usually adopted: Acute general infectious diseases, acute exanthematous infectious disease, acute infectious diseases with localization in certain organs, infectious diseases with special involvement of the nervous system, chronic infectious diseases, infectious diseases produced by protozoa. In addition particular attention is given to the propagation and spread of infectious diseases, predisposing and exciting causes of diseases, general sanitation, etc.

186. DISEASES OF SMALL ANIMALS. Senior year, second semester. Class work, two hours. Two semester credits. Dr. Frick.

This course deals principally with the infectious and noninfectious canine and feline diseases. The various breeds of dogs and cats, the erection of kennels, the breeding and care of puppies, care and feeding of dogs in general, and the hygienic measures pertaining thereto are also discussed.

190. FARM ANIMALS IN HEALTH AND IN DISEASE. Elective, second semester and summer school. Class work, two hours; laboratory, three hours. Three semester credits. Prerequisite: Anat. and Physiol. 131. Dr. Bullard.

First-aid treatment of diseases of domestic animals is discussed in this course. Special emphasis is given to the cause and prevention of disease in farm animals. Domestic animals are studied in relation to their surroundings. Text: Craig's *Common Diseases of Farm Animals*.

The Division of College Extension

HARRY UMBERGER, *Dean and Director*
———, *In Charge of Information.*

The people of Kansas believe in using their educational institutions to their full capacity, not only for the students privileged to come to them, but also for the state at large. They know that the number who complete a College course in agriculture, engineering, or home economics is small in comparison with the great majority of the people who cannot go to college, and it is their wish that this majority also be served. The Agricultural College is in full sympathy with this desire and is ambitious not only to give its resident students the best possible training for leadership in life's work, but to be of direct service to every community of the state.

As far back as 1864 conventions of the farmers of Manhattan and vicinity were held at the College. The first well-organized farmers' institute conducted under the auspices of the Faculty was held at Manhattan, November 14, 1868, and this was followed by a similar gathering at Wabaunsee, November 20 and 21 of the same year. In 1868 the Board of Regents adopted a resolution recommending "that a system of lecturing on agricultural subjects at this College and the populous settlements of the several counties of the state should be conducted, so that the benefits of farming according to correct agricultural principles may be disseminated throughout the state."

A few meetings were held each year for the next several years, increasing in number from 1879, but no definite appropriation for extension work was made until 1899, when \$2,000 per year was appropriated for this purpose by the state legislature. The annual appropriation remained at this figure until 1905, when the legislature appropriated \$4,000 for the work, to which the College added \$800. Up to this time no regular staff for extension work was employed, and all extension activities were conducted by a committee. In October of that year, however, a superintendent to organize the institute work was selected by the Board of Regents, and in July, 1906, the Department of Farmers' Institutes was formally organized.

The interest in extension work throughout the state then developed rapidly. In 1907 the legislature appropriated \$10,500 for the two years, to which the College added \$1,000. In 1909, \$52,500 was appropriated by the legislature for the biennium, and the following appropriations were made by the succeeding legislatures: For the biennium 1911-'13, \$75,000; for the biennium 1913-'15, \$95,000; \$41,240 for 1915-'17; for the biennium 1917-'19, \$89,759; \$138,277 for the biennium 1919-'21; \$184,289 for the biennium 1921-'23; and \$165,000 for the biennium 1923-'25; and \$165,000 for the biennium 1925-'27.

This rapid development of extension work was made possible not only because the people of the state wished to have such work done, but because much new light has been thrown on the essentials in agriculture by the effective experimental work done by the Experiment Stations and by the United States Department of Agriculture.

In 1914 the federal government felt that the useful and practical information on subjects connected with agriculture and home economics developed by the experiment stations, by the Department of Agriculture, and by the experience of the best farmers and farm homes should be made more readily available to everyone; and in order that this information might be more fully and effectively diffused among the people of the several states and its practical application encouraged, the congress of the United States, in 1914, passed the Smith-Lever bill, which provides for "coöperative agricultural extension work between the agricultural colleges in the several states receiving the benefits of an act of congress approved July 2, 1862, and of acts sup-

plementary thereto, and the United States Department of Agriculture." To further this act the congress provided for an annual appropriation of \$480,000, of which \$10,000 is paid each year to each state which assents to the provisions of the act. This initial appropriation was increased each year for seven years, such increase being allotted annually to each state in the proportion which the rural population of such state bore to the total rural population of all the states, providing a sum equal to such increase had been appropriated for that year by the legislature of such state, or had otherwise been provided from within the state, for the maintenance of the coöperative agricultural extension work.

Under this act the coöperation of the agricultural colleges and the United States Department of Agriculture has been assured, extension work has become a national as well as state project, and its effectiveness has been greatly increased.

The governor of the state and the Kansas legislature of 1914 accepted the provision of the Smith-Lever act immediately, and \$10,000, therefore, was secured from the federal government for extension work for the year ending June 30, 1915, and for each succeeding year thereafter. The additional sums coming from the federal funds under this act to the state for the years ending June 30, 1916 and 1917, respectively, were \$14,555 and \$26,685; for the years 1918 and 1919, \$38,815 and \$50,944, respectively; for the years 1920 and 1921, \$63,074 and \$75,203, respectively; for the years 1922 and 1923, \$80,641 and \$90,842, respectively; and for the years 1924 and 1925, \$91,842, respectively. These sums were duplicated by an equal appropriation by the legislature of Kansas for the years named with the exception of 1924 and 1925, for each of which the legislature appropriated \$82,500. In addition, from the appropriation made to the Agricultural College for all its work, \$31,000 was set aside for extension work for the year ending June 30, 1923. During the war congress made an emergency appropriation to extension work, in order that special attention might be given to maximum production of food, conservation and economic utilization of farm products. This appropriation terminated June 30, 1919. There was such great demand for continuation of much of the work started under this appropriation, with a view to carrying it on a more constructive and permanent basis, that congress appropriated funds for this purpose, effective July 1, 1919. This is known as the supplementary federal Smith-Lever appropriation. The total sum for extension work under the Smith-Lever act and from state funds for the year ending June 30, 1925, therefore, is as follows: From the federal government, through the Smith-Lever act, \$101,841; from the federal government through the supplementary Smith-Lever appropriation, \$29,120; from the state through the Agricultural College, \$31,600; from the state direct appropriation to offset the Smith-Lever appropriation, \$82,500; from county appropriations offsetting the supplementary federal Smith-Lever appropriation, \$29,120; total, \$274,181.

County funds are appropriated for the support of the county farm bureaus through a special act of the legislature enabling the county commissioners to levy a direct tax for this purpose. (Session Laws of Kansas for 1915, p. 204, ch. 166, sections 1, 2 and 3; Session Laws of Kansas for 1919, p. 217, ch. 157, sections 1, 2 and 3.)

The rapid growth of extension work has demanded efficient administrative machinery. In the judgment of the president of the College and the Board of Regents it became necessary to create, in December, 1912, a Division of College Extension coördinate with the other divisions of the College. This at first was subdivided into four distinct sections or departments, but the increase in work and personnel of the division has made necessary a reorganization into eight departments, namely: institutes and extension schools, county-agent work, boys' and girls' club work, home economics, home demonstration-agent work, rural engineering, rural service, and home-study service, each with its own head and staff. The department of rural service was discontinued June 30, 1922. The heads of the departments are responsible to the director, who is dean of the Division of College Extension. Through this organization it is possible to administer the extension work effectively and

economically, to reach directly more than 500,000 people in the state each year, and to conduct some activity in every county.

Publications covering practical subjects in the field of agriculture, home economics and rural engineering are issued from time to time by the Division of College Extension as bulletins, circulars and leaflets. The authors of these publications are the extension specialists or the specialists of the departments in the other divisions of the College. The regular publications of the Agricultural Experiment Station also are used extensively in the extension work. A series of publications in coöperation with the United States Department of Agriculture is receiving special attention. Extension publications are mailed regularly to a list, composed of members of farm and home institutes, homemakers' clubs, extension schools, and farm bureaus; *i. e.*, to members of organizations coöperating closely with the Agricultural College. Any citizen of the state, however, on request, may secure copies of individual publications.

While the extension work is directed by the Division of College Extension for administrative efficiency, its scope would be limited were it not for the close coöperation of the other divisions and departments of the College, which not only help in supplying lectures for agricultural meetings and extension schools, material for publication, assistance in demonstration work and helpful counsel, but also are responsible for all subject matter taught by the extension specialists.

Beginning in February, 1924, the radio has been used as a means of extending information from the College to those living in distant parts of the state. This service has consisted in the giving of instruction in many subjects both by means of regular courses of lectures in specialized fields and by general discussions of subjects having timely interest to the people of the state.

Institutes and Extension Schools

AGRICULTURAL EXTENSION SPECIALISTS

L. C. WILLIAMS, in Charge

L. C. WILLIAMS, Horticulture	_____, Dairy Husbandry
W. R. MARTIN, Horticulture	JAMES W. LINN, Dairy Husbandry
_____, Animal Husbandry	E. B. WELLS, Soils
R. W. KISER, Animal Husbandry	H. R. SUMNER, Crops
M. H. COE, Swine and Baby Beef Production	L. E. WILLOUGHBY, Crops
J. W. LUMB, Veterinary Medicine	A. J. SCHOOTH, Field and Garden Crops
E. G. KELLY, Entomology	E. A. STOKDYK, Marketing
J. H. McADAMS, Poultry Husbandry	I. N. CHAPMAN, Farm Management
_____, Poultry Husbandry	Demonstrator
A. E. OMAN, Rodent Control	_____, Extension Editor
ROY MOORE, Rodent Control	C. E. GRAVES, Plant Pathology

The Department of Institutes and Extension Schools has direct supervision over farm and home institute organizations, all extension schools in agriculture and home economics, and the work of the agricultural extension specialists. The department also has charge of the program and arrangements for Farm and Home Week, and annual state-wide farmers' meeting, and the scheduling of judges to county and local fairs.

Each farm and home institute of the state is an association or farmers' club, with regular officers, constitution and by-laws. Some organizations hold six or more monthly meetings, and practically all of them have no fewer than three, because no institute organization can obtain state aid unless in addition to the annual meeting, at which some representatives of the College must be present, it also holds at least three local meetings. The College plans to send two specialists to the annual meeting—one in agriculture and one in home economics, to present certain well-defined lessons, and to give the results of demonstration work for the county or locality. The specialists and their subjects are chosen because of a known need or interest of a particular community or a plan to start or encourage certain definite lines of work.

EXTENSION SCHOOLS

Owing to the nature of the farm and home institutes, the demand for instruction can be met only in part, and for that reason extension schools or short courses in agriculture and home economics have been organized in communities which desire more complete courses in these subjects than can be given at the institutes.

The College now conducts extension schools in agriculture and home economics of from one to five days' duration, sending to each school two or more instructors. Here well-planned, comprehensive courses are given in the various lines of agriculture and home economics, so that some of the essentials of these subjects may be learned. The local committees are required to organize the classes and pay the local expenses for each school. The Agricultural College supplies the teachers and pays their traveling expenses from funds appropriated for this purpose.

In addition to these general schools, special schools in breeding, animal diseases, dairying, poultry, orcharding, road making, tractors and farm machinery, and cement construction are held in communities desiring them and willing to defray the local expenses.

Extension schools are popular where the communities are brought to understand the work given. Almost every community which has had one school has petitioned for another. Each community is now required to submit the names of at least thirty men and twenty women who agree to attend as many sessions of the school as possible. This requirement has increased materially the attendance, interest and coöperation.

EXTENSION SCHEDULES

The specialists of this department work in extension schools and institutes during the winter months only, and a portion of this time is devoted to coöperative demonstration work in agriculture and home economics. During the spring, summer and fall they conduct special campaigns, such as silo building, poultry culling, wheat improvement, grasshopper control, cow testing, better sires, hog-cholera control, and coöperative demonstration work. The latter phase of the work of the extension specialists is being especially met by the organization of coöperative demonstration work in each branch of agriculture in a certain number of counties each year. In much of the coöperative work each specialist has from 10 to 100 or more coöperators in each county. These men and women work under the direction of the specialist and the county agent. They keep records of the work and call demonstration meetings at their farms on each trip of the specialist. The number of visits which the specialist makes to each point varies from two, in the case of the specialist in soils, to six, in the case of the specialists in horticulture and entomology. The aim in all of this coöperative demonstration work is to show as well as to explain. This line of work is especially appreciated, and the representatives of the department have been able to meet only a fraction of the demands for it.

The extension specialist takes to the farm and farm home the newest research work of the Agricultural Experiment Station and the United States Department of Agriculture in a practical, effective and usable form. He is also of material assistance to the Agricultural Experiment Station of the College and to the United States Department of Agriculture in reporting the progress and success of demonstration work in the field. He seldom makes a trip without coming in contact with new agricultural problems or old ones requiring the attention of the research workers of the Agricultural Experiment Station. By working in the closest coöperation with the subject-matter departments of the College, the specialists become the carriers of information, not only from the Agricultural Experiment Station to the farmers, but from the farmers to the research workers of the Experiment Station. The extension specialist is, therefore, a medium through which both the Agricultural Experiment Station and the farmers can function to their mutual advantage.

To reach all the people of the state, the work of the specialist becomes largely a matter of teaching and training leaders, such as the county agents, the home demonstration agents, the boys' and girls' club agents, and project leaders. If they are successful in teaching these leaders how to carry forward their various projects they are most efficient in carrying their message to all the farmers in the state. The specialists, therefore, are becoming more and more each year teachers of leaders instead of public speakers at general farmers' meetings as they were in times past.

Through these various leaders a definite check is kept regarding cost of production, need of follow-up work, and the progress made in the demonstration work undertaken. Haphazard, hit-and-miss extension work, therefore, has no place in our program under the present system.

The calls for extension specialists in all lines of work are so many that it is impossible to meet more than two-thirds of them for assistance from county agricultural agents and from farmers' organizations. The number of specialists is being increased rapidly, yet the work is growing still more rapidly, thus indicating a healthy condition.

FARM-MANAGEMENT DEMONSTRATIONS

Farm-management demonstrations are conducted by a farm-management specialist in coöperation with the county agents. In these demonstrations such records are taken as are essential to the determination of the net profits of the individual farms. These records are classified according to different types of farming, the profits of each type are determined, and individual farm records are compared with the average of all the farm records taken. The results of the study are made known to each farmer interested, in order that he may use the suggestions received in any need or reorganization of his own business. For those who desire it, farm account books are opened and instruction is briefly given in keeping simple records. The work was begun in September, 1914. The demand for this work was greatly increased by the enactment of the income-tax law, and the resulting need of business records by which the income might be determined, and by the demand for accurate cost-of-production figures by price-fixing commissions.

COUNTY AND LOCAL FAIRS

The animal husbandry and crops specialists devote from one to two months in judging the live stock and agricultural products at county and local fairs, which furnish an excellent opportunity for lectures and demonstration work. Large numbers of people are reached through the fair judging work. In many cases people become interested in the work of the specialists who have not been interested or reached through farmer's meetings and demonstrations. Each specialist endeavors to make his judging work as practical and instructive as possible.

FARM AND HOME WEEK

The purpose of Farm and Home Week is to interest the farmers of the state in better methods of production and of farm management that will increase farm profits, to demonstrate to farm women methods of household management that will add to the comfort and enjoyment of farm life, and to encourage farm folks in social organization that will enrich the social life of the rural community.

All meetings, lectures and demonstrations during Farm and Home Week are free of charge, and the expense of the trip to Manhattan with reduced railroad rates, should not prevent any farmer from attending. The investment in knowledge and enthusiasm will make bigger profits on the farm.

During this week the College Experiment Station, the Extension Service, the United States Department of Agriculture, agricultural specialists and leading farmers bring to those in attendance the latest results of investigative work in all lines of agriculture, home economics and mechanical engineering.

Problems concerning crops and soils, dairying, beef cattle, horses, hogs, sheep, poultry, horticulture, community service, beekeeping, and diseases of animals are discussed by some of the leading agricultural authorities in America. In addition to these lectures and demonstrations there are many other interesting features, such as the display of the live stock of the College, the barns, machinery, buildings, libraries, museums, dairy, experimental plots, orchards and gardens.

County Agent Work*

H. UMBERGER, Dean and Director
A. L. CLAPP, District Agent
G. W. SALISBURY, District Agent
FRANK O. BLECHA, District Agent
A. F. TURNER, Field Agent

ROY E. GWIN, Allen
J. A. HENDRICKS, Anderson
JOE M. GOODWIN, Atchison
R. E. WILLIAMS, Barton
C. O. GRANDFIELD, Bourbon
J. J. MOXLEY, Brown
CHAS. E. CASSEL, Butler
C. F. GLADFELTER, Chase
H. L. GIBSON, Cherokee
E. BRUCE BRUNSON, Cheyenne
R. R. McFADDEN, Clark
C. R. JACCARD, Clay
L. F. NEFF, Cloud
DAN M. BRAUM, Coffey
HARRY E. RATCLIFFE, Comanche
W. L. TAYLOR, Crawford
H. W. KING, Dickinson
CHAS. E. LYNESS, Doniphan
H. C. COLGLAZIER, Douglas
GLEN M. REED, Finney
HARRY C. BAIRD, Ford
F. JOE ROBBINS, Franklin
PAUL GWIN, Geary
L. M. KNIGHT, Gray
J. W. FARMER, Greenwood
E. H. AICHER, Harper
RAY L. GRAVES, Harvey
DUKE BROWN, Hodgeman
H. F. TAGGE, Jackson
W. H. ROBINSON, Jefferson
D. E. HULL, Jewell
J. B. PETERSON, Johnson

W. S. SPEER, Kingman
H. F. MOXLEY, Labette
E. H. LEKER, Leavenworth
W. J. DALY, Lincoln
CECIL McFADDEN, Lyon
M. L. ROBINSON, McPherson
EARL C. SMITH, Marion
W. O'CONNELL, Marshall
J. E. NORTON, Meade
J. D. BUCHMAN, Miami
HAYES M. COE, Montgomery
D. Z. McCORMICK, Morris
H. A. BISKIE, Nemaha
CHAS. D. THOMPSON, Neosho
GEO. W. SIDWELL, Ness
E. L. McINTOSH, Osage
ROBERT E. CURTIS, Ottawa
CARL L. HOWARD, Pawnee
CHAS. H. STINTON, Pratt
C. L. ZOLLER, Rawlins
R. W. McCALL, Reno
A. I. GILKISON, Rice
S. D. CAPPER, Riley
DONALD B. IBACH, Rush
H. L. HILDWEIN, Sedgwick
W. H. METZGER, Shawnee
N. L. RUCKER, Sherman
A. B. KIMBALL, Smith
J. J. INSKEEP, Sumner
JOHN V. HEPLER, Washington
C. E. AGNEW, Wilson
R. L. VON TREBRA, Wyandotte

County-agent work in this state is provided for by the federal Smith-Lever act and the state farm-bureau law. The federal Smith-Lever act provides an appropriation which increased each year until 1922 when it reached its maximum and which is distributed among the states according to their rural population. In addition to the regular Smith-Lever appropriations, Kansas receives additional funds from the so-called supplementary Smith-Lever appropriation. This appropriation was made available immediately following the war period in order that permanent work which had been established during the war period need not be discontinued due to the inability of the regular Smith-Lever appropriations to finance it. Before the federal funds are available they must be duplicated within the state.

The state legislature appropriates at each session an amount approximately equal to that available to this state from the federal Smith-Lever appropriation. In addition to this, the state farm-bureau law, effective June 17, 1919, provides that when one-fourth, or as many as 250, of the *bona fide* farmers of a county shall form a farm-bureau organization, adopt a constitution and by-laws and elect officers, and when an equipment fund of at least \$800 has been

* The United States Department of Agriculture coöperates in furnishing part of the salary of every member of this department. In the case of the county agents, counties, through farm bureaus, furnish a part of the salary and all expenses.

provided and deposited in a local bank, the county commissioners shall appropriate at least \$1,200 per year (which sum may be raised by a special tax levy), and the Agricultural College shall appropriate at least \$1,200, so long as funds are available from the state or federal funds above mentioned, for the purpose of hiring a county agent or agents and paying their expenses.

Previous to 1914 county agents were financed by membership dues, private subscription and a small state appropriation. At that time a membership of at least 100, each paying dues of \$5, was required. In 1914, congress passed the Smith-Lever act and in 1915 the Kansas legislature passed the farm-bureau law, which has since been the basis of the extension of this work. During the war period, July 1, 1917, to June 30, 1919, supplemental agricultural appropriations were made by congress for more rapid extension of county-agent work.

August 1, 1912, the first county agent in Kansas was employed by the Leavenworth county farm bureau. The number has increased gradually, until at the present time, January 1, 1926, there are sixty-four active farm bureaus in Kansas, as follows:

Allen	Dickinson	Kingman	Ottawa
Anderson	Doniphan	Labette	Pawnee
Atchison	Douglas	Leavenworth	Pratt
Barton	Finney	Lincoln	Rawlins
Bourbon	Ford	Lyon	Reno
Brown	Franklin	McPherson	Rice
Butler	Geary	Marion	Riley
Chase	Gray	Marshall	Rush
Cherokee	Greenwood	Meade	Sedgwick
Cheyenne	Harper	Miami	Shawnee
Clark	Harvey	Montgomery	Sherman
Clay	Hodgeman	Morris	Smith
Cloud	Jackson	Nemaha	Sumner
Coffey	Jefferson	Neosho	Washington
Comanche	Jewell	Ness	Wilson
Crawford	Johnson	Osage	Wyandotte

The county agents are active in conducting demonstrations in the best methods of production and marketing, in assisting farmers with suggestions and plans relative to farm management and the farm business, and in organizing rural activities. Field demonstrations are conducted for the purpose of introducing crops and of testing relative values of varieties already grown, and methods of cultivation and harvesting. Proper methods of the feeding, care and management of live stock, of controlling insects and live stock and plant diseases are among the most popular demonstrations. Surveys of the farm business are made in order to study the conditions prevailing in typical areas, and possible improvements in farm-management methods that should be instituted. Improved methods of marketing and community welfare, in which better social relations are fostered, also are important features of this work. The county agent interests himself in practically every farm activity, especially where there is need of improvement.

A course suggesting special lines of training for those desiring to enter extension work will be found elsewhere in this catalogue.

Home Economics

MISS AMY KELLY, State Home Demonstration Leader, In Charge
MISS MARY A. WORCESTER, Assistant, In Charge of Specialists

*Miss MINNIE SEQUIST, Clothing
Miss LORETTA McELMURRY, Clothing
**Mrs. ROSE MACK, Millinery
Miss MAUDE DEELY, Millinery
Miss W. PEARL MARTIN, Home Health and Sanitation

*Mrs. HARRIET W. ALLARD, Household Management
Miss CONIE FOOTE, Foods and Nutrition
Miss GEORGIANA H. SMURTHWAITE, Foods and Nutrition

There are approximately eight hundred women who annually receive instruction in home economics at the Kansas State Agricultural College, and there are several thousand throughout the state who have had the advantages of resident instruction either in this or some other institution. While this is true, the number is small when compared to the great majority of women and girls in the state to whom the work has not been available. To give as much assistance as possible to this vast majority of women is the aim of the Department of Home Economics Extension, and with this in view seven specialists were regularly employed part time during the last year.

The Extension work in home economics is carried on by means of definitely organized programs of work carried on throughout the year through the agency of the County Farm Bureaus, the instruction being given by the specialists and Home Demonstration Agents to local leaders who in turn pass it on to the women in their respective communities.

Home Demonstration Agent Work

MISS AMY KELLY, State Home Demonstration Leader
MISS ELLEN M. BATCHELOR, Assistant State Leader

Mrs. FLORENCE D. SYVERUD, Allen County
Miss ETHEL McDONALD, Bourbon County
Miss MAUDE M. COE, Butler County
Miss SARAH FRANCES SMITH, Cherokee County
Miss ELIZABETH QUINLAN, Clay County
Miss ELIZABETH RANDALL, Douglas County
Miss GRACE HENDERSON, Ford County
Miss ELLA MEYER, Franklin County
Miss CHARLOTTE BIESTER, Johnson County
Miss MABEL E. HINDS, Labette County

Miss HELEN DUNLAP, Leavenworth County
———, Meade County
Mrs. LILA S. COE, Montgomery County
Miss GRACE HERR, Pratt County
Miss ESTHER MAE HUYCK, Rawlins County
Miss EDITH HOLMBERG, Reno County
Miss MABEL McCOMB, Shawnee County
Mrs. LAURA I. WINTER, Sedgwick County
———, Wyandotte County

Home demonstration work was made possible in August, 1917, through the passage by congress of the emergency bill. This bill provided funds for the employment of county home demonstration agents. These agents were called emergency home demonstration agents. Before the end of a year there were twenty-five of these agents in the state. The emergency fund was discontinued June 30, 1919.

In the early days the work of the emergency home demonstration agents was instituted under the auspices of city or county organizations, but after following this plan for a short time it was found that it would be **advantageous** to defer the placing of a home demonstration agent until the counties were properly organized for this specific purpose.

Since August, 1918, Farm-bureau counties which have requested home demonstration agents have been organized on the basis of an ideal farm bureau; that is, the women have been taken into the farm bureau as regular members, having all the rights and privileges, and have become part of the working organization. In such counties the work of the home demonstration agents is taken up as part of the regular extension program, which includes the

* Resigned.

** Temporary appointment.

development of farm activities, home activities, and community activities. There are eighteen counties organized with an extension program which includes the work of the home demonstration agent.

The program of work for the home demonstration agent is based on the needs of the communities in the county and is evolved through the community and committee meetings. To-day each county has a county program of work based on the needs of the communities in the county, and this is a part of the state program. The home demonstration agent, in coöperation with the Agricultural College and United States Department of Agriculture, works to carry out the community, county and state program.

Since July 1, 1921, the counties desiring a home demonstration agent are required to meet the following conditions:

1. Supply an office equipped for work, and adequate stenographic help.
2. Provide a fund of not less than \$500 for the purchase of equipment in addition to that provided for the county agent.
3. Provide a membership of not less than 100 farm women, each of whom pays at least \$1 membership fee into the county farm bureau and has all the privileges and duties of a *bona fide* member.
4. Secure a total county appropriation of not less than \$2,400 to the county farm bureau for the salary and expenses of the county agent and the home demonstration agent.

Boys' and Girls' Club Work

* R. W. MORRISH, State Club Leader
_____, Assistant State Club Leader

Boys' and girls' club work has become one of the very important phases of Agricultural College extension service. The club work is divided into club demonstrations. Each demonstration represents some specific phase of farm or home activities, such as baby-beef, swine, poultry, food, clothing, etc.

Clubs are organized and conducted in coöperation with farm bureaus, farmers' institutes, business men's organizations, and other interested groups or individuals. Any community may have a club by interesting the boys and girls in some of the club demonstrations and by having them agree to carry on the work as outlined by county and state leaders. Each club should have a local leader to supervise the work of the club members and assist with club meetings. Through these clubs the College is able to reach and serve a large class of young people which it could neither reach nor serve in any other way. A large number of boys and girls receive an incentive for higher training in agriculture and home economics and gain their first acquaintance with the College through the club work. Boys and girls receive frequent visits from the county extension agents, and the local leaders and club groups are given first-hand information by visits of the subject-matter specialists or other College representatives. Written material is prepared by the College specialists and sent out by the state club leader through the Extension office, and to the club members, giving them definite information regarding the results of many of the more important experiments conducted by the Agricultural Experiment Station, and regarding farm and home practices recommended by the College. Some of the most valuable methods and practices which the College has to offer are put into actual practice by these young people and demonstrated to the community.

Complete records showing expenses and receipts are kept by the boys and girls, and they meet regularly once per month with their local and county leaders to consider various matters pertaining to their different demonstrations. Through the organization of the club, much valuable experience in

* On leave of absence for the year 1925-'26. M. H. Coe is acting State Club Leader during his absence.

leadership is gained by hundreds of boys and girls who have no other source for such experience. Exhibits at local, county and state contests are made by club members. At the close of the club season the different club members send in their records and stories. In short, the club boys and girls shoulder responsibilities, meet with failure as well as with success, and do on a smaller scale what they will be obliged to do on a larger scale when in later years they become real farmers and home-makers.

A special feature of the year's club program is the Annual Boys' and Girls' Club Round-up held in June. This is held at the Agricultural College and the boys and girls are given a week's instruction by the College faculty. Any boy or girl club member is eligible to attend and receive the week of inspiration, instruction, and entertainment.

Rural Engineering

WALTER G. WARD, Extension Architect, in Charge
CLAUDE K. SHEDD, Extension Engineer

At one time the person who failed at other occupations could take up farming, as a last resort, and still manage to live. That time has passed. The modern farm is equipped with power machinery, a water system, a lighting system, a sewage system, up-to-date buildings, and a shop. The installation and maintenance of this equipment require a considerable knowledge of engineering. It is the duty of the Department of Rural Engineering to disseminate this engineering information and to render all the assistance possible to farmers in the solution of their engineering problems.

The extension engineer offers suggestions and assistance in the solution of the drainage, irrigation, machinery, water-supply, and sewage-disposal problems. Field visits and surveys are made from which plans and specifications are prepared and a written report submitted. A copy of these reports is placed on file in the county agents' offices, and these reports are used many times as patterns in other engineering problems of a like nature. By this and other means a general campaign of rural engineering education is carried on.

Owing to the fact that each year a considerable portion of the farm buildings of Kansas need replacing or remodeling, and due to the increased costs of labor and the necessity for farm buildings to be more efficiently located, the opportunity is presented to arrange the farmstead and buildings more conveniently. The extension architect offers assistance with the planning of the farmstead, the farm buildings, the water and sewage systems, and many related conveniences. A number of farm building plans and specifications, with particular reference to Kansas conditions, have been prepared. These plans are furnished to any one interested, at the cost of blue-printing.

The engineers of this department answer thousands of mail inquiries of an engineering nature each year, and furnish hundreds of small sketches showing how particular engineering problems can be solved. The services of the engineers of this department are free except when requests are made for special trips. Then a charge of travel and local expenses is made.

Home-study Service

CORRESPONDENCE STUDY

GEORGE GEMMELL, Head of Department
*CHARLES NITCHER, Animal Husbandry
B. H. FLEENOR, Education
FLOYD PATTISON, Industrial Subjects

ADA BILLINGS, History and Civics
MRS. MARCIA HALL, English
EARL LITWILLER, Horticulture
MRS. ETHEL J. MARSHALL, Home Economics

NOTE.—The Faculty members employed in the Home-study Service devote their entire time to the work of teaching by correspondence. They keep in close touch with the various departments of the College, and all credit courses which are offered by correspondence must first meet the requirements of the regular College departments handling the courses in residence.

There are many people in Kansas who, for many reasons, cannot attend classes on the campus, although they have interest in and need for the work offered by the Kansas State Agricultural College. Moreover, it has quite generally come to be recognized that even the completion of a college course does not end the necessity for education. It is in recognition of these manifold demands, far greater in number than the resident attendance at the College, that the institution offers to citizens of the state an opportunity to study at home various lines of agriculture, home economics, mechanic arts, farm engineering, and numerous high-school subjects.

The Home-study Service attempts to meet the widely varying needs and conditions of the people of Kansas by offering the following types of service:

1. *Extension or Vocational Courses*, which are complete, comprehensive courses adapted to the needs of those who are ambitious for thorough, scientific training to meet in an effective way the various practical and technical problems found in the various vocational activities. These afford the nearest possible home equivalent of a college education, and offer the particular advantage of utilizing the practical situations of life as their laboratory and shop exercises. For full information concerning the Vocational Courses, write to Home-study Service for catalogue.

2. *Credit Courses*, which are offered for those who for any reason are unable to attend school and wish to do work of a type that can be used for college or high-school credit. These courses are also of value to those who wish to use their time to advantage when school is not in session. For further information concerning Credit Courses, write to Home-study Service, K. S. A. C., Manhattan, Kan.

3. *Special Courses for Teachers*, which are a series designed as helps for teachers of industrial, agricultural and home-economics subjects. A particular effort is made in these courses to make available to the teachers of the state all the materials and aids which the Kansas State Agricultural College can offer them.

4. *Study Centers*. Under regulations established for this purpose, study centers may be arranged where college subjects may be studied under the personal direction of members of the College Faculty.

5. *Information Service*, the purpose of which is to afford a definite source to which technical or informational questions may be referred. All such questions which are referred to the Home-study Service will be promptly answered if possible, or referred to a specialist in the College elsewhere, who will supply the information desired.

6. *Lantern-slide Service*. A number of sets of lantern slides on agricultural, industrial and home economics subjects have been prepared by specialists in the College with particular reference to Kansas conditions. These will be loaned, free of cost (except transportation charges), to any responsible resident of Kansas. For further information concerning these, inquiries should be addressed to the Home-study Service of the College.

* Absent on leave, year 1925-'26. George Montgomery fills the position during Mr. Nitcher's absence.

VOCATIONAL COURSES

SUBJECTS COVERED. Vocational courses treat subjects covered in the three general fields, *Agriculture*, *Industry* and *Home Economics*. The list which follows is being revised from time to time according to demands.

BY WHOM CONDUCTED. The courses are prepared and taught by specialists in correspondence study, who keep in close touch with the College Faculty in their respective fields.

METHODS OF WORK. Each course is based upon a recognized standard text treating the subjects, and is covered in a number of definite lessons, ranging from ten to twenty. A written report is required of the student on each lesson, according to instructions sent upon enrollment.

EXAMINATIONS. Examinations in courses completed may be taken at the College or locally under the direction of some suitable person with whom arrangements can be made, such as a county superintendent or city superintendent.

FEES. The enrollment fee for a single vocational course is \$3 (\$6 to non-residents of Kansas).

BOOKS AND STATIONERY. Students will be expected to provide all textbooks, drawing instruments, stationery and other materials required in their courses, and to pay postage on lessons sent in.

AGRICULTURE

- | | |
|--|--------------------------------------|
| EA 1. Essentials of Agriculture. | EA 14. Poultry Management. |
| EA 2. Elementary Agricultural Chemistry. | EA 15. Small Fruits. |
| EA 3. Soils. | EA 17. Floriculture. |
| EA 4. Cereal Crops. | EA 18. Landscape Gardening. |
| EA 5. Forage Crops. | EA 20. Dairy Products. |
| EA 6. Vegetable Gardening. | EA 21. Milk Testing. |
| EA 7. Elements of Horticulture. | EA 23. Breeding Types of Live Stock. |
| EA 8. Feeds and Feeding. | EA 24. Horse Production. |
| EA 9. Animal Feeding. | EA 26. Beef Production. |
| EA 10. Types and Classes of Live Stock. | EA 27. Pork Production. |
| EA 11. Farm Dairying. | EA 28. Sheep Raising. |
| EA 12. Poultry Production. | EA 29. Live-stock Production. |
| EA 13. Economic Entomology. | EA 31. Farm Management. |

HOME ECONOMICS

- | | |
|------------------------------|---|
| EH 1. Household Management. | EH 11. Home Decoration. |
| EH 2. Foods and Cookery I. | EH 12. Personal Hygiene. |
| EH 3. Foods and Cookery II. | EH 13. Household Bacteriology. |
| EH 5. Sewing. | EH 14. Child Life and Care of Children. |
| EH 6. Textiles. | EH 15. Household Chemistry. |
| EH 7. Elementary Needlework. | EH 16. Costume Design. |
| EH 9. Home Nursing. | EH 17. Laundering. |

INDUSTRIAL SUBJECTS

- | | |
|--|---|
| EI 1. Shop Mathematics. | EI 13. Blacksmithing. |
| EI 2. Mechanical Drawing, Applied. | EI 15. Highway Construction. |
| EI 3. Architectural Drawing. | EI 17. Automobiles. |
| EI 4. Constructive Carpentry and Inside Finishing. | EI 23. Gasoline and Oil Traction Engines. |
| EI 5. Heating and Ventilating. | EI 25. Plumbing. |
| EI 10. Farm Machinery. | EI 26. Practical Electricity. |
| EI 11. Steam Boilers and Engines. | EI 27. Sheet Metal Drafting. |
| | EI 31. Automotive Ignition. |

CREDIT COURSES

GRADES OF WORK. Credit courses are offered in both high-school, or entrance-credit subjects, and college subjects. The courses in each case are the full equivalent of resident courses in like subjects.

BY WHOM CONDUCTED. The courses are prepared under the supervision of the heads of departments of the Agricultural College Faculty, and are taught by specialists in correspondence study under the same regulations that govern resident work.

EXAMINATION. Examinations may be taken at the College or under conditions approved by the College. In the latter case, arrangements can often be made with the local county superintendent, or city superintendent of schools, to conduct the examination.

REGULATIONS. 1. Enrollments for correspondence-study work will be received at any time during the year, and students may continue their work uninterruptedly throughout the entire year.

2. Correspondence students will be expected to complete any course for which they are enrolled within twelve months from the date of enrollment.

3. Not more than two courses are advised by correspondence at any one time. It is recommended that a student carry but one subject at a time, particularly where only part of the time is given to the work.

4. Each subject listed under the various departments constitutes what is known as a correspondence "course."

5. Students enrolling for correspondence courses must meet the prerequisites the same as if undertaking the work in residence.

6. A student may not be enrolled for correspondence work while in attendance at any institution of learning without special permission from the dean or proper authorities in the institution of which he is a student.

FEES. An enrollment fee of \$10 is charged for residents of Kansas; \$15 for nonresidents. For this amount the student is entitled to nine semester hours of college work, or three semester credits of high-school work, and is given a year in which to finish them. Extensions of time can be granted only where the work has been delayed because of personal illness of the student. All such cases must be taken up individually with the director of this department.

BOOKS AND STATIONERY. Students will be expected to provide all textbooks, drawing outfits, stationery and other materials required in their courses, also to pay postage on lessons one way.

FOR WHOM INTENDED. Though credit courses offered by the Home-study Service are still limited, the number is steadily growing, and it is the purpose of the department to add courses whenever a demand for them becomes evident. The other types of work are sufficiently broad to be of value to a great variety of people. The following classes in particular should be able to profit by them:

1. Those who have completed a common-school course, but for any reason are unable to attend high school.

2. High-school graduates temporarily or permanently unable to attend college.

3. Students whose attendance at high school or college has been interrupted.

4. Students who for any reason have fallen behind in their work and wish to use their spare time catching up.

5. The strong, aggressive student who does not wish to halt his progress for vacations and other interruptions.

6. High-school and grade classes in practical courses that need supplementing and enrichment.

7. Teachers who wish further professional or other training, or who need help in planning and conducting their work.

8. Professional and business men who wish to keep growing along some line of interest, professional or avocational.

9. Clubs and other organizations which wish to make systematic studies.

10. Men and women who wish effective help in meeting the demands in their vocations for technical and scientific knowledge and training.

COURSES OF INSTRUCTION

The list of Credit Courses offered is being extended constantly, the new courses added in each case being those for which there seems to be the most demand. The following is the present list:

High-school Courses

	Number of assignment	Unit H. S. credits
AGRICULTURE		
PCA 1. Elementary Agriculture I.....	20	1/2
PCA 2. Elementary Agriculture II.....	20	1/2
DRAWING		
PCD 3. Shop Mechanical Drawing I.....	20	1/2
PCD 4. Shop Mechanical Drawing II.....	20	1/2
ENGLISH		
PCE 1. Grammar and Composition (first year).....	20	1/2
PCE 2. Literature (first year).....	20	1/2
PCE 3. Composition (second year).....	20	1/2
PCE 4. Literature (second year).....	20	1/2
PCE 5. Composition (third year).....	20	1/2
PCE 6. Literature (third year).....	20	1/2
HISTORY		
PCH-A. Ancient History	20	1/2
PCH 3. Medieval History	20	1/2
PCH 4A. Modern History I.....	20	1/2
PCH 4B. Modern History II.....	20	1/2
PCH 5. American History I.....	20	1/2
PCH 6. American History II.....	20	1/2
PCH 7. Community Civics	20	1/2
PCH 8. Civics	20	1/2
PCH 9. Economics	20	1/2
PCC 1. Commercial Geography	20	1/2
MATHEMATICS		
PCM 1. Algebra I	20	1/2
PCM 2. Algebra II	20	1/2
PCM 3. Algebra III	20	1/2
PCM 4. Plane Geometry I.....	20	1/2
PCM 5. Plane Geometry II.....	20	1/2
PCM 6. Solid Geometry	20	1/2
PCM 7. Bookkeeping	20	1/2
SCIENCE		
PCS 1. Physical Geography	20	1/2
PCS 2. Botany	20	1/2
PCS 4. Physiology	20	1/2
PCS 5. General Science	20	1/2

College Credit Courses

DIVISION OF AGRICULTURE

	Semester credits	Assign- ments
AGRONOMY		
CA 3. Farm Crops	3	24
ANIMAL HUSBANDRY		
CL 2. History of Breeds.....	2	16
CL 4. Pork Production	2	16
CL 5. Horse Production	2	16
CL 6. Sheep Production	2	16
HORTICULTURE		
CH 1. Elements of Horticulture.....	3	24
CH 2. Vegetable Gardening	2	16
CH 3. Floriculture	2	16
CH 5. Landscape Gardening	1	8
CH 6. Small Fruits	2	16
POULTRY HUSBANDRY		
CPP 1. Farm Poultry Production.....	1	8

DIVISION OF ENGINEERING

APPLIED MECHANICS		
CE 2. Engineering Drawing	2	16
CE 6. Machine Drawing I.....	2	16
CE 4. Mechanism	3	24
CE 11. Descriptive Geometry	2	20

	Semester credits	Assign- ments
CIVIL ENGINEERING		
CE 1. Highway Engineering I.....	2	16
SHOP PRACTICE		
CE 7. Metallurgy	2	16
MECHANICAL ENGINEERING		
CE 3. Gas Engines and Tractors.....	2	16
CE 9. Steam Turbine Practice.....	3	27
CE 10. Essentials of Steam and Gas Power Engineering.....	2	16
DIVISION OF HOME ECONOMICS		
CLOTHING AND TEXTILES		
CHE 1. Textiles	2	16
FOOD ECONOMICS AND NUTRITION		
CHE 2. Foods Study	1	8
HOUSEHOLD ECONOMICS		
CHE 3. Sanitation and Public Health.....	3	24
DIVISION OF GENERAL SCIENCE		
ECONOMICS AND SOCIOLOGY		
CEc 1. Economics	3	24
CS 2. Rural Sociology	3	24
CS 3. Sociology	3	24
CS 4. Rural Organization	2	16
EDUCATION (PROFESSIONAL)		
CP 1. Industrial Education	3	24
CP 2. Educational Psychology	3	24
CP 3. Educational Sociology	3	24
CP 4. History of Education.....	3	24
CP 5. School Management	3	24
CP 6G. Methods of Teaching in the Grades.....	3	24
CP 6H. Methods of Teaching in High School.....	3	24
CP 7. Educational Administration	3	24
CP 8. Psychology	3	24
CP 9. School Discipline	2	16
CP 10. Rural Education	3	24
CP 11. Agricultural Education	3	24
CP 12. Home Economics Education.....	2	16
CP 13. Vocational Guidance	2	16
CP 14. Vocational Education	3	24
ENGLISH		
CCE 1. College Rhetoric I.....	3	24
CCE 2. College Rhetoric II.....	3	24
CCC 3. Business English	3	24
CCE 4. The Short Story.....	3	24
CCE 6. English Literature	3	24
CCE 7. American Literature	3	24
HISTORY AND CIVICS		
CHC 1. Community Civics	2	16
CHC 2. Modern Europe I.....	3	24
CHC 4. English History	3	24
MATHEMATICS		
CM 7. Plane Trigonometry	3	25
CM 8. College Algebra	3	25
PHYSICAL SCIENCE		
CG 1. General Geology	3	24

The Agricultural Experiment Station

The Kansas Agricultural Experiment Station was organized under the provisions of an act of congress, approved March 2, 1887, which is commonly known as the "Hatch act," and is officially designated as—

"An act to establish agricultural experiment stations in connection with the colleges established in the several states under the provisions of an act approved July 2, 1862, and the acts supplementary thereto."

The wide scope and far-reaching purposes of this act are best comprehended by an extract from the body of the measure itself, in which the objects of its enactment are stated as being—

"To aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and practice of agricultural science."

The law specifies in detail—

"That it shall be the object and duty of said experiment stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and waters; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses for forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable."

On the day after the Hatch act had received the signature of the President, the legislature of Kansas, being then in session, passed a resolution, dated March 3, 1887, accepting the conditions of the measure, and vesting the responsibility of carrying out its provisions in the Board of Regents of the Kansas State Agricultural College.

Until 1908 the expenses of the Agricultural Experiment Station were provided for entirely by the federal government. The original creative act (the Hatch act) carried an annual congressional appropriation of \$15,000. No further addition to this amount was made until the passage of the Adams act, which was approved by the President March 16, 1906. This measure provided, "for the more complete endowment and maintenance of agricultural experiment stations," a sum beginning with \$5,000, and increasing each year by \$2,000 over the preceding year for five years, since which time the annual appropriation has been \$15,000—

"To be applied to paying the necessary expenses of conducting original researches or experiments bearing directly on the agricultural industry of the United States, having due regard to the varying conditions and needs of the respective states or territories."

It is further provided that—

"No portion of said moneys exceeding five percentum of each annual appropriation shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation or repair of any building or buildings, or to the purchase or rental of land."

The Adams act, providing as it does for original investigations, supplied the greatest need of the Agricultural Experiment Station—means of providing men and equipment for advanced research. Only such experiments may be entered upon, under the provisions of this act as have first been passed upon and approved by the Office of Experiment Stations of the United States Department of Agriculture.

Further support for the Agricultural Experiment Station was provided by the federal government by the passage of the Purnell Act which was approved by the President, February 24, 1925. This measure authorized an appropria-

tion of \$20,000 for the fiscal year beginning July 1, 1925, with increasing annual allotments of \$10,000 until a total of \$60,000 will be reached for the fiscal year beginning July 1, 1929. The law specifies that—

"The funds appropriated pursuant to this act shall be applied only to paying the necessary expenses of conducting investigations or making experiments bearing directly on the production, manufacture, preparation, use, distribution, and marketing of agricultural products and including such scientific researches as have for their purpose the establishment and maintenance of a permanent and efficient agricultural industry, and such economic and sociological investigations as have for their purpose the development and improvement of the rural home and rural life, and for printing and disseminating the results of said researches."

The Purnell act, while specific in its statement of the purposes for which the appropriation may be used, is broad in scope and provides specifically for scientific research in agricultural economics, home economics and rural sociology, in addition to providing more liberal support for the older established work of the Agricultural Experiment Station.

More than one hundred projects, covering practically all phases of agriculture investigation, are being studied by the members of the Agricultural Experiment Station Staff.

The farms, live stock, laboratories, and general equipment of the College are all directly available for the use of the Agricultural Experiment Station.

The results of the work of the Station are published in the form of bulletins, circulars, and scientific papers. These bulletins are of two classes—those which record the results of research work of a purely scientific character and those which present technical information in a simplified form, suitable for the general reader. The circulars are popular presentations of data which call for immediate application, as well as timely and useful information not necessarily new or original. The scientific papers are usually published as reprints or addresses given before scientific bodies. These reprints contain original information or report definite steps in the progress of investigations under way.

All bulletins and other publications from the Agricultural Experiment Station are sent without charge to citizens of the state. Any person in the state who so desires may have his name placed on the permanent mailing list of the Station.

Letters of inquiry and general correspondence should be addressed: "Agricultural Experiment Station, Manhattan, Kan." Special inquiries should be directed, so far as possible, to the heads of departments having in charge the matters concerning which information is desired.

CONTROL WORK OF THE STATION

In addition to the work of agricultural investigation, the state has enlarged the activities of the Station along various lines of state executive or control work.

One of the important lines of control work is that of the State Entomological Commission. (Laws of 1907, ch. 386; 1909, ch. 27.) This commission, created in 1907, was established—

"To suppress and eradicate San Jose scale and other dangerous insect pests and plant diseases throughout the state of Kansas."

The professors of entomology at the Agricultural College and at the University of Kansas are by law designated as two of the five members of the above commission. Acting under the title of state entomologists, they divide between them the territory of the state, for the purpose of inspection.

They are empowered—

"To enter upon any public premises . . . or upon any land of any firm, corporation or private individual within the state of Kansas, for the purpose of inspection, destroying, treating, or experiment upon the insects or diseases aforesaid."

They may treat or cause to be treated "any and all suspicious trees, vines, shrubs, plants, and grains," or, under certain conditions, may destroy them. They must annually inspect all nursery stock, and no nursery stock is to be admitted within the state without such inspection.

By legislative act (Laws of 1909, ch. 49), a "division of forestry" at the Agricultural College is also provided for in the following terms:

"For the promotion of forestry in Kansas there shall be established at the Kansas State Agricultural College, under the direction of the Board of Regents, a division of forestry. The Board of Regents of the Kansas State Agricultural College shall appoint a state forester, who shall have general supervision of all experimental and demonstration work in forestry conducted by the Experiment Station. He shall promote practical forestry in every possible way, compile and disseminate information relative to forestry, and publish the results of such work through bulletins, press notices, and in such other ways as may be most practicable to reach the public, and by lecturing before farmers' institutes, associations, and other organizations interested in forestry."

It will thus be seen that the state of Kansas is making increasing use of the scientific staff of the Agricultural Experiment Station in matters of state importance requiring the application of technical knowledge.

Branch Agricultural Experiment Stations

FORT HAYS BRANCH STATION

The land occupied by this Station is a part of what was originally the Fort Hays military reservation. Being no longer required for military purposes, it was turned over to the Department of the Interior, October 22, 1899, for disposal under the act of congress of July 5, 1884. Through the influence of Senator, later Regent, W. A. Harris, and of Congressman Reeder, a bill was passed in the fifty-sixth congress setting aside this reservation "for the purpose of establishing an experimental station of the Kansas Agricultural College and a western branch of the Kansas State Normal School thereon and a public park." This bill was approved by the President on March 28, 1900. By act of the state legislature, approved on February 7, 1901, the act of congress donating this land and imposing the burden of the support of these institutions was accepted. The same session of the legislature passed an act providing for the organization of a branch experiment station and appropriating a small fund for preliminary work. In the division of this land, the College received 3,560 acres.

The land at the Fort Hays Branch Station consists mainly of high, rolling prairie, with a limited area of rich alluvium bordering on a creek, and is situated on the edge of the semi-arid plains region. It is well suited for experimental and demonstration work in dry farming, in irrigation, and in crop, forestry, and orchard tests, under conditions of limited rainfall and high evaporation.

The work of this Station may be divided into two divisions: (A) experimental projects, (B) general farm and live-stock work. The experimental projects are as follows: Dry-farming investigations, forage-crop investigations, cereal-crop investigations, forest, nursery and park demonstration and investigations, farm dairying, and experiments in the feeding and breeding of live stock. All this work is confined to the study of the problems peculiar to the western half of the state, and relates especially to crop production under limited rainfall, to the development of varieties better adapted to the climatic conditions there prevailing, and to studies of the systems of animal husbandry and dairy husbandry suited to this region. The facilities of this Station are being used for the growing of large quantities of pure seed of the strains and varieties which have proved in actual test to be most productive in the western part of the state.

GARDEN CITY BRANCH STATION

In 1906 the county commissioners of Finney county purchased, for purposes of agricultural experimentation, a tract of land amounting to 320 acres, situated four and one-half miles from Garden City, on the unirrigated upland.

The land has been leased for a term of ninety-nine years to the Kansas Agricultural Experiment Station as an "experimental and demonstration farm," for the purpose of determining the methods of culture, crop varieties, and crop rotation best suited to the southwestern portion of the state, under dry-land farming conditions. A pumping plant irrigating from eighty to one hundred acres has been installed for the purpose of investigating the expense of pumping and the cost of equipment necessary for plants of this type, which are common in the shallow-water districts between Garden City and Scott City and along the Arkansas valley. The Agricultural Experiment Station's investigations in irrigation agriculture are centered at this branch station.

COLBY BRANCH STATION

The legislature of 1913 provided for the establishment of a branch experiment and demonstration station near Colby, in northwestern Kansas, "for the purpose of advancing and developing the agricultural, horticultural, and irrigation interests of this state and western Kansas." This Station was located upon a tract of three hundred and fourteen acres of land bordering upon the town site of Colby. This land was purchased by the county and deeded to the state for the purposes named above. Operations were begun in March, 1914. Cropping experiments are being conducted under dry-land conditions and under irrigation. Water is being lifted one hundred and fifty feet for irrigating a garden, fruit trees, and a few desirable crops, such as alfalfa, that could not be grown successfully in western Kansas with the natural rainfall. The primary purpose of the Colby Station is to determine the best methods of developing the agriculture of northwestern Kansas and to make it a still more desirable place to live.

TRIBUNE BRANCH STATION

At the Tribune Station experimental and demonstration work is conducted for the benefit of the surrounding territory. Special attention is paid to the problems of producing, storing, and utilizing crops for winter feeding of cattle which in summer graze the extensive range areas of the extreme western part of the state.

The Engineering Experiment Station

The Engineering Experiment Station was established for the purpose of carrying on tests and research work of engineering and manufacturing value to the state of Kansas, and of collecting, preparing, and presenting technical information in a form readily available for the use of the various industries within the state. It is the intention to make all the work of the Experiment Station of direct importance to Kansas.

All of the equipment of the various engineering and scientific laboratories, the shops, and the College power plant are available for the work, while the personnel of the Station consists of members of the teaching staff from the various departments of the Division of Engineering and from other scientific departments whose work is directly related to the work of this division.

Among the investigations now being carried on are: Tests of flour mill heating systems; quality of concrete used in Kansas highway construction; atmospheric resistance of motor vehicles; farm-sewage disposal systems; radio-activity of gas-well borings; Lewis factors for nonstandard gear teeth; durability tests of belt lacings or fastenings; tests of oil burners for house heating boilers; road material resources of Kansas; use of straw as fuel; dairy buildings for Kansas; durability of concrete in alkali water; study of tension and compression tests of cement and mortars; relation of electricity to irrigation; relation of electricity to dairying; relation of electricity to poultry production; relation of electricity to processing and handling of grain and forage; and temperature investigations of floors for dairy barns.

Various other investigations are being carried on upon brick, concrete, fuels, lubricating oils, pipe coverings, insulation for refrigeration, belt lacings, blacksmith coals, foundry sands, centrifugal pumps, and problems in farm architecture.

The testing laboratories of this Station have been designed by law* as the testing laboratories for the State Highway Commission and the state highway engineer, and as such have charge of the testing of all road materials for use in federal-aid road construction in this state.

The results of the investigations are published as bulletins and circulars of the Engineering Experiment Station, which are sent free to any citizen of the state upon request. Besides issuing these bulletins, the Station answers yearly many hundreds of requests for information upon matters coming within its field.

Requests for bulletins and general correspondence should be addressed to Engineering Experiment Station, Manhattan, Kan. Requests for information in specific matters should be addressed, so far as it is possible, to the heads of departments in whose fields the particular matters lie.

* Sec. 5, ch. 64, Laws of 1917.

The Bureau of Research in Home Economics

The bureau of research in home economics conducts investigations in the scientific, economic and social problems of the home. The purpose of this research is to discover new facts and new methods of the application of scientific knowledge bearing upon the welfare of the members of the family and the conditions under which they live.

The fields of research included in the bureau are: Child welfare, clothing and textiles, food economics, household administration, institutional administration, human nutrition, and dietetics.

The laboratories of the Division of Home Economics include equipment suitable for work on certain of the problems. Opportunities for surveys and investigations of conditions in the state are found through the coöperation of various educational and social agencies.

The results of all investigations are published from time to time and are available on request to all citizens of the state.

The personnel of the bureau staff includes members of the teaching faculty in home economics. Several of the departments in other divisions of the College advise or collaborate with officers of the bureau on problems of related interest.

Among the investigations in progress are the following:

- *Utilization of calcium and phosphorus from canned, dried, and fresh milk by children.

- *Factors influencing the growth of children.

- *Vitamin content of foods relating to human nutrition:

- a. Fruits.

- b. Vegetables.

- c. Cereals.

Human utilization of the carbohydrates of parsnips.

Effect of freezing on the carbohydrates of the parsnip.

- *A study of the coefficient of protection of clothing fabrics.

- *The screening action of fabrics against sunlight.

- *A study of time spent in infant care.

A study of costs of sickness to farm families.

* Those starred are being supported in part by funds from the Agricultural Experiment Station.

Special Courses

Short Courses in Agriculture

Farmers' Short Course

Kansas State Agricultural College offers in agriculture primarily a four-year curriculum, which gives the student fundamental training in the sciences relating to agriculture and their application to the production of crops and live stock, and to farming in general. Such a curriculum not only equips a man to become a successful farmer, but makes of him a better citizen, and a leader in the broader duties of life.

Many men who have chosen farming as their vocation, and who are alive to some of the advantages offered by this institution to the farmers of the state, are denied the opportunity of pursuing the College curriculum in agriculture, or even as much as one year's work in that curriculum. For such men the Agricultural College provides the Farmers' Short Course.

The course requires two years for completion, an eight-week term being given each year. For 1927 the session will begin Monday, January 3, and close Saturday, February 26. Besides the required subjects each student may take one or two elective subjects each year.

SUBJECTS IN FARMERS' SHORT COURSE

The Arabic numeral immediately following the name of a subject indicates the number of credits, while the numerals in parentheses indicate the number of hours a week of recitation and laboratory, respectively.

FIRST YEAR

REQUIRED

Soils and Fertilizers	4(4-0)
Live-stock Production I.....	5(3-4)
Dairying I	5(3-4)
Grain Crops	4(3-2)
Special Lectures	1(2-0)

ELECTIVE

Beekeeping	6(4-4)
Poultry Husbandry	3(3-0)
Fruit Growing	3(2-2)
Live-stock Sanitation	3(3-0)
Farm Management	4(3-2)
Farm Marketing	3(3-0)
Farm Accounting	3(2-2)
Farm Insects and Rodents.....	2(2-0)
Dairying II	5(3-4)

It is also possible to elect a limited amount of work in carpentry, blacksmithing, or gas engines and tractors.

SECOND YEAR

REQUIRED

Forage Crops	4(3-2)
Live-stock Production II	5(3-4)
Farm Buildings and Equipmeent.....	4(4-0)
Farm Horticulture	3(2-2)
Special Lectures	1(2-0)

Any of the subjects listed in the elective work of the first year may also be taken as electives during the second year.

For each hour of recitation per week usually at least one hour of outside preparation is required. Laboratory or field work requires little or no outside preparation. Each credit (standard for measuring the quantity of work done) represents not less than two hours' work per week for the entire eight weeks of the term. A regular, full-time assignment consists of not less than twenty credits, and students are usually not encouraged to take more than twenty-four credits.

Students desiring further work in farm engineering are referred to "Special Courses Related to Engineering," discussed elsewhere in this catalogue. For example, a man may enroll for intensive work in the training of automechanics, tractor operators, carpenters, or blacksmiths, on the fourth Monday of September, and during the months of January and February devote himself almost exclusively to Farmers' Short-Course work.

It must be noted that Farmers' Short-Course work cannot be taken at any other time during the year than during this midwinter, eight-week term. Furthermore, students expecting credit must continue the work for the entire term.

CERTIFICATE. A certificate will be granted to each student completing satisfactorily the thirty-six credit hours of work required and not less than four credit hours of electives.

REQUIREMENTS FOR ADMISSION. This course is intended primarily for mature individuals. High-school work in the state is becoming so general and available to all communities that the demand for short-course work for boys of high-school age is being greatly reduced. Young farmers, not in school, are especially urged to consider the advantages of the Farmers' Short Course. Students over seventeen years of age are admitted without examination.

There is no charge for tuition, but each student is required to pay, on enrollment, an incidental fee of \$5, also a sick-benefit fee of \$1.50. This latter fee entitles him to free medical attendance by the College physician. In several of the laboratories, laboratory deposits or charges varying from 50 cents to \$1 must be made to cover cost of materials used.

SELF-SUPPORT. The subjects of this course are primarily practical. They bring the student into actual contact with farm conditions and products. Besides the classroom work, many hours each week are spent in the stock-judging pavilion, laboratory, shop, and barn. This leaves the student but little time for outside labor, and students are therefore advised to come provided with as nearly all the necessary funds for the course as possible.

BRIEF DESCRIPTION OF THE WORK

SOILS AND FERTILIZERS. (Agron. 3.) In this class the various soil types common in Kansas are studied, especially with reference to their economical management for the production of profitable crops and the maintenance of fertility.

LIVE-STOCK PRODUCTION I. (An. Husb. 6.) The work of this class consists of a study of the principles and practices of feeding and management of live stock. Three-fourths of the time in the laboratory is devoted to judging live stock and the remainder of demonstrations in killing, cutting, curing, and storing of meat on the farm.

DAIRYING I. (Dairy Husb. 1.) This class considers the general subject of farm dairying, including the composition and properties of milk, the feeding of the dairy cow, the selecting and breeding of the dairy herd, and dairy sanitation. The laboratory provides practical work with the Babcock tester, in the use of the farm separator, and in butter making. Laboratory deposit, \$1.

GRAIN CROPS. (Agron. 1.) The work in this subject consists of a practical study of grain-crop production. In the laboratory exercises are given for the identification of different kinds of threshed grain and the determination of damage and market classes and grades. Laboratory charge, 50 cents.

SPECIAL LECTURES. One credit is given each year for attending these lectures. Among the speakers provided will be several members of the College Faculty, including the president of the College, and some of the outside, well-known agricultural leaders.

FORAGE CROPS. (Agron. 2.) This class makes a study of the distribution and production of important forage crops, especially for Kansas conditions.

Practical exercises in identification are given in the laboratory. Laboratory charge, 50 cents.

LIVE-STOCK PRODUCTION II. (An. Husb. 8.) The work of this class consists primarily of a study of the principles and practices in breeding, history of the development of the different breeds, and the pedigrees of noted individuals. Some time is given to the matter of fitting live stock for show and sale. The laboratory work consists of judging.

FARM BUILDINGS AND EQUIPMENT. (Ag. Engr. 2.) This class takes up the fundamental principles of farm building arrangement and construction, including barns, houses, hog houses, poultry houses, machine sheds, silos, cribs, and granaries. Particular attention is given to farm equipment, such as tillage, seeding, and harvesting machinery, both horse-drawn and power. Some time is devoted to concrete construction, farm water systems, sanitation, heating, lighting, and ventilation. Text: Ramsower's *Equipment for the Farm and the Farmstead*.

FARM HORTICULTURE. (Hort. 1.) The work in this class is designed to give the student an appreciation of the possibilities of the art of horticulture in creating better living conditions and better homes. Brief consideration is given to the planning of the farmstead; the planting of ornamentals, wind-breaks, and forest trees; and the care of garden, small fruits, and the home orchard. Incidentally an attempt is made to suggest the possibilities of commercial horticulture in localities adapted to special crops.

BEEKEEPING. (Ent. 10.) This subject considers the elements of practical beekeeping. The topics discussed include: Life history, behavior and instincts of the honeybee; products of the apiary; and relation of bees to crop production. A study is made of the various bee diseases, together with their treatment. The laboratory exercises consist of practice in constructing hives, supers, brood frames, comb-honey sections, extracting frames, and wiring frames; also of practice in putting in and embedding foundation. Demonstrations are given of various methods of transferring bees, manipulating colonies for swarm prevention and making increase, treatment of brood diseases, and wintering. The object of the work is to give such practical training as will prepare the student to engage successfully in beekeeping.

POULTRY HUSBANDRY. (Poult. Husb. 1.) The work in Poultry Husbandry covers the practical phases of poultry management, including feeding, breeding, housing, incubation, and brooding.

FRUIT GROWING. (Hort. 2.) This subject is intended to give young men who have the ambition and opportunity to engage in fruit growing the principles that underlie the success of the enterprise. The work includes a discussion of soils and soil conditions; the possibilities of irrigation; the fruit varieties adapted to various locations; plans for planting and care of young orchards; formative pruning and the problems of protecting trees from insects and diseases; and the storage and marketing of fruit.

LIVE-STOCK SANITATION. (Vet. Med. 1.) This subject deals with diseases that are communicable from animal to animal or from animal to man. The causes, symptoms and methods that are employed to prevent and to combat the spread of diseases, and the drugs that are commonly used as disinfectants, for washes, dips, etc., are given full consideration. The use of serums, vaccines, etc., for the prevention of disease is considered. Methods of disposal of sick and dead animals as well as the means employed to clean and to disinfect the premises so as to prevent a recurrence of diseases are considered.

FARM MANAGEMENT. (Ag. Ec. 1.) In this class the work in the various agricultural subjects is correlated and placed on a practical, workable basis. The principles of farm accounting, distribution of capital, laying out of fields, planning rotations, etc., are given first consideration. Laboratory charge, 50 cents.

FARM MARKETING. (Ag. Ec. 2.) The work in this course consists of a study of marketing functions and services, and a means of improving the methods of marketing farm products. Considerable attention is given to coöperation as a means of improving the marketing of farm products.

FARM ACCOUNTING. (Ag. Ec. 3.) This course endeavors to acquaint the student with records which the farmer should keep, methods of keeping these records, and ways of utilizing the information given by the records. In the laboratory, exercises are given dealing with inventory, crop, live stock, labor, and other accounts using figures obtained from Kansas farms. The practice work shows methods of keeping accounts and analyzing their results. Necessary account books, accounting forms, and supplies for laboratory use are furnished the student. Laboratory charge, 50 cents.

FARM INSECTS AND RODENTS. In this course methods of controlling serious insect pests of the farm, garden and orchard and those affecting domestic animals are discussed, emphasizing the importance of clean culture and good farm methods. The control of common rodents injurious to the farmer, especially gophers, prairie dogs, rats, mice, moles, and rabbits, is given due emphasis.

DAIRYING II. (Dairy Husb. 3.) Among the subjects studied and discussed in this class are the following: Keeping records and accounts of dairy-farm business; building up the dairy herd; dairy buildings and equipment; silos and silage; the dairy business and soil fertility; cow-testing associations; co-operative ownership of dairy sires; and detailed plans for the management of the dairy farm. Laboratory work consists of judging dairy cattle from the standpoint of economical production and breed type. Score cards are used for the purpose of making the student systematic and accurate in the selection of dairy animals.

GAS ENGINES AND TRACTORS. (Ag. Engr. 3.) This course consists of a practical study of the principles and applications of the stationary gas engine and the tractor for farm use. Class work includes a study of tractor construction, operation and repair, and of carburetion, ignition, lubrication and cooling systems. A study is made of the repair jobs the tractor operator should be able to do himself.

Commercial Creamery Short Course

The Commercial Creamery Short Course, eight weeks in length, is designed to train young men in the manufacture of butter and ice cream and in the handling of market milk. Young men with no previous experience in dairy manufactures may obtain from this course practical and technical training which will give them a foundation on which to build, while those with some previous experience will find the work a great help toward more rapid advancement.

The new College creamery, which is operated on a commercial basis, provides unusual facilities for this training. The equipment is complete and of the latest design. The work is in direct charge of experienced well-trained creamerymen. The scope of the work, the nature of its various phases, and the comparative amount of time devoted to each are indicated by the following outline:

SUBJECTS IN COMMERCIAL CREAMERY SHORT COURSE

The Arabic numeral immediately following the name of a subject indicates the number of credits, while the numerals in parentheses indicate the number of hours a week of recitation and laboratory, respectively.

Creamery Management	2(2-0)
Creamery Butter Making.....	8(4-8)
Market Milk	3(2-2)
Dairy Bacteriology	2(2-0)
Ice Cream and Cheese Making.....	4(2-4)
Judging Dairy Products.....	1(0-2)
Dairying II	5(3-4)
Dairy Mechanics and Refrigeration.....	2(0-4)

There is no charge for tuition in this short course. Each student is required to pay on enrollment an incidental fee of \$5, a laboratory charge of \$2 and a sick-benefit fee of \$1.50. This latter fee entitles him to free medical attendance by the College physician.

A certificate will be issued to Commercial Creamery Short-course students who satisfactorily complete all of the required work outlined above, and who show satisfactory evidence of having spent at least six months successfully in actual work in a creamery. Students without this practical experience may acquire it after completing the course. They will then receive their certificates.

BRIEF DESCRIPTION OF THE WORK

CREAMERY MANAGEMENT. This class makes a study of the management of dairy manufacturing plants, dealing with manufacturing efficiency.

CREAMERY BUTTERMAKING. A practical study of buttermaking from the raw milk on the farm to the finished package is made by this class. The centralizing system is given special consideration in the light of Kansas conditions.

MARKET MILK. The problems concerned in the care and handling of milk from production to delivery by the most modern methods are studied in this class.

DAIRY BACTERIOLOGY. The work in this subject is chiefly laboratory work supplemented by brief lectures and explanations. The elementary fundamental problems of dairy bacteriology are considered, including the significance and control of bacteriological contamination in milk and its products.

ICE CREAM AND CHEESE MAKING. The work in this subject deals with the manufacture of ice cream as carried on in the most up-to-date plant. Some time is devoted to cheese making, with special emphasis on the package- and soft-cheese business.

JUDGING DAIRY PRODUCTS. The successful manufacturer must be able to recognize defects in his product. This ability is acquired rapidly in the practice in judging provided in this class.

DAIRYING II. The creamery man deals directly with the farmer. He should know something of the milk producers' problems in order to meet producers intelligently. The work in this class is designed with this idea in mind. (A brief description of the work given in this subject may be found in the "Farmers' Short Course" write-up.)

DAIRY MECHANICS AND REFRIGERATION. The work of this class covers the theory and practice of mechanical refrigeration, pipe fitting, belt lacing, and soldering.

Short Course in Wheat and Flour Testing

Many workers in the milling industry are anxious to take a few weeks in which to secure intense, practical training in their field. The College in endeavoring to meet the needs of this group of workers has provided a four-week course known as the Short Course in Wheat and Flour Testing. It begins the first Monday in April each year.

This course affords opportunity for making experimental milling tests and experimental baking tests as well as practice and demonstration in the following chemical determinations: absorption, gluten, ash, moisture, acidity, and protein. Special lectures are given on the meaning of these terms in relation to quality in wheat and flour.

The well-equipped mill and laboratories used for College courses are available to short-course students taking this work. An incidental fee of \$2.50 is charged and a laboratory fee of \$10 to cover the cost of materials used.

One- and Two-year Courses in Trades Related to Engineering

The purpose of these one- and two-year trade courses is to give the student a practical working knowledge of one of the trades and in addition to give him work in shop arithmetic, shop drawings and other studies which are essential to its successful application. Each of the several courses is intensely practical, well rounded, and should prove profitable to any who desire a thorough training in a trade course. A certificate will be granted to each student satisfactorily completing the prescribed work. These courses begin on the same date as the regular college work.

It should be noted that for each hour of recitation per week at least one hour of outside preparation is required. Laboratory work requires little or no outside preparation. Each semester credit (standard for measuring the quantity of work done) represents not less than two hours' work per week for the entire semester. For summer school each credit represents not less than four hours' work per week.

In general, students are required to take the subjects in the order outlined; however, if the conditions warrant, the order may be changed by the Head of the Department.

Substitutions will be allowed in certain cases where the conditions seem to justify it.

REQUIREMENTS FOR ADMISSION. Students entering any of the one- and two-year trade courses should have completed the eighth grade in common-school education, or its equivalent.

Two-year Trade Course for Machinists

The Arabic numeral immediately following the name of a subject indicates the number of credits, while the numerals in parentheses indicate the number of hours a week of recitation and of laboratory, respectively.

FIRST-YEAR

FIRST SEMESTER	SECOND SEMESTER
Shop Calculations I	Shop Calculations II
Shop 1 4(4-0)	Shop 2 2(2-0)
Shop Drawing I	Shop Drawing II
Shop 3 2(0-4)	Shop 4 2(0-4)
Soldering and Babbitting	Machine Shop II
Shop 20 2(0-4)	Shop 11 16(0-32)
Blacksmithing I	
Shop 21 2(0-4)	
Acetylene Welding	
Shop 24 2(0-4)	
Foundry I	
Shop 40 2(0-4)	
Machine Shop I	
Shop 10 6(0-12)	

SUMMER SCHOOL

Machine Shop III
Shop 12 10(0-40)

SECOND YEAR

FIRST SEMESTER	SECOND SEMESTER
Shop Drawing III	Shop Management
Shop 5 2(0-4)	Shop 7 3(3-0)
Machine Shop IV	Jig and Fixture Design
Shop 13 18(0-36)	Shop 6 2(0-4)
	Machine Shop V
	Shop 14 15(0-30)

SUMMER SCHOOL

Machine Shop VI
Shop 15 10(0-40)

One-year Trade Course for Automechanics

The Arabic numeral immediately following the name of a subject indicates the number of credits, while the numerals in parentheses indicate the number of hours a week of recitation and laboratory, respectively.

FIRST SEMESTER		SECOND SEMESTER	
Shop Calculations I		Shop Calculations II	
Shop 1	4(4-0)	Shop 2	2(2-0)
Shop Drawing I		Shop Drawing II	
Shop 3	2(0-4)	Shop 4	2(0-4)
Soldering and Babbiting		Shop Management	
Shop 20	2(0-4)	Shop 7	3(3-0)
Blacksmithing I		Automechanics I	
Shop 21	2(0-4)	Shop 30	13(0-26)
Acetylene Welding			
Shop 24	2(0-4)		
Foundry I			
Shop 40	2(0-4)		
Machine Shop I			
Shop 10	6(0-12)		
SUMMER SCHOOL			
Automechanics II			
Shop 31	10(0-40)		

One-year Trade Course in Blacksmithing

The Arabic numeral immediately following the name of a subject indicates the number of credits, while the numerals in parentheses indicate the number of hours a week of recitation and laboratory, respectively.

FIRST SEMESTER		SECOND SEMESTER	
Shop Calculations I		Shop Calculations II	
Shop 1	4(4-0)	Shop 2	2(2-0)
Shop Drawing I		Shop Drawing II	
Shop 3	2(0-4)	Shop 4	2(0-4)
Soldering and Babbiting		Shop Management	
Shop 20	2(0-4)	Shop 7	3(3-0)
Blacksmithing I		Blacksmithing II	
Shop 21	2(0-4)	Shop 22	13(0-26)
Acetylene Welding			
Shop 24	2(0-4)		
Foundry I			
Shop 40	2(0-4)		
Machine Shop I			
Shop 10	6(0-12)		
SUMMER SCHOOL			
Blacksmithing III			
Shop 23	10(0-40)		

One-year Trade Course in Foundry Practice

The Arabic numeral immediately following the name of a subject indicates the number of credits, while the numerals in parentheses indicate the number of hours a week of recitation and laboratory, respectively.

FIRST SEMESTER		SECOND SEMESTER	
Shop Calculations I		Shop Calculations II	
Shop 1	4(4-0)	Shop 2	2(2-0)
Shop Drawing I		Shop Drawing II	
Shop 3	2(0-4)	Shop 4	2(0-4)
Soldering and Babbitting		Shop Management	
Shop 20	2(0-4)	Shop 7	3(3-0)
Blacksmithing I		Foundry II	
Shop 21	2(0-4)	Shop 41	13(0-26)
Acetylene Welding			
Shop 24	2(0-4)		
Foundry I			
Shop 40	2(0-4)		
Machine Shop I			
Shop 10	6(0-12)		
SUMMER SCHOOL			
Foundry III			
Shop 42	10(0-40)		

BRIEF DESCRIPTION OF COURSES

Shop Practice Department

1. **SHOP CALCULATIONS I.** Class work, four hours. Four semester credits. This course is designed to give practice in the use of the principles of arithmetic in the solution of shop problems. Much information on various matters to which shop mathematics is applied is given in the problems assigned.

2. **SHOP CALCULATIONS II.** Class work, two hours. Two semester credits. Prerequisite: Shop Calculations I (Shop I).

This course is a continuation of Shop Calculations I, including a concise treatment of shop mathematical problems and their application.

3. **SHOP DRAWING I.** Drafting-room practice, four hours. Two semester credits.

This course comprises free-hand lettering, the use of the drawing board, T-square and drawing instruments, the construction of geometrical figures, orthographic projections and sections of simple objects.

4. **SHOP DRAWING II.** Drafting-room practice, four hours. Two semester credits. Prerequisite: Shop Drawing I (Shop 3).

Practice is given in lettering, in the construction of orthographic and isometric projections, revolutions, intersections, developments of surfaces, and sheet metal drafting.

5. **SHOP DRAWING III.** Drafting-room practice, four hours. Two semester credits. Prerequisite: Shop Drawing II (Shop 4).

Working drawings are made from plates during the first part of the semester. Later, free-hand sketches are made of machine parts, and working drawings are made from these sketches.

6. **JIG AND FIXTURE DESIGN.** Drafting-room practice, four hours. Two semester credits. Prerequisite: Shop Drawing III (Shop 5).

This work is devoted to the design of jigs and fixtures for machining interchangeable machine parts. The empirical methods used acquaint the student with the use of standard handbooks as a reference in shop work and design.

7. **SHOP MANAGEMENT.** Class work, three hours. Three semester credits.

This course deals with the problems of the shop foreman or owner. A study is made of the selection, installation and arrangement of equipment;

the standardization of machines and tools; the purchasing, collection, stock and store methods; and the management of an enterprise from the viewpoint of the executive.

20. **SOLDERING AND BABBITTING.** Laboratory, four hours. Two semester credits.

This work is devoted to instruction and practice in forming and soldering the common metals. It includes the use of the different fluxes required. Emphasis is placed upon the proper pouring and fitting of babbitt bearings. Laboratory charge, \$1.50 per credit.

21. **BLACKSMITHING I.** Laboratory, four hours. Two semester credits. Laboratory charge, \$1.50 per credit.

22. **BLACKSMITHING II.** Laboratory, twenty-six hours. Thirteen semester credits. Laboratory charge, \$1.50 per credit.

23. **BLACKSMITHING III.** Laboratory, twenty hours. Ten semester credits. Laboratory charge, \$1.50 per credit..

The courses in blacksmithing bring into practice all the important forging operations; exercises are included in drawing, upsetting, welding, bending, twisting, and punching, together with instruction in the proper use and care of the fire and tools and in handling the metals in the forge. The advance work consists of the making of such tools as punches, chisels, drills, scrapers, hammers, and other tools that are used in the trade.

24. **OXYACETYLENE WELDING.** Laboratory practice, four hours. Two semester credits.

This work is devoted to instruction and practice in brazing and in making different types of welds, including the principles of operation of the Oxyacetylene torch. Laboratory charge, 50 cents per 10 clock hours.

30. **AUTOMECHANICS I.** Laboratory, twenty-six hours. Thirteen semester credits. Laboratory charge, \$1.50 per credit.

31. **AUTOMECHANICS II.** Laboratory, twenty hours. Ten semester credits. Laboratory charge, \$1.50 per credit.

The automechanic courses consist in the study of the mechanism, adjustments, automobile nomenclature, materials of automotive construction, carburetion, fuels, cooling systems, lubricants and lubrication. The work also includes the electrical features of the automobile. Such subjects as the fundamental principles of electricity and magnetism, induction coils, interrupters, distributors, battery and magneto ignition systems, generators and starting motors, storage batteries, voltmeters, ammeters, switches and wiring diagrams of various standard makes of cars. The more advanced work includes systematic trouble-shooting to enable the student to locate trouble quickly and accurately.

During the latter part of the course the students are allowed, when conditions warrant, to specialize more or less on the line of work they expect to follow after they complete the course.

10. **MACHINE SHOP I.** Laboratory twelve hours. Six semester credits. Laboratory charge, \$1.50 per credit.

11. **MACHINE SHOP II.** Laboratory, thirty-two hours. Sixteen semester credits. Laboratory charge, \$1.50 per credit.

12. **MACHINE SHOP III.** Laboratory, twenty hours. Ten semester credits. Laboratory charge, \$1.50 per credit.

13. **MACHINE SHOP IV.** Laboratory, thirty-six hours. Eighteen semester credits. Laboratory charge, \$1.50 per credit.

14. **MACHINE SHOP V.** Laboratory, thirty-hours. Fifteen semester credits. Laboratory charge, \$1.50 per credit.

15. MACHINE SHOP VI. Laboratory, twenty hours. Ten semester credits. Laboratory charge, \$1.50 per credit.

In the machine shop courses, exercises are given to bring into use the various machines and practical machine work in the building and assembling of gas engines and wood lathes. The course embraces practical work in making repairs on machinery, such as babbitting and fitting of bearings, aligning shafting and pulleys, lacing and fitting belts and general repair work. The more advanced work includes work on milling machines, universal grinders, and screw machines. Special work is given in tool making when the student has acquired the necessary skill and accuracy for this class of work.

40. FOUNDRY I. Laboratory, four hours. Two semester credits. Laboratory charge, 75 cents per credit.

41. FOUNDRY II. Laboratory, twenty-six hours. Thirteen semester credits. Laboratory charge, 75 cents per credit.

42. FOUNDRY III. Laboratory, twenty hours. Ten semester credits. Laboratory charge, 75 cents per credit.

The work in the foundry courses includes bench, floor and machine molding, using a great variety of patterns; work with different kinds of sands and facings; open-sand work; sweep molding; core making, setting cores, gates and risers; different methods of venting; dry-sand molds; plaster molds; match plates; metal molds; the sorting of cupola irons; figuring charges; cleaning out and repairing cupola for use; operating the cupola and brass furnace; making, baking and pasting cores; and practical work such as regularly found in a commercial foundry. The foundry makes all of the iron, brass and aluminum castings used in the making of the K. S. A. C. 1½ H. P. gas engine and 12"x40" wood turning lathe. These castings going to the machine shops where they are machined and assembled.

Questions on the selection of equipment, arrangement of building, and general foundry layout are also considered.

Degrees and Certificates Conferred In the Year 1925

HOME ECONOMICS JUBILEE, APRIL 17

HONORARY DEGREES CONFERRED

DOCTOR OF LAWS

HENRIETTA WILLARD CALVIN, B. S., Kansas State Agricultural College, 1886; Ped. D., Temple University, 1923; Director of Education in Home Economics for the City of Philadelphia.
NELLIE SAWYER KEDZIE JONES, A. B., Kansas State Agricultural College, 1876; M. S., Kansas State Agricultural College, 1883; Leader of Home Economics Extension for the State of Wisconsin.

DOCTOR OF SCIENCE

ABBY LILLIAN MARLATT, B. S., Kansas State Agricultural College, 1888; M. S., Kansas State Agricultural College, 1890; Professor of Home Economics and Director of the Course in Home Economics, University of Wisconsin.

SPRING COMMENCEMENT, MAY 28

DEGREES CONFERRED

GRADUATE AND HONORARY

DOCTOR OF ENGINEERING

Andrey Abraham Potter, S. B., Massachusetts Institute of Technology, 1903;
Dean of Engineering, Purdue University

MASTER OF SCIENCE

Walter Buswell Balch, B. S., Cornell University, 1919
Edna Florence Bangs, B. S., Kansas State Agricultural College, 1923
Harold William Brown, A. B., Kalamazoo College, 1924.
Osceola Hall Burr, B. S., Kansas State Agricultural College, 1923
Florence Roberta Clarke, A. B., University of Washington, 1916
Edgar William Davis, B. S., Kansas State Agricultural College, 1924
Jean Swift Dobbs, B. S., R. N., Northwestern University, 1923.
Leonora Katherine Doll, B. S., Kansas State Agricultural College, 1924
George Albert Filing, B. S., Kansas State Agricultural College, 1924
Jonathan Alexander Munro, B. S. A., Ontario Agricultural College, 1922
Charles Nitcher, B. S., Kansas State Agricultural College, 1921
Faye Powell Nitcher, B. S., Kansas State Agricultural College, 1921
Loyal Frederick Payne, B. S., Oklahoma Agricultural and Mechanical College, 1912
Harry Elijah Ratcliffe, B. S., Kansas State Agricultural College, 1923
Henry Irving Richards, B. S., Kansas State Agricultural College, 1922
Frank Daniels Ruppert, B. S., Washington State College, 1923
Lucile Osborn Rust, B. S., Kansas State Teachers' College, Pittsburg, 1921
Paul Baldwin Sawin, B. S., Cornell University, 1924
Everett Morrill Schreck, B. S., Kansas Wesleyan College, 1923
Howard Harold Steup, B. S., Purdue University, 1919
Elma Ruth Stewart, B. S., Kansas State Agricultural College, 1921
Jason Richard Swallen, A. B., Ohio Wesleyan University, 1924
Lewis Walter Taylor, B. S., University of Wisconsin, 1922
Daniel Jacobus van den Berg, B. S., University of Illinois, 1924
Floyd Maxwell Wright, B. S., South Dakota Agricultural College, 1923

CIVIL ENGINEER

Charles Forrest Zeigler, B. S., Kansas State Agricultural College, 1918

UNDERGRADUATE CURRICULA**Division of Agriculture****BACHELOR OF SCIENCE IN AGRICULTURE**

Fred Denman Allison
 Robert Louis Anderes
 Aura Melvin Carkuff
 Herbert Harold Carnahan
 Doyle Henry Carter
 Eugene Arthur Cleavinger
 John Herbert Coolidge
 Miles Ellsworth Crouse
 Walter Jones Daly
 George Forbes Ellis
 Lyle Wayne Ernst
 Harry Ludwig Gui
 Frank Alexander Hagans
 Walter Henry Hukriede
 Colbert Clinton Huntington
 Carl Grant Iles
 Robert Bruce Johnson
 John Clower Keas
 Louis Lauritson
 Donald Craig McMillin
 George Montgomery, Jr.

Harry Forest Moxley
 John Evans Norton
 Onie Lindsey Norton
 Glen Bradshaw Railsback
 Gladwin Adolph Read
 Glenn McKinley Reed
 John Imile Rogers
 Ralph William Russell
 Alfred Raymond Sargent
 Lester John Schmutz
 Robert Ewing Sears
 Earl C. Smith
 Robert Burns Smith
 William Scott Speer
 Fred David Strickler
 Homer Lewis Summers
 Jewell Kimball Watt
 Glenn Ivan Wood
 Jay Roy Wood
 Claude Newton Yapple

Division of Engineering**BACHELOR OF SCIENCE IN AGRICULTURAL ENGINEERING**

Alfred Douglas Edgar
 Harold Chester Elder
 Walter Dedrick Hemker
 Earl Gladstone Johnson

Charles Alden Logan
 Archie Ricklefs Loyd
 Henry Amos Wright

BACHELOR OF SCIENCE IN ARCHITECTURE

Oscar Griffith Woody

BACHELOR OF SCIENCE IN ARCHITECTURAL ENGINEERING

Willis Winfred Frudden

Wilmer Lee Oakes

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

Alfred George Aldridge
 George Myron Baker
 Maurice Bradley
 Clifford Wayne Eshbaugh
 Leo Emerson Garrison
 Chester Elmer Hommon
 Frank Valburg Houska
 Ezra Edison Howard
 Charles Frank Irwin
 John Arthur Johnson

Irvin Bernell Kirkwood
 Rolla Daniel Mayden
 Rael Fisher Morris
 Francis Joseph Nettleton
 Floyd Robert Oliver
 Irvin Leslie Peffley
 William Rankin
 Hervey Omer Reed
 Clark Oliver Stratford
 Delos Clifton Taylor

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

Howard Orville Bennett
 Theodore McKinley Berry
 Esteban Aguilar Cabacungan
 Sherman Harold Carter
 Nathan Goodman Chilcott
 Gavin Merle Crawford
 Raymond Meridith Hill
 Conrad Hastings Johnson
 Smith Herman Lapsley
 John Clyde Lentz

Randall Birdell McIlvain
 Wayne Edwin McKibben
 Vincent Werner Nass
 Keith Parsons Nowell
 George Addison Plank
 Alexander Frederick Rehberg
 Christian William Schemm
 Sheldon Batchelder Storer
 Harry Alcide Swim

BACHELOR OF SCIENCE IN FLOUR MILL ENGINEERING

Hugh Alexander Garvie

Perie Rumold

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

M. Russell Buck
 Kerney Richardson Bunker
 Harvey Dwight Franklin
 Alfred Walton Johnson
 Harold William Johnston

Ernest Fred Miller
 Herbert Arthur Rose
 Fred John Sheel
 Harry William Uhlig
 Claude Leonard Wilson

Division of General Science

BACHELOR OF SCIENCE

Marjorie Fern Barth
Aubrey Ellsworth Bilger
Mary Elizabeth Boid
Grace Elizabeth Bressler
Lottie Mae Butts
George Henry Callis
Harold Edwin Callis
Margaret Elma Chandley
Mary Ellen Cormany
William Alsop Dalton
Dorothy Davies
Eleanor Elizabeth Dempsey
Rowland Leeds Dennen.
Alberta Edelblute
Delbert Frederick Emery
William Edward Forney
Audrey Genevieve Freeman
Hilma Marie-Freeman
Frances Opal Gaddie
Esther Lorena Gathers
John Prentiss Hale
Wilbur Henry Hanson
Marian Hardman
Vera Doolittle Hedges
Grace Marguerite Hibarger
Mary Adelia Higinbotham

Lona Gertrude Hoag
Ruth Laura Hochuli
James Wing Honeywell
Bertha May Hyde
Everett Harold Ingersoll
Bernice Georgia Issitt
Milo Herbert Johnson
Winifred Ellen Knight
Roy Clinton Langford
Elbert Willard Larson
Elizabeth McCoin
Mildred Cecelia Mast
Lois Cunningham Miller
Julia Melvina Moehlman
Margaret Alice Newcomb
Anna Eleanor Nohlen
Harry Charles Quantic
Alvin Verne Ritts
Cecil Reed Ryan
Gladys Le Ville Sandford
Glenn Wesley Spring
Samuel Isaac Thackrey
Melville Samuel Thompson
Eugene Albertice Waters
Curtis Crenshaw Watts
Amanda June Zirkle

BACHELOR OF SCIENCE IN INDUSTRIAL CHEMISTRY

Richard Lawrence Pycha
Theodore Roosevelt Still

Floyd Raymond Swim

BACHELOR OF SCIENCE IN INDUSTRIAL JOURNALISM

Emily Adams
Ruth Bachelder
William Neff Batdorf
Louis Edward Childers
Helen Elizabeth Correll
Alice Fisher
John French Gartner
Arthur Ernest Goodwin

Bernard C. Harter
Grace Josephine Justin
Herbert Lee Kammeyer
Alice Louise Paddleford
Maxine Ransom
Muriel Shaver
Emil von Riesen

BACHELOR OF MUSIC

Marjorie Hubner

Laura Faye Russell

BACHELOR OF SCIENCE IN RURAL COMMERCE

Paul Baum Bascom
Thelma O'Dell Carter
Erna Evangeline Currin
Eugene Stevenson Floyd
Herbert Albert Goering
Frank Lucian Howard
George Gray Le Vitt
Carl Walter Londerholm

Charles Elbert Long
Harry Francis Lutz
Helen Grosvenor Norton
Wendell Woody Perham
Theodore Cuyler Potter
Donald Angus Shields
Ferdinand Voiland, Jr.
Howard Gilbert Webber

Division of Home Economics**BACHELOR OF SCIENCE IN HOME ECONOMICS**

Leah Ellen Arnold
 Nora Elizabeth Bare
 Florence Anne Barnhisel
 Catherine Hope Barnhisel
 Neva Betz
 Sarah Hilda Black
 Phyllis Winifred Burtis
 Jessie Campbell
 Evelyn Charlotte Colburn
 Grace Ruby Curl
 May Danheim
 Ethyl Adeline Danielson
 Grace Lavina Davison
 Laura Virginia Deal
 Helen Sarah Deely
 Mary Sisson Dey
 Leila Blanche Elliott
 Ella Amy Franz
 Neosho Louise Fredenburg
 Nellie Gertrude Fulton
 Margaret Ruth Gallemore
 Mary Lois Gorton
 Florence Ina Haines
 Florence Harris
 Alda Henning
 Mabel May Herr
 Lois Holderbaum
 Geneva Margaret Hollis
 Jennie Horner
 Erna Vandella Johnsmeyer
 Della Matilda Justice
 Ruth Marian Kell

Ruth Annabel King
 Ida Frances Koenig
 Snoda Grace Krider
 Olympia Ethel Kubik
 Mabel Ellen Lamoreaux
 Myrtle Agnes Lenau
 Hazel Bea McConnell
 Angie Howard Miller
 Lena Josephine Moore
 Sarah Sylvania Morris
 Iva Manilla Mullen
 Stella Constance Munger
 Bernice Rae Noble
 Helen Frances Northup
 Mary Alice Patterson
 Margaret Elizabeth Perry
 Helen Sarah Pickens
 Myrna Elizabeth Pilley
 Josephine Bowen Powers
 Virginia Louise Reeder
 Lois Evelyn Richardson
 Inga Ann Ross
 Ethel Nancy Scott
 Ruby Lavisa Seward
 Jennetta Fildo Shields
 Grace Smith
 Grace Ann Steininger
 Laureda Thompson
 Anna Jean Unruh
 Ruth Elizabeth Welton
 Jessie Helene Winder

Division of Veterinary Medicine**DOCTOR OF VETERINARY MEDICINE**

Gulabsing Amarsing Ajwani
 Fred Russell Allerton
 Lamar Perkins Caraway
 Harold Lincoln Church
 Gerald Roderick Dowd
 Joseph Emerson Greer

Verne Clifford Hill
 Floyd Edgar Hull
 Arthur O'Toole
 Armer Porter
 Arthur Howard Riley
 James Fred Savage

COMMISSIONS AWARDED**SECOND LIEUTENANT, OFFICERS' RESERVE CORPS**

Joseph Omer Abbott
 Waldo Emerson Aikins
 Frank Brandejsky
 Kerney Richardson Bunker
 Arnold Bernard Cash
 Charles Samuel Clapper
 Charles Warren Claybaugh
 Jack Richard Eakin
 Clifford Wayne Eshbaugh
 Ben Wade Friedel
 Harold Lutan Gillman
 Emmett Stanley Graham
 Floyd Vivian Hanson
 Verne Clifford Hill
 George Christopher Horning
 Ezra Edison Howard
 Henry William Johnson
 Milo Herbert Johnson
 Harry Ernest Jung
 Roy Clinton Langford
 Wayne Edwin McKibben
 Earl Ernest Meils
 Ernest Fred Miller

Edwin Russell Moberg
 George Montgomery
 Austin Harold Pfeiffer
 Bruce Pratt
 Cecil Ray Prose
 Richard Lawrence Pycha
 Harry Charles Quantic
 Gladwin Adolph Read
 Samuel Nicholas Rogers
 Ralph William Russell
 Leo Henry Schutte
 Herbert Henry Schwardt
 Donald Angus Shields
 Leslie Myron Shields
 Byron Elbridge Short
 Delos Clifton Taylor
 Norris Ray Thomasson
 George Edward Truby
 Oliver E. Walgren
 Jewell Kimball Watt
 Aubrey Joseph Weber
 Elmer William Young

SERVICE MEDALS AWARDED

John Daniel Walters, Professor of Architecture (Emeritus)
Julius Terrass Willard, Vice President of the College and Dean of the Division of General Science
Jacob Lund, Superintendent of Heat and Power
Albert Dickens, Professor and Head of Department of Horticulture
Ada Rice, Associate Professor of English
Benjamin Luce Remick, Professor and Head of Department of Mathematics
Alice Maude Melton, Secretary to Dean of Division of General Science
Ina Emma Holroyd, Instructor in Mathematics

CERTIFICATES AWARDED**CERTIFICATES IN FARMERS' SHORT COURSE**

Henry Eldon Beck	Laurence James Hoover
Robert Walker Berry	Lynn Blum Patton
Lawrence Vernon Brown	Cyrus Beuford Pike
Roy Lee Compton	Alfred Theodore Rezac
Austin Young Diehl	Matthew Martin Rezac
Jewell Floyd Gardner	Lawrence Ralph Smith
Lloyd Dan Grubb	William Paul Winslow

CERTIFICATES IN COMMERCIAL CREAMERY SHORT COURSE

Marshall Henry Beahm	Roscoe Gwinn
Frank Edward Bundy	George Edward Hedges
Leo Cade	Alvin Jackson Howell
James Parker Caster	Charles Janney
Kirkland Walden Davis	Harold Daniel Myers
John Gilbert Fisher	Alton Cole Sheley
Ralph Thomas Gardiner	

CERTIFICATES IN TWO-YEAR TRADE COURSE FOR MACHINISTS

Otto Earnest Marsh	George Arthur Price
Otis Clinton Nicholas	

CERTIFICATES IN AUTOMOBILE OPERATION

Oscar Alvin Beichter	Norman Lynn Thompson
Ernest Henry Jones	Everett Erie Weinhold
Clyde Morris Scott	

CERTIFICATES IN AUTOMOBILE REPAIR

Orem Anderson	Emmor Lawton
Lawrence Vernon Brown	Guy Walker Lyon
Samuel Preston Ervin	James Merton Shaw
Robert Hunter Hobson	Clarence Beryl Sherman
Leon Harold Krause	

CERTIFICATES IN BLACKSMITHING

Paul Frederick Eikmeier	Erwin Pronske
Carl Wilhelm Gerriets	

CERTIFICATES IN ELECTRICAL REPAIR WORK

Earle Holmes Bucknell	Robert Emil Hurley
Kenneth Lee Daniels	Clarence Edward Knight

CERTIFICATES IN TRACTOR OPERATION

Clarence Fankhauser	William Clarence Schwab
Roy Goodrich	George Hobart Singular
Emil Fred Miller	Frank Smerchek
Alfred Petsch	Phillip Arthur Storrer

CERTIFICATES IN HOUSEKEEPERS' SHORT COURSE

Elizabeth Allison	Anna Elizabeth Lind
Nora Augusta Herrman	Mabel Elsie Matoush
Lillian Verna Heusi	Hannah Martha Nelson
Flora Marie Koelliker	Esther Marie Nevius
Laveda Florence Lilly	Bertha Helen Richert

CERTIFICATES IN PUBLIC SCHOOL MUSIC

Elsie Kathryn Bergstrom
Lillian Iva Carver
Marjorie Minnette Fleming
Dorothy Hall
Florence Jane Hanna
Mary Henry
Mary Helen Jerard
Velma Tiera Krause

Lola Lorraine Matter
Marjorie Lucille Moody
Velma Neva Morris
Jean Florence Rankin
Madge Ricky
Edna Mae Unruh
Elizabeth Alice Van Ness
Elsie Gertrude Wall

SUMMER SCHOOL COMMENCEMENT, JULY 31

DEGREES CONFERRED

MASTERS OF SCIENCE

Duke Daniel Brown, B. S., Kansas State Agricultural College, 1922
Esteban Aguilar Cabacungan, B. S. E. E., Kansas State Agricultural College, 1925
Elmer Philip Cheatum, A. B., Southwestern University, 1924
David Charles Clarke, B. S., Kansas State Agricultural College, 1912
Allan Park Davidson, B. S. A., Kansas State Agricultural College, 1921
Morris Evans, B. S., Kansas State Agricultural College, 1920
Nellie Evans, B. S., Oklahoma Agricultural and Mechanical College, 1919
Bernice May Flemming, B. S., Kansas State Agricultural College, 1924
Martin Frederick Fritz, B. S., Kansas State Agricultural College, 1924
Floriano Fernando Guimaraes, B. S. A., Escola de Agronomia e Veterinaria, 1922
Max Manley Hoover, B. S., Kansas State Agricultural College, 1924
Elbert Willard Larson, A. B., Bethany College, 1919, B. S., Kansas State Agricultural College, 1925
Clarence Flavius Lewis, A. B., University of Denver, 1913
Eugene Sidney Lyons, B. S., Kansas State Agricultural College, 1921
Carrick Lin McColloch, B. S., University of Arkansas, 1924
Pierre Alphonse Miller, B. S., Oregon Agricultural College, 1924
Elizabeth Mohlman, B. A., Ottawa University, 1915
John McKay Moore, B. S. A., Toronto University, 1923
Leslie Ray Putnam, B. S., Cornell University, 1910, B. M., Cornell University, 1922
Frank Howard Shirck, B. S. A., Kansas State Agricultural College, 1923
Lola Beatrice Vincent, B. S., Kansas State Agricultural College, 1924
Lewis Earl Walker, A. B., Southwestern University, 1913
John Peter Willman, B. S., Pennsylvania State College, 1924

UNDERGRADUATE CURRICULA

Division of Agriculture

BACHELOR OF SCIENCE IN AGRICULTURE

Waldo Emerson Aikins	William Joseph Matthias
Alfred Lewis Arnold	Harold Alfred Noyce
Carl William Bower	Glenn Alvin Rixon
Chester Leroy Browning	George Edward Truby
Hugh Clayton Bryan	Emory Newton Watkins
Hal Francis Irwin	Hugh Tucker Willis
Cecil Earl Kielhorn	William Clyde Wilson
Kenneth Gardiner Knouse	

Division of Engineering

BACHELOR OF SCIENCE IN ARCHITECTURE

Norman Losey Roberts, Jr.

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

George Christopher Horning

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

Ralph William Bell	Harry LeRoy Madsen
Richard Michael Hartigan	George Vernon Mueller
Merle Revere Henre	Norris Ray Thomasson
George John McKimens	

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

Easborn Rusco

Division of General Science**BACHELOR OF SCIENCE**

Edgar Elwood Coleman
 Beth Suzanne Currie
 Alice Dorothy Edstrom
 Daisy Boswell Floyd
 Bessie Geffert
 George William Givin

Margaret Joye Howe
 Leo Albert Moore
 Elnora Wanamaker Seaton
 Myrna Maude Smale
 Julia Smith

BACHELOR OF MUSIC

Frances Myrtle Allison
 Carol Esther Ankeny
 Blanche Lorraine Berry

Frank Lewis Myers
 Elizabeth Alice Van Ness

BACHELOR OF SCIENCE IN INDUSTRIAL JOURNALISM

Ivyl Constance Barker
 Harry Allyson Moore
 Mildred Elvira Pound

Byron Elbridge Short
 Milan Burdette Swartz

BACHELOR OF SCIENCE IN RURAL COMMERCE

Allen Ward Boyce
 Hartzell Burton
 E. R. Lord

Cecil Vard Moore
 Lyle Smith Munn
 Cecil Ray Prose

Division of Home Economics**BACHELOR OF SCIENCE IN HOME ECONOMICS**

Cora Christine Anderson
 Maggie Mae Anderson
 Capitola Belle Bassett
 Amelia Blanche Brooks
 Vira Brown
 Helen Clark
 Evelyn Marilda Colwell

Judith Briggs Craig
 Hallie Alice Laughlin
 Mabel McComb
 Dorothy Esther Noble
 Alma Elanore Petrusek
 Eva Timmons

BACHELOR OF SCIENCE IN HOME ECONOMICS AND NURSING

Helen Edythe Cass

Division of Veterinary Medicine**DOCTOR OF VETERINARY MEDICINE**

Jules Louis Arnandez
 Norris Doddsworth Cash

Edwin Russell Moburg
 Elmer William Young

CERTIFICATES AWARDED**CERTIFICATE IN PUBLIC-SCHOOL MUSIC**

Bonnie Lou Dittman

Evelyn Alberta Garvin

HONORS

PHI KAPPA PHI

CANDIDATES FOR THE MASTER'S DEGREE, 1925.

Harold William Brown
Osceola Hall Burr
Elmer Philip Cheatum
Allan Park Davidson
Jean Swift Dobbs
George Albert Filing
Martin Frederick Fritz
Elbert Willard Larson
Eugene Sidney Lyons
Carrick Lin McColloch
Pierre Alphonse Miller
Elizabeth Mohlma

John McKay Moore
Leslie Ray Putnam
Henry Irving Richards
Lucile Osborn Rust
Paul Baldwin Sawin
Elma Ruth Stewart
Jason Richard Swallen
Lewis Walter Taylor
Lola Beatrice Vincent
Lewis Earl Walker
Cyrus Vance Williams
Louis Coleman Williams

GRADUATES, CLASS OF 1925.

Division of Agriculture

Miles Ellsworth Crouse
Walter Jones Daly
George Montgomery, Jr.
Harold Alfred Noyce

Glenn McKinley Reed
Hugh Willis
Glenn Ivan Wood

Division of Engineering

Clifford Wayne Eshbaugh
Willis Ewart Garrat
Wayne Edwin McKibben
George Addison Plank

Christian William Schemm
John Fred Sheel
Delos Clifton Taylor
Harry William Uhlrig

Division of General Science

Grace Elizabeth Bressler
Thelma O'Dell Carter
Helen Elizabeth Correll
Daisy Boswell Floyd
Lona Gertrude Hoag
Roy Clifton Langford

Margaret Alice Newcomb
Anna Eleanor Nohlen
Helen Grosvenor Norton
Alice Louise Paddleford
Elnora Wanamaker Seaton
Myrna Maude Smale

Division of Home Economics

Sarah Hilda Black
Phyllis Winifred Burtis
Evelyn Charlotte Colburn
Mary Sisson Dey

Ruth Marian Kell
Mabel Ellen Lamoreaux
Mabel McComb
Stella Constance Munger

Division of Veterinary Medicine

Floyd Edgar Hull

SENIOR HONORS

(1925)

Division of Agriculture

Miles Ellsworth Crouse
 *George Forbes Ellis
 George Montgomery, Jr.
 John Evans Norton

Harold Alfred Noyce
 Glenn McKinley Reed
 Hugh Tucker Willis

Division of Engineering

Clifford Wayne Eshbaugh
 Ezra Edison Howard
 *Wayne Edwin McKibben
 Keith Parsons Nowell

George Addison Plank
 *Christian William Schemm
 Fred John Sheel
 Henry William Uhrig

Division of General Science

Grace Elizabeth Bressler
 Thelma O'Dell Carter
 Dorothy Davies
 Daisy Boswell Floyd
 Audrey Genevieve Freeman
 Lona Gertrude Hoag
 Ruth Laura Hochuli

*Roy Clifton Langford
 Elbert Willard Larson
 Margaret Alice Newcomb
 *Anna Eleanor Nohlen
 *Helen Grosvenor Norton
 Elnora Wanamaker Seaton
 *Myrna Maude Smale

Division of Home Economics

*Sarah Hilda Black
 Phyllis Winifred Burtis
 Evelyn Charlotte Colburn
 Mary Sisson Dey
 Ruth Marian Kell

Myrtle Agnes Lenau
 Mabel McComb
 *Stella Constance Munger
 Grace Ann Steininger

Division of Veterinary Medicine

Floyd Edgar Hull

Elmer William Young

SOPHOMORE HONORS**Division of Agriculture**

Hale H. Brown
 Ernest Iden Chilcott

Collins Walter Thole

Division of Engineering

Ray Adams
 Rushton Gardner Cortelyou
 Lee Arthur Dixon
 Stanley Malcolm Fraser
 John Oscar Johnson

Harold Matthew McNiff
 Noel C. Olmstead
 Owen G. Rogers
 Ernest Roosevelt Siefkin
 John Yost

Division of General Science

Mildred Mae Baker
 Lynn Harvey Bradford
 John Thomas Brooks
 Kenneth Allen Burge
 Wilbert Garold Fritz
 Ray Geddes
 Erma Frances Hinz

Alma Louise Hochuli
 Mary Helen Jerard
 Bertha Harriet Lapham
 Blanche Lapham
 Lucile Elizabeth Potter
 Geraldine Buenta Reboul
 Helen Schneider

Division of Home Economics

Mattie Cecelia Babcock
 Merle May Nelson
 Viola Bell Ridge

Aldene Scantlin
 Dorothy Mae DeWolf Spindler
 Elsie Theresa Zohner

*Awarded high honors.

List of Students

STUDENTS PURSUING GRADUATE WORK

I. Graduate Students

- Edward Amin Abdun-Nur, B. S. in M. E. 1924, (Massachusetts Institute of Technology),
General Science
Manhattan
- Gladys Virginia Addy, B. S. 1921, (Kansas State Agricultural College), *Household Economics*
Lyndon
- Harold Allen, B. S. 1920, (University of Colorado), *Civil Engineering*,
Manhattan
- Bernard Martin Anderson, B. S. in Ag. 1916-1923, (Kansas State Agricultural College),
Animal Husbandry
Manhattan
- Cliff Errett Aubel, B. S. 1915, (Pennsylvania State College), *General Science*
Manhattan
- Madalyn Avery, B. S. 1924, (Kansas State Agricultural College), *General Science*
Wakefield
- Burton Bernard Bayles, B. S. in Ag. 1922, (Kansas State Agricultural College), *Animal Husbandry*
Moro, Ore.
- Floyd Wayne Bell, B. S. A. 1911, (Cornell University), *Animal Husbandry*
Rome, New York
- Ada Grace Billings, B. S. 1916, (Kansas State Agricultural College), *General Science*
Manhattan
- Frank Otto Blecha, B. S. 1918, (Kansas State Agricultural College), *Animal Husbandry*
Manhattan
- Carl William Bower, B. S. 1925, (Kansas State Agricultural College), *Agronomy*
Manhattan
- Boyd Bertrand Brainard, B. S. in M. E. 1922, (University of Colorado), *Mechanical Engineering*
Manhattan
- Lucile Brickner, B. S. 1925, (Iowa State College), *General Science*
Decorah, Iowa
- Esther Bruner, B. S. 1920, M. S. 1921, (Kansas State Agricultural College), *General Science*
Manhattan
- Hallie May Bryson, B. S. in H. E. 1917, (Kansas State Agricultural College), *Clothing and Textiles*
Leon
- Harry Ray Bryson, B. S. 1917, M. S. 1924, (Kansas State Agricultural College), *Entomology*
Manhattan
- John Flower Bullard, D. V. M. 1922, (Cornell University), *General Science*
Manhattan
- Vernon Everett Bundy, B. S. in I. J. 1920, (Kansas State Agricultural College), *English*
Manhattan
- Sumner Othniel Burhoe, B. S. 1925, (Massachusetts Agricultural College), *General Science*
Westboro, Mass.
- James Henry Burt, D. V. M. 1905, (Ohio State University), *Agricultural Economics*
Manhattan
- Samuel David Capper, B. S. in Ag. 1921, (Kansas State Agricultural College), *Agricultural Economics*
Manhattan
- Walter William Carlson, B. S. in M. E. 1908, (Kansas State Agricultural College), *General Science*
Manhattan
- Dorothy Cashen, B. S. 1917, (Carthage College), M. S. 1920, (Kansas State Agricultural College), *Botany*
Manhattan
- Harry Winfield Cave, B. S. A. 1914, (Iowa State College), *Dairy Husbandry*
Manhattan
- Ira Nichols Chapman, B. S. 1916, (Kansas State Agricultural College), *Agricultural Economics*
Manhattan

- Embert Harvey Coles, B. S. in Ag. 1922, (Kansas State Agricultural College), *Agronomy*
Garden City
- Frank Harold Collins, B. S. 1920, (Kansas State Agricultural College), M. S. 1925, (University of Idaho), *Chemistry*
Manhattan
- Commodore Foote Cool, A. B. 1897, (Kansas Normal College), *Engineering*
Manhattan
- Verral Janice Craven, B. S. 1915, (Kansas State Agricultural College), *Food Economics and Nutrition*
Erie
- William Wesley Crawford, A. B. 1912, (State University of Iowa), B. A. in C. E. 1917, (Iowa State College), *Civil Engineering*
Manhattan
- Vernon Simpson Crippen, B. S. in Ag. 1920, (Kansas State Agricultural College), *General Science*
Nickerson
- Pearl Artena Cross, B. S. in H. E. 1915, (Kansas State Agricultural College), *Child Welfare*
Wichita
- Charles Deforest Davis, B. S. in Ag. 1921, (Kansas State Agricultural College), *Agronomy*
Manhattan
- Earle Reed Dawley, B. S. in C. E. 1919, (University of Illinois), *Civil Engineering*
Manhattan
- Marion Price Dawley, B. A. 1919, (University of Illinois), *Home Economics*
Manhattan
- Helen Sarah Deely, B. S. 1925, (Kansas State Agricultural College), *Institutional Management*
Manhattan
- Maude Elizabeth Deely, B. S. in H. E. 1923, (Kansas State Agricultural College), *Clothing and Textiles*
Manhattan
- Alene Hinn DeRose, A. M. 1924, (Columbia University), *Home Economics*
Manhattan
- Howard Robert DeRose, A. B., 1918, (University of Colorado), *General Science*
Manhattan
- Mary Sisson Dey, B. S. 1925, (Kansas State Agricultural College), *Food and Nutrition*
Wellington
- Florence Lillian Dial, B. S. 1919, (Kansas State Agricultural College), *English*
Manhattan
- Rudolph Henry Driftmier, B. S. in A. E. 1920, (Iowa State College), *Agricultural Engineering*
Manhattan
- Jack Wilbur Dunlap, B. S. 1924, (Kansas State Agricultural College), *Psychology*
Manhattan
- Merrill Augustus Durland, B. S. 1918, M. S. 1923, (Kansas State Agricultural College), *Engineering*
Manhattan
- Leonard Paul Elliott, B. S. 1923, (Kansas State Agricultural College), *Mathematics*
Manhattan
- Amy Jane Leazenby Englund, B. S. 1917, (University of Missouri), A. M. 1920, (University of Chicago), *General Science*
Manhattan
- Eric Englund, B. S. 1918, (Oregon Agricultural College), A. B. 1919, (University of Oregon), M. S. 1920, (University of Wisconsin), *Agricultural Economics*
Manhattan
- Charles Ranger Enlow, B. S. in Ag. 1920, (Kansas State Agricultural College), *Agronomy*
Manhattan
- Morris Evans, B. S. 1920, M. S. 1925, (Kansas State Agricultural College), *Agricultural Economics*
Manhattan
- Walter Carl Farner, B. S. A. 1925, (University of Wisconsin), *Dairy Husbandry*
Gilmanton, Wis.
- Arthur Cecil Fay, B. S. 1920, (University of Missouri), M. S. 1921, (University of Wisconsin), *Bacteriology*
Manhattan
- Chris Henry Ficke, B. S. 1925, (Iowa State College), *Plant Pathology*
Levant
- Marian Louise Fisher, A. B. 1925, (Oberlin College), *Zoölogy*
Lorain, Ohio
- James Burgess Fitch, B. S. 1910, (Purdue University), *Agricultural Economics*
Manhattan
- Ray Flagg, B. S. E. E. 1905, (Purdue University), *Mechanical Engineering*
Manhattan

- Beatty Hope Fleenor, B. S. 1919, M. S. 1923, (Kansas State Agricultural College), *General Science*
Manhattan
- Daisy Boswell Floyd, B. S. 1925, (Kansas State Agricultural College), *General Science*
Manhattan
- William Flinn, B. S. 1925, (Kansas State Teachers College of Hays), *Horticulture*
Hays
- Conie Caroline Foote, B. S. 1921, (Kansas State Agricultural College), *Foods*
Downs
- Martha Elizabeth Foster, A. B. 1924, (Southwestern College), *Zoölogy*
Leon
- Ralph Leon Foster, B. S. 1922, (Kansas State Agricultural College), *Industrial Journalism*
Manhattan
- Manford Furr, B. S. in C. E. 1913, (Purdue University), *Civil Engineering*
Manhattan
- Hazel Irene Gardner, B. S. in H. E. 1923, (Kansas State Agricultural College), *Psychology*
Hutchinson
- George Gemmell, B. S. 1919, M. S. 1922, (Kansas State Agricultural College), *General Science*
Manhattan
- Ruth Gibson, A. B. 1917, (Friends University), *Home Economics*
Wichita
- Randolph Forney Gingrich, B. S. in C. E. 1923, (University of Nebraska), *Civil Engineering*
Manhattan
- Fannie Harriett Gorton, B. S. in H. E. 1923, (Kansas State Agricultural College), *Home Economics*
Manhattan
- Mamie Grimes, B. S. 1920, (Kansas State Agricultural College), *Clothing and Textiles*
Manhattan
- Arthur Jerome Groesbeck, A. B. 1909, (University of Kansas), *Mechanical Engineering*
Manhattan
- Harry Ludwig Gui, B. S. in Ag. 1925, (Kansas State Agricultural College), *Entomology*
Manhattan
- Virginia Brands Hanawalt, A. B. 1925, (Oberlin College), *Zoölogy*
Akron, Ohio
- Vida Agnes Harris, B. S. 1914, (Kansas State Agricultural College), *Applied Art*
Manhattan
- Stella Maude Harriss, B. S. 1917, M. S. 1919, (Kansas State Agricultural College), *Chemistry*
Manhattan
- Irwin Lloyd Hathaway, B. S. 1924, (Kansas State Agricultural College), *Agriculture*
Manhattan
- Katharine Jane Hess, B. S. 1900, (Kansas State Agricultural College), *Clothing and Textiles*
Manhattan
- Donald David Hill, B. S. 1925, (Oregon Agricultural College), *Agronomy*
Eugene, Ore.
- Leona Thurow Hill, A. B. 1923, (University of Southern California), B. S. in H. E. 1923, (Kansas State Agricultural College), *Household Economics*
Manhattan
- Verne Hillman, B. S. A. E. 1920, (Iowa State College), *Agricultural Engineering*,
Manhattan
- Hubert Byrum Hinds, B. S. in Ag. 1920, (University of Arkansas), *Poultry Husbandry*
Rogers, Ark.
- William Russell Hinshaw, D. V. M. 1923, (Michigan Agricultural College), *Bacteriology*
Manhattan
- Julian Adair Hodges, B. S. in Ag. 1917, M. S. 1923, (University of Kentucky), *Agricultural Economics*
Manhattan
- Ina Emma Holroyd, B. S. 1897, (Kansas State Agricultural College), *Mathematics*
Manhattan
- Harold Howe, B. S. 1922, (Kansas State Agricultural College), M. S. 1923, (University of Maryland), *Agricultural Economics*
Chapman
- Charles Bannus Hudson, B. S. in Ag. 1924, (Kansas State Agricultural College), *Bacteriology*
Fort Scott
- Orville Don Hunt, B. S. in E. E. 1923, (State College of Washington), *Electrical Engineering*
Manhattan
- Stanley Paul Hunt, B. S. in M. E. 1919, (Kansas State Agricultural College), *Architecture*
Manhattan
- Everett Harold Ingersoll, B. S. 1925, (Kansas State Agricultural College), *Zoölogy*
Overbrook

- Clyde Ingram, B. S. 1922, (Oklahoma Agricultural and Mechanical College), *Poultry Husbandry*
Hollis, Okla.
- Charles Otis Johnston, B. S. 1918, M. S. 1923, (Kansas State Agricultural College), *Botany*
Manhattan
- Edward Jones, B. M. E. 1905, (Iowa State College), *Engineering*
Manhattan
- Louis Mark Jorgenson, B. S. in E. E. 1907, (Kansas State Agricultural College), *Electrical Engineering*
Manhattan
- Sadie Davis Keeler, B. S. 1925, (Kansas State Teachers College of Hays), *Home Economics*
Osborne
- Ruth Marian Kell, B. S. in H. E. 1925, (Kansas State Agricultural College), *Household Economics*
Manhattan
- Russell Marion Kerchner, B. S. 1922, (University of Illinois), *Electrical Engineering*
Manhattan
- Maurice Arthur Kidder, B. S. 1923, (Kansas State Teachers College of Pittsburg), *Botany*
Pittsburg
- Emory King, A. B. 1925, (Southwestern College), *Zoölogy*
Winfield
- Charles Howard Kitselman, V. M. D. 1918, (University of Pennsylvania), *Pathology*
Manhattan
- Guy Tetley Klein, B. S. in Ag. 1922, (University of Missouri), *Poultry Husbandry*
Manhattan
- Hazel Pearl Knapp, B. S. 1925, (Ottawa University), *Botany*
Maplehill
- Benjamin William Lafene, B. S. 1923, (Michigan State Agricultural College), *Bacteriology*
Manhattan
- Ernest Lester Lahr, B. S. in Ag. 1921, (Kansas State Agricultural College), *Animal Husbandry*
Abilene
- Roy Clinton Langford, B. S. 1925, (Kansas State Agricultural College), *Psychology*
Manhattan
- Elbert Willard Larson, A. B. 1919, Bethany College, B. S. 1925, M. S. 1925, (Kansas State Agricultural College), *General Science*
Manhattan
- Hilmer Henry Laude, B. S. 1911, (Kansas State Agricultural College), M. S. 1918, (Texas Agricultural and Mechanical College), *Agronomy*
Manhattan
- Louis Henry Limper, A. B., A. M. 1907, (Baldwin Wallace), *Education*
Manhattan
- Earl Milo Litwiller, B. S. in Ag. 1924, (Kansas State Agricultural College), *Entomology*
Manhattan
- Benjamin Harrison Luebke, B. S. 1925, (Oregon Agricultural College), *Agricultural Economics*
Corvallis, Ore.
- John Wallace Lumb, D. V. M. 1910, (Kansas State Agricultural College), *General Science*
Manhattan
- Effie Carp Lynch, B. S. 1915, (Kansas State Agricultural College), *General Science*
Manhattan
- Eugene Sidney Lyons, B. S. 1921, M. S. 1925, (Kansas State Agricultural College), *Agronomy*
Manhattan
- Neva Colville McDonnall, B. S. in H. E. 1913, (Kansas State Agricultural College),
Nutrition
Wichita
- William Max McLeod, D. V. M. 1917, (Iowa State College), *Embryology*
Manhattan
- David Leslie Mackintosh, B. S. in Ag. 1920, (University of Minnesota), *Animal Husbandry*
Manhattan
- Hubert Whatley Marlow, B. S. 1924, (Normal Training Teachers College), *Engineering*
Colony, Tex.
- Ethel Justin Marshall, B. S. in H. E. 1910, (Kansas State Agricultural College), *Food Economics and Nutrition*
Manhattan
- Willard Hungate Martin, B. S. 1918, (Purdue University), M. S. 1922, (Pennsylvania State College), *Dairy Husbandry*
Manhattan
- Charles Walton Matthews, B. S. in Educ. 1918, (Kansas State Teachers College of Pittsburg),
English
Pittsburg
- Pearl Marie Maus, B. S. 1924, (Kansas State Teachers College of Emporia), *Botany*
Auburn

- Orpha Maust, B. S. 1922, (Kansas State Agricultural College), M. S. 1923, (Leland Stanford University), *Psychology*
Garden City
- George Montgomery, Jr., B. S. 1925, (Kansas State Agricultural College), *Agricultural Economics*
Sabetha
- Harold Paul Morris, B. S. in Ag. 1925, (University of Minnesota), *Genetics*
St. Paul, Minn.
- Maria Morris, B. S. 1911, (Kansas State Agricultural College), *Applied Art*
Manhattan
- Reed Franklin Morse, A. B. 1921, (Cornell College), B. S. 1923, (Iowa State College), *Civil Engineering*
Manhattan
- Margaret Alice Newcomb, B. S. 1925, (Kansas State Agricultural College), *Botany*
Garnett
- Bernice Rae Noble, B. S. in H. E. 1925, (Kansas State Agricultural College), *Home Economics*
Manhattan
- Gilbert Fred Otto, A. B. 1926, (Kalamazoo College), *Parasitology*
Niles, Mich.
- Richard Lawrence Pycha, B. S. 1925, (Kansas State Agricultural College), *Chemistry*
Salina
- Arthur Frederick Peine, A. B. 1911, (Illinois Wesleyan), *Agricultural Economics*,
Manhattan
- Kate Maria Penn, B. S. 1911, (Kansas State Agricultural College), *Home Economics*
Broken Arrow, Okla.
- Isabel Potter, B. S. 1922, (Ottawa University), M. S. 1924 (University of Iowa), *Genetics*
Natoma
- Harry Ernest Reed, B. S. A. 1914, (University of Missouri), *Animal Husbandry*
Manhattan
- Kenneth Miller Renner, B. S. 1921, (Iowa State College), *Dairy Husbandry*
Manhattan
- Ada Rice, M. S. 1912, (Kansas State Agricultural College), *Modern Languages*
Manhattan
- William Hugh Riddell, B. S. A. 1922, (University of British Columbia), *Genetics*
Manhattan
- Charles Elkins Rogers, A. B. 1914, (University of Oklahoma), *Industrial Journalism*
Manhattan
- William Hobson Rowe, A. B. 1922 (University of Michigan), *Agricultural Economics*
Manhattan
- Pearle Ethel Ruby, A. B. 1915, (Drake University), M. S. 1920, (University of Chicago),
Food Economics and Nutrition
Des Moines, Ia.
- Winfield Foster Runyen, B. S. 1920, (Kansas State Agricultural College), *Entomology*
Manhattan
- Lucile Osborn Rust, B. S. 1921, (Kansas State Teachers College of Pittsburg), M. S. 1925,
(Kansas State Agricultural College), *Home Economics*
Manhattan
- Morse Henderson Salisbury, B. S. in I. J. 1924, (Kansas State Agricultural College), *Industrial Journalism*
Manhattan
- Charles Henry Scholer, B. S. 1914, (Kansas State Agricultural College), *Civil Engineering*
Manhattan
- Gabe Alfred Sellers, B. S. in M. E. 1917, (Kansas State Agricultural College), *Mechanical Engineering*
Manhattan
- Mary Margaret Shaw, A. B. 1918 (Fairmount College), *Food Economics and Nutrition*
Wichita
- Sister Adolphus Maloney, A. B. 1923, (Creighton University), *Clothing and Textiles*
Concordia
- Georgiana Smurthwaite, B. S. 1911, (Utah Agricultural College), *Home Economics*
Ogden, Utah
- Floyd Smutz, B. S. in Arch. 1914, (Kansas State Agricultural College), *Engineering*
Manhattan
- Elsie Rogler Speer, B. S. in H. E. 1911, (Kansas State Agricultural College), *Institutional Management*
Manhattan
- Elma Ruth Stewart, B. S. 1921, M. S. 1925, (Kansas State Agricultural College), *Home Economics*
Topeka
- Ellis Adolph Stokdyk, B. S. 1920, (University of Wisconsin), M. S. 1924, (Kansas State Agricultural College), *Agricultural Economics*
Manhattan

- Jay Webster Stratton, B. S. 1916, (Kansas State Agricultural College), *General Science*
Manhattan
- Eusebia Mudge Thompson, B. S. 1893, (Kansas State Agricultural College), *Industrial Journalism*
Manhattan
- Mildred Hazel Thornburg, B. M. 1923, (Kansas State Agricultural College), *General Science*
Manhattan
- Rolla William Titus, A. B. 1909, (Washburn College), *Chemistry*
Manhattan
- Chester Tolle, B. S. in Ag. 1924, (Kansas State Agricultural College), *Chemistry*
Manhattan
- Charles West Tozzer, B. S. 1926, (Ohio State University), *Horticulture*
Manhattan
- Ruth Mary Trant, A. B. 1920, (Kansas University), *General Science*
Edwardsville
- George Edward Truby, B. S. in Ag. 1925, (Kansas State Agricultural College),
Animal Husbandry
Anthony
- Hewitt Merlin Tysdal, B. S. A. 1924, (University of Saskatchewan), *Agronomy*
Moose Jaw, Saskatchewan, Can.
- Harry Urban Wakefield, Jr., M. S. 1920, (Iowa State College), *Chemical Engineering*
Columbia, Tenn.
- Harry Walker, A. B. 1925, (Southwestern College), *Zoölogy*
Winfield
- Geneva Watson, B. S. 1921, (University of Chicago), *General Science*
Chicago, Ill.
- Arthur Weber, B. S. 1922, (Kansas State Agricultural College), *Animal Husbandry*
Manhattan
- Ellmore Jackson Welch, B. S. 1915, (University of California), *Agricultural Economics*
Manhattan
- Alfred Everett White, B. S. 1904, M. S. 1909, (Purdue University), *Mathematics*
Manhattan
- Leon Vincent White, B. S. 1903, (Kansas State Agricultural College), *Civil Engineering*
Manhattan
- Louis Coleman Williams, B. S. in Ag. 1922, (Kansas State Agricultural College), *Agriculture*
Manhattan
- Esther Huling Willis, B. S. in H. E. 1924, (Kansas State Agricultural College), *Home Economics*
Manhattan
- Philip Anton Willis, B. S. in M. E. 1922, (Montana State College), *Mechanical Engineering*
Manhattan
- Luther Earle Willoughby, B. S. 1916, (Kansas State Agricultural College), *Agronomy*
Manhattan
- Emily Wilson, B. S. 1917, (Kansas State Teachers College of Pittsburg), Ph. B. 1918, (University of Chicago), *Household Management*
La Harpe
- Murray Alderson Wilson, A. B. 1916, (Baker University), B. S. Civ. Engr. 1922, (Kansas State Agricultural College), *Civil Engineering*
Manhattan
- Susan Elizabeth Young, B. S. 1921, (Kansas State Agricultural College), *History*
Jewell
- James Walter Zahnley, B. S. in Ag. 1918, (Kansas State Agricultural College), *Agronomy*
Manhattan
- Naomi Bertha Zimmerman, B. S. 1919, M. S. 1921, (University of Nebraska), *General Science*
Manhattan

II. Seniors Pursuing Graduate Work

- | | |
|---|--|
| Glyde Estella Anderson, <i>Home Economics</i>
Manhattan | Margaret Angeline Brenner, <i>Home Economics</i>
Waterville |
| Margaret Avery, <i>Home Economics</i>
Wakefield | Josephine Elizabeth Brooks, <i>Home Economics</i>
Manhattan |
| Boy Bainer, <i>Agricultural Engineering</i>
Scott City | Merritt Paul Brooks, <i>Agriculture</i>
Columbus |
| Emogene Bowen, <i>Home Economics</i>
Manhattan | Charles Burt, <i>General Science</i>
Haddam |
| Kenneth Karl Bowman, <i>Electrical Engineering</i>
Manhattan | Leila Belle Colwell, <i>Home Economics</i>
Manhattan |
| Eugene Loyal Brady, <i>Electrical Engineering</i>
Manhattan | David Neill Donaldson, <i>Agriculture</i>
Fort Collins, Colo. |

Alice Josephine Englund, <i>Home Economics</i> Salina	Fred Charles Mason, <i>Civil Engineering</i> Lincoln
Geneva Fern Faley, <i>General Science</i> Manhattan	Thomas Adolphus Mitchell, <i>General Science</i> Hiawatha
Guy Hubert Faulconer, <i>Agriculture</i> El Dorado	William Harold Newhard, <i>Rural Commerce</i> Peabody
Karleen Garloch, <i>Home Economics</i> Kansas City, Mo.	Philip Myron Noble, <i>Civil Engineering</i> Manhattan
Helen Bertina Hale, <i>General Science</i> Kansas City, Mo.	Vernon Martin Norrish, <i>Electrical Engineering</i> Manhattan
Albert Alexander Haltom, <i>Agriculture</i> Alden	Einer Dow Nygren, <i>Electrical Engineering</i> Manhattan
Christie Cynthia Hepler, <i>Home Economics</i> Manhattan	Robert Harlan Perrill, <i>Agriculture</i> Bridgeport
Foster Asher Hinshaw, <i>Electrical Engineering</i> Lyons	William Shepard Price, <i>Electrical Engineering</i> Topeka
Austin Clair Hoffman, <i>Agriculture</i> Abilene	Ella Louise Schrumph, <i>Home Economics</i> Cottonwood Falls
Earl Robert Honeywell, <i>Agriculture</i> Manhattan	Glen Owen Schwardt, <i>Electrical Engineering</i> Manhattan
Fred Harold Hull, <i>Agriculture</i> Portis	Herbert Henry Schwardt, <i>General Science</i> Manhattan
Bion Shepard Hutchins, <i>Civil Engineering</i> Independence	Linus Burr Smith, <i>Architecture</i> Hutchinson
Adolph George Jensen, <i>Agriculture</i> Manhattan	Charlotte Huntington Swanson, <i>General Science</i> Manhattan
Lillie Marie Johnson, <i>Home Economics</i> Walsburg	Ward Wesley Taylor, <i>Agriculture</i> Smith Center
Ramond Julian Johnson, <i>Electrical Engineering</i> Manhattan	Harley Albert Teall, <i>Electrical Engineering</i> El Dorado
Mary Isabel Laughbaum, <i>Home Economics</i> Oklahoma City, Okla.	Esther Irene Tracy, <i>Home Economics</i> Manhattan
Ruth Engel Long, <i>Home Economics</i> Manhattan	Norman Nathaniel Weberg, <i>Agriculture</i> Salina
Thomas Herman Long, <i>Electrical Engineering</i> Wakeeney	Claude Vernon Winterscheid, <i>Electrical Engineering</i> Gridley
Donald Elson MacQueen, <i>Industrial Chemistry</i> Manhattan	Clell Burns Wisecup, <i>General Science</i> Manhattan
Reuben Cleo Maddy, <i>General Science</i> Hudson	Nora Yoder, <i>General Science</i> Newton

III. Special Student Pursuing Graduate Work

Frank Watkins Jobes, *General Science*, Arlington

Undergraduate Students

The following list includes seniors, juniors, sophomores, freshmen and special students in College. For students in the Summer School and in special courses, see lists following this one.

Abbreviations here used denote curricula as follows: Ag, Agriculture; AE, agricultural engineering; Ar, architecture; ArE, architectural engineering; CE, civil engineering; ChE, chemical engineering; EE, electrical engineering; FME, flour-mill engineering; GS, general science; HE, home economics; HE & N, home economics and nursing; IC, industrial chemistry; IJ, industrial journalism; LA, landscape architecture; M, music; ME, mechanical engineering; PE, physical education; PSM, public-school music; RC, rural commerce; and VM, veterinary medicine.

SENIORS

- Vera Ethel Alderman (HE); Arrington
John Franklin Allen (RC); Galena
*Glyde Estella Anderson (HE); Manhattan
Hazel Lillian Anderson (HE); Bronson
Emmons Leslie Arnold (CE); Marysville
Walter Henry Atzenweiler (Ag); Huron
Dustin Avery (IC); Wakefield
*Margaret Avery (HE); Wakefield
Esther Mary Babcock (HE); Hiawatha
Albert Heslip Bachelor (RC); Belleville
*Roy Bainer (AE); Scott City
John William Ballard (CE); Almena
Howard Banta (RC); Oberlin
Nellie Mable Bare (HE); Protection
Ralph Louis Beach (ME); Chanute
Paul Eugene Berger (RC); Salina
Loren Richard Berner (GS); Clifton
Junius Berthelson (VM); Penrose, Wyo.
Fred Goff Billings (Ar); Manhattan
Jessie Ellen Bogue (PSM); Marysville
Pearl Eugenia Boid (GS); Culbertson,
Mont.
Roxie Marguerite Bolinger (HE);
Washington
*Emogene Bowen (HE); Manhattan
Hazel Bowers (HE); Great Bend
*Kenneth Karl Bowman (EE); Manhattan
Earl Huff Bradley (CE); Winfield
*Eugene Loyal Brady (EE); Manhattan
Mary Elizabeth Brandley (HE); Manhattan
Paul Talbott Brantingham (ME);
Manhattan
*Margaret Angeline Brenner (HE); Waterville
Harold James Brodrick (Ag); Osborne
*Josephine Elizabeth Brooks (HE);
Manhattan
*Merritt Paul Brooks (Ag); Columbus
Gerald George Brown (ME); Junction
City
Harold Eugene Brown (RC); Langford
Cula Muriel Buker (HE); Valley Falls
Ruth Elizabeth Burns (HE); White Cloud
*Charles Burt (GS); Haddam
Archie William Butcher (RC); Solomon
Mott Titus Carroll (CE); Wichita
John Carter Jr. (Ag); Garden City
Phil Roy Carter (VM); Bradford
Stanley Caton (Ag); Manhattan
Kenneth Chappell (IJ); Manhattan
Clarence Hart Chase (Ag); Junction City
Esther Chase (HE); Protection
Mary Chilcott (HE); Manhattan
Vera Mabel Chubb (HE); Topeka
Jessie Julia Clary (GS); Manhattan
Orem Richard Clency (RC); Manhattan
Thelma Elizabeth Coffin (GS); LeRoy
Mary Ellen Collins (HE); Wellsville
Ursula Oldham Collins (GS); Manhattan
*Leila Belle Colwell (HE); Manhattan
Leslie Roy Combs (IJ); Manhattan
Ida Augusta Conrow (HE); Manhattan
Bernard John Conroy (Ag); Manhattan
Esther Margaret Cormany (HE); Tulsa,
Okla.
Hazel Imogene Craft (GS); Blue Rapids
Russell Dade (RC); Hutchinson
Imogene Daniels (HE); Caney
Jessie Hedden Davis (M); Manhattan
Ruth Louise Dawson (HE); Kansas City, Mo.
Anna Mae Davy (HE); Lamar, Colo.
Earl Edgar Dawson (GS); Manhattan
Ira Gerhart Dettmer (RC); Bushong
Miriam Lenore Dexter (IJ); Manhattan
Charles Edward Dominy (Ag); Atwood
*David Neill Donaldson (Ag 1; Grad. 2);
Fort Collins, Colo.
Herbert Durham (EE); Norton
John Vance Eastwood (GS); Manhattan
Ralph Henry Eaton (GS); Wilson
Bertha Mattie Egger (HE); Ellis
Harold George Ehrhardt (GS); Westphalia
David Franklin Engle (VM); Abilene
*Alice Josephine Englund (HE); Salina
Fred Page Eshbaugh (Ag); Manhattan
Lucile Marguerite Evans (M); Manhattan
Orrell Corrine Ewbank (GS); Dalhart, Tex.
*Geneva Fern Faley (GS); Manhattan
Thomas Faris (Ag); Manhattan
Alvin Farmer (ME); Manhattan
Clayton Leon Farrar (GS); Abilene
Earl Vern Farrar (ME); Burlingame
*Guy Hubert Faulconer (Ag); El Dorado
Harry Luther Felton (RC); Hays
George Joseph Fiedler (EE); Bushton
Delbert Finney (RC); Topeka
Jennie LaRue Fisk (GS); Manhattan
Vernett Edward Fletcher (Ag); Manhattan
Ernest Lowell Florea (CE); Rosalia
Robert Whitsel Fort (Ag); St. John
Margaret Lansden Foster (IJ); Manhattan
Ralph Lloyd Foster (ME); Manhattan
John Charles Frey (Ag); Manhattan
Ben Wade Fridel (Ar); Manhattan
Louis Edwin Fry (ArE); Manhattan
*Karleen Garlock (HE); Kansas City, Mo.
Forrest Garner (GS); Hiawatha
Lloyd Albert Gates (EE); Downs
Susie Charlotte Geiger (HE); Salina
Harold Leeton Gillman (CE); Salina
Dorothy Edith Girtan (HE); Minneapolis

* Also pursuing graduate study.

SENIORS—Continued

- Lola Jane Graham (HE); Manhattan
 Clara Belle Gray (GS); Aurora
 Merle Sarah Grinstead (HE); Mulvane
 Frank Perry Gross (Ar); Abilene
 Ben Grosse (Ag); Jamestown
 Harold Grothusen (CE); Ellsworth
 William Wallace Gunselman (Ag); Holton
 Mary Elizabeth Haise (Ag); Crowley, Colo.
 *Helen Bertina Hale (GS); Kansas City, Mo.
 *Albert Alexander Haltom (Ag 1; Grad 2);
 Alden
 Jamal Hassan Hammad (Ag); Nahlus,
 Palestine
 Leonard Beath Harden (Ag); Centralia
 James Bruce Harris (EE); Kansas City
 William Gerald Harris (GS); Rose Hill
 Lowell Harter (GS); Herington
 Nelle Alice Hartwig (GS); Goodland
 Glenn Cecil Hatfield (CE); Wichita
 Louise Susan Hattery (HE); Manhattan
 Everett Haukenberry (GS); Manhattan
 Gladys Iola Hawkins (HE); Tampa
 Lucile Beatrice Heath (M); Wakefield
 Senn Hunter Heath (RC); Enterprise
 Elma Leon Hendrickson (GS); Kansas City
 Joseph John Hendrix (GS); Lane
 *Christie Cynthia Hepler (HE); Manhattan
 Rachel Herley (GS); Topeka
 Francis Floyd Herr (Ag); Medicine Lodge
 Earl Howard Herrick (GS); Colony
 Mary Herthel (HE); Claffin
 Floyd Franklin Higbee (Ag); Manhattan
 Earl Lomas Hinden (GS); Strong City
 *Foster Asher Hinshaw (EE); Lyons
 Marshall Kitch Hoag (RC); Manhattan
 Constance Erma Hoefler (HE);
 Kaw City, Okla.
 Carl Fred Hoelzel (Ar); Manhattan
 *Austin Clair Hoffman (Ag); Abilene
 Clifford Andrew Hollis (RC); Fredonia
 Lionel Holm (Ag); Vesper
 *Earl Robert Honeywell (Ag); Manhattan
 James Ralph Hoover (EE); Manhattan
 Agnes Marie Horton (HE); Geuda Springs
 Allen Gerald Hotchkiss (EE); Manhattan
 Virgil Earl Houghland (EE); Beloit
 Ralph Taft Howard (RC); Mount Hope
 William Lewis Howell (EE); Garnett
 Howard Frederick Huber (LAR);
 Leonardville
 Dorothy Louis Hulett (HE); Merriam
 *Fred Harold Hull (Ag); Portis
 Adda Hunter (GS); Eureka
 Victor Hurtig (VM); Delphos
 *Bion Shepard Hutchins, Jr. (CE);
 Independence
 Fred Irwin (GS); Manhattan
 Julia Aurelia Jennings (HE); Little River
 Lula Ruth Jennings (HE); Greenwood, Mo.
 *Adolph George Jensen (Ag 1; Grad 2);
 Manhattan
 Achsa Johnson (HE); Aurora, Neb.
 *Lillie Marie Johnson (HE); Walsburg
 *Ramond Julian Johnson (EE); Manhattan
 George Frederick Johnston (GS); Topeka
 John Johnston (GS); Cedar
 William Archie Johnston (CE); Concordia
 Esther Geneva Jones (HE); Keats
 Eunice Ethel Jones (GS); Keats
 Jesse Allen Jones (VM); Camden Point,
 Mo.
 Ralph Marion Karns (Ag); Ada
 Garnet Elizabeth Kastner (HE); Manhattan
 Albert Harrison Kerns (EE); Manhattan
 Lily Moore Kerns (HE); Manhattan
 Kathryn Elizabeth King (GS); Manhattan
 Theunis Munnik Kleinenberg (Ag);
 Transvaal, S. Africa
 Earl Martin Knepp (Ag); Clay Center
 Fritz Koch (RC); Burlington
 Schuyler Franklin Kollar (Ag); Manhattan
 Wilfred Jonathan Kraus (Ag); Hays
 Leona Gertrude Krehbiel (GS); Moundridge
 Charles Krone (VM) Delphos
 Elmer Carl Kuhlman (EE); Pratt
 Vanda Faith Laman (HE); Portis
 *Mary Isabel Laughbaum (HE); Oklahoma
 City, Okla.
 Julian Everett Lenau (ME); Hobart, Okla.
 LaVange Lucile LeVitt (HE); Wilson
 Henry Lewis Lobenstein (Ag); Bonner
 Springs
 Velma Edna Lockridge (IJ); Wakefield
 *Ruth Engel Long (HE); Manhattan
 *Thomas Herman Long (EE); Wakeeney
 Mary Euphrasia Lowe (HE); Manhattan
 George Ernest Lyness (Ag); Walnut
 Calvin Steward Lyon (EE); Faulkner
 Etna Place Lyon (GS); Manhattan
 Russell McConkey (CE); McPherson
 Harry Loyd McGee (EE); Ramona
 Helen Bea McIver (HE); Abbyville
 Florence McKinney (HE); Great Bend
 Irwin Keys McWilliams (ME); Girard
 Roberto Victor Macias (Ag); Zacatecas,
 Mexico
 *Donald Elson MacQueen (IC); Manhattan
 *Reuben Cleo Maddy (GS); Hudson
 Miriam Louise Magaw (GS); Topeka
 Lowell Armstrong March (EE); Bucklin
 Robert Raymond Marshall (GS); Clifton
 Paul Gordon Martin (CE); Manhattan
 *Fred Charles Mason (CE); Lincoln
 Mildred Dorothy Meyer (HE); Kansas
 City
 *Thomas Adolphus Mitchell (GS); Hiawatha
 Cornelius Henry Mobily (VM); Kansas City
 Muriel Magdalene Moser (HE & N);
 Hiawatha
 Gladys Muilenburg (IJ); Palco
 Cecil Madison Murphy (Ag); Talmage
 Nancy Mary Mustoe (HE); Norton
 Dorothy Joyce Myers (HE); Sylvia
 Eleanor Ann Nelsen (HE); Nettleton, Mo.
 *William Harold Newhard (RC); Peabody
 Harry Dale Nichols (EE); Liberal
 Mildred Mary Nickles (HE); Abilene
 *Philip Myron Noble (CE); Manhattan
 *Vernon Martin Norrish (EE); Manhattan
 Alton Brooks Nuss (CE); Abilene
 *Einer Dow Nygren (EE); Manhattan
 Trena Matilda Olson (HE); Lincoln, Neb.
 Wayne Santee O'Neal (VM); Tarkio, Mo.
 Esther Gladys Otto (HE); Riley
 Lillian Frances Oyster (RC); Paola
 Walter Lovelace Parrott (VM); Muscotah
 Mabel Dora Patton (HE); Chase
 Zurlinden Lafayette Pearson (GS);
 Manhattan
 *Robert Harlan Perrill (Ag 1; Grad 2);
 Bridgeport
 Clifford Waybright Phares (EE); Wakeeney
 Margaret Frances Pickett (HE); Galena
 Thomas George Pizinger (ME); Hoisington
 Genevieve Pogue (HE); Gallatin, Mo.
 Harold Morgan Porter (EE); Topeka
 Iru Paul Price (GS); Syracuse
 *William Shepard Price (EE); Topeka
 Elizabeth Margaret Quail (HE); Topeka
 Frank Oliver Randall (ME); Manhattan
 Velma Estelle Randall (HE); Manhattan
 Leverne Healey Raynesford (EE); Salina
 Victor Eugene Reef (ChE); Merriam
 Mary Adele Rees (GS); Leoti
 George Ambrose Reid (RC); Manhattan
 Mabel Rhine (IJ); Manhattan
 Ralph Burton Ricklefs (Ag); Troy
 Bella Catherine Robertson (HE);
 Manhattan

* Also pursuing graduate study.

SENIORS—*Concluded*

- Harold William Roebke (Ag); Clifton
 Arthur Rogers (EE); Manhattan
 Harvey Wayne Rogler (Ag); Matfield Green
 Helen Leone Rogler (HE); Matfield Green
 Bennie Albert Rose (ME); Waldron
 Eber Roush (GS); Lebanon
 Christian Elmer Rugh (EE); Abilene
 Davida Jane Russell (IJ); Manhattan
 Lawrence Oscar Russell (AE); Manhattan
 Mary Dillon Russell (M); Manhattan
 Harry Alfred Rust (Ag); Manhattan
 Dorothy Louise Sanders (M); Manhattan
 Harold Davis Sappenfield (IJ); Abilene
 Goldie Inez Scarborough (HE);
 Watson, Mo.
 Clarence Schmidt (CE); Wichita
 Raymond Louis Scholz (Ag); Frankfort
 *Ella Louise Schrupf (HE);
 Cottonwood Falls
 Grace Dorothy Schultz (HE); Manhattan
 Fred Schultz (Ag) Wathena
 Richard Schultz (EE); Wichita
 Glen Owen Schwandt (EE); Manhattan
 *Herbert Henry Schwardt (GS 1; Grad. 2);
 Manhattan
 Emma Katherine Scott (HE); Kirwin
 Lester William Servis (CE); Rock
 Sheridan Settler (Ag); Council Grove
 Thelma Irene Sharp (HE); El Dorado
 Jack William Sheetz (CE); Harveyville
 Ralph Harley Sherman (Ar); Iola
 Francis Marlin Sherwood (RC); Grenola
 John Henry Shirkey (Ag); Madison
 Harry Edwin Skoog (Ag); Corbin
 Alice Geneva Smith (IJ); Agenda
 Corinne Alice Smith (HE); Topeka
 *Linus Burr Smith (Ar 1; Grad 2);
 Hutchinson
 Mabel Rachael Smith (HE); Eskridge
 Samuel Lewis Smith (ME); Mount Hope
 Sarah Elizabeth Southwick (HE);
 Hoisington
 Dorothy Speer (GS); Wichita
 Paul Speer (ME); Olathe
 Harold Crane Spencer (IJ); Baldwin
 Lloyd Ancil Spindler (GS); Garnett
 Mildred Stahlman (HE); Potwin
 Hamilton Arlo Stewart (Ag); Topeka
 Ferol Avalon Stickel (HE); Manhattan
 Dorothy Mildred Stiles (PSM);
 Kansas City
 Gladys Mirriam Stover (GS); Manhattan
 Charles William Stratton (M); Manhattan
 Paul Loyd Stuenkel (CE); Lenora
 Ruben Bernard Sundgren (GS); Sitka
 *Charlotte Huntington Swanson (GS 1;
 Grad 2); Manhattan
 Fred James Sykes (Ag); Brewster
 Oliver Ellsworth Taintor (ME); Wichita
 Clarence John Tangeman (RC); Newton
 Carman Carl Tate (EE); Lockney, Tex.
 *Ward Wesley Taylor (Ag); Smith Center
 *Harley Albert Teall (EE); El Dorado
 Eric Tebow (RC); Scandia
 Gilbert King Terpening (Ag); Manhattan
 Harold Hetherington Theiss (CE);
 Hutchinson
 Walter Thomas (CE); Canton
 Simon Tombaugh (EE); Kansas City
 *Esther Irene Tracy (HE); Manhattan
 Genevieve Thelma Tracy (IJ); Manhattan
 Josephine Lee Trindle (GS); Hugoton
 Charles Turnipseed (CE); Arkansas City
 Ralph Leo Tweedy (GS); Iola
 Leland Stanford van Scoyoc (GS);
 Manhattan
 Rollo Evans Venn (ME); Neodesha
 George Arthur Venneberg (IJ); Havensville
 George Ellsworth Voiles (CE); Manhattan
 Richard Louis von Trebra (Ag); Oswego
 Joel Chadwick Wallace (Ag); White City
 Louise Wann (GS); Hays
 Earl Dawson Ward (ME); Elmdale
 Ethel Faye Watson (HE); Minneapolis
 *Norman Nathaniel Weberg (Ag); Salina
 Glen Weidenbach (EE); Wichita
 Lloyd Sherman Weikal (CE); El Dorado
 Florence Wells (IJ); Meriden
 Wilma Emeline Wentz (HE); Concordia
 George Smith Wheeler (GS); Manhattan
 Kathryn Marie White (HE); Oswego
 Mary Lois Williamson (HE);
 Independence, Mo.
 Dorothy Jean Willits (GS); Topeka
 Harry Robert Wilson (M); Wichita
 Corrinne Margaret Wilttrout (HE); Logan
 *Claude Vernon Winterscheid (EE); Gridley
 *Clell Burns Wisecup (GS 1; Grad 2);
 Manhattan
 Walter Wisnicky (Ag); Green Bay, Wis.
 Lorene Janie Wolfe (HE); Johnson
 Lawrence Ewalt Woodman (EE); Manhattan
 Bertha Gertrude Worster (IJ); Manhattan
 Lillian Mae Worster (HE); Manhattan
 Franklin Neal Wray (CE); Manhattan
 Irwin Ira Wright (ME); Stockton
 Kenneth Elwood Yandell (RC); Wilson
 David Anderson Yerkes (Ar); Manhattan
 *Nora Yoder (GS); Newton

JUNIORS

- Alice Abbott (PSM); Gretna
 Ramon Alvarez Acevedo (VM); Calivo, P. I.
 George Acree (CE); Manhattan
 Margaret Adams (GS); Long Island
 Neil Adams (Ag); Humboldt
 Ray Adams (CE); Topeka
 Robert Paul Aikman (EE); Manhattan
 Emma Mae Aiman (GS); Manhattan
 Marjorie Eloise Ainsworth (IJ); St. John
 Kenneth Owen Alberti (EE); Kansas City
 Curtis Carpenter Alexander (RC);
 Hutchinson
 Edith Evelyn Ames (HE); Sedgwick
 Mabel Anderson (HE); Lincoln
 Lottie Andrews (GS); Junction City
 Frank Atkin (EE); Manhattan
 Irvin Milburn Atkins (Ag); Manhattan
 Irene Winifred Austin (IJ); Salina
 Paul Axtell (Ag); Argonia
 David Paul Ayers (EE); La Harpe
 Harry Babbitt (EE); Larned
 Stella Iva Baker (GS); Haviland
 Esther Lettie Bales (HE); Manhattan
 Carlton McCrary Barber (CE); Concordia
 Marion Elizabeth Barbour (HE); Olathe
 Thomas Ralph Barner (CE); Belle Plaine
 Harlan Barnes (ME); Bartlesville, Okla.
 Mansel Barnes (RC); Protection
 Lowell Barr (Ag); Manhattan
 Lovell Barr (Ag); Manhattan
 Rufus Hodges Barrett (EE); Emporia
 Reuel Vernon Barrington (Ag); Sedan
 Harold Ralph Batchelor (EE); Manhattan
 Helen Joy Batchelor (HE); Manhattan
 Clarence Bayles (Ag); Garrison
 Ruth Leanora Bell (HE); Lebanon
 Jack Dale Bennett (RC); Concordia
 Rhein Benninghoven (ME); Strong

* Also pursuing graduate study.

JUNIORS—Continued

- Lawrence Best (AE); Pattonsburg, Mo.
 Wilma Emma Biddle (GS); Hiawatha
 Guy Cecil Bigelow (Ag); Potwin
 Raleigh Marion Bishop (ME); Manhattan
 Harris Franklin Blackburn (EE); Fairmount
 Ralph Blackledge (IJ); Manhattan
 Everett Lewis Blankenbeker (EE); Topeka
 Merle Willard Bloom (AE); Liberal
 Mildred Hazel Bobb (HE); Newton
 Irma Marie Boettcher (HE); Holton
 Bethard Charles Bogue (Ag); Junction City
 Clarence Edwin Bohnenblust (EE);
 Leonardville
 George Timothy Bond (CE); Topeka
 Irene Mae Bower (HE); Norton
 Leslie Bowman (ME); Lebo
 Dee Bowyer (EE); Potwin
 Verne Boyd (RC); Irving
 William James Braddock (ChE 1; GS 2);
 Girard
 Lynn Harvey Bradford (IC); Topeka
 Chris Ray Bradley (Ag); Mayetta
 Lillie Pauline Brandley (IJ); Manhattan
 Harold Bredehoft (EE); Inman
 Christian Norman Bressler (RC); Manhattan
 Clay Willard Brion (RC 1; Ag 2); Ottawa
 John Thomas Brooks (GS) Columbus
 Paul Orville Brooks (Ag); Horton
 Edwin Lewis Brower (VM); Junction City
 Naomi Mabel Brown (HE); Junction City
 Ralph Elmore Brown (CE); Salina
 Aloysius Max Brumbaugh (RC); Home
 Forrest Brumm (RC); Manhattan
 Fred August Brunkau (EE); Otis
 Kenneth Allen Burge (IC); Fort Scott
 Geneva Burnison (PSM); Marquette
 Margaret Kirby Burtis (HE); Manhattan
 Augustus Wells Burton (ME); Moran
 Florence Marian Burton (HE); Haddam
 Edgar Davis Bush (EE); Liberal
 James Burton (Ar); Hollis
 Raymond Earl Burton (EE); Haddam
 Clifton Andrew Byers (CE); Abilene
 Elmer LeRoy Canary (Ag); Lawrence
 Carl Milton Carlson (Ag); Lindsborg
 William Wright Carpenter (RC); Coffeyville
 Earl Carr (Ag); Byers
 Harold Carter (EE); Vinita, Okla.
 Lillian Iva Carver (PSM); Manhattan
 Lloyd Charles Cassel (GS); Long Island
 James Park Caster (Ag); Manhattan
 Alice Winifred Chaney (HE);
 Kansas City, Mo.
 Ernest Iden Chilcott (Ag); Manhattan
 Arthur Eugene Churchill (EE); Osage City
 Charles Samuel Clapper (GS); Minneola
 Arty Worth Clark (EE); Goodland
 Wilma Frances Clark (HE); Logan
 Thayer Cleaver (AE); Iola
 Ernest Benjamin Coffman (Ag); Goodland
 George Collier (EE); Colwich
 George Curtis Cooksey (IC); Manhattan
 Ronald Carlson Cooper (ME); Stockton
 Josephine Bradford Copeland (HE); Salina
 Orin Keith Correll (GS); Manhattan
 Rushton Gardner Cortelyou (CE);
 Manhattan
 Jack Coulson (IC); Abilene
 Max Crannell (Ag); Richmond
 William Garnet Cribfield (HE); Geneseo
 Bert Crowder (ME); Topeka
 Willis Harold Cuddy (RC); Manhattan
 Francis Harriett Cunningham (HE & N);
 Hazelton
 Bruce Oliver Dallam (GS); Faucett, Mo.
 Gladys Pauline Dallas (HE); Harveyville
 Burton Eugene Dalrymple (GS); Simpson
 Joe Dalrymple (CE); Simpson
 Hazel Flossie Dalton (RC); Kansas City
 Edgar Dannevik (EE); Troy
 Carrie Elvard Davis (GS); Delavan
 Dorothy Mae Davis (GS); Delavan
 Loren Le Roy Davis (Ag); Effingham
 Marion Davis (VM); Manhattan
 Raymond Howard Davis (Ag); Effingham
 Daisy Deane Davison (GS); Michigan Valley
 Harry Ellsworth Day (RC); Kansas City
 Harold John Dayhoff (RC); Abilene
 Floyd Archie Decker (EE); Troy
 David Deines (CE); Bazine
 Harold Mead Denison (EE); Berryton
 Lloyd Alven Deniston (RC); Manhattan
 Margaret Claire DeVinnny (GS); Manhattan
 John Dill (EE); Augusta
 Leo Dixon (CE); Columbus
 Arthur Doolen (Ag); Manhattan
 Mildred Katheryn Doyle (HE); Clay Center
 Margery Dryden (RC); Parsons
 Oswald Benton Dryden (GS); Hoisington
 Rida Floy Duckwell (GS); Abilene
 Glen Leroy Dunlap (VM); Manhattan
 Pansy Elmina Dunlap (HE); Berryton
 Joseph Edgar Durham (GS); Manhattan
 Doris Irene Dwelly (HE); Manhattan
 Bernice Eckart (HE); Lincoln
 John Edwards (GS); Athol
 Martin Arthur Edwards (EE); Manhattan
 Mildred Clara Edwards (HE); Athol
 Betty Esther Elkins (HE); Wakefield
 Opal Marian Endsley (PSM); Manhattan
 Martha Engle (HE); Abilene
 Duard Enoch (FME); Abilene
 Charles Leslie Erickson (IC); Fort Scott
 Harry Erickson (PSM); Manhattan
 Herbert Beals Evans (CE); Wellington
 Hobart Leslie Evans (Ag); San Antonio, Tex.
 James Glen Evans (IC); Chanute
 Orval Evans (Ag); Lyons
 Waldron DeWitt Fair (RC); Medicine Lodge
 Herman Farley (VM); Natchitoches, La.
 Ruth Marie Faulconer (M); Manhattan
 Gerald Ferris (IJ); Chapman
 Eileene Fields (PSM); Manhattan
 Ronald Dale Finney (CE); Topeka
 Barbara Irene Firebaugh (GS); Marion
 Cecil Fisher (Ag); Fellsburg
 Marjorie Minnette Fleming (PSM);
 Manhattan
 Olive May Flippo (HE); Abilene
 Mary Lenore Fockele (GS); Ottawa
 Ernest Foltz (GS); Belle Plaine
 Vernon Foltz (GS); Belle Plaine
 Daniel Hall Forbes (ChE); Topeka
 Blanche Forrester (IJ); Manhattan
 Stanley Malcolm Fraser (EE); Talmage
 Paul Freeburg (GS); McPherson
 Mildred Baker Fritz (GS); Syracuse
 Wilbert Garold Fritz (RC); Manhattan
 Irma Rosetta Fulhage (GS); Yates Center
 Howard William Garbe (ME); Valley Falls
 Walker Leon Garnett (EE); Wichita
 Joseph Homer Garrison (ChE); Lincolnville
 Ray Geddes (IC); Wellington
 Harriet Geffert (RC); Manhattan
 William Everett Gibson (CE); Arrington
 Charles Gilbert (RC); Manhattan
 Helen Elizabeth Graham (GS); Manhattan
 Earl Frances Grave (VM); Manhattan
 Helen Greene (HE); Beverly
 Mary Gertrude Grider (HE); Rolla
 James Smith Griffes (GS); Hill City
 Martha Elizabeth Griffin (IJ); Girard
 Emery Grove (CE); Irving
 Claribel Florence Grover (GS); Iola
 Welthalee Grover (HE); Iola
 Carolyn Gruger (GS); Wichita
 Theodore Fowler Guthrie, Jr. (Ag);
 Saffordville

JUNIORS—Continued

- Lydia Alma Haag (GS); Holton
 Ferdinand Daniel Haberkorn (RC); Hutchinson
 James Micheal Hacker (IJ); Manhattan
 Lucia Mary Haggart (HE); Salina
 Joe Douglas Haines (RC); Manhattan
 Kenneth Halbower (Ag); Anthony
 Mamie La Clede Hall (HE); Augusta
 Mary Olive Hall (IJ); Fredonia
 Leona Marie Hanson (HE); Randolph
 Nina Dorothy Harris (GS); Kansas City, Mo.
 Marian Brachett Harrison (HE); Jewell
 Acsa Margaret Hart (HE); Overbrook
 Benjamin Franklin Hartman (ChE); Salina
 Virgil Himes Harwood (CE); Hutchinson
 Chester Havley (GS); Frankfort
 Ferne Audrey Haymond (HE); Burdett
 Robert Erwin Hedberg (RC); Manhattan
 Ralph Theron Hermon (EE); Bazine
 Stella May Heywood (HE); Bennington
 Harold Higginbottom (EE); Manhattan
 Mildred Hinnen (GS); Potwin
 Charles Frank Hirsch (RC); Ellinwood
 Willard McIntyre Hixon (EE); Berryton
 Leland Stanford Hobson (EE); Kingman
 Alma Louise Hochuli (GS); Holton
 William Milton Holt (CE); Augusta
 Mary Florence Hoop (GS); Fowler
 Wilma Irene Hotchkiss (HE); Manhattan
 Mignon Corwin House (GS); Manhattan
 Raymond Edgar House (GS); Brookville
 Vera Frances Howard (HE); Mount Hope
 William Taylor Howard (ME); Garnett
 Harold Howe (Ag); Wakeeney
 Norman Hamilton Howell (VM); Kansas City
 Emma Shull Huff (HE); Garden City
 John Huff (EE); Garden City
 John Hyer (EE); Coffeyville
 Ralph Raymond Irwin (CE); LeRoy
 Frances Catherine Iserman (HE); Topeka
 Mary Clara Jackson (M); Manhattan
 Mary Pinkerton Jones (GS); Manhattan
 Maggie Lorene Jeffrey (HE); Elmdale
 Mary Helen Jerard (PSM); Manhattan
 Vivian Jewett (HE); Kansas City
 Carl Johnson (EE); McPherson
 Glenn Irvin Johnson (AE); Greeley
 Harvey Johnson (CE); Manhattan
 Helen Lillian Johnson (HE); Manhattan
 Henry William Johnson (EE); Leavenworth
 Harold Johnson (Ag); Norton
 John Oscar Johnson (EE); Wakarusa
 Mary Hannah Johnson (PSM); Alta Vista
 Reuben Milton Johnson (CE); Manhattan
 Ruth Johnson (HE); Manhattan
 Inez Jones (GS); Kansas City
 Carrie Ida Justice (HE); Olathe
 Brighton Anderson Kahn (EE); Emporia
 Lillian Kammeyer (IJ); Manhattan
 Melvin Karns (EE); Bucklin
 Mary Lee Keath (GS); Chillicothe, Mo.
 Chester Keck (GS); Auburn
 Frederick LeRoy Kelley (RC); Quinter
 Leonard Edwin Kelly (RC); Newton
 Milton Joseph Kennedy (RC); Wichita
 John Melville Kimball (CE); Smith Center
 Mary Marcene Kimball (IJ); Manhattan
 Ruth Maurice Kimball (HE); Manhattan
 Katheryn Kimble (GS); Miltonvale
 Doris Kimport (HE); Norton
 Ralph Kimport (Ag); Norton
 Everett Kenneth Kindig (GS); Olathe
 Albert Smith Kinsley (GS); Kansas City, Mo.
 Glenn Albert Kirk (ME); Fort Scott
 Kenneth Walden Knechtel (Ag); Larned
 Vera Lilyan Knisley (RC); Manhattan
 Oswald Joseph Lacerte (EE); Collyer
 Paul Lamerson (Ag); McPherson
 Oscar Dewey Lantz (Ar); Chapman
 Bertha Harriet Lapham (M); Manhattan
 Blanche Lapham (M); Manhattan
 Anna Marie Larsen (HE); Burns
 Mildred Inette Leech (PSM); Fredonia
 Harold Gasaway Lewis (CE); Winfield
 Vera Ingeborg Lindholm (HE); Falun
 John Frederick Lindquist (IJ); Gove
 Wallace LeRoy Lorimor (GS); Sterling
 Thomas Edward Lorton (RC); Chapman
 Clarence Ludeman (EE); Wichita
 James Theodore McBurney (ME); Manhattan
 Ralph Waldo McBurney (Ag); Sterling
 Roy Lewis McConnell (VM); Manhattan
 John Bush McCormick (AE); Oatville
 John McCoy (GS); Miltonvale
 Sidney McCracken (GS); Overbrook
 Francis William McDade (EE); Salina
 John Joseph McGrath (EE); Holton
 John McGregor (Ag); Columbus
 John McInlay (VM); Manhattan
 Ellis Buford McKnight (GS); Eskridge
 Harold McNiff (EE); Manhattan
 Eugenia Malone (PSM); Salina
 Wilbur Merlyn Mann (Ag); Quinter
 Leslie Louis Marsh (ArE); Chanute
 Charles Leroy Marshall (Ar); Atchison
 George Edward Marshall (Ag); Bonner Springs
 Edith Edna Martin (HE); Manhattan
 Martina Anna Martin (HE) Wathena
 Fred Edward Masek (EE); Norton
 Meda Rea Masterson (HE); Riley
 Mildred Enola Mayden (HE); Manhattan
 Francis Kendall Mears (ChE); Everest
 Roy Hershal Mears (EE); Parsons
 Daniel Verne Meiller (ME); Minneapolis
 Bernard Melia (Ag); Ford
 Albert Houston Meroney (IJ); Garden City
 James Bailey Merryfield (FME); Salina
 Manie Herbert Meyer (EE); Mulvane
 Alice Elizabeth Miller (HE); Muscotah
 Carl Miller (EE); Garden City
 Glenn Thomas Miller (GS); Winchester
 Hazel Geraldine Miller (HE); Lincoln
 John Miller (ME); Coffeyville
 Lucille Miller (RC); Logan
 Pearl May Miller (HE); Garden City
 Theodore Harry Miller (EE); Kansas City
 Elizabeth Mills (HE); Lake City
 Horace Arthur Mills (VM); Manhattan
 Marjorie Lucille Moody (PSM); Riley
 Hazel Lee Moore (HE); Protection
 Thelma Jane Moore (GS); Humboldt
 Claude Herbert Moreland (LAR); Topeka
 Una Morlane (HE); Courtland
 Herschel Oden Morris (RC); Mount Hope
 Frank Brenner Morrison (GS); Manhattan
 Ralph Parkinson Moyer (ME); Lyndon
 Kenneth Berkley Mudge (EE); Salina
 Major Floyd Mueller (AE); Sawyer
 Harold Lewis Murphey (Ag); Protection
 James Frederick Murphy (EE); El Dorado
 Loran Albert Murphy (EE); Burlingame
 Floyd Naugle (EE); Highland
 Donald Kenneth Nelson (EE); Manhattan
 Merle May Nelson (HE); Jamestown
 William Nelson (EE); Alta Vista
 Ida Emelyn Newton (GS); Harper
 Alice Cecelia Nichols (IJ); Manhattan
 Clifford Oliver Nielson (CE); Independence
 Karl William Niemann (Ag); Muskogee, Okla.
 Mary Norrish (HE); Manhattan
 Mary Esther Nuttle (GS); El Dorado
 Loren Manuel Nuzman (GS); Manhattan
 Will Nyhart (EE); Atchison
 Willis Frank O'Daniel (Ag); Westmoreland
 Rex Okeson (GS); Fairview
 Letha Bernice Olson (HE); Oakley
 Maurice Edwin Osborne (Ag); Partridge

JUNIORS—Continued

Lowell Henry Paddock (AE); Lakin
 Norman Palmquist (Ar); Manhattan
 Homer Parshall (RC); Manhattan
 Henry Clayton Paulsen (ChE); Atchison
 James Ernest Payne (GS); Manhattan
 Evelyn Stella Peffley (IJ); Manhattan
 Georgia Given Persons (GS); Manhattan
 Edwin Peterson (GS); Marquette
 Austin Harold Pfeiffer (ME); Hamlin
 Mary Kathryn Pfeiffer (GS); Hamlin
 Mary Frances Piatt (PSM); Hamilton
 Kenneth Harrison Platt (Ag); Manhattan
 Thomas Allen Poole (CE); McDonald
 Roy Galon Porter (CE); Norton
 Lucile Elizabeth Potter (IJ); Larned
 James Francis Price (RC); Manhattan
 Cecile May Protzman (GS); Rexford
 Addie Alice Radebaugh (HE); Frankfort
 Stephen Martin Raleigh (Ag); Clyde
 Horace Randels (Ag); Anthony
 Jeanie Greene Rankin (RC); Manhattan
 Ezra Rasmussen (RC); Cleburne
 Harold Vernon Rathbun (EE); Manhattan
 Lyle Cheadle Read (EE); Clay Center
 Geraldine Buena Reboul (GS); Phillipsburg
 Myron Reed (GS); Norton
 William Benedict Reed (Ar); Glasco
 Thomas Russell Reitz (Ag); Belle Plaine
 Agnes Jeanette Remick (IJ); Manhattan
 Harold George Rethmeyer (EE); Topeka
 Ralph Henry Rhoades (CE); Newton
 Frances Maree Richards (GS); Manhattan
 Lewis Jones Richards (GS); Manhattan
 Madge Ricky (PSM); Norton
 Veda Pauline Roach (IJ) Salina
 Roy Lee Roberts (ME); Garden City
 Frances Robinson (HE); Hays
 Esther Joanne Rodewald (HE); Randolph
 Samuel Nicholas Rogers (AE); Manhattan
 Richard Roper (EE); Manhattan
 Franklin Thomas Rose (GS); Kansas City
 Dorothy Neleh Rosebrough (GS); Topeka
 Anna Lou Rucker (HE); Manhattan
 Kathryn Elizabeth Rumold (M); Manhattan
 Adrian Ruth (RC); Scott City
 Elwin Rutherford (EE); Manhattan
 Myron Loyd Sallee (GS); Long Island
 Ellmore Franklin Sanders (VM); Erie
 Thelma Sauberli (HE); Lyons
 Aldene Scantlin (HE); Pratt
 Elizabeth Catherine Schaaf (HE); Harvard
 William Henry Schindler (Ag); Valley Falls
 Harvey Schmidt (CE); Wamego
 Oliver Delmar Schmidt (EE); Lorraine
 Ralph Schopp (GS); Abilene
 Earnest Othello Scott (CE); Elgin
 Henry Charles Seekamp (Ag) Mulvane
 Lela Mae Segrist (HE); Manhattan
 Frank Shaw (EE); McPherson
 Dorothy Sheetz (HE); Harveyville
 Marybelle Sheetz (HE); Chillicothe, Mo.
 Paul Arthur Shepherd (EE); Burlingame
 Fred Shideler (IJ); Girard
 Raymond Earl Shrader (RC); Concordia
 Bertha Pearl Shuyler (HE); Plevna
 Ernest Roosevelt Siefkin (EE); Wichita
 Mildred Caroline Sims (GS); Manhattan
 Clarence Sloan (EE); Stratford
 George Waite Smith (Ar); Hutchinson
 Meredith Wilma Smith (HE); Emporia
 James Frederick Snyder (CE); Monrovia
 Elizabeth Katherine Sorenson (HE);
 Kansas City
 Harold Mahlon Souders (Ar); Eureka
 Alice Lucile Spain (HE); Arkansas City
 Leonore Elizabeth Spence (RC); Randolph
 Virginia Lenore Spencer (HE); Arkansas City
 Dorothy DeWolf Spindler (HE); Garnett
 Web Sproul (EE); Manhattan
 Dorothy May Stahl (HE); Manhattan
 Lucile Stalker (PSM); Manhattan
 John Stebbins (ME); Ellis
 Lydia Stebbins (HE); Kansas City
 Paul Moulton Stebbins (CE); Wichita
 Dorothy Jean Stevenson (IJ); Oberlin
 Newton Stewart (CE); Vermillion
 George Stewart (Ag); Manhattan
 Ruth Stewart (PSM); Eureka
 Almeron Willis Stillwell (ME); Wichita
 Maud Elizabeth Stitt (HE); Liberal
 Glen Harold Stoffer (FME); Abilene
 Edmund Lewis Stone (EE); Manhattan
 Clifford Strom (EE); Junction City
 Floyd Dewey Strong (GS); Manhattan
 Carl Loren Studer (Ag); Manhattan
 Carl Eugene Sturdevant (ME); Chanute
 Edna Marie Suiter (RC); Macksville
 Elizabeth Reid Sutton (PSM); Tribune
 Paul Clifford Swan, Jr. (EE); Washington
 Francis Howe Talbott (EE); Emporia
 Carl Taylor (GS); Arkansas City
 Gordon Taylor (EE); Junction City
 Grace Belle Taylor (HE); Columbus
 Jared Frederick Taylor (Ag); Wichita
 Daniel Wilson Teare (AE); Wichita
 Lee Thachrey (GS); Manhattan
 Russell Ira Thrackrey (IJ); Manhattan
 Collins Thole (Ag); Stafford
 Ernest Raymond Thomas (Ar); Manhattan
 Helen Narissa Thompson (HE); Herington
 Wesley Alerode Thompson (EE); Agenda
 Mildred Bertha Thurow (HE); Macksville
 Ralph Thurow (RC); Macksville
 Milton Henry Toburen (GS); Cleburne
 Dean Willard Towner (EE); Solomon
 Azil Oscar Turner (Ag); Valley Falls
 Harry Edwin Tuthill (EE); Salina
 Eugene van Vranken (ArE); Pratt
 Jack Vasey, Jr. (ME); Arkansas City
 Van Venables (Ag); Bellaire
 Howard Vernon (Ag); Oberlin
 Helena Mary Viers (M); Manhattan
 Forrest Barber Volkel (EE); Lenora
 Crystal Louise Wagner (GS); Manhattan
 Oliver Walgren (VM); Denver, Colo.
 Eunice Marie Walker (HE); Valley Falls
 Ralph Deforest Walker (EE); Junction City
 Herkle Lester Wampler (M); McPherson
 Ralph Wareham (RC); Manhattan
 Samuel Blake Wareham (RC); Manhattan
 Arthur Wasson (EE); Peru
 Vera Wasson (HE); Neosho, Mo.
 Catherine Waters (IJ); Kansas City, Mo.
 Albert Miles Watson (Ag); Osage City
 Cloyce Herbert Watters (GS); Brookville
 Aubrey Joseph Weber (EE); Manhattan
 Harold Weddle (CE); Lindsborg
 Everett John Weeks (EE); Manhattan
 Katherine Welker (HE); Coffeyville
 Ruth Violet Welsh (GS); Blackwell, Okla.
 Mildred Ermine Werts (HE); Republic
 June Marguerite West (GS); Manhattan
 Vesta Marguerite West (HE); Manhattan
 Frank Loy Westerman (EE); Waterville
 Earle Westgate (GS); Manhattan
 Forest Whan (RC); Manhattan
 John Tanton Whetzel (Ag); Manhattan
 Avis Wickham (HE); Manhattan
 Francis Eugene Wiebrecht (EE); Strong
 George Wiedeman (ChE); Wichita
 Hypatia Jeanne Wilcox (HE); Wichita
 Alice Louise Williams (IJ); Conway Springs
 Christopher Williams (RC); Manhattan
 Howard Williams (EE); Cleburne
 Earl Jennings Wilson (GS); Assaria
 Otis Harold Wilson (GS); Jennings
 Loyal Venice Wimer (EE); Le Roy
 George Herbert Wishart (GS); Mankato

JUNIORS—Concluded

William Roy Woodring (EE); Manhattan
Genevieve Woodruff (RC); Manhattan
Irwin Day Wright (ME); Stockton
John Yost (EE); La Crosse
Albert Miller Young (EE); Junction City

Lawrence Warner Youngman (IJ);
Harveyville
Richard Louis Youngman (IJ); Kansas City
Dorothy Evelyn Zeller (HE); Manhattan
Elsie Theresa Zohner (HE); Penokee

SOPHOMORES

Joseph Omer Abbott (VM); Manhattan
Velma Ellen Abernathay (HE); Manhattan
Forrest Adams (IJ); Blue Rapids
Dorothy Margurite Akin (GS); Manhattan
Henry Wright Allard (IC); Manhattan
Charles Alfred Allen (GS); Maplehill
Elizabeth Allen (PSM); Galena
George Max Allen (EE); Topeka
Lillian Colleen Alley (HE); Oxford
Vernon Carl Almquist (Ag); Great Bend
George Kenneth Ames (RC); Moline
Wayne Amos (IJ); Manhattan
Eula May Anderson (HE); Scandia
Gladys Marie Anderson (HE); Neosho Falls
Joe Anderson (GS); Salina
Paul Claude Anderson (GS); Alton
Paul Lenore Anderson (CE); Soldier
Rubie Alice Anderson (PSM); Axtell
Harold Duane Arnold (GS); Manhattan
Noel Grant Artman (EE); Denison
Milburne Clinton Axelson (Ag); Manhattan
Frances Mable Backstrom (HE);

Kansas City, Mo.

Robert Eugene Bachler (GS); Manhattan
Charlotte Leoki Bailey (PSM); Topeka
Louis William Baily (EE) Manhattan
Ruth Martha Bainer (PSM); Manhattan
Guy Baker (Ag); Syracuse
Leatha Lenore Baker (HE); Gove
Ruth Eunyce Baker (GS); Syracuse
Louis Elbert Barber (Ar); Gordon
Irene Bridget Barner (HE); Wellington
Ruth Barnhisel (HE); Wichita
Robert Anderson Barr (RC); Manhattan
Walter Barr (IJ); Larned
Edwin Raymond Barrett (ChE); Emporia
Janice Barry (IJ); Manhattan
Louise Martha Barton (HE); Cuba
Orville Barton (GS); Junction City
Kay Haines Beach (Ag); Edwardsville
Ignacio Becerra (Ag); San Nicolas,
Argentina, S. A.
Lillian Louise Bedor (HE); Hollis
Alice Beeler (PSM); Jewell
Earl Leroy Beeman, Jr. (GS); Pratt
Phyllis Aileen Belknap (IJ); Abilene
Scott Roe Bellamy (Ag); Meade
Grace Benjamin (IJ); Kansas City
Lois Shouse Benjamin (IJ); Kansas City, Mo.
Erwin John Benne (GS); Washington
William Newton Bennington (Ag);

Larkinburg

Arthur Wallace Benson (Ag); Clay Center
Dorothy Myrle Bergsten (GS); Randolph
James William Bickle (EE); Gypsum
Walter Bell Bigelow (CE); Buffalo
Gladys Audrey Bilger (HE); Hunter
Loyle William Bishop (ME); Manhattan
Robert Stuart Bishop (VM); Manhattan
Elsie Madge Bitler (HE); Eureka
James Lyle Blackledge (Ag); Sheridan, Wyo.
Nellie Valera Blackwood (HE); Manhattan
Hazel Beth Blair (M); Mulvane
Lee Ella Blake (GS); Kansas City
Hobart Pattison Blasdel (Ag); Salina
Floyd Albert Blauer (Ag); Stockton
Alfrada Frances Bock (GS); Dellwyn
Henry Bock (IC); Cawker City
Louis Hamilton Bock (GS); Pratt
Helen Edith Boehm (HE); Stanley

Frances Eleanor Bone (GS); Topeka
Gilbert Borgman (EE); Enterprise
Carl Frederick Botsford (FME); Salina
Kate Marie Bowen (HE); Chillicothe, Mo.
Hilda Rees Bowen (HE 1; RC 2);

Minneapolis

Fern Fannie Bowman (GS); Pratt
Ruth Linnette Bowman (HE); Manhattan
Evelyn Frances Boyce (HE); Minneapolis
Kenneth Arthur Boyd (GS); Irving
Richard Donald Bradley (EE); Dover
Edward Brainard (Ag); Canadian, Tex.
Edward Clement Bramlage (ChE);

Junction City

Carrie Brandesky (GS); Severy
John Eberth Brink (Ar); Basehor
Beulah Lorene Brinker (PSM); Goodland
Lola Gladys Brinker (PSM); Goodland
Walter August Brinkham (RC); Stafford
Frank Brokesh (Ag); Munden
Mary Shelton Brookover (GS); Eureka
Dorothy Brooks (HE); Manhattan
James Brooks (Ag); Garrison
Mary Catherine Brooks (GS); Eureka
Maurice Vincent Brooks (RC); Beloit
Bruce Keach Brown (EE); Delphos
Hale Earnest Brown (EE); Onaga
Rilda Maxine Brown (M); Manhattan
William Arthur Browne (VM); Burdett
Leonard Hathaway Brubaker (GS);
Manhattan

James Christy Bruce (CE); Junction City
Robert Ambrose Brunson (VM);
Corona, Cal.

Doris Isabelle Bryan (HE); Greensburg
Howard Cornell Bugbee (GS); Manhattan
Herman Charles Bunte (EE); Hutchinson
Merel Burkholder (EE); Burr Oak
Mary Lucretia Burnette (PSM); Parsons
Sue Margaret Burris (HE); Chanute
Daryl Durland Burson (HE); Manhattan
Ward Butler (Ar); Glasco
Orville Ray Caldwell (Ag); Emporia
George Dale Call (EE); Moline
Oren Emery Campbell (Ag); Cimarron
Edith Carnahan (GS); Garrison
Ralph Correll (IC); Topeka
Floyd Eugene Carroll (VM); Manhattan
Maurice Marcellus Casey (Ag); Dorrance
Helen Mildred Caskey (IJ); Hutchinson
Edward Chalk (CE); Frankfort
Paul Eugene Chappell (CE); Manhattan
George Kenneth Chew (RC); Manhattan
Joseph Huston Church (CE); Austin, Minn.
Edna Ellen Circle (HE); Kiowa
Paul Frederick Clark (ME); Manhattan
Mary Louise Clarke (IJ); Paola
Laurence Mervin Clausen (Ag); Alton
Clyde Henry Cless (Ar); Rossville
Vera Irene Clothier (HE); St. Marys
Roscoe Coberly (Ag); Gove
Donald Colburn (GS); Kansas City
Clarence Coe (RC); Wichita
Melvin Cooper Coffman (EE); Wakefield
Earl Carl Cole (IJ); Phillipsburg
Erma Mildred Coleman (GS 1; HE 2);
Mayetta

Florence Elmina Coleman (HE); Goddard
Marion Alonzo Coleman (GS); Centralia
Nelle Isabelle Conroy (PSM); Manhattan

SOPHOMORES—Continued

- Bessie Cook (HE); Bucklin
 Kenneth Harold Cook (EE);
 Independence, Mo.
 Ida Corinne Cool (PSM); Manhattan
 Claire Evangeline Cox (HE); Moran
 Francis Scott Coyle (Ag); Manhattan
 Aletha Crawford (GS); Stafford
 Goldie Mildred Crawford (GS); Manhattan
 Alma Rose Cress (GS); Manhattan
 Joseph Earl Cress (EE); Manhattan
 Lenore Marguerite Cress (HE); Manhattan
 Ruth Merry Cress (GS); Clements
 Clarence Crews (Ag); Elk Falls
 Velma Virginia Criner (HE); Wamego
 Roberta Gladys Cromwell (HE); Topeka
 Newton Cross (IJ); Manhattan
 Walter McConnell Crossen (Ag); Turner
 Allen Baxter Crow (GS); Harper
 Louise Crowder (HE); Manhattan
 John Frank Crum (CE); Junction City
 Gladys Hattie Crumbaker (PSM);
 Manhattan
 James Milton Cullum (RC); Beverly
 Albert Matthew Cunningham (GS);
 Manhattan
 Fern Elaine Cunningham (M); Junction City
 Mary Elizabeth Cunningham (HE);
 Manhattan
 Eula Mae Currie (IJ); Manhattan
 Elinor Marian Dalton (GS); Kansas City
 Fred Herbert Daniel (Ag); Manhattan
 Lena Alice Darnold (HE); Kansas City, Mo.
 Clyde Evans Davidson (EE); Topeka
 George Jackson Davidson (Ar); Manhattan
 Loyal Hendrickson Davies (CE); Manhattan
 Elmer Davis (RC); Glen Elder
 Frank Marshall Davis (IJ); Arkansas City
 Howard Preston Davis (CE 1; GS 2);
 Manhattan
 Irl Lakota Davis (GS); Manhattan
 Norma Lucile Davis (HE); Frankfort
 Rex Knaus Davis (CE); Madison
 Roy Edward Davis (EE); Morrill
 Edward Glen Dawson (Ag); Manhattan
 Helen Elizabeth Dean (GS); Manhattan
 Lyle DeBusk (RC); Macksville
 Willie Denton (EE); Denton
 Alvin Henry Deschner (EE); Beloit
 Robert Franklin Dice (EE); Wichita
 Marion George Dickson (CE); Manhattan
 Clarence Dyrton Diefendorf (EE); Fairmont
 Herbert Dimmitt (EE); Manhattan
 Esther Eulalia Dizmang (PSM); Manhattan
 Oscar Kirk Dizmang (Ag); Manhattan
 Pauline Dooley (PSM); Burns
 Myles Delwin Dovel (Ag); Delphos
 Raymond Rodney Drake (AE) Nekoma
 Allen Drew (EE); Rolla
 Vesta Fern Duckwall (IJ); Great Bend
 Frank Stuart Ducotey (RC); Pawhuska,
 Okla.
 William Homer Dum (EE); Hoisington
 Lynn Waite Dunlap (RC); Scott City
 Norton Dunlap (EE); Berryton
 Dean Dutton (EE); Alta Vista
 Hazel Mae Dwelly (HE); Manhattan
 John Clayton Dwelly (RC); Manhattan
 Edwin Earl (EE); Nickerson
 Philip Joseph Edwards (EE); Athol
 Albert Ehrlich (GS); Marion
 Herbert Jacob Ehrsam (ME); Enterprise
 Robert Elder (Ag); Linwood
 Dean Elliott (RC); Manhattan
 Robert Lovell Elsea (VM); Manhattan
 Kermit Vernon Engle (Ag); Abilene
 Karl Cornelius Enns (GS); Inman
 Hester Roberta Ensminger (GS); Nickerson
 Nora Blanche Eshbaugh (IJ); Manhattan
 Kennis Evans (EE); Soldier
 Ralph Evans (CE); Washington
 William Evans (CE); Barnard
 Virgil Monroe Fairchild (GS); South Haven
 Lawrence Stewart Farrell (IC); Manhattan
 Carl Faulconer (RC); Manhattan
 John Virgil Faulconer (CE); El Dorado
 Lynn Grey Fayman (LAR); Manhattan
 Frank Leroy Fear Jr. (AE); Bala
 William Fink (IC); Porterville, Cal.
 Clarence Fisher (Ag); Fellsburg
 Harold Kenneth Fisher (GS); Beverly
 Hayden Adelbert Fleck (EE); Maplehill
 Mary Louise Fleming (HE); Garfield
 Nels Philip Florell (GS); Jamestown
 Carl Wilbur Floyd (RC); Sedan
 William Boswell Floyd (EE); Manhattan
 Glen Robert Fockele (IJ); Le Roy
 Twila Irene Ford (HE); Eureka
 Agnes Forman (GS); Manhattan
 Alice Etelka Forman (GS); Manhattan
 Clarence William Foster (CE); Muskogee,
 Okla.
 Rebecca Louise Francis (GS); Westmoreland
 Maurice Benjamin Franklin (EE); Topeka
 Ruth Elizabeth Freeman (GS); Phillipsburg
 Lester Raymond Frey (IJ); Manhattan
 Ervil Scott Fry (Ag); Porterville, Cal.
 Joseph Isaac Fry (Ag); Eureka
 Dorothy Belle Fulton (HE); Oklahoma
 City Okla.
 Velmar Edward Gagelman (RC);
 Great Bend
 Anna Sullivant Galbraith (HE); White City
 Paul William Gartner (IJ); Manhattan
 Charlie Gates (EE); Kingman
 Merrilee Gault (GS); Oklahoma City, Okla.
 Harlan Earl George (ME); Coffeyville
 Ralph Waldo George (EE); Wichita
 Henry Isely Germann (GS); Fairview
 Edna Alma Gill (HE); Sylvia
 Willard LeRoy Gilmore (GS); Manhattan
 Eugene Warren Gilman (EE); Council Grove
 Malaeska Milton Ginter (EE); Manhattan
 Arleen Pearl Glick (GS); Jewell
 Louise Charlotte Glick (HE); Jewell
 Kenneth Graham (Ar); Wichita
 Dwight William Grant (EE); Almena
 Frank Theodore Greene (GS); Kansas City
 Howard McLain Greer (LA); Kansas City
 William Ellsworth Gregory (Ag); Walnut
 Paul Griffith (ArE); Bucklin
 Grace Darline Grinstead (GS); Liberal
 Roderic Grubb (GS); Kanopolis
 Harman Edward Guisinger (Ar); Manhattan
 Lawrence Howard Gunn (Ag); Pratt
 Fred Gunselman (GS); Holton
 Forrest Hills Hagenbuch (Ag); Troy
 Dale Evart Halbert (Ag); Abilene
 Charles Wesley Halferty (EE); Manhattan
 Alvin Willis Hamilton (EE); Wichita
 Matthew Edgar Hamilton (ME); Argonia
 Robert Allen Hamlin (Ag); Kansas City
 Cecil Edgar Hammett (EE); Manhattan
 Roland Harvey Hammond (Ag 1; RC 2);
 Kansas City
 John Lewis Hancock (EE); Beverly
 Sarah Elizabeth Hanna (IJ); Courtland
 Chester Wilford Hanson (EE); Morganville
 Eldon Thomas Harden (Ag); Centralia
 Nelle Hardin (HE); Hardtner
 John David Harness (ArE); Augusta
 Luman Harper (AE); Augusta
 Raymond Harper (Ag); Frankfort
 Fern Amber Harris (HE); Bloomington
 George Harrison (RC); Wichita
 Fern Elizabeth Harsh (GS); Cassody
 Carl Hartman (GS); Manhattan
 Frank Merle Hartman (ArE); Dodge City
 Ora Adehlia Hatton (HE); Bunkerhill

SOPHOMORES—Continued

- Elsie Marguerite Hayden (IJ); Manhattan
 Thomas Hunter Hayes (EE); Manhattan
 John Vance Hays (GS); Manhattan
 James Theodore Hayslip (CE); Manhattan
 Harry Irvin Hazzard (ME); Coffeyville
 Robert Baker Hedrick (ArE); Florence
 Carl Heimrich (Ag); Durham
 Janet Hellworth (M); Dodge City
 Adolph Helm (EE); Chanute
 Ralph Louis Helmreich (ME); Kansas City
 Chesley Merrill Heltzel (GS); Beloit
 Helen Alberta Hemphill (GS); Clay Center
 Aileen Elizabeth Henderson (HE); Auburn
 Earl William Henderson (GS); Beloit
 Grace Virginia Henley (HE); Eureka
 Sherman Adison Herren (RC); Manhattan
 Thomas Marion Heter (Ar); Sterling
 Howard William Higbee (Ag); Climax
 Emmet Leonard Hill (LA); Jennings
 Walter Henry Hinz (EE); Abilene
 Sherman Stanley Hoar (Ag); Willis
 Gordon Sheffield Hohn (IJ); Marysville
 Avis Lucile Holland (GS); Harper
 Ola May Holland (HE); Geuda Springs
 Joseph Frank Holsinger (CE); Kansas City
 John Arwin Hoop (AE); Fowler
 John Lester Hooper (GS); Robinson
 John Converse Hopkins (IC); Chapman
 Frederick Charles Horan (Ag);
 St. Joseph, Mo.
 Hazel Junita Hotchkiss (RC); Manhattan
 Elmer Fairbanks Hubbard (Ag); Linwood
 Guy Raymond Huey (RC); Louisville
 John Golden Huffman (CE); Halstead
 Florence Hazel Hull (HE); Downs
 Helen Lois Humphrey (HE); Manhattan
 Hugh Jollette Hunsaker (IJ); Princeton, Ky.
 Raymond Percy Hunsberger (GS);
 Mount Hope
 Myron Earl Huscher (IC); Concordia
 Corwin Frazier Hutton (RC); Washington
 Clara Betty Huxmann (HE); Arnold
 Emma Lou Huxmann (HE); Arnold
 Audrey Helen Hybskmann (RC); Corning
 Margaret Ingman (HE); Barnes
 James Eugene Irwin (CE); Le Roy
 Ralph Alexander Irwin (ChE); Hutchinson
 Philip John Isaak (Ag); East Orange, N. J.
 Floyd Edson Israel (ChE); Le Roy
 Arthur Amos Jackson (Ag); Manhattan
 Alva Clark Jennings (GS); Lovewell
 Alice Hilda Johnson (GS); Manhattan
 Arline Johnson (HE); Frankfort
 Beryle LaVerne Johnson (HE); Olsburg
 Elston Leslie Johnson (GS); Randolph
 Esther Louise Johnson (HE); Kansas City
 Lois Mary Johnson (HE); Holton
 Minnie Florence Johnson (GS); Manhattan
 Raymond Delbert Johnson (FME);
 Washington
 Tracy Eldelle Johnson (GS); Olsburg
 Alice Johnston (HE); Irving
 Amy Christine Jones (HE); Frankfort
 Chris Jorgensen (VM); Viborg, S. Dak.
 Havard Lawrence Keil (ChE); Manhattan
 Virgil Fletcher Kent (GS); Manhattan
 Edith Winifred Kerr (GS); El Dorado
 John Humphrey Kerr (Ag); Wichita
 Milton Mathew Kerr (IJ); Manhattan
 John Kesi, Jr. (RC); Cuba
 Harry Kibler (CE); Sedan
 Lois Lucille Kimball (HE); Olathe
 Jesse David Kimport (Ag); Norton
 Benjamin King (GS); Nickerson
 Bennie King (Ag); Manhattan
 Estelle Linnie King (GS); Watertown, N. Y.
 Hubert Dwight King (IJ); Manhattan
 Albert Dent Kipfer (EE); Manhattan
 James Harold Kirk (Ag); Scott City
 Stanley Jay Kirk (ME); Iola
 Lester Allen Kirkendall (GS); Oberlin
 Melvin Kirkwood (Ag); Natoma
 Victor Jay Klinefelter (Ag);
 Brookings, S. Dak.
 Marian Lugene Knechtel (GS); Larned
 George Knisel (IC); Solomon
 Norma Louise Knoch (HE); Lincoln
 Harry Adolph Koenig (Ar); Chanute
 John William Koerner (GS); Manhattan
 Lorie Konantz (HE); Olathe
 Clifton Bryan Kruse (GS); Manhattan
 Dorothy Beryl Kuhnle (HE); Concordia
 Mohamed Labib (Ag); Barada, Egypt
 Delbert Linelle Lacey (CE); Moran
 Erma Marie Lala (HE); Kirwin
 Harold Neff Lamme (CE); Whiting
 Ruth Lancaster (RC); Strong
 Alice Luella Lane (IJ); Bucklin
 Florence Mildred Larmer (HE); Webber
 Emil Larson (CE); Agenda
 Merville Larson (GS); Lincoln
 Ralph Lashbrook (IJ); Almena
 Albert Ernest Lauts (VM); Seneca
 Verna Meryl Lawrence (IJ); Manhattan
 Paula Beatrice Leach (HE); Caney
 Mary Elizabeth Leaman (HE); Manhattan
 Iris Lewis (PSM); Otego
 Joseph Gustave Ley (IC 1; Ag 2);
 Kansas City
 Laveda Florence Lilly (IJ); Roxbury
 Joe Kenneth Limes (CE); La Harpe
 Harold Carl Lindberg (EE); Courtland
 Ragnar Nathaniel Lindburg (Ag);
 Osage City
 Hazel Irene Lindquist (HE); Gove
 Dennie Logan (RC); Smith Center
 Catharine Lorimer (HE); Kansas City, Mo.
 William Robert Love (IC); Bronson
 Austin Lovett (Ag); Larned
 Wallace Eustace Lumb (GS); Wakefield
 Forrest Wright Lund (RC); Protection
 Victor Elmer Lundry (EE); Arlington
 Reva Helen Lyne (HE); Solomon
 Agnes Ethel Lynn Lyon (GS); Manhattan
 Verl Ephriam McAdams (Ag); Clyde
 Donald McAlister (EE); Manhattan
 Margaret Alice McClintock (HE); Wichita
 Frances McCoin (GS); Wichita
 Wilma Irene McCord (HE); Manhattan
 Roy McCoy (EE); Kansas City
 Allan McGrath (Ag); Paola
 Harry Lyons McIntire (RC); El Dorado
 Bernice Alice McKee (HE); Rexford
 Margaret McLean (HE); Salina
 Hugh McNichols (Ar); Burr Oak
 Lois Elizabeth McNitt (M); Washington
 Paul Edmund McReynolds (ME); Plainville
 Elden Samuel Magaw (GS); Ames
 Alice Gertrude Magee (HE); Manhattan
 Hazel Mahon (HE); Silver Lake
 Genevieve Eloise Malone (PSM); Salina
 Lois Harriet Manchester (GS); Paola
 Margaret Helen Manley (HE); Junction City
 Harold Parker Mannen (GS); Lincoln
 Olive Margaret Manning (Ag); Peabody
 James Hugh Marchbank (CE); Manhattan
 Paul Erastus Massey (EE); Yates Center
 Vernon Masters (Ag); Natoma
 John Lamar Mayfield (ChE 1; GS 2);
 Salina
 Nora Elsie Mead (HE); Smith Center
 Malcolm Tuley Means (RC); Everest
 Charles Hubert Mehaffey (ME);
 Farmington
 George King Meier (RC); Parsons
 Jerome Jacob Meisenheimer (CE); Hiawatha

SOPHOMORES—Continued

- LeRoy Emerson Melia (Ag); Ford
 Quentin Elmer Mell (CE); Wetmore
 Victor Harold Meseke (CE); Manhattan
 William Cleo Meseke (GS); Manhattan
 Irene Helen Meyer (GS); Kansas City
 Seward Arthur Michelstetter (CE);
 Hutchinson
 Genevieve Katherine Mickilson (HE);
 Leavenworth
 Harold Baldwin Miller (GS); Miltonvale
 Horace Gratiot Miller (EE); Lebanon
 Lloyd Miller (RC); Manhattan
 Merle Miller (Ag); Takoma Park, D. C.
 Victor Henry Miller (RC); Pawnee Rock
 John Henry Mochlman (EE); Manhattan
 Ralph William Mohri (RC 1; VM 2);
 Kansas City, Mo.
 William Moreland (GS); Formoso
 Archie LeRoy Morgan (EE); Emporia
 Clarence Elmer Morlan (ME); Rantoul
 Katherine Morris (RC); Manhattan
 Merle Dallas Morris (GS); Paxico
 Raymond Morrison (ME); Fort Riley
 Stanley Eaton Morse (Ar); Mound City
 John Ross Moyer (Ag); Hiawatha
 Blanche Muilenburg (HE 1; GS 2); Palco
 Hannah Bridget Murphy (HE); Perth
 Walter Harold Murray (CE); Manhattan
 Charlotte Cornelia Mutschler (IJ);
 Leonardville
 Marie Sara Muxlow (GS); Manhattan
 Harold Edwin Myers (Ag); Bancroft
 Carl Oscar Nelson (RC); Jennings
 Howard Nester (Ag); Scranton
 Jennie Viola Nettrouer (HE); Manhattan
 Theodore Newlin (VM); Lewis
 Faith Noble (GS); Abilene
 John Comer Noble (EE); Newton
 Linus Noll (GS); Louisville
 Lawrence Harold Norton (Ag); Kalvesta
 Tess Novak (GS); Manhattan
 Ivy Beatrix Nudson (HE); Topeka
 James Robert Nuttle (ArE); El Dorado
 Ethel Evelyn Oatman (HE); Lawrence
 Rufus Gardiner Obrecht (EE); Topeka
 Loren William Olmstead (ArE); Great Bend
 Nels Peter Olson (Ar); Brookville
 Clifford Ormiston (RC); Harper
 Kathryn Osborn (HE); Clifton
 Robert Richard Osborne (Ar); Rosedale
 Albert Horace Ottaway (Ag); Oswego
 Robert Leroy Owens (RC); Chapman
 Roberta Owens (HE); Russellville, Ark.
 Howard Benton Palmer (CE); Aulen
 Velma Edna Parker (HE); Manhattan
 Frank Nellis Parshall (RC); Manhattan
 Olodine Nina Parshall (HE); Manhattan
 Pearl Pauline Parsons (HE); Clearwater
 Zella Parsons (IJ); Topeka
 Agnes Patterson (HE); Manhattan
 Ray Patterson (EE); Goodland
 Helen Elizabeth Pattison (HE); Topeka
 Clara Katherine Paulsen (HE); Stafford
 Edris Cecil Paxton (M); Manhattan
 Harold Peal (IJ); Augusta
 Frederick Wilson Pearson (CE);
 Hutchinson
 Walter Culbertson Peirce Jr. (GS); Darlow
 Paul Chadwick Perry (IC); Fredonia
 Kenneth Orval Peters (EE); Utica
 Charles Aaron Peterson (Ag); Caney
 Frans Hugo Peterson (CE); Bridgeport
 Iver Eugene Ellsworth Peterson (GS);
 Concordia
 Mildred Peterson (PSM); Manhattan
 Richard Henry Peterson (EE); Marquette
 Richard Peyton (EE); Topeka
 Paul Eugene Pfuetze (GS); Manhattan
 Ruth Phillips (GS); Junction City
 Paul Phennegar (ArE); Sedgwick
 Frances Louise Pickens (HE); Lake City
 Francis Kinsey Pierce (Ag); Minneapolis
 Paul Morris Poole (CE); Galena
 Arlene Bishop Pooler (HE); Chapman
 Hazel Rebecca Popham (HE);
 Chillicothe, Mo.
 Gracia Floy Porter (HE); Hill City
 James Leroy Potter (EE); Carthage, Mo.
 Mae Irene Pride (HE); Paxico
 Cecil Edwin Pruitt (RC); Barnard
 Lumir Stephen Pucelik (VM); Spencer, Neb.
 Frank Hoyt Purcell Jr. (GS); Manhattan
 Alfred Arthur Quasibarth (RC); Kinsley
 Delmar Raida (EE); Rose Hill
 Dorothy Rea (IJ); Wichita
 Bernice Maire Read (M); Manhattan
 Mildred Read (PSM); Coffeyville
 Elwood Effenger Reber (EE); Goff
 Lawrence Vincent Rector (EE); Manhattan
 Mary Frances Reed (IJ); Holton
 William Symms Reeder (CE); Troy
 Edythe Teresa Reel (M); Manhattan
 Herman Edward Reents (ChE);
 St. Joseph, Mo.
 Margaret Frances Rees (PSM); Leoti
 Anna Dorothy Rehberg (HE); Bennington
 Clarence Reinhardt (Ar); Bison
 Ray Lewis Remsberg (Ag); La Harpe
 Lois Thomas Richards (ME); Manhattan
 Claudine Clarke Richardson (RC); Wichita
 Rosa Lee Ricklefs (GS); Troy
 Viola Bell Ridge (HE); Iola
 Charles Philip Riordan (EE); Solomon
 Helen Roberts (HE); Kirwin
 James Truman Roberts (LA); Topeka
 Zenas John Robinson (EE); Manhattan
 Martin Henry Roepke (IC); Manhattan
 Loree Rolph (HE); Delphos
 Viola Thorant Rose (VM); Ionia
 Dorothy Oden Ross (M); Manhattan
 Jesse Ross (EE); Manhattan
 Marshall Ross (GS); Manhattan
 Lillian Mae Roush (HE); Manhattan
 Vance Mather Rucker (Ag); Manhattan
 Marian Rude (GS); Great Bend
 Gerna Maude Rundle (PSM); Clay Center
 Jean Rundle (HE); Clay Center
 Marie Pearl Rush (GS); Marysville
 Charles Edward Russell (CE); Fredonia
 Clare Marie Russell (HE); Manhattan
 Lorene Russell (HE); Manhattan
 Wilmer Russell (CE); Manhattan
 Olga Barbara Saffry (GS); Alma
 Martha Mary Sandeen (HE);
 Stillwater, Minn.
 Marjorie Maud Sanders (HE & N);
 Clay Center
 Vernon Herbert Sanders (RC); Fredonia
 Wilmar Walton Sanders (Ar 1; IJ 2);
 Clay Center
 Lillian Sands (HE); Kansas City
 Marion Cecil Sappenfield (RC); Scranton
 Cecil Wilbur Sargent (GS); Riley
 Paul Wendell Sargent (Ag); Manhattan
 William Sartorius (ME); Garden City
 Anna Augusta Saville (GS); Blue Rapids
 Clifford Sawyer (EE); Liberal
 Robert Schafer (Ag); Jewell
 Warren Schaulis (Ag); Wakefield
 Dale Alvord Scheel (Ag); Emporia
 Frances Mary Schepp (Ar); Manhattan
 Marjorie Lenore Schmidler (IJ); Marysville
 Albert Irving Schmidt (VM); Kansas City
 Leo Patrick Schmidt (Ag); Humboldt
 Edward Schneberger (Ag); Cuba
 Fred Schopp (Ag); Abilene
 Melvina Olga Schrader (GS); Bavaria
 John Edward Schrock (EE); Wilmore

SOPHOMORES—*Concluded*

Freda Amelia Schroeder (HE); Kiowa
Derald Henry Schultz (Ag); Miller
Galen Schwandt (EE 1; GS 2); Manhattan
Charles John Schwindler (Ar);

Kansas City, Mo.

Cleda Elizabeth Scott (GS); Westmoreland
Walter Simon Scott (RC); Kansas City
Esther Sebring (HE); Rossville
Walter Elsworth Selby (AE); Manhattan
Lucille Anita Sellers (HE); Manhattan
Jacques Pierre Francois Sellschop (Ag);
Potchefstroom, S. Africa
Harold Alfred Senior (EE); Tulsa, Okla.
Ella Marie Shaw (PSM); Junction City
Elizabeth Spencer Sheetz (IJ);
Chillicothe, Mo.

Eli Shenk (EE); Manhattan
Howard Sherman (EE); Elk City
Ralph Reel Shewmaker (CE); Chanute
Christiana Marie Shields (HE); Lost Springs
Leslie Myron Shields (EE); Leavenworth
Charles Shoyer (GS); Soldier
Beulah LaVerne Siddens (HE); Manhattan
Lonnie Joseph Simmons (Ag); Manhattan
Paul Maurice Simpson (GS); Harper
Garnett Irene Skinner (HE); Mankato
Maurice Bailey Skinner (RC); Medicine Lodge
Mildred Loveless Skinner (HE); Marion
Mildred Louise Skinner (HE); Mankato
Paul Skinner (RC); Manhattan
Bernice Ethel Sloan (HE); Boise City, Okla.
John Frederick Smerchek (GS 1; Ag 2);
Cleburne

Charles Smith (EE); Beloit
Dwight Smith (EE); Udall
Lorraine Elizabeth Smith (GS); Manhattan
Louis Smith (VM); Lebo
Raymond Edward Smith (GS); Manhattan
Rolland Smith (IC); Russell
Bernice Elaine Souder (HE); Dodge City
Lois Eleanor Sourk (GS); Goff
Ellis Homer Spangler (EE); Newton
Albert Speakman (ME); Marysville
Irene Inez Spear (HE); Bushong
LaVerne Spears (RC); Wamego
Clarence Sprout (Ag); Mullinville
Minnie Belle Stanton (HE); Watson, Mo.
Ross George Stapp (CE); Norcatur
Julius Ernest Steele (EE); Glasco
Edward Albert Stephenson (Ag); Alton
Amy Viola Stewardson (HE); Colby
Harvey Stewart (Ag); Americus
Martha Eldana Stewart (HE); Frankfort
Louise Stockwell (RC); Larned
Jake Paul Stofor, Jr. (RC); Scandia
Stuart Stout (Ar); Fort Scott
Francelia Stratton (HE); Iola
Fern Lois Straw (PSM); Wichita
Emil McKee Sunley (GS); Paola
Joseph Gainy Swartz (EE); Atchison
Charles Henderson Synnamon (ChE);
Wichita

Francisco Taberner (VM); Dolores, P. I.
Carl Tanner (EE); Newton
Leo Joseph Tauer (IJ); Wamego
Donald Noel Taylor (Ag); Topeka
Grace Elizabeth Taylor (HE); Manhattan
Donald McCrea Telford (ChE); Manhattan
Juanita La Vern Telford (GS); Manhattan
Lora Thiele (GS); Hanover
Esther Thomas (HE); Narka
Margaret Anne Thomas (PSM);
Baxter Springs
Perry Marsden Thomas (GS);
Indianapolis, Ind.

Henry Warden Thornton (GS); Le Roy
Milton Monroe Thurow (RC); Macksville
Orville William Thurow (RC); Macksville
Anna Lena Tinkler (HE); Gypsum
Ethel Elvina Toburen (PSM); Winkler
Jay Tomlin (AE 1; RC 2); Cameron, Mo.
Lolita Grace Toothaker (HE 1; RC 2);
Manhattan

Charles Horace Towle (GS); Wakefield
John Truax (ME 1; GS 2); Peabody
Robert Wickard Tulloss (Ag); Ottawa
Tom Turner (CE); Hartford
Alice Leslie Uglow (HE); Concordia
Margaret Undine Uhl (HE); Holton
Daphna Pauline Underwood (IJ);
Cottonwood Falls

Loren Francis Ungehewer (Ag); Centerville
Theodore Unruh (Ag); Pawnee Rock
Abdul Amis Hussain Uzri (CE);

Kazimain, Mesopotamia

Carolyn Jean Vance (GS); Topeka
Kenneth King Vanderbelt (RC); Abilene
George Ruben Vanderpool (CE); Meade
Harry Lee Vanderwilt (EE); Solomon
Clifford George Vaupel (RC); New Cambria
Edwin Alfred Vaupel (GS); New Cambria
Beatrice Eleanor Veeh (HE); Logan
Belle Margaret Viers (HE); Manhattan
Margaret Elaine von Leonrod (M);
Hutchinson

George Wagner (Ag); Netawaka
Vernon Clair Walker (EE); Galena
Elmer Oscar Wangerin (EE); Kensington
Clara Genevieve Wasson (PSM);
Neosho, Mo.

Charles Richard Webb (ME); Sedan
Charles Barnhardt Weeks (EE); Udall
Wilbur Alan Weimer (EE); Girard
George Burton Werts (RC); Beloit
Lee Alvin West (Ag); Augusta
Leroy George Westfall (ME); Kansas City
Hugh Erwin White (EE); Kingsdown
Mary Frances White (GS); Manhattan
Walter James Whiteside (Ar); Spearville
Kerr Whitfield (GS); Ness City
Royden Keith Whitford (EE);

Washington, D. C.

Elizabeth Anne Whitten (PSM); Phillipsburg
Vada Whitten (HE); Phillipsburg
Lewis George Wieneke (ChE); Manhattan
Bertha Alice Williams (GS); Manhattan
Hugh Charles Williams (Ar); Manhattan
John Hoover Wilmore (Ag); Sedgwick
Alfred Jacoby Wilson (EE); Wichita
Anna Zerita Wilson (HE); Council Grove
Deo Orval Wilson (RC); Burlington, Colo.
Francis Leslie Wilson (IJ); Abilene
Helen Inez Wilson (IJ); Eskridge
Bernice Winkler (HE); Alma
Louis Fred Winkler (GS); Rozel
Claude Jennings Winslow (GS); Tonganoxie
Howard James Winters (EE); Oswego
Glenn Franklin Wiswell (Ag); Ocheltree
Charles Walter Withey (GS); Home
Duane Everett Wollner (EE); Manhattan
Ned Woodman (LA); Manhattan
John Woodward (GS); Yates Center
Wayland Woody (ArE); Lincoln
Rachel Wright Working (HE); Manhattan
John Howard Worley (GS); Randall
Louis Albert Wray (GS); Courtland
Horace Yoder (ME); Manhattan
Gerald Young (ME); El Dorado
Alfred Zeidler (RC); Manhattan
Roy Rudolph Zurbuchen (EE); Alta Vista

FRESHMEN

- Hugh Richard Abernathey (CE); Manhattan
 Roland Edgar Adams (Ar); Wanwatose, Wis.
 Harvey John Addams (RC); Blue Rapids
 Francis Philip Addison (EE); Hays
 Charles Alfred Alderson (IJ); Bozeman, Mont.
 Mary Elizabeth Alford (IJ); Hutchinson
 Billy La Vern Allan (RC); Topeka
 Robert Russell Allbaugh (GS); Concordia
 Harold Barnes Alleman (RC); Frankfort
 Edward Cyril Allen (CE); Horton
 Guy Linza Allen (RC); Norton
 Ivan Allison (RC); Fairview
 William Emerson Allison (CE); Buffalo
 Forrest B. Alspach (GS 1; Ag 2); Wilsey
 Verne R. Alspach (GS); Wilsey
 Manuel Antonio Alvarado (EE); Chicago, Ill.
 Alpha Harold Ames (Ar); Caldwell
 James Westerfield Amis (RC); Lebanon
 Boyd Anderson (RC); Berryton
 Carl Ludwig Anderson (CE); Osage City
 Helen Margaret Anderson (HE); Chanute
 Henry Everett Anderson (RC); Berryton
 Inez Pearl Anderson (GS); Berryton
 Robert Anderson (RC); Axtell
 Merlyn Carl Andrew (Ag); Eudora
 Roy Justus Andrus (GS); Midian
 Earl Bowater Ankenman (EE); Dellvale
 Glenn Marshall Ankeny (RC); Manhattan
 Anna Elizabeth Annan (PE); Beloit
 Marie Arbutnot (HE); Bennington
 Carl Newton Arnold (FME); Kansas City
 Minor William Arnold (Ag); Frankfort
 Lloyd Artley (Ag); Colwich
 Clement Ottoe Aspegren (EE); McPherson
 Fred Lee Ater (Ag); Fort Scott
 Hazel Bernadine Atkins (PSM); Manhattan
 Anita Louise Ault (HE); Ulysses
 Maybelle Elizabeth Ausherman (GS); Medford, Okla.
 Harold Proeger Austin (EE); Cottonwood Falls
 Ruth Hilda Avery (HE); Riley
 Edith Lillian Axcell (RC); Chanute
 James Maurice Ayars (Ag); Keats
 John Henry Ayars (Ag); Keats
 Edgar Burnard Backman (RC); Manhattan
 Carloch Ellison Bailey (Ar); Manhattan
 Otis Bair (GS); Minneola
 Cleo Baker (ArE); Marysville
 Lynden Lee Roy Baker (RC); Minneapolis
 Troy Ernest Baker (RC); Cullison
 Buenaventura Balanag (Ag); La Union, P. I.
 Donald Conlee Baldwin (Ar); St. Joseph, Mo.
 Agnes Martina Bane (HE); Manhattan
 Virgil Lawrence Banister (EE); McDonald
 Theodore Huron Barber (AE); Alton
 Edgar Lee Barger (AE); Beloit
 Joseph Barger (RC); Manhattan
 Vernon Barlow (EE); Manhattan
 Alex Joseph Barneck (EE); Salina
 Martha Jane Barner (HE); Belle Plaine
 Claude Laurence Barnett (EE); Manhattan
 Jesse Glenn Barnhart (ME); Independence
 Hermine Barofsky (M); Ellis
 Hannah Helen Barre (HE); Tampa
 Thelma Lorraine Barrick (HE); Parsons
 William Arthur Barry (EE); Rosedale
 Lawrence Harvey Bartlow (RC); Horton
 Bert Bass (GS); El Dorado
 Francis Jackson Baxter (IJ); Hutchinson
 George Baxter (EE); Manhattan
 William Ashford Baxter (EE); Topeka
 Henry Miller Bayne (Ag); Kansas City, Mo.
 DeLose Oscar Bean (Ar); Coldwater
 Junior Beatty (CE); Manhattan
 Howard Curtis Beeler (ArE); Wichita
 William Squire Belden (Ag); Horton
 Glenn Edwin Benham (IJ); Enterprise
 Lawrence Charles Benne (RC); Washington
 Wilma Gordon Beougher (RC); Oakley
 Ewert Albert Berggren (EE); Riley
 Walker Edwin Berkshire (EE); Emporia
 Cora Cynthia Bernstorff (HE); Chase
 William Henry Berry (CE); Attica
 Henry Besler, Jr. (EE); Manhattan
 Rosa Catherine Best (GS); Manhattan
 Thomas Glen Betts (Ag); Detroit
 Harold Leo Beuchat (EE); Hamilton
 Mary Leola Beyer (GS); Arrington
 John Milan Biddison (EE); Americus
 Ida Irene Bird (HE); Garfield
 Mary Katherine Bird (Ar); Hays
 Clifford Hiberd Black (Ar); Hutchinson
 Gladys Lucile Black (HE 1; PSM 2); Hutchinson
 Ensley Deforest Blackburn (EE); Anthony
 Philip Carl Blackburn (IC); Herington
 William Earl Blackburn (EE); Fairmount
 Grace Dorothy Blackledge (PSM); Sheridan, Wyo.
 Hazel Nadine Blair (GS); Manhattan
 Mary Elizabeth Blakslee (GS); Manhattan
 Vernon Alger Blandin (RC); Wichita
 Nellie Bloom (HE); Liberal
 William Kenneth Bloomberg (PSM); Cleburne
 Rozelle Adelburt Blowey (ME); Anthony
 Weston Blunt (RC); Charles City, Iowa
 Mildred Freda Bohnenblust (GS 1; HE 2); Leonardville
 Walter Alfred Boles (GS); Randolph
 Martin James Bond (GS); Chicago, Ill.
 Marvin Bond (GS); Linn
 Forrest Walter Boone (IC); Coffeyville
 Leonard Hughes Bosley (Ag); Summerfield
 Hazel Josephine Bowman (GS); Blackwell, Okla.
 McDill George Boyd (IJ); Phillipsburg
 Ivan Leroy Bozarth (RC); Lenora
 Mildred Elinor Braden (PE); Chanute
 Paul Bradford (Ag); Perry
 Elmer James Branham (EE); Edna
 Lucy Irene Branham (HE); Kansas City
 Robert Fenton Brannan (Ag); Meade
 Ralph Earl Brasted (ChE); Wichita
 William Jacob Braun (Ag); Council Grove
 Glen Elmo Brawner (Ar); Manhattan
 Rufus Milton Brawner (EE); Manhattan
 Evelyn Brenn (HE); St. John
 Thomas Richard Brennan (EE); Bonner Springs
 Robert Hershell Brenner (Ag); Waterville
 Raymond Bernard Bressler (RC); Raymond
 Glenn Floyd Brewer (GS); Formoso
 Helen Virginia Brewer (HE); Peabody
 Vernon Leon Britton (EE); Wellington
 Myrle Broberg (PE); Manhattan
 Earle Lloyd Brock (Ar); Jennings
 William Hubert Brock (CE); Medicine Lodge
 Chester Arthur Brodie (RC); Glen Elder
 Earl Copeland Brookover (AE); Scott City
 Clarence Lee Brooks (AE); Langdon
 Fae Marie Railsback Brooks (HE); Langdon
 Alma Brown (PE); Kansas City
 Andrew Porter Brown (GS); Alton
 Beatrice Brown (GS); Manhattan
 Dorsa Brown (EE); Dodge City
 Henry Alfred Brown (PE); Valley Falls
 Howard Donald Brown (M); Manhattan
 Ralph Irvin Brown (RC); Hutchinson
 Jennie Opal Browning (HE); Linwood
 Sue Wadsworth Bruney (HE); Russell

FRESHMEN—Continued

- Marshall Clement Bryan (RC); Greensburg
 Vernon John Bubnik (GS); Green Bay, Wis.
 Willa Lois Buchanan (HE); Coldwater
 Nadine Emily Buck (PE); Topeka
 Emmett Lee Bunds (EE); McDonald
 Lucile Bunn (HE); Florence
 Carl Lowell Burch (ChE); Neosho, Mo.
 Clark Wayne Burch (GS); Manhattan
 Solan Edward Burgess, Jr. (RC); Larned
 Ruth Aileen Burkholder (PSM); Wamego
 Agnes Pearl Burnett (GS); Larned
 Maurine Burson (PE); Manhattan
 Henry Alonzo Burt (Ag); Shallow Water
 Percy DeLong Burt (EE); Offerle
 Clair Butler (VM); Glasco
 Elizabeth Butler (PSM); Beloit
 Leila Roene Butler (GS); Colby
 James Joseph Byrnes (ME); Moline
 Arthur Benjamin Caldwell (EE);
 Muskogee, Okla.
 Beatrice Lucille Callahan (HE); Burr Oak
 Frank Howard Callahan (VM); Abilene
 Donald Lawrence Cameron (EE); El Dorado
 Alexander Byron Campbell (RC); Marysville
 Leslie Allan Campbell (EE); Salina
 Lewis Marvin Campbell (ArE); Kirwin
 Clarence Gerald Carlili (GS); Stafford
 Theodore Alfred Roy Carlson (RC);
 Manhattan
 Nancy Genevieve Carney (GS); Manhattan
 Everett Albert Carpenter (ArE);
 Smith Center
 Francis Edward Carpenter (Ag); Wakefield
 Lloyd Edward Carson (AE); Clifton
 Winona Edna Carson (IJ); Clifton
 Paul Shelton Carswell (GS); Alton
 Ruth Elaine Carswell (RC); Topeka
 Clifford Rauck Carter (EE); Enid, Okla.
 Nelson Lorenzo Dow Cary (IJ); Ogden
 George John Caspar, Jr. (Ag); Alida
 Russell Marion Castello (IJ); Clay Center
 Emily Caton (HE); Winfield
 Raymond Delashmitt Caughron (VM);
 Manhattan
 Frank Henry Cayton (Ar); Parsons
 Eldon Wayne Cessna (ME); Rago
 Everett Garth Champagne (GS); Oketo
 Ardath Grace Champlin (HE); Phillipsburg
 Earl Bradford Champlin (EE); Canton
 Cecil Chance (EE); Iuka
 Otie Chance (GS); Iuka
 John Stothers Chandley (IJ); Kansas City
 Carl Sutter Channon (Ag); Ottawa
 Katherine Chappell (HE); Manhattan
 Junior Charles (PE); Republic
 Lucille Marie Chastain (IJ); Manhattan
 Glenn Alan Cheney (RC); Newton
 Rose Louise Child (IJ); Manhattan
 Thelma Elizabeth Child (PSM); Manhattan
 Buena Dona Childress (PE); Galena
 Freda Canzetta Childress (PE); Galena
 Robert Frederick Childs (ChE); Hugoton
 Helen Chrislip (HE); Hutchinson
 Charles Frank Chrisman (RC); Hutchinson
 Noble Christenson (GS); Tonganoxie
 Pauline Maybelle Christensen (HE);
 Mount Hope
 Virginia Talbot Clammer (IJ); Manhattan
 Leslie Marshall Clark (EE); Osborne
 Raybern Linly Clarkson (IC); Anthony
 Henry Moore Claunch (AE); Horton
 Earl Cleary (RC); Stafford
 Donald Clarence Close (EE); Belleville
 Helen Marie Clydesdale (HE); Gaylord
 Arlie Lewis Coats (EE); Altoona
 Bernice Elizabeth Coates (GS); Greensburg
 Edith Lucile Coberly (HE); Gove
 Max William Coble (ME); Sedgwick
 Alice Maude Cochran (HE); Topeka
 Ina Belle Cochran (HE); Topeka
 Owen Cochran (PE); Manhattan
 William Welch Coffman (RC); Overbrook
 Lester Painter Colborn (CE); Hoyt
 Edwin Milo Coldren (IJ); Oberlin
 Albert Jerome Coleman (IJ); Converse, Mo.
 Dema Frances Coleman (HE); Lathrop, Mo.
 John Robert Coleman (ChE); Wichita
 Garlie Franklin Collins (ChE); Salina
 Clifton Charles Colvin (EE); Newton
 Howard Henry Colvin (EE);
 Kansas City, Mo.
 Leslie Guy Colwell (EE); Osborne
 Irene Mildred Compton (HE); Manhattan
 Lawrence LaRue Compton (Ag); Formoso
 Clifford Vernon Conger (VM); Mankato
 Atlas Conley (CE); Hamilton
 Bertie Marie Conley (HE); Jennings
 Charles Edward Converse (EE 1; GS 2);
 Manhattan
 Frank Cook (EE); Junction City
 Jesse Ransom Cook (EE); Newton
 Kenneth Marion Cook (RC); Mound Ridge
 William Allen Cooksey (RC); Le Roy
 Paul Cooley (ArE); Osawatomie
 Wilber Copenhafer (GS); Manhattan
 Pauline Cordell (PE); Gardner
 Harold Richard Corle (CE); Caney
 Ray Eugene Cornelius (EE); Zenda
 Anna Grace Cornelissen (HE); Bazine
 Helen Van Zandt Cortelyou (GS);
 Manhattan
 Myron Rollin Coryell (IJ); Junction City
 John Francis Castello (RC); Junction City
 Mary Lavina Coulson (GS); Abilene
 Earl Jewell Cover (EE); Ozawkie
 Melvin Leroy Cowen (RC); Junction City
 Herman Alexander Cramer (EE);
 Macksville
 Willis Howard Cramer (ArE); Liberal
 George Ellet Crane (GS); Dodge City
 George Fred Crane (IJ); Elgin
 Edward Crawford (Ag); Stafford
 Harold Samuel Crawford (Ag);
 Bonner Springs
 William Leslie Criswell (EE);
 Hysham, Mont.
 Earl Edward Crocker (RC); Bazaar
 Junita Martha Crocker (HE); Manhattan
 Mason Crocker (Ag); Matfield Green
 George Richard Crossen (ChE); Turner
 Cyril Burr Crossette (RC); Wichita
 Genevieve Crowley (GS); Manhattan
 Richard Jerome Crowley (ArE);
 Kansas City
 Archie Wayne Cunningham (GS); Manhattan
 John Donovan Cunningham (GS);
 Manhattan
 Louise Johanna Cunningham (HE);
 Manhattan
 Roy Cupp (GS); Morrowville
 Darwin Mayo Curtis (EE 1; GS 2);
 Englewood
 Norman Curtis (Ag); Toronto
 Saul Sidney Curtiss (PSM); Lincoln
 Geraldeane Jeanette Cutler (GS); Manhattan
 June Marguerite Daily (PSM); Ashland
 Dorothy Dean Dale (PSM); Coldwater
 Forrest Everett Dallas (RC); Harveyville
 Robert Maxwell Dalton (RC); St. George
 Paul Charles Daly (GS); Manhattan
 Marian Ruth Danenbarger (HE); Concordia
 Dawn Daniels (GS); Manhattan
 Fleeta Belle Daniels (PSM); Luray
 Rex Darby (ME); Washington
 Hazel Elizabeth Darnell (GS); Manhattan
 Grace Annetta Daugherty (HE); Republic
 Paul Calvin Davidson (CE); Simpson
 Ruth Davies (PE); Manhattan

FRESHMEN—Continued

- Delmonte Irwin Davis (EE); Le Roy
 Leslie Sylvester Davis (EE); Delavan
 Mary Charlotte Davis (HE); Auburn
 Richard Harold Davis (ArE); Wichita
 Dora Hope Dawley (PE); Manhattan
 Lee Allen Day (GS); Hebron, Neb.
 Flora Marie Deal (HE); Great Bend
 Homer Thomas Deal (CE); Manhattan
 Charles Dean (PE); Manhattan
 George Thomas Dean (CE); Manhattan
 Millard Fillmore Dean (EE); Manhattan
 Daniel DeCamp (VM); Woodbine
 Lyle Newell DeGraff (RC); Beverly
 Charley Elmer Demo (CE); El Dorado
 Everett Demo (CE); El Dorado
 Walter Raymond Denman (EE); Sedan
 Robert Irving Denny (AE); Harper
 Evelyn DeRigne (HE); Kansas City
 Haskell DeRigne (Ar); Kansas City
 Otto Albert DeShon (CE 1; Ag 2); Logan
 Leland Thomas DeTar (EE); Anthony
 Charles Ross Dickens (Ag 1; GS 2);
 Manhattan
 John Arthur Dickson (Ag); Reading
 George Byron Dicus (RC); Hutchinson
 William Russell Disney (RC); Manhattan
 Louis James Dittmore (CE); Manhattan
 Mary Louise Dittmore (GS); Manhattan
 Paul Laurence Dittmore (ME); Manhattan
 Harvey Allen Dixon (Ag); Agra
 William Elmer Dixon (EE); Rush Center
 Vianna Ruth Dizmang (HE); Manhattan
 Paul Sunger Doctor (RC); Scandia
 Janet Doctor (PSM); Manhattan
 Robert Hugh Dodge (Ag); Manhattan
 George Edward Dolecek (GS); Wilson
 Edwin George Donahue (IC); Bonner Springs
 Robert Ellis Dorr (GS); Osage City
 Opal Dougherty (HE); Manhattan
 James McNair Douglass (RC); Burlington
 Emerson George Downie (EE); Hutchinson
 Mildred Alice Downie (HE); Hutchinson
 Ralph Harland Drant (ME); Kinsley
 Arthur Elmer Dring (CE); Pawnee Rock
 Gabriel Ernest Drollinger (ME); Wichita
 Evelyn Elsie Drown (HE); Manhattan
 Irene Ethel Droun (HE); Manhattan
 Janette Elizabeth Drummond (RC 1; HE 2);
 Elmdale
 Rebecca Lilian Dubbs (GS); Ransom
 Johnny Dugone (CE); Croweburg
 Frank Edward Duggan (EE); Tampa
 Leonard Wesley DuMars (VM); Coffeyville
 Leslie Lawrence Duncan (EE); Clearwater
 Charlie Edward Dunlap (EE);
 Roswell, N. Mex.
 Homer Dunnington (VM); Manhattan
 Leslie Crouch Dunnington (CE); Manhattan
 Raymond Earl Dunnington (CE);
 Manhattan
 Leda Anna Dunton (PSM); Lebanon
 Howard Dutton (GS); Burlingame
 Meredith Ernestine Dwelly (IJ); Manhattan
 Albert Thomas Dyal (RC); Topeka
 Cora Dyche (HE); Manhattan
 Adah Margaret Dyer (GS); Riley
 Elizabeth Lora Dyer (GS); Riley
 Samuel Monroe Dyer (EE); Riley
 Grace Patterson Eadie (HE); Kansas City
 Dean Martin Earl (GS); Nickerson
 Ethel Verne Eastwood (HE);
 Independence, Mo.
 Martin Keller Eby (EE); Wellington
 Albert Rowland Edwards (PE); Fort Scott
 Ruby May Effland (HE); White City
 Daniel Ehlers (VM); Omaha, Neb.
 Hortense Elsbeth Ehlsam (HE); Enterprise
 Frances Eugenia Ekdahl (HE); Manhattan
 Howard Eugene Elkins (Ag); Wakefield
 Homer Dearth Ellis (CE); Parsons
 Lyndon Harold Elyea (Ag); Jewell
 Chester Emrie (EE); Liberal
 James Ellis Endicott (Ag); Kingman
 Ellen Marie Engelbert (GS); Beloit
 Harlow Cheney Enns (IJ); Inman
 William Frederick Enochs (EE); Silver Lake
 Walter Newton Epler (ChE); Scott City
 Alfred Harlen Epperson (EE); Hutchinson
 Willis Clyde Epperson (GS); Hutchinson
 Karl Wheeler Ernst (EE); Topeka
 Curtis Eshbaugh (GS); Fall River
 Asabel Burt Eustace (CE); Wakefield
 Clifford Charles Eustace (Ag); Wakefield
 Elsie Dora Eustace (GS); Wakefield
 Fern Evans (HE); Chanute
 Leland Greely George Ewalt (EE); Herington
 James Ewbank (RC); Dalhart, Tex.
 Marvin John Ewy (EE); Partridge
 Elizabeth Fairbank (HE); Topeka
 George Walter Fankhouser (Ag); Madison
 Harry Haskett Faris (GS); Kansas City
 Marie Ruth Farmer (PE); Kansas City
 Hazel Beatrice Farrow (HE); Beloit
 Alfred Emmett Faulconer (GS); Oak Mills
 Glenn Faulkner (CE); Meriden
 Everett Emerson Fear (RC); Bala
 Elwin Elton Feather (PE); Assaria
 Carl Ralph Feldmann (IJ); Sabetha
 William Bonsfield Fenn (Ar); Salina
 Marion Kerr Fergus (Ag); Garnett
 William Frank Ferguson (Ar); Dodge City
 Alfred Carl Ferrell (Ar 1; Ag 2); Valley Falls
 Glenn Addison Fields (RC); Midian
 David Theodore Figley (EE); Manhattan
 Ariene Finch (GS); Oketo
 Oswald Hearn Fisher (Ag); Holton
 Theodore Allen Fleck (RC); Wamego
 Christopher Otto Fleiss (ME); St. George
 Festus Ross Fleming (Ag); Winifred
 Anna Marie Fletcher (HE); Scott City
 Arthur Oran Flinger (ME); Wichita
 Harry Thomas Floyd (RC); Salina
 Frederick Foerster (GS); Kansas City, Mo.
 Lewis Fogleman (Ag); Morehead
 George Fogo (RC); Burr Oak
 Lawrence Foote (EE); Chase
 Bessie Alberta Forsyth (HE); Clay Center
 Harold Earl Frank (CE 1; RC 2); Manhattan
 Ralph Wilson Frank (EE); Manhattan
 Chester Barton Freeman (Ar); Junction City
 Theodore Russell Freeman (Ag);
 West Plains, Mo.
 Gerald French (RC); Pawnee Rock
 Mattie French (HE); Lewis
 Orval French (EE); Geneseo
 Amelia Marie Frohn (HE); White City
 Ruth Isabel Frost (PE); Blue Rapids
 George Mansfield Fruit (EE); Wellsford
 Eugene Funk (CE); Wichita
 Roy Jacob Furbeck (CE); Larned
 Chester Voris Garrett (Ag); Rosedale
 Louis Hershel Garrison (ME); Lincolnville
 Margaret Deborah Garrison (HE); Chanute
 Lester Charles Gates (EE); Seward
 Orville Howard Gates (ME); Seward
 Orvel Leonard Gathers (CE); Miltonvale
 Kathryn Wilma Gebhard (GS); St. Marys
 Gertrude Spencer Geer (GS); Auburn
 Adeline Mary Geffert (RC); Humboldt
 Ferol Gehring (Ar); Manhattan
 Howard Geitgey (Ag); Anthony (deceased)
 Harvey Stafford German (CE);
 Little River
 Emery Talmage Gertson (GS); Formoso
 Goldie Oleta Gertson (GS); Manhattan
 Earl Clayton Gibbs (CE); Peabody
 Harold Stewart Gibson (GS); Lyons
 Leland Noble Gibson (IJ); Whitewater

FRESHMEN—Continued

- Thomas Henry Gile (Ag); Scandia
 Harold Gill (EE); Topeka
 James Elmer Glamser (EE); Benedict
 Louise Madge Glass (HE); Canton
 Ruth Glick (PSM); Junction City
 Herbert Glover (ArE); Salina
 Clarence Leighroy Gnad (Ag); Paxico
 Clarence Goering (RC); Moundridge
 Muriel Belle Goodloe (HE);
 Kansas City, Mo.
 Arthur Lee Goodwin (EE); Scandia
 Allen DeLoss Gordon (EE); Udall
 Charles Edward Gordon (ME);
 Leavenworth
 Francis Edward Gorman (ME); Fulton
 William Wade Gosney (AE); Goddard
 Coryell Gove (RC); Junction City
 Glenn Huff Graham (ME); Coffeyville
 Rollin Robert Graham (ME) Manhattan
 Thelma Vera Graham (RC); Manhattan
 Donald Milton Grant (GS); Green (deceased)
 Charles Milton Gray (PE); Newton
 Dorothy Leon Gray (HE); Joplin, Mo.
 Morse Denton Gray (EE); Manhattan
 Charles Edgar Greene (Ag); Minneola
 Niles Mormon Greene (Ag); Beverly
 Ogden Worley Greene (Ag); Paradise
 Otis Greenlee (EE); Emporia
 Donald Bruce Gregg (RC); Manhattan
 Eunice Grace Grierson (HE);
 Medicine Lodge
 Don Douglas Griffing (CE); Council Grove
 Melvin Arthur Griffith (EE); Osage City
 Roy Aaron Griffiths (EE); Moran
 Grace Sara Grindal (HE); Garrison
 Marjorie Patricia Grove (GS); Larned
 Lora Lee Guess (GS); Olathe
 Iola Marguerite Gunselman (HE 1; GS 2);
 Holton
 Edna Irene Guetler (GS); Beattie
 Warren William Guthrie (RC);
 Saffordville
 Max Haas (GS); Arrington
 Edwin Otto Habiger (GS); Bushton
 Olive Grace Haeg (HE); Manhattan
 Alonzo Otto Haegert (GS); Esbon
 Fred Edward Hagen (CE); Ellinwood
 Elizabeth Hagenbuch (RC); Kiowa
 Letha Mae Haggart (HE); Manhattan
 Louis Henry Hahn (EE); Minneapolis
 William Glenn Halderman (PE);
 Garden Plain
 John Freeman Hale (IJ); Formoso
 Kenneth Hall (EE); Wichita
 Luceil Mary Hall (RC); Flagler, Colo.
 Mary Aileen Hall (HE); Abilene
 Roy Lesley Hall (EE); Agra
 Leroy Franklin Halley (IC); St. John
 Harvey Bell Hamilton (CE); Argonia
 Lewis Greeley Hamilton (Ag); South Haven
 Richard Edward Hamler (Ag); Manhattan
 Helene Hamm (PE); Lenexa
 Alice Hammett (PSM); Manhattan
 Meryle Evalyn Hammett (GS); Manhattan
 Lee Elmer Hammond (PE); Osborne
 Doris Handlin (RC); Manhattan
 James Leslie Hanlin (Ag); Manhattan
 Burritt Pingrey Hann (EE); McFall, Mo.
 Henry Joseph Hanson (CE); Madison
 Maurine Hanson (HE & N); Manhattan
 Mary Isabel Hardman (HE); Downs
 William Fred Hardman (EE); Frankfort
 Maude Harland (HE); Frankfort
 May Harland (HE); Frankfort
 Eugene Francis Harmison (ME);
 Great Bend
 Ivan Harold Harris (EE); Manhattan
 Margaret Floy Harris (IJ); Lucas
 Mildred Harris (GS); Burrton
 Clara Pink Harrison (HE); Kansas City
 John Emly Hart (RC); Randall
 Edward Lynn Hartley (RC); Manhattan
 Elizabeth Hartley (PE); Manhattan
 Rockburn Harvey Harwood (Ar);
 Farmington, N. Mex.
 Horatio Ray Haskard (EE); Hutchinson
 Richard Haskard (RC); Hutchinson
 Charles Estel Hassett (IJ); Kansas City, Mo.
 Lillian Elvira Haugsted (IJ); Lyndon
 Alfred Havas (EE); Kinsley
 William Thomas Havens (IJ); Manhattan
 Raymond Duncan Haviland (ME); Shaw
 Helen Leone Hawley (GS); Manhattan
 Ross Mitchell Hawley (GS); Phillipsburg
 Ralph Carroll Hay (Ag); Parker
 Harold Dean Hayden (GS); Oswego
 Bernard Hays (Ag); Manhattan
 Garcel Kelly Hays (EE); Manhattan
 Benjamin Cecil Headrick (ME); Burr Oak
 Gene Wesley Heath (Ag); Peabody
 Frederick Hedstrom (Ag); Manhattan
 Irene Burnema Heer (GS); Manhattan
 Harold Keith Hefling (EE); Manhattan
 Roe Heller (CE); Detroit
 Walter Rudolph Helm (ChE); Chanute
 Arthur Henry Hemker (ME); Great Bend
 Beulah Mae Henderson (HE); Solomon
 June Aleen Henderson (HE); Olathe
 Harvey Leon Hendrickson (Ar);
 Huntley, Neb.
 Mildred Henkel (HE); Eskridge
 Esther Marie Herman (PSM); Abilene
 Adolphus Paul Hern (IJ); Hutchinson
 Harold Kingsley Herr (RC); Hutchinson
 Wesley McKinley Herren (EE); Manhattan
 Byron William Herrington (EE 1; IJ 2);
 Silver Lake
 Harry Herzer (RC); Dodge City
 Joseph James Hickman, Jr. (GS); Lucas
 Arlie William Higgins (GS); Seneca
 Lester James Hight (Ar); McDonald
 Fairy Mildred Hill (RC); Coffeyville
 Floyd Elmer Hill (RC); Drexel, Mo.
 Inez Mildred Hill (HE); Topeka
 Lois Ruth Hill (HE 1; PSM 2);
 Tabor, Iowa.
 Lou Vera Hill (HE); Denison
 Paul Lyman Hill (Ag); Manhattan
 Carl Edwin Hinis (EE); Wellington
 Clifford Hinkle (AE); Lucerne
 Homer Morton Hinnen (RC); Holton
 Karl Marx Hinrichs (GS); Randolph
 Zelma Elleb Hockett (HE); Manhattan
 Harold Chester Hoffman (GS); Haddam
 Herschel Leroy Hoffman (Ar); Marysville
 Thomas Burl Hofmann (EE); Silver Lake
 Russell Walter Hofsess (CE); Hutchinson
 John Allison Hoge (ChE); Kinsley
 Wendel Holbert (EE); Manhattan
 Myron Auris Holman (Ar); Salina
 Stanley John Holmberg (GS);
 Stillwater, Minn.
 Wilmer Morgan Holsinger (RC); Rosedale
 Charles Honeycutt (Ar); Reece
 Norma Lucile Hook (HE); Silver Lake
 Nola Lucille Hoover (IJ); Mount Hope
 Frank Reginald Hopper (RC); Hutchinson
 Fern Horchem (PSM); Ransom
 Etta Frances Horton (HE); Geuda Springs
 Bert Hostinsky (M); Manhattan
 Earl Hotchkiss (EE); Manhattan
 Fred Arthur Houchens (EE); Salina
 Wayne Raymond Houdyshell (PE);
 Pawnee Rock
 Dee Jasper Householder (PE); Scandia
 Dwight Hout (Ar); Formoso
 Clarence Paul Howard (GS); Mount Hope
 Orlando Whiting Howe (ME); Stockdale

FRESHMEN—Continued

- Leona Alone Hoyt (HE); Topeka
 Nellie May Hubbard (HE); Cedar Vale
 Delia Viola Hudson (HE); Smith Center
 Fred Lincoln Huff (LA); Chapman
 Charles Harold Hughes (GS); Manhattan
 William Alexander Hughes (RC); Lawrence
 Harold Miller Hughey (GS); Linwood
 Orville Jefferson Hughey (GS); Linwood
 Vance Lee Roy Hugunin (CE); Kirwin
 George William Hunt (Ag); Americus
 James William Hunter (Ag); Westmoreland
 Glade Hurst (EE); Padonia
 Thelma Irene Huse (RC); Manhattan
 Hugh Ben Hutchinson (ChE); Wichita
 Kathleen Leota Hutton (GS); Washington
 Ralph Hybskman (CE); Seneca
 Joe Hyer (ChE); Coffeyville
 John Leland Hysom (CE); Americus
 Arthur Bevan Igou (RC); Hutchinson
 Alfred Enos-Iles (RC); Marysville
 Francis William ImMasche (Ag);
 Saffordville
 William Wesley Irwin (Ag); Manhattan
 Julian Ellsworth Isenberg (RC); Manhattan
 Lloyd Thomas Jackson (GS); Manhattan
 Luevonja Jackson (HE); Lawrence
 Ralph William Jackson (VM); Manhattan
 Alva Jacobson (RC); Manhattan
 Clarence Jacobson (Ag); Sedgwick
 Lloyd Edward Jahnke (GS); Leonardville
 Albert Richard James (GS); Clay Center
 Ernest Jarboe (ME); Bartlesville, Okla.
 Edith Wilma Jennings (PE); Little River
 Harold Jennings (Ag); Manhattan
 Dora Elizabeth Jensen (HE); Manhattan
 Dorothy Joy Johnson (GS); El Dorado
 Francis Johnson (EE); Burlington
 George Johnson (CE); Altamont
 George Johnson (GS); Manhattan
 Harold William Johnson (GS 1; Ag 2);
 Cleburne
 Hazel Joy Johnson (PSM); Herington
 Miriam Elsie Johnson (HE); Argentine
 Ralph Theodore Johnson (EE); Chase
 Robert Franklyn Johnson (EE); Salina
 Theodore Oliver Johnson (CE); Manhattan
 John Blair Johnston (Ag); Kansas City
 Margaret Janet Johnston (HE);
 Junction City
 Glenn Vivian Joines (GS); Manhattan
 Louis William Joines (GS); Manhattan
 Walter Jolley (CE); Manhattan
 Charles Eugene Jones (ChE); Turner
 Clyde Jones (M); Hiawatha
 Dorothy Pauline Jones (IJ); Blue Rapids
 Inez Louise Jones (PE); Manhattan
 Roice Ernest Jones (RC); Downs
 Justin Joe Joy (ME); Osborne
 John Ralph Justice (Ag); Manhattan
 Vance Doren Kabriel (EE); Axtell
 Mildred Muriel Kaff (HE); Michigan Valley
 Mary Ellen Karns (HE); Bucklin
 Alberta Margaret Kearnes (IJ); Auburn
 Ruth Marie Keim (GS); Manhattan
 Eugene Kell (CE); Manhattan
 Rush Carl Kellam (RC); Hutchinson
 Frederick Woodson Keller (EE);
 Falls City, Neb.
 Lyle Francis Keller (PE); Kansas City
 Theodore Hillard Keller (Ar); Manhattan
 Robert Warren Kellogg (EE); Sedan
 Inez Virginia Kelly (HE); Mayetta
 Sam Greensberry Kelly (Ag); Shaffer
 Viola Frances Kelsey (HE); Topeka
 Junita Mildred Kendrick (HE); Topeka
 Floyd Noble Kennedy (ArE); Anthony
 Percy Alexander Kennedy (GS); Piedmont
 James Dillard Kennell (RC); Newton
 Osborn Arthur Kershner (EE); Paola
 William Kestl (RC); Cuba
 Burl Wesley Kessinger (EE); Abilene
 Sylvia Louise Kessler (HE); Topeka
 Margaret Ketchum (PE); Colby
 Charles Anthony Killgore (Ag); Nashua, Mo.
 Helen Kimball (GS); Manhattan
 Margie Augusta Kimble (GS); Miltonvale
 Fay Kimes (EE); Dodge City
 Wayne Kimes (EE); Dodge City
 Gladys Ruth Kimmel (GS); Athol
 Charles King (CE 1; RC 2); Delia
 Francis King (CE); Osawatomie
 Leslie Rufus King (CE); Norcatur
 Philip Lee King (EE); Republic
 Mary Louise Kinkead (HE); Troy
 Bertrand Willis Kinnamon (RC); Larned
 Aaron Kipp (EE); Ellsworth
 Willis Francis Kipper (CE); Belleville
 Arthur Russell Kirby (ME); Toronto
 Vivian Iliene Kirkwood (GS); Manhattan
 Terrell Meaner Kirton (Ag); Amber, Okla.
 Jean Wesley Kissell (GS); Norton
 Joseph Donald Klahr (EE); Netawaka
 Edwin Jacob Klein (GS); Clay Center
 Vivian Fay Klinefelter (HE);
 Brookings, S. Dak.
 Sidney Hampton Knapp Jr. (EE); Concordia
 Vernon Knapp (RC); Topeka
 Margaret Knight (GS); Medicine Lodge
 Myrna Jeanne Knisely (GS); Manhattan
 Ella Irene Knittle (PE); Manhattan
 Frank Wendell Knopf (EE); Holton
 Henry Herman Knouft (GS); Circleville
 Joseph Walker Koci (EE); Auburn
 Margaret Annabel Koenig (HE); Nortonville
 Walter Koerner (CE); Manhattan
 Merrell Chester Koentz (EE); Topeka
 Glenn Koger (EE); Herington
 Robert Samuel Koon (Ar); Manhattan
 Elsa Dorothy Krause (HE); Manhattan
 May Christine Krause (HE); Manhattan
 Rosetta Jeanette Kreps (HE); Salina
 Clona Victoria Krider (HE); Manhattan
 Edwin Henry Kroeker (ChE); Hutchinson
 Jerry Charles Krysl (Ag); Lucus
 Robert Eddie Labadie (Ag); Pawhuska, Okla.
 Theodore Lala (ME); Kirwin
 Burton Ellwood Lamar (PE); Garden City
 Dale Lamar (PE); Garden City
 Don Lamb (RC); Manhattan
 Donald John Lamme (CE); Whiting
 Harold Joseph Landes (GS); Marysville
 Minnie Irene Larson (RC); Topeka
 Merlin James LaShelle (RC); Manhattan
 William Myers Lathrop (GS); Norton
 Orrill Latzke (ChE); Manhattan
 Verna Christine Latzke (HE); Chapman
 Chester Truman Laughlin (M); Manhattan
 Reese Edward Laughlin (RC); Pleasanton
 Pauline Layton (IJ); Salina
 Frances Martan Leaman (IJ); Manhattan
 Oliver Glen Lear (Ag); Stafford
 Avery Leslie Leatherman (RC); Dunavant
 Dayle Eugene Lee (GS); Harper
 Donald Cutler Lee (EE); Harper
 Glen Lee (RC); Solomon
 Marvel Ruth Lee (HE); Keats
 Orville Lee (VM); Michigan Valley
 Waldo Haymond Lee (Ag); Keats
 Lizzie Avis Leece (HE); Formoso
 Mildred Hazel Lemert (GS); Cedarvale
 Philo Hanson Leonard (IJ); Peabody
 Walter Leonard (RC); Junction City
 Murray Leshar (Ar); Dodge City
 Ralph Oscar Lewis (Ag); Parsons
 Myrl Lichtenwalter (Ag); Columbus
 Clarence August Lindenmyer (CE); Russell
 Jack Harris Linscott (EE); Manhattan
 Joseph Mallet Linscott (Ag); Farmington

FRESHMEN—Continued

- Aubrey Erskine Lippincott (CE 1; GS 2);
 Fort Riley
 Floyd Engstrom Little (EE); Concordia
 Guy Edward Lobaugh (RC); Linn
 Theodore Walstein Long (EE);
 Tullahasee, Okla.
 Howard Russel Longenecker (AE);
 Birmingham
 Kenneth Adelbert Longenecker (EE);
 Ocheltree
 Louise Lucille Loomis (PSM); Osborne
 Lyle Wayne Loomis (IC); Augusta
 John Paul Lortscher (GS); Fairview
 Herbert Dale Lott (Ar); Minneapolis
 Donald Monroe Love (GS); Wilsey
 Lynn Lowry (Ag); Hoisington
 Henry Wilbur Loy, Jr. (ChE); Chanute
 Hugo Frederick Lucas (EE); Caldwell
 Reland Estella Lunbeck (IJ); Manhattan
 Curtis Lund (Ar); Lasita
 Lucille Alice Lund (HE); Manhattan
 Renness Irene Lundry (GS); Arlington
 Charles Luthery (RC); Carbondale
 Dayton Kent Lutz (GS); Frankfort
 Dayton Harold Lynch (Ar); Ness
 George Cardinal Lyon (PE); Manhattan
 William Lyon (Ag); Faulkner
 Harry Lytle (VM); Oberlin
 Frank Nicholas McAnany (RC); Wichita
 Gail McAninch (PSM); Stockdale
 Vernon Alfred McBee (GS); Utica
 Alice Alene McCammon (IJ); Mankato
 Marvin David McCammon (EE); Mankato
 Wayne Clemmons McCaslin (GS); Osborne
 Don Frederick McClelland (Ag); Maplehill
 Everett Lynn McClelland (Ag); Manhattan
 Orville Byron McClelland (PE); Manhattan
 Lowell Marvin McCleenny (Ag); Valley Falls
 Hugh McClung (VM); Hayward, Calif.
 Mabel Mac McClung (HE); Manhattan
 Howard McCain (GS); Harper
 Lenore McCormick (IJ); Cedarvale
 Robert Earl McCormick (FME); Oatville
 Paul Joseph McCroskey (IJ); Netawaka
 Robert John McCulloch (EE); Hoisington
 Dorothy McCullough (HE); Marion
 Golford Edman McCullough (CE); Belleville
 James Albert McCutcheon (EE); El Dorado
 Thomas Hugo McEvoy (RC); Williamsburg
 James Edward McFarland (Ag); Girard
 Robert Lee McGill (CE); Moscow
 Harry McGrath (Ag); Home City
 James Dan McGregor (ME); Columbus
 Esther Beatrice McGuire (HE); Manhattan
 Hazel Alberta McGuire (PSM); Osborne
 Lawrence Leslie McGuire (CE); Studley
 Andrew Oliver McIntire (Ag); Duquon
 Robert Carlyle McIntire (RC); Belleville
 Edith Marguerite McIntosh (PSM); Palmer
 Roswell James McIntosh (RC); Salina
 Dean Owen McIntyre (FME); Herington
 Paul McIntyre (FME); Herington
 Richard Frank McKinney (CE); Great Bend
 Herbert Vance McKenzie (RC); Manhattan
 Paul McKibben (Ag); Stafford
 Charles Porter McKinnie (Ag); Glen Elder
 Grace Marcia McLaughlin (PSM);
 Greensburg
 Virginia Constance McMahan (GS); Newton
 Howard Orville McManis (AE);
 South Haven
 Chester Fay McMillen (CE); Peabody
 Harley Edson McMillen (EE); Le Roy
 Hobart Wesley McMillen (EE); Le Roy
 Walter Gordon McMoran (EE); Coldwater
 Daisy Ferne McMullen (HE); Norton
 Elfie Leola McMullen (GS); Norton
 William Loy McMullen (EE 1; Ag 2);
 Oberlin
 Mary Marcella McQuistan (HE);
 Clay Center
 Cecil Patrick McWilliams (IC); Paola
 Tom MacGregor (ME); Solomon
 Chester Lile Macredie (ChE); Clearwater
 Glenn Henry Main (EE); Dodge City
 Thelma Faye Mall (HE); Manhattan
 Preston Leonard Manley (RC); Topeka
 Charles Richard Mann (IJ); Osborne
 Mary Ruth Mann (PSM); Kansas City
 Roy Merlin Mannen (Ag); Lincoln
 Charles Mantz (Ag); Preston
 Thomas Ernest Marcum (ChE);
 Amber, Okla.
 Marceline Markle (GS 1; HE 2);
 Manhattan
 Elsie Lena Marshall (GS); Bonner Springs
 Fred Phillip Marshall (EE); Fredonia
 Joy Clayton Marshall (ME); Manhattan
 Alice Geneva Marston (HE 1; GS 2);
 Netawaka
 Donald James Martin (Ag); Fellsburg
 Garvin Forton Martin (GS); Manhattan
 John Mark Martin (IJ); Hiawatha
 Thomas Ellsworth Martin (AE); Manhattan
 Arnold Alcorn Mast (Ag); Abilene
 John Armond Matchett (GS); Randolph
 James Asel Matson (GS); Miltonvale
 James Joseph Mattingly (EE); Moline
 Mary Edith May (HE); Wichita
 Walter Seamons Mayden (ME); Manhattan
 Clifford Scott Meade (EE); Dodge City
 Paul Arthur Mears (RC); Beloit
 Lynn Monroe Medley (Ag); Hope
 Don Meek (RC); Idana
 Gladys Clarissa Meeker (HE); Wichita
 Pauline Meeker (GS); Wichita
 Ralph Francis Melville (EE); Muncie
 James Webster Mendenhall (EE); Ashland
 Mary Louise Mendenhall (GS); Ashland
 Clarence Albert Mercer (Ag); Emporia
 Burr Everette Merrifield (EE); Agra
 Harry Elmer Merrill (EE); Coolidge
 Elmer Harold Mertel (RC); Kansas City
 Ross Rounds Metzke (EE); Topeka
 Clestia Bella Meyer (PE); Manhattan
 Elda Lillian Meyer (HE); Manhattan
 Gladys Ethel Meyer (HE); Linn
 Ralph Melvin Meyer (EE); Mulvane
 Harold Miles (Ag); Mutual, Okla.
 Leslie Ashford Miles (Ar); Reece
 Albert William Miller (Ag); Montezuma
 Ethel Lou Miller (HE); Manhattan
 Gerald Levern Miller (CE); Beloit
 Harry Ansel Miller (RC); Junction City
 Leo Miller (EE); Mullinville
 Lewis Lincoln Miller (GS); Galena
 Ralph James Miller (ME); Long Island
 Ralph La Rue Miller (EE); Norton
 Ralph Norwood Miller (IJ); Topeka
 Govan Mills, Jr. (CE 1; GS 2); Lake City
 Guy Lanman Minor (EE); Syracuse
 John Minor (Ag); Syracuse
 Marjorie Blanche Mirick (PE); Halstead
 Harley Mitchell (IJ); Tecumseh
 Mildred Mabel Mitchell (RC); Manhattan
 Floyd Alvey Mock (EE); Osborne
 Minnie Louise Moehlman (GS); Manhattan
 Maurice Charles Moggie (GS); Eskridge
 Edna Blanche Montgomery (HE); Newton
 Leslie Eugene Moody (GS); Ogden
 Branch Moore (VM); Kinston, N. Car.
 Charles Gerald Moore (EE); Americus
 Warren Dale Moore (Ag); Copeland
 Raymond Benjamin Moorman (GS);
 Manhattan
 Charles Vern Morain (RC); Minneola
 Mattie Louise Morehead (HE); Norton
 Hubert Morgan (ME); Hutchinson

FRESHMEN—Continued

- Clarence Morrill (Ag); Chicago, Ill.
 Eula Frances Morris (HE); Yates Center
 Paul Rudolph Morris (Ag); Paxico
 Tom Downing Morris (GS); Manhattan
 John Moser (ChE); Hiawatha
 Lawrence Mott (VM); Spencer, Neb.
 William Henry Mott, Jr. (RC); Herington
 Alice Mae Moyer (HE); Marceline, Mo.
 Gerald Irving Moyer (Ag); Manhattan
 Satya Narayan Mukerji (Ag); Calcutta, India
 Dorothy Mae Mullen (HE); Chanute
 Marjorie Alberta Mulliken (HE); Topeka
 Helen Augusta Mendell (GS); Nickerson
 Merlin Mundell (GS); Nickerson
 Thelma Munn (PE); Colby
 Gertrude Ellen Murch (PSM); Concordia
 Diantha Murdock (PE); Manhattan
 Alice May Murdy (GS); Hoisington
 James William Murphy (EE); Caney
 William Theodore Musser (EE); Bigelow
 Thomas Muxlow (VM); Manhattan
 Blanche Lucille Myers (RC); Americus
 Channing George Myers (IC); Salina
 John William Myser (EE); Americus
 Harold Orville Nanninga (RC); Leonardville
 Loyle Mac Nash (IC); Long Island
 Omar Need (GS); Oakhill
 Leslie Levi Neff (EE); Winona
 Lois Kathryn Neill (HE); Broughton
 Harold Arthur Otto Nelson (RC); Vilas
 Olga Henrietta Nelson (IJ); Manhattan
 Robert Edward Nelson (GS); Westmoreland
 Roma Lucile Nelson (PSM); Ellis
 Pearl Paulana Nemecheck (HE); Chapman
 Julius Dennis Neville (ME); Wichita
 Bertha Ruth New (HE); Lenexa
 Mary Adelaide Newell (HE); Topeka
 Richard Newman (Ag); Junction City
 Virgil Millford Nichols (EE); Wellington
 Roy Franklin Nickerson (IC); Clifton
 Karl Polk Niederlander (ME); Wichita
 Faye Loreen Nixon (GS); Belle Plaine
 Glenn Nixon (PE); Medicine Lodge
 Mary Grace Noble (IJ); Wichita
 Martha Mildred Noland (HE); Salina
 Evelyn Marie Noll (PE); Manhattan
 John Leroy Noller (EE); Alma
 Mary Arminta Norman (GS); Fowler
 Harriet Adella Normandin (GS); Melvern
 Daniel Vernon Norris (GS); Randolph
 Jess Melvin Norris (CE); Abbyville
 Walter North (EE); Bazar (deceased)
 Robert Lague Nulty (ME); Jewell City
 Clarence Ervin Nutter (Ag);
 Falls City, Neb.
 Glenna O'Connell (IJ); Oswego
 Charles Belgrove Olds (EE); Delphos
 Charles Robert Omer (VM); Mankato
 Florence Ormiston (HE); Arkansas City
 Hortense Ormiston (HE); Arkansas City
 Simon Campos Ortiz (IC); Manhattan
 Mildred Marie Osborn (PE); Clifton
 Opal Frances Osborne (GS); Partridge
 Paul Robert Oshant (EE); Hays
 Donald John Packer (Ag); Ozawkie
 Merton Paddleford (EE); Randolph
 Esther Margaret Pagan (IJ); Beverly
 Newell Page (Ag); Detroit
 William Hockworth Painter (GS); Meade
 Victor Palenske (CE); Alma
 Earl Wright Palmer (EE); Ashland
 Vera Pauline Pantier (HE); Formoso
 John Lewis Papes (IJ); Coney
 Dale Leonard Parker (FME); Ozawkie
 Keith Hellese Parker (RC); Hutchinson
 Edythe La Verne Parrott (HE); Manhattan
 Luella Gertrude Parrott (HE); Manhattan
 Pearl Olga Parsons (HE); Topeka
 Harry Lewis Partridge (RC); Delphos
 Gwendolyn Anne Pasley (IJ); Manhattan
 Ada Lucile Patterson (HE); Rozel
 Gerald Robert Patterson (RC); Harper
 Sidney Sterling Patterson (EE); Salina
 Ronald Mark Patton (RC); Great Bend
 Carrie Alma Paulsen (HE); Stafford
 Mabel Grace Paulson (GS); Whitewater
 Harley Artie Paynter (GS); Alton
 Helen Elizabeth Paynter (HE); Alton
 Raymond Charles Paynter (GS); Alton
 Bertrand Pearson (GS); Manhattan
 Mary Louise Pearson (PSM); Bayfield, Colo.
 Lucile Elizabeth Peck (GS); Soldier
 Ralph Pelton (ME); Medicine Lodge
 Charles Percival (GS); Tescott
 Lewis Perkins (Ag); Argonia
 Elma Pauline Perry (HE); Neodesha
 Robert Bruce Perry (IC); Fredonia
 Earl Raymond Peterson (Ag); Marquette
 Frank Albert Peterson (Ag); Olathe
 Grant Waldemar Peterson (EE); Jerome
 Knute Everett Peterson (ME); Enterprise
 Lucy Maurine Peterson (PE); Manhattan
 Marguerite LeOra Peterson (GS);
 Leonardville
 Mina Pfeifley (HE); Green
 Howard Earl Phinney (RC); Larned
 Ned Phye (GS); Harper
 Craig Evan Pickett (EE); Glen Elder
 Floyd Kelsie Pierpont (ArE); Wichita
 Milford Hugh Pierpont (Ar); Wichita
 Leonard Milton Pike (Ag); Goddard
 Robert Lee Pilant (EE); Manhattan
 Warren Charles Pilcher (VM); Courtland
 John Morris Pincomb (EE); Overland Park
 Esther Janice Plant (PE); Wichita
 Catherine Henrietta Platner (HE); Ellis
 Harold Henry Platt (Ag); Manhattan
 Waymond Clyde Plotts (EE); Oberlin
 Theodore Nicholas Polcyn (ChE 1; RC 2);
 Gorham
 Martin William Pommerenke (ME);
 Clay Center
 James Richard Poteet (Ag); Paola
 Everett Francis Potter (ME); Carthage, Mo.
 James William Powell (CE); Pittsburg
 Horace Pierce Powers (Ag); Junction City
 Halbert Chaney Prather (Ag); Elmdale
 Jerome Henry Prather (CE); Elmdale
 Roy Seymour Prather (IJ); Reece
 Bruce Robinson Prentice (EE); Clay Center
 Doris Estelle Prentice (HE); Manhattan
 Glen Ernest Prentice (EE); Manhattan
 Dallas Donovan Price (RC); Wakefield
 Marjorie Prickett (GS); Wamego
 Albert Edward Prince (EE); Manhattan
 Russell Pugh (RC); Eureka
 Alberta Lounell Pullins (HE); Council Grove
 John Ernest Putnam (Ag); Salina (deceased)
 Galen Stephen Quantic (Ag); Riley
 Francis James Raleigh (Ag); Clyde
 Edra Aileen Ramsay (GS); Garnett
 Eugene Merrill Ramsey (Ag); Wichita
 Elsie Emma Rand (HE); Wamego
 Zenda Mabel Rand (IJ); Bethany, Mo.
 Elmer Hiram Randel (Ar); Manhattan
 Wilbur Franklin Randel (Ag); Baldwin
 Mildred Charlotte Rankin (HE);
 Kansas City
 Mary Virginia Ransom (PE); Downs
 Carrol Ratz (PE); Valley Falls
 Lawrence Bryan Rawlins (CE); Whiting
 Robert Louis Rawlins (Ag); Whiting
 Charles Seigel Raymond (Ar); Bucklin
 Floyd Leslie Reed (GS); Norton
 Glenn Edson Reed (EE); Stafford
 Rillia Reed (HE); Manhattan
 Charles Edward Reeder (ArE); Troy
 Margaret Janice Reel (PSM); Manhattan

FRESHMEN—Continued

- Leslie Burton Reeves (Ag); Almena
 Leo William Reid (ME); Lyons
 Horace John Reinking (EE); Tescott
 Louis Reitz (Ag); Belle Plaine
 Benjamin Luce Remick (EE); Manhattan
 Niles Franklin Resch (Ar); Independence, Mo.
 Ethel Retz (GS); Wamego
 Viola Josephine Rezac (HE 1; PSM 2);
 St. Marys
 Faye Evaline Rhinehart (HE); Narka
 Gardiner Roland Rhoades (IJ); Manhattan
 Harold Rhodes (RC); Clifton
 John Sword Rhodes (EE); Tampa
 Charlotte May Richards (HE); Madison
 Marguerite Leona Richards (GS);
 Manhattan
 Marjorie Anna Richards (GS); Delphos
 Clement Dee Richardson (EE); Hugoton
 Clyde Richardson (RC); El Dorado
 John Richardson (EE); Dodge City
 Maie Evaille Richardson (HE); Hanover
 Ruth Elizabeth Richardson (IJ); Marion
 Ruth Roberta Richardson (HE); Manhattan
 Hugh Kenneth Richwine (Ag); Holcomb
 Josephine Ricksecker (GS); Galena
 Tillie Helen Rife (HE); Anthony
 Kenneth Gail Riley (EE); Gove
 Marjorie Mae Riner (PE); Protection
 Ernest Willard Robb (LA); Ford
 Arthur Vernon Roberts (GS); Vernon
 Bannon Walker Robertson (GS); Alma
 John Rexford Robertson (EE); Coffeyville
 David Howard Robinson (Ag);
 Oktaha, Okla.
 Herbert Leo Robinson (CE); Wakeeney
 Alfred Ellet Robison (RC); Towanda
 John Sherman Robison (RC); Scandia
 Joyce Rodgers (RC); Mankato
 Orlie Eugene Rodrick (GS); Lucas
 Frank Alonso Rody (Ag); Leoti
 Chester Mearl Roehrman (AE); White City
 Frederick Earl Roehrman (EE);
 White City
 Onella Fay Rogge (HE); Muscotah
 Robert Alfred Rolfs (AE); Lorraine
 William Alfred Romary (VM); Olivet
 Hazel Romer (GS); Larned
 Helen Belle Romig (HE); Manhattan
 Floyd William Romine (Ag); Osage City
 Rachel Anne Roper (IJ); Manhattan
 Anselmer Ollie Rorabaugh (HE); Wichita
 Frank Augustus Rose (EE); Luray
 Iona Phyllis Clarice Ross (GS); Norway
 Melburn Montgomery Ross (CE);
 Kansas City
 Frank Henry Roth (EE); Wichita
 Thomas Rountree (EE); Clayton
 John Wesley Roussin (Ag); Brewster
 Carl Marshall Rowles (EE);
 Newcastle, Ind.
 James Gordon Royal (PE); Oatville
 Albert Leroy Ruggels (Ar); Salina
 John Leonard Ruggles (GS); Jewell
 Nelson Bryan Runbaugh (RC);
 Phillipsburg
 Berniece Anita Russell (RC); Ellis
 Elizabeth Rachael Russell (HE); Mulvane
 Elmer Charles Russell (Ag); Manhattan
 Harold Owen Russell (EE); Ellis
 Lois Russell (HE); Manhattan
 Iva Salinda Rust (HE); Council Grove
 Elinor Mae Ryan (RC); Manhattan
 Lilius Maria Samuel (PSM); Manhattan
 Treva Fay Sanders (HE); Harper
 Walter Dale Sandford (CE); Kansas City
 Jeffery William Sangster (RC); Hutchinson
 Clare Sapp (RC); Hugoton
 Charles Fredrick Sardou (ME); Topeka
 Mary Elsie Sargent (HE); Riley
 Hilden Sawyer (IJ); Liberal
 Thomas DeWitt Saxe (RC); Wichita
 Paul Sayre (Ag); Manhattan
 Harry Edward Schaulis (VM); Wakefield
 Russell Clarence Schaulis (Ag); Wakefield
 Margaret Mary Schippert (GS); Manhattan
 Mae Margret Schmidt (PE); Bennington
 Robert Allen Schober (Ar); Powhattan
 Letha Mildred Schoeni (GS); Athol
 Don Clifton Schrader (IJ); Abilene
 James Clyde Schraeder (PE); Dodge City
 Herbert Oliver Schrepel (LA); Ellinwood
 Dorothy Carolyn Schruppf (HE);
 Cottonwood Falls
 Reginald Schultze (ME); Natoma
 Lydia Emily Schulz (GS); Holton
 James Schwanke (EE); Alma
 Clyde Scott (IJ); Sedan
 Floyd Scott (RC); Independence
 Sylvia Scritchfield (HE); Manhattan
 Laurence Clayton Sears (EE); Rozel
 William Edwin Sears (GS); Eureka
 Michael Tennie Sebring (GS); Wamego
 Florence Caroline Sederlin (HE); Scandia
 Ray Guernsey Seely (EE); Great Bend
 Viola Amelia Seleen (HE 1; RC 2);
 Marquette
 Mabel Luella Sellens (HE); Russell
 Nell Jo Senn (HE); Lasita
 Robert Shearer (RC); Abilene
 Carolyn Sheetz (IJ); Orrick, Mo.
 Clarence Hobart Sheldon (GS 1; Ag 2);
 Cedarvale
 Charles Russell Shellenberger (RC);
 Ransom
 Paul Levinne Shellhaas (GS); Junction City
 Allen Parker Shelly (ME); Atchison
 Joe Joshua Shenk (EE); Manhattan
 John Henry Shenk (IC); Manhattan
 Joy Lester Sherwood (EE); Grenola
 Donald William Shields (RC); Hoxie
 Bernice Elizabeth Shoebrook (GS); Horton
 Kathleen Serena Shoffner (HE); Manhattan
 Roland Short (Ar); Hutchinson
 Ida Mabel Shrontz (GS 1; HE 2); Wilsey
 Orville Theodore Shurtz (EE); Logan
 Fred William Shuyler (EE); Plevna
 Harris Leandor Siegle (Ag); Manhattan
 Ivan Orel Simmons (Ag); Americus
 Richard Ray Simmons (PE); Manhattan
 Robert Clements Simmons (Ag); Elmdale
 Maynard Henry Simpson (RC); Barnard
 James Harry Sims (GS); Pueblo, Colo.
 Esther Alice Sinclair (HE); Lakin
 Mildred Mabel Sinclair (HE); Macksville
 Carl Frederick Sites (CE); Grinnell
 Howard Dean Skaggs (RC); Fredonia
 Elvon Gilbert Skeen (GS 1; Ag 2);
 Eskridge
 Edward John Skradski (EE); Kansas City
 Claude Wilber Sloan (EE); Stratford, Tex.
 Earl Leroy Sloan (CE); Boise City, Okla.
 Edward Keith Smale (GS); Manhattan
 Paul Jones Smee (CE); Abilene
 Aaron Clyde Smith (RC); Delphos
 Dorothy Catherine Smith (GS); Oskaloosa
 Elmer Harold Smith (EE); Baldwin
 Gladys Emma Smith (HE); Hutchinson
 Harold Edward Smith (EE); Burns
 Helen Smith (GS); Salina
 Helen Winifred Smith (PSM); Manhattan
 Hester Read Smith (GS); Manhattan
 Howard Leaverne Smith (RC); Axtell
 Martha Agnes Smith (PE); Durham
 Myrna Frances Smith (GS); Manhattan
 Norman Courtland Smith (GS); Lane
 Robert Kenneth Smith (Ar); Wichita
 Robert Philip Smith (GS); Junction City
 Stanfield Smith (FME); Topeka

FRESHMEN—Continued

- William Henry Smith (CE); Kansas City
 Hughie Colville Snyder (RC); Belleville
 Ida Elizabeth Snyder (HE 1; GS 2);
 Effingham
 James Milton Soper (IC); Manhattan
 John Henry Sours (EE); Amsterdam, Mo.
 Stephen Speicher (EE); Eudora
 Mervyn Earl Spencer (EE); Tescott
 John Glen Spicer (EE); Abilene
 John Paul Spickelmier (EE); Robinson
 Byron Lee Spray (ChE); Moline
 Donald Springer (GS); Manhattan
 Noble Jacob Springer (Ag); Garrison
 Harold William Sproul (RC); El Dorado
 Helen Sproul (M); Manhattan
 Hildred Sproul (GS); Manhattan
 Marjorie Elizabeth Stafford (GS);
 Leonardville
 Joe Otto Stalder (ME); Sabetha
 Herman John Stallman (CE); Hutchinson
 Selia Irene Stanbrough (HE); Saffordville
 Helen Cooper Stark (GS); Bonner Springs
 Ned Stark (CE); Bonner Springs
 Ralph Stebbings (ME); Abilene
 Elizabeth Caroline Steele (RC 1; HE 2);
 Manhattan
 Aldus Edward Steepleton (RC); Minneapolis
 Fay Edwin Stigelin (ME); Manhattan
 Ruth Elizabeth Stener (HE); Courtland
 Florence Joy Stephens (PE); Zeandale
 Robert Blake Stephenson (Ag); Alton
 William Emil Steps (CE); Halstead
 Helen Steuart (GS); Winchester
 Edna Coral Stewart (HE); Manhattan
 Edwin Bishop Stewart (EE); Stockton
 Edwin Earl Stewart (EE); Dodge City
 Mary Anne Stewart (GS); Abilene
 Samuel Roger Stewart (Ag); Vermillion
 Wilbur James Stewart (Ag); Auburn
 Mary Jeanette Stickney (IJ); Hoisington
 Marguerite Elizabeth Stingley (GS);
 Manhattan
 Thelma Helen Stitt (HE); Liberal
 Fred Stivers Jr. (FME); Chattanooga, Tenn.
 Bruce St. John Jr. (EE); Morland
 Lee St. John (CE); Morland
 Ross St. John (EE); Morland
 Richard Ernest Stone (IJ); Galena
 Clyde Arlie Stonestreet (RC); Cullison
 Elma Mae Stoops (GS); Bellaire
 Glenn Emerson Stover (GS); Beverly
 Harold Stover (PE); Goddard
 Carol Lusetta Stratton (GS); Manhattan
 Mary Marjorie Streeter (PSM); Hiawatha
 James Holland Strowig (IJ); Paxico
 Reva Mae Stump (HE); Blue Rapids
 Evelyn Louise Sturgeon (HE); Cassoday
 Bennett Thomas Stryker (CE); Waterville
 Frederic Elmer Stubbs (EE 1; IJ 2);
 Bonner Springs
 Flourine Stutz (HE); Manhattan
 Hazel Suggs (GS); Kansas City
 Gladys Estelle Suiter (IJ); Macksville
 Lester Summers (ChE); Peabody
 Martin Gust Sundgren (ME); Sitka
 Graydon Houghton Sutterin (RC); Topeka
 Howard Albert Sutton (GS); Ensign
 James Harold Sutton (Ag); Ensign
 Jack Swarm (IJ); Norton
 Gladys Alice Swartz (M); Atchison
 William Joy Sweet (Ar); Wichita
 Howard Lee Swisher (EE); Moran
 Frank Alderson Symns (Ag); Whiting
 Mary Katharine Symns (GS); Whiting
 Josephine Taggart (HE); Goodland
 Margaret Tamm (HE & N); Downs
 Wayne Frederick Tannahill (CE); Manhattan
 Thurman Tarr (PE); Leecompton
 Doris Evelyn Taylor (HE); Keats
 John Edward Taylor (Ag); Manhattan
 Kathrine Lucille Taylor (GS); Oswego
 Mary Susie Taylor (PSM); Ogden
 Ora Naomi Teagarden (HE); Beatrice, Neb.
 Esther Marie Teasley (GS); Glasco
 Douglas Tedrow (Ag); Medicine Lodge
 Charles Adrian Templer (GS); Stockton
 Joel Allen Terrell (Ag); Syracuse
 Maurice Gilbert Tetrick (Ag); Cedarvale
 Philip Thatcher (GS); Waterville
 Allen Charles Theiss (VM); Hutchinson
 Eugene Ware Theiss (VM); Hutchinson
 Otto Henry Thom (ChE); Medicine Lodge
 Alfred Dale Thomas (IJ); Ellsworth
 Floyd Milton Thomas (EE); St. Marys
 Harry William Thomas (GS); Detroit
 Bina Thomen (ChE); Junction City
 Frank Arnold Thompson (EE); Hoyt
 Mark Oran Thompson (Ag); Winfield
 Ople Wayne Thompson (CE); Farmington
 Loren Wilbur Thrall (RC); Eureka
 Emery Leonard Thurman (ME); Kiowa
 Raymond Jennison Tillotson (AE); Shields
 Gerald Tindall (PE); Hoisington
 Ethel Elvina Toburen (PSM); Winkler
 Hubert Alfred Toepfer (EE); Solomon
 Daniel Ralph Tompkins (CE); Barnard
 Willard Edwin Topping (RC); Overbrook
 Evelyn Lucille Torrence (PSM); Lucas
 Tillman Ore Townsend (HE); Chanute
 Gladys Luella Tracy (IJ); Manhattan
 Keith Tracy (CE); Argonia
 Charley Trapp (ME); El Dorado
 Roy Henderson Trompeter (GS); Horton
 James Fred True, Jr. (Ag); Perry
 Otis Havilan True (GS 1; Ag 2); Perry
 William True (CE); Topeka
 George Tudhope (GS); Linwood
 Hattie Adythe Tudhope (HE); Linwood
 Scott Turnbull (RC); Allen
 Faye Marjorie Turner (GS); Manhattan
 John Melville Turner (Ar); Holton
 Ruth Lillian Turner (PSM); Manhattan
 Horace Jackson Turney (Ag); Manhattan
 John Russell Twist (EE); Bonner Springs
 Lorna Opha Tyner (HE); Overbrook
 Clarence Correll Uhl (CE); Manhattan
 Lorene Renata Uhlrig (GS); Belvue
 Lucille Adella Uhlrig (GS); Belvue
 David Armstrong Umsted (RC); Paola
 Martin van der Maaten (VM); Osage City
 Margaret Gertrude Vandeventer (GS);
 Mankato
 Beth Dora van Nordstrand (HE); Iola
 Gerald Dean Vanpelt (EE); Beloit
 Ruth Varney (PE); Manhattan
 Theodore Roosevelt Varney (GS); Manhattan
 Harold Vaughn (EE); Hartford
 Kathleen Vaughn (PE); Athol
 Archie Morgan Veitch (Ar); Kanopolis
 Vivian Vada Venables (GS); Smith Center
 Andy John Viergever (EE); Valencia
 Adrienne Marie Viergever (GS); Willard
 John Vigus (GS); Oskaloosa
 Marie Clara Virschelden (HE); St. Marys
 Elvin Staver Voigts (Ag); Merriam
 Florence Angelina Voigt (HE); Winfield
 Helen Augusta Voigt (HE); Winfield
 Donald Wade (IC); Concordia
 Forrest Wade (PSM); Butler, Mo.
 Leola Elverta Wagaman (HE); Great Bend
 James Cecil Wagner (ME); Concordia
 Henry Castle Walbridge (Ag); Russell
 Hayes Walker, Jr. (Ag); Kansas City, Mo.
 Mildred Anna Walker (GS); Manhattan
 Violet Lovina Walker (HE); Beloit
 Everett Robert Wallerstedt (ArE);
 Manhattan
 Dorothy Ellen Wallingford (HE); Horton

FRESHMEN—Concluded

- Clifford LaVerne Walter (EE); Courtland
Hazel Maude Walter (HE); Riley
Helen Laura Walter (HE); Wakefield
Donald Spangler Walters (RC); Rozel
Helen Louise Walters (GS); Riley
Paul Walters (ChE); Rozel
Albert Noll Ward (EE); Highland
Charles Marion Ward (RC); Glasco
Kirk Monroe Ward (PE); Elmdale
Willis Edgar Ward (EE); Highland
Margaret Christian Ware (HE); Manhattan
Beatrice Shorley Warner (HE); Goodland
Vera Warnock (HE); Hutchinson
Larry O'Neil Washington (Ag 1; GS 2);
Kensington
Mary Virginia Washington (HE);
Manhattan
Vance Edgar Washington (Ag); Manhattan
Alice Louise Watkins (IJ); Lyons
William Albert Watkins (GS); Dodge City
Alva Samuel Watson (VM); Oakley
Edgerton Lynn Watson (Ag); Beloit
John Clarke Watson (IJ); Frankfort
John Francis Watson (RC); Wichita
Joseph Ardrey Watson (Ag); Sedan
Van Covert Watson (RC); Le Roy
Elmer Lawrence Watters (RC); Marysville
Leota Farrelle Wayland (HE); Washington
Alfred Kenneth Webb (Ag); Parker
Ivan Verle Webb (EE); Dodge City
Martin Webb (CE); Highland
George Thomas Weber (Ag); Horton
Helen Lucile Weber (GS); Great Bend
Glenn Everett Webster (EE); Salina
Rufus Webster, Jr. (GS); Dodge City
Arthur Rehder Weckel (EE); Piqua
Gordon John Weir (EE); Oberlin
Mabel Weir (HE); Newton
Ruth Weisser (HE); Paxico
Paul Spears Wells (EE); Wichita
Charles Delivan Wentworth, Jr. (CE);
Enid, Okla.
Mars Valentine Wertzberger (GS); Alma
Dorothy Viola Wescott (GS); Manhattan
Florabel Eudora West (GS); Newton
Fred Marion Westbrook (EE); Hutchinson
Loren Herbert Whan (EE); Manhattan
Lemoine Edward Wheeler (GS); Ulysses
Rex Edward Wheeler (EE); Larned
Glen Anderson White (ME); Farmington
John William White (EE); Neodesha
Rexford Everett White (EE); Jewell
Stanley White (EE); Lewis
Virginia Ellis White (HE); Quincy, Ill.
Clarence Whitehair (RC); Salina
DeLore Adrian Whitford (GS); Stockton
Allan Whitten (Ag); Wakarusa
James Nelson Whitten (EE);
Palo Alto, Calif.
Mildred Alice Whitten (HE); Wakarusa
Maxwell Wible (EE); Corbin
Craig Wickham (Ag); Manhattan
Hazel Florence Wickham (HE); Manhattan
Mary Christine Wiggins (HE); Eureka
Albert Vernon Wilcox (RC); Lucas
Clyde Jerome Wilderson (EE); Oakley
Leslie Wilkie (Ar); Belleville
Helen Willcuts (HE); Burr Oak
Eva Naomi Willett (IJ); Wellington
Frances Elizabeth Willhoite (PSM);
Manhattan
Charles Kenneth Williams (ME); Elgin
Esther Elizabeth Williams (PE); Manhattan
Joseph Earl Williams (IJ); Glade
Juanita Marie Williams (GS);
Guthrie Okla.
Buck Williams (EE); Coldwater
Lila Williams (GS); Broughton
Mable Ollive Williams (HE); Manhattan
Orville Leonard Williams (GS); Partridge
Robert Williams (GS); Haven
Ruth Williams (HE); Broughton
Ferd Williamson (CE); Marion
Louise Maybelle Williamson (HE); Marion
Erma Lucille Willis (PSM); Manhattan
Maurine Mary Willis (GS); Beattie
Helen Mildred Wilmore (HE); Sedgwick
Dale Wilson (Ag); Jennings
Gerald Grant Wilson (RC); Alida
Hal Sprig Wilson (RC); Valencia
Richard Wilson (RC); Beloit
Temple Faye Winburn (GS); DeKalb, Mo.
Walter Calvin Winget (Ag); Jennings
Helen Emma Winkler (HE); Rozel
Norman Arthur Winkler (EE); Alma
Annie Catherine Witt (GS); Winchester
Harold Winston Witt (RC);
Kansas City, Mo.
Charles Lewis Witter (ME 1; Ag 2);
Frankfort
Floyd Wolfenbarger (Ar); Manhattan
Beatrice Wilhelmina Wood (PE); Great Bend
Harold Germain Wood (CE); Topeka
Harry Allen Wood (EE); Anthony
Lester LeRoy Wood (Ag); Bonner Springs
Paul Wood (RC); Clay Center
Ralph Rogler Wood (Ag); Cottonwood Falls
Ruth Esther Wood (HE); Overland
Harold Willis Woodruff (EE); Houston, Tex.
William John Woods (Ag); Kansas City, Mo.
Alberta Marian Woodward (PSM); Spearville
Ernest Burton Woodward (ArE);
Medicine Lodge
William Henry Woolman (RC); Simpson
Mildred Louise Worster (PE); Manhattan
Audrey Beryl Wright (IJ); Concordia
Elsie Grace Wright (GS); Oketo
Harold Wuthrich (GS); Whitewater
Charles Wyatt, Jr. (RC); Beloit
Edward Everett Wyman (RC); Scandia
Horatio Robert Wyman (EE); Scandia
George Oren Yandell (PE); Wilson
Delbert Lester Yeakley (AE 1; RC 2);
Hoisington
Homer Yoder (PSM); Morrill
Kenneth Dale Yoder (Ar); Ellis
Esther Jane Young (RC); Hutchinson
Russell Young (GS); Kansas City
Paul Armstrong Youngman (GS);
Harveyville
George Zavesky (ME); Ellsworth
Benjamin Zeigler (EE); Bluff City
Ruth Esther Zeigler (HE); Abilene
Kenneth Earl Zeller (EE); Manhattan
August Theodore Zenzinger (ME);
Cunningham
Percy Lee Zibell (Ag); Holton
Gordon Albert Zimmerman (Ag); Wellington
Milton Christopher Zimmerman (CE);
Osborne
Jabez Curtis Zink (GS); Oswego
Lillian Nordica Zumbrum (GS); Belle Plaine

SPECIAL STUDENTS

Gottfred Emanuel Anderson, Jr. (Ag); Scott City
 Paul Jones Barger (GS); Manhattan
 Rubyann Bouquat (GS); Woodward, Okla.
 Robert Waller Campbell (GS); Dodge City
 Henry Carothers (Ag); Topeka
 Oscar Chilcott (GS); Jewell
 Frances Lee Clammer (GS); Manhattan
 Pearl Zelma Copenhafer (GS); Manhattan
 Arthur Harry Croft (GS); Anthony
 Robert Wilson Davis (Ar); San Diego, Cal.
 Antonio Villarreal de la Garza (AE); Monterey, N. Mex.
 Marion Milford Donoho (GS); Kansas City
 Zula Dunn (GS); Kansas City, Mo.
 Milo Melvin Etrick (GS); Dodge City
 Helen Fitzsimons (GS); Norton
 Cecil Paul Foote (Ag); Wichita
 Carl Elsworth Gardner (GS); Smith Center
 Kingsley Walton Given (GS); Manhattan
 Frank Glick (GS); Junction City
 Harley Hooker Goodwin (GS); Manhattan
 Adah Catharine Griem (HE); Zenda
 Harold Charles Hamill (GS); Manhattan
 Floyd Hanna (Ag); Manhattan
 Louise Harrop (GS); Manhattan
 Oscar Thurmond Hobson (ME); Vernon, Tex.
 Myrtle Hodge (GS); Topeka
 John Paul Holt (GS); Abilene
 Elmer Earl Hoover (EE); Manhattan
 Nina May Howard (GS); Abilene
 Lewis Threlkeld Igleheart (GS); Manhattan
 Frank Watkins Jobes (GS); Arlington
 Delbert Elmer Johnson (GS); Wamego
 Arnold Jones (GS); Haddam
 Carl Francis Joslin (GS); Bavaria
 Marian Kendall (GS); Manhattan
 Frances Elizabeth King (GS); Hutchinson
 Marion Malcolm King (GS); Manhattan
 Marian Gibboney Kirkpatrick (GS); Manhattan
 William Everett Landon (GS); Mayetta
 Albert William Lindlar (GS); Manhattan
 Gelene Eleanor McAninch (GS); Stockdale
 Hazel Keil McGarraugh (GS); Manhattan
 Martha Virginia McKee (GS); Hiawatha
 George Roy McManon (Ag); Toronto
 Edythe Rachael McWhorter (GS); Fredonia
 David Menendian (Ag); Chicago, Ill.
 Sarah Idabelle Monroe (GS); Manhattan
 Chalmer Walter Moore (GS); Liberal
 Roger Mosshart (GS); Manhattan
 Bertha Ruby O'Brien (GS); Luray
 Isa Louise O'Brien (GS); Tescott
 Verle Roosevelt Oline (Ag); Sterling
 Fred Donald O'Malley (GS); Manhattan
 Alice Thelma Orahood (GS); Topeka
 Clayton Taylor Parker (GS); Harper
 Ray Peckham (GS); Wichita
 Myrna Pauline Pederson (GS); Clay Center
 Ura Peirce (HE); Manhattan
 Clarence Osborn Price (GS); Manhattan
 Virgil Dale Proctor (GS); Norton
 John Bernard Ratliff (GS); Manhattan
 Millard Hayes Rigby (GS); Topeka
 Margaret Robinson (Ar); Harper
 Harry Lawrence Shubert (GS); Frankfort
 Sister Eleanor Kelly (HE); Concordia
 Neola Hester Skinner (GS); Independence
 Elizabeth Jane Smith (GS); Manhattan
 Hugh Stevenson Snyder (Ag); Winfield
 Norman Fleet Spear (GS); Bushong
 Frank Eugene Sterba (GS); Munden
 David Ray Stewart (Ag); Wamego
 Mary Elizabeth Stitt (GS); Topeka
 James Leslie St. John (GS); Louisville
 Gladys Jaunita Stoops (GS); Bellaire
 Fred Douglas Stromberg (EE); Republic
 Obelia Edrena Swearingen (GS); Edwardsville
 Sarah Elizabeth Tracy (GS); Manhattan
 Mary Pierce Van Zile (GS); Manhattan
 Eleanor Marie Veroda (GS); Cuba
 Dwight Price Vining (Ag); Piper
 Clarence Dale Walker (Ag); Yewed, Okla.
 Richard Clinton Wells (GS); Manhattan
 Mildred May Welton (GS); Topeka
 Florence Noyce Wertz (GS); Manhattan
 Lewis Dixon Wilkinson (Ar); Topeka
 Hugh Tucker Willis (Ag); Eureka
 Eva Idell Wolleson (GS); Americus
 Rockford Glenn Yapp (Ag); Jewell
 John Wray Young (GS); Hutchinson

SUMMER SCHOOL

First Session

Velma Ellen Abernathey; Manhattan
 George Acree; Manhattan
 Georgene Barbara Affleck; Palmer
 Glenn Aikens; Manhattan
 Waldo Emerson Aikins; Valley Falls
 Dorothy Marguerite Akin; Manhattan
 Helen Elizabeth Alderman; Arrington
 Vera Ethel Alderman; Arrington
 Agnes Aldridge; Kansas City
 Harriet Wright Allard; Manhattan
 Frances Myrtle Allison; Florence
 Verna Allmon; Columbus
 Bernard Martin Anderson; Manhattan
 Clay Jefferson Anderson; Manhattan
 Cora Christine Anderson; Belleville
 Glyde Estella Anderson; Manhattan
 Hazel Lillian Anderson; Bronson
 Lucile Eugenia Anderson; Lindsborg
 Mabel Anderson; Lincoln
 Mildred Marie Anderson; Clifton
 Helen Andres; Alta Vista
 Carol Esther Ankeny; Manhattan
 Gail Apitz; Manhattan
 Alfred Lewis Arnold; Manhattan
 Edith Atkins; Manhattan
 Lindsey Willis Austin; Milton
 Marjorie Helen Austin; Irving
 Frances Mabel Backstrom; Kansas City
 Leone Lora Bacon; Manhattan
 Carlock Ellison Bailey; Manhattan
 Ralph Baird; Bucklin
 Robert Roy Baird; Riley
 Margaret Ellen Baker; Washington
 August Irwin Balzer; Inman
 Pauline Alice Barber; Manhattan
 Mary Elvina Barkley; Manhattan
 Vernon Barlow; Manhattan
 Ethel Pheobe Barnes; Morrowville
 Mansel Barnes; Protection
 Sadie Barr; Manhattan
 Viola Mae Barta; Barnes
 Capitola Belle Bassett; Okmulgee, Okla.
 Cathryn Bassett; Okmulgee, Okla.
 Vincent Edward Bates; Manhattan
 John Battin; McDonald
 Laura Baxter; Manhattan
 Beulah Viola Beacon; Eureka
 Minta Louise Beard; Greensburg
 Pearl Beckman; Effingham
 Lillian Louise Bedor; Hollis

SUMMER SCHOOL—Continued

- Velma Dean Beeson; Osborne
 Floyd Wayne Bell; Manhattan
 Erwin John Benne; Washington
 Glen Dennice Beougher; Oakley
 Alma Eugenia Berg; Lindsborg
 Laura Viola Berg; Lindsborg
 Elsie Kathryn Bergstrom; Green
 Loren Richard Berner; Clifton
 Blanche Lorraine Berry; Jewell
 Christina Leola Bertsch; Mayetta
 Rosa Catherine Best; Manhattan
 Lucy Evelyn Bigelow; Buffalo
 Raleigh Marion Bishop; Manhattan
 Hazel Nadine Blair; Manhattan
 Dollie Ruth Blanks; Soldier
 Stella Faye Blanks; Soldier
 Frank Otto Blecha; Manhattan
 Grace Merle Blomgren; Randolph
 Helen Edith Boehm; Stanley
 Pearl Eugenia Boid; Manhattan
 Roxie Marguerite Bollinger; Washington
 Astrid Anna Borg; Manhattan
 John Harrison Borrer; Westphalia
 Leona Katharine Boston; Washington
 Benjamin Philip Bowman; Stockton
 Kenneth Karl Bowman; Manhattan
 Leslie Bowman; Lebo
 Allen Ward Boyce; Minneapolis
 Evelyn Francis Boyce; Manhattan
 Earl Huff Bradley; Winfield
 Gladys Katherine Bradley; Agenda
 Verda Flola Bradley; Mayetta
 Carrie Brandejsky; Severy
 Lillie Pauline Brandly; Manhattan
 Vera Brant; Morrowville
 Paul Talbott Brantingham; Toledo, Ohio
 Thorborg Brase; Lindsborg
 Rufus Milton Brawner; Converse, Mo.
 Margaret Angeline Brenner; Waterville
 Blanche Amelia Brooks; Manhattan
 Dorothy Brooks; Manhattan
 Josephine Elizabeth Brooks; Manhattan
 *Duke Daniel Brown; Manhattan
 Edna Brown; Riley
 Orpha Brown; Edmond
 Vira Brown; Edmond
 William Arthur Browne; Burdett
 Chester Leroy Browning; Manhattan
 Aloysius Max Brumbaugh; Home
 Fred August Brunkau; Otis
 Hugh Carl Bryan; Osage City
 Ethel Buckner; Columbia, Mo.
 Cula Muriel Buker; Valley Falls
 Arthur Newton Burditt; Ness City
 Marion Thomas Burget; Lewis
 Ruth Elizabeth Burns; White Cloud
 Margaret Kirby Burtis; Manhattan
 Augustus Wells Burton; Moran
 Raymond Earl Burton; Haddam
 Marvel Sara Bushby; Belleville
 Raymond Bushnell; Manhattan
 Clair Butler; Glasco
 Esteban Aguilar Cabacungan;
 Mercedes, P. I.
 Roy Raymond Cameron; St. George
 Marjorie Bernice Campbell; Omaha, Neb.
 Mrs. N. E. Campbell, Denison, Texas
 Viola Hildegard Carlson; Clifton
 Virginia Elizabeth Carney; Manhattan
 Alice Marie Carr; Herington
 Floyd Eugena Carroll; Fredericktown, Mo.
 Lillian Iva Carver; Manhattan
 *Norris Doddsworth Cash; Manhattan
 Helen Edythe Cass; Orion
 Doris Diana Chamberlain; Riley
 Ira Nichols Chapman; Manhattan
 Elmer Philip Cheatum; Langdon
 Mary Chilcott; Manhattan
 Oscar Chilcott; Manhattan
 Ralph Bennett Chilcott; Mankato
 Etta Estella Chillson; Manhattan
 Vivian Winifred Chitwood; Garnett
 Amelia Cigna; Vliets
 David Charles Clarke; Manhattan
 Iva Bernice Clark; Wichita
 Paul Fredrick Clark; Kansas City, Mo.
 Charles Warren Claybaugh; Pretty Prairie
 Callie Coates; Greensburg
 Thelma Elizabeth Coffin; Le Roy
 Edgar Elwood Coleman; Alma
 Edith Luella Collins; Belleville
 Frank Harold Collins; Manhattan
 Leslie Irl Collins; Manhattan
 Marjorie May Collins; Wellsville
 Mary Ellen Collins; Wellsville
 Ursula Oldham Collins; Manhattan
 Evelyn Marilda Colwell; Manhattan
 Leila Belle Colwell; Manhattan
 Irene Mildred Compton; Manhattan
 Atlas Conley; Manhattan
 Ida Augusta Conrow; Manhattan
 Bernard John Conroy; Manhattan
 Etta Marie Conroy; Manhattan
 Marguerite Josephine Conroy; Manhattan
 Nelle Conroy; Manhattan
 George Curtis Cooksey; Manhattan
 Durward Fenimore Cooper; Pawnee Rock
 Josephine Bradford Copeland; Salina
 Catherine Elizabeth Corey; Kansas City
 Helen Elizabeth Correll; Manhattan
 Ruth Correll; Manhattan
 Mary Louise Cox; Downs
 Frank Gillette Craft; Haddam
 Judith Briggs Craig; Manhattan
 Mary Elva Crockett; Manhattan
 Roberta Gladys Cromwell; Topeka
 Pearl Ardena Cross; Wichita
 Kathryn Mae Crowder; Manhattan
 Gladys Hattie Crumbaker; Manhattan
 Edward Cunningham; Manhattan
 Fern Elaine Cunningham; Junction City
 John Daniel Cunningham; Manhattan
 Roy Cupp; Morrowville
 Beth Suzanne Currie; Manhattan
 Emily Curtis; Lincoln
 Ola Antoinette Curtis; Lincoln
 Geraldene Jeanette Cutler; Manhattan
 Charles Otto Dailey; Garden City
 Emily Ruth Dailey; Arlington
 Gladys Pauline Dallas; Harveyville
 Bertha Danheim; Blue Rapids
 May Danheim; Blue Rapids
 John Darr; Manhattan
 A. P. Davidson; Manhattan
 George Jackson Davidson; Manhattan
 Jessie Hedden Davis; Manhattan
 Grace Lavina Davison; Michigan Valley
 Wilma Estelle Dean; Delphos
 Miriam Lenore Dexter; Manhattan
 Vivian Jessie Dial; Riley
 Mary Beatrice Dickson; Washington
 Vera Virginia Dickson; Washington
 Helen Estelle Diller; Morrowville
 Bonnie Lou Ditmar; Manhattan
 *David Neill Donaldson; Ft. Collins, Colo.
 Marion Milford Donoho; Kansas City
 Alberta Doyle; Douglass
 Florence Ada Dresser; Manhattan
 Alfred Droll; Alta Vista
 Lynn Waite Dunlap; Scott City
 Leslie Crouch Dunnington; Manhattan
 *Herbert Durham; Manhattan
 Doris Irene Dwelly; Manhattan
 Hazel Mae Dwelly; Manhattan

* Under the auspices of the U. S. Veterans' Bureau.

SUMMER SCHOOL—Continued

Meredith Dwelly; Manhattan
 Agnes Niede Easterberg; Winkler
 Lois Adeline Edgerton; Randolph
 Alice Dorothy Edstrom; Stromsburg, Neb.
 Albert Rowland Edwards; Ft. Scott
 Martin Arthur Edwards; Manhattan
 Winifred Edwards; Athol
 Bertha Mattie Egger; Ellis
 Harold Chester Elder; Mankato
 Dorothea Lee Eldred; Emporia
 Esther Eldred; Emporia
 Irene Elliott; Meriden
 William Harold Elliott; Iola
 Martha Engle; Abilene
 Charles Ranger Enlow; Manhattan
 Aganetha Agatha Entz; Salina
 Margaretha Entz; Salina
 Neva Augusta Erdman; Smith Center
 Freda Maria Ericksen; Ogden
 Anna Roxana Erikson; Manhattan
 Etna Erickson; Manhattan
 Harriet Maria Esdon; Garrison
 Hobart Leslie Evans; San Antonio, Tex.
 Lucile Marguerite Evans; Manhattan
 Nellie Evans; Manhattan
 Paul Lawrence Evans; Baldwin
 Thomas Faris; Manhattan
 Herman Farley; Manhattan
 Alvin Farmer; Manhattan
 Fontella Farr; Waldo
 George Malcolm Farrington; Manhattan
 Glenn Faulkner; Meriden
 Marian Maude Feess; Wamego
 Virginia Fielding; Manhattan
 Alta Fields; Manhattan
 Delbert Alonzo Finney; Topeka
 Ronald Dale Finney; Topeka
 Jennie La Rue Fisk; Manhattan
 Ray Flagg; Manhattan
 Beatty Hope Fleenor; Manhattan
 Bernice May Flemming; Manhattan
 Alma Frances Flentie; Centralia
 Herbert Martin Fletcher; Salina
 Agnes Forman; Alton
 Nellie Sarah Forrester; Hutchinson
 Virginia Terlene Forrester; Manhattan
 Margaret Lansden Foster; Manhattan
 Martha Elizabeth Foster; Leon
 Ralph Leon Foster; Manhattan
 Anna Cecelia Fox; Frankfort
 Mary Frame; Liberal
 Rebecca Louise Francis; Westmoreland
 Ella Amy Franz; Emporia
 Martin Frederick Fritz; Manhattan
 Carolyn Ella Fritze; Strong City
 Louis Edwin Fry; Manhattan
 Donald Arthur Fulton; Manhattan
 Gertrude Fulton; Harper
 Manford Furr; Manhattan
 Anna Sullivant Galbraith; White City
 Oscar Deane Gardner; Wetmore
 John French Gartner; Manhattan
 Evelyn Alberta Garvin; Lawrence
 Jessie Alice Gates; Kingman
 Gertrude Spencer Geer; Auburn
 Bessie Geffert; Manhattan
 Harriet Geffert; Manhattan
 Cora Mae Geiger; Brookville
 Sarah Magdalene Geiger; Brookville
 George Albert Gemmell; Manhattan
 Lee Gemmell; Manhattan
 Rose Marie George; Liberal
 Verda Verene German; Glen Elder
 Leland Noble Gibson; Whitewater
 Emma Marie Gieber; Clifton
 Grace Eleanor Givin; Manhattan
 Grace Cecelia Glenn; Manhattan
 Louise Charlotte Glick; Jewell
 Verna Ann Goff; Winkler
 Harley Hooker Goodwin; Manhattan
 Francis Joseph Gormley; Santa Fe, N. Mex.
 Lillian Gould; Westmoreland
 Clarence Owen Grandfield; Fort Scott
 Earl Francis Graves; Manhattan
 Clara Belle Gray; Aurora
 Edward Maurice Gregg; Frankfort
 Gertrude Mary Grieve; Wamego
 Josie Margaret Griffith; Manhattan
 Merle Grinstead; Mulvane
 Claribel Florence Grover; Iola
 Harry Ludwig Gui; Manhattan
 Floriano Fernando Guimaraes; Rio Grande,
 Brazil
 Fred Gunselman; Holton
 *William Wallace Gunselman; Holton
 Laura Annie Gustafson; Randolph
 Dorothy Frost Halbower; Manhattan
 Harry Herbert Halbower; Anthony
 John Prentiss Hale; Manhattan
 Dorothy Hall; Sullivan, Ill.
 Frank Hall; Arlington
 Alvin Willis Hamilton; Wichita
 Gertrude Claire Hamilton; Wichita
 Jamal Hassan Hammad; Nablus, Palestine
 Doris Handlin; Manhattan
 Floyd Vivian Hanson; Assaria
 Leota Christina Hansen; Manhattan
 Maurine Hanson; Manhattan
 Philip Walter Hansen; Mulvane
 Eldon Thomas Harden; Centralia
 Charlotte Beulah Harding; Wakefield
 Mary Naomi Harding; Manhattan
 John Wendell Harnly; Manhattan
 Claude Harris; Manhattan
 James Bruce Harris; Kansas City
 Mabel Enola Harris; Woodward, Okla.
 Vida Agnes Harris; Manhattan
 Mary Harrison; Manhattan
 Richard Michael Hartigan; Manhattan
 Julia Ruth Hartman; Manhattan
 Opal Margie Haselwood; Washington
 Edith Agnes Hassinger; Manhattan
 Ada Haukenberry; Manhattan
 Gladys Hawkins; Tampa
 Lucile Beatrice Heath; Wakefield
 Minnie Heath; Manhattan
 Loren Bryce Hefling; Manhattan
 Dorothy Lucille Heltzel; Manhattan
 Benjamin Franklin Hemphill; Clay Center
 Merle Revere Henre; Kansas City
 Christie Cynthia Hepler; Manhattan
 Francis Floyd Herr; Manhattan
 Wesley McKinley Herren; Manhattan
 Earl Howard Herrick; Colony
 Katharine Jane Hess; Manhattan
 Ruth Ernestine Heynen; Manhattan
 Harold Higginbottom; Manhattan
 Donald David Hill; Corvallis, Ore.
 Hester Hill; Highland
 Paul Lymon Hill; Manhattan
 Randall Conrad Hill; Manhattan
 Emma Hilton; Caney
 Lora Valentine Hilyard; Reece
 George Winefred Hinds; Pleasanton
 William Russell Hinshaw; Manhattan
 Leland Stanford Hobson; Kingman
 Oscar Thurmond Hobson; Vernon, Tex.
 Carl Fred Hoelzel; Manhattan
 Austin Clair Hoffman; Abilene
 Iva Luella Holladay; Wright
 Mary Annabelle Holladay; Wright
 Clifford Andrew Hollis; Fredonia
 Joseph Frank Holsinger; Rosedale
 Ruth Louise Holton; Manhattan

* Under the auspices of the U. S. Veterans' Bureau.

SUMMER SCHOOL—Continued

- Earl Robert Honeywell; Manhattan
 *James Hoover; Manhattan
 Lola Hoover; Mount Hope
 Myrtle Evelyn Horne; Alma
 Hazel Juanita Hotchkiss; Manhattan
 Wilma Irene Hotchkiss; Manhattan
 Helen Ella Houdek; Agenda
 Mignon Corwin House; Manhattan
 Charles Wither Howard; Winona
 Dixie Virginia Howard; Manhattan
 Dorothy Frances Howard; Garnett
 Ellen Mae Howard; Winona
 Marjorie Howard; Garnett
 Margaret Joye Howe; Manhattan
 Helen Harper Howell; Mexico, Mo.
 William Lewis Howell; Garnett
 Gladys Huber; Leonardville
 Erma Jean Huckstead; Junction City
 Ruth Huff; Chapman
 Walter Henry Hukriede; Cleburne
 Fred Harold Hull; Portis
 Harley Main Hunter; Kansas City
 Susie Katharon Huston; Manhattan
 Ozeta Alice Hutchison; Canton
 John Hyer; Coffeyville
 Gladys Viola Ijames; Irving
 John Inskeep; Wellington
 Marie Insley; Junction City
 Percy Jennings Isaacson; Manhattan
 Arthur Cecil Jackson; Manhattan
 Ethel Lorena Janes; Kansas City
 Irene Jenkins; Belvue
 Julia Aurelia Jennings; Little River
 *Adolph George Jensen; Manhattan
 Dora Elizabeth Jensen; Manhattan
 Mary Helen Jerard; Manhattan
 Vivian Jewett; Kansas City
 Frank Watkins Jobes; Winfield
 Alice Hilda Johnson; Manhattan
 Anna May Johnson; Manhattan
 Dora Ingeborg Johnson; Clifton
 Esther Louise Johnson; Kansas City
 Helen Johnson; Burlingame
 James Foley Johnson; Manhattan
 Minnie Florence Johnson; Manhattan
 Raymond Delbert Johnson; Manhattan
 Reuben Milton Johnson; Manhattan
 Ruth Johnson; Manhattan
 *George Frederick Johnston; Manhattan
 Sarah Jolley; Manhattan
 Eldwood Jones; Manhattan
 Louise Emma Jones; Manhattan
 Chris Jorgensen; Viborg, S. Dak.
 John Ralph Justice; Manhattan
 Mildred Muriel Kaff; Michigan Valley
 Melba Avis Kahl; Waterville
 Mary Magdalen Kahler; Wamego
 Herbert Lee Kammeyer; Manhattan
 George Benjamin Kappelman; Miltonvale
 Henry Daniel Karns; Ada
 Ralph Karns; Ada
 Della Kasper; Narka
 Garnet Elizabeth Kastner; Manhattan
 Ethyl Marie Kaump; Waterville
 Chester Keck; Auburn
 Julia Annett Keeler; Osborn
 Harvard Laurence Keil; Manhattan
 Ruth Marian Kell; Manhattan
 Frederick Leroy Kelley; Quinter
 Mabel Rose Kennedy; Manhattan
 Florence Evelyn Kent; Clyde
 Albert Harrison Kerns; Hays
 Lily Kerns; Manhattan
 Albert Charles Kientz; Manhattan
 Mary Marcene Kimball; Manhattan
 Ruth Maurice Kimball; Manhattan
 Kathryn Anne Kimble; Miltonvale
 Margie Kimble; Miltonvale
 Emory Orville King; Manhattan
 Hubert Dwight King; Manhattan
 Kathryn Elizabeth King; Manhattan
 Linnie Estelle King; Arkansas City
 Margaret Kintner; Frankfort
 Glenn Albert Kirk; Fort Scott
 Marion Gibboney Kirkpatrick; Manhattan
 Forrest William Kitch; Rozel
 Charles Howard Kitselman; Manhattan
 Gay Tetley Klein; Manhattan
 Theunis Munnik Kleinenberg; Pietersburg,
 S. Africa
 Nilee Charlotte Kneeland; Kismet
 Grace Mae Knisely; Talmage
 Norma Louise Knoch; Lincoln
 Kenneth Knouse; Valley Falls
 Dorothy Beryl Kuhnle; Concordia
 Mohamed Labib; Barada, Egypt
 Lacerte Joseph Oswald; Collyer
 William Lafene; Manhattan
 Alfred Wilhelm Larson; Morganville
 Elbert Willard Larson; Manhattan
 Merville Larson; Watkins, Colo.
 Avis Louise Larzalere; Delphos
 Donald Earl Lathrop; La Harpe
 Hallie Alice Laughlin; La Crosse
 Reese Edward Laughlin; Pleasanton
 Velma Mary Lawrence; Manhattan
 Verna Meryl Lawrence; Manhattan
 William Grant Lay; Topeka
 Ione Elizabeth Leith; Irving
 Ethel Florence Leonard; Lyons
 LaVange Lucile LeVitt; Wilson
 Clarence Lewis; Manhattan
 Dorothy Lewis; Manhattan
 Edith Blanche Lewis; Belleville
 Herbert Frederick Lienhardt; Manhattan
 Earl Milo Litwiller; Manhattan
 Olive Charlotte Logerstrom; Marysville
 Ruth Engel Long; Manhattan
 Lucy Lydia Lowe; Manhattan
 Mary Euphrasia Lowe; Manhattan
 Ada Katharine Lush; Altamont
 Iliene Lynch; Manhattan
 Etna Lyon; Manhattan
 Donald McAlister; Manhattan
 Rolla Wade McCall; Hutchinson
 Carrick Lin McColloch; Manhattan
 Mabel McComb; Wichita
 Grace Kerns McCoppin; Phillipsburg
 Rachel McCoy; Wamego
 Mary Ruth McCracken; Willis
 Sidney McCracken; Overbrook
 Lois Emily McCulley; Plainville
 John Edward McCullough; Belleville
 Julius James McDonald; Manhattan
 Neva Colville McDonnell; Wichita
 Reah McElroy; Quinter
 William Virgil McFerrin; Girard
 Hazel Keil McGarraugh; Manhattan
 Howard Hutcheson McGee; Olathe
 Harry Lloyd McGee; Ramona
 John David McKean; Scott City
 Lucille Myrtle McKenzie; Wayne
 *George Roy McMahon; Toronto
 Lois McNitt; Washington
 Robert Victor Macias; Zacatecas, Mexico
 Alvin Arthur Maddy; Utica
 Harry Leroy Madsen; Natoma
 Miriam Louise Magaw; Topeka
 Merle Lyle Magaw; Ames
 Alice Manley; Cheney
 Roberta Louise Mann; Blue Rapids
 Olive Margaret Manning; Peabody
 George Edwin Manzer; Manhattan
 Elizabeth March; Topeka

* Under the auspices of the U. S. Veterans' Bureau.

SUMMER SCHOOL—Continued

- Laurel Armstrong March; Bucklin
 Vivian Anna Marley; Manhattan
 Edith Alice Marsh; Topeka
 Daniel Claire Marshall; Manhattan
 Ethel Justin Marshall; Manhattan
 Claire Arnot Martin; Abilene
 Edith Edna Martin; Herington
 Helen Martin; Milan
 Paul Gordon Martin; Manhattan
 Mildred Mae Mast; McPherson
 William Joseph Matthias; Perry
 Mamie Matilda Meyer; Linn
 Mildred LaVina Michener; Mulvane
 Buford John Miller; Piedmont
 Irene Edna Miller; Galva
 Keith Walter Miller; Manhattan
 Pierre Alphonse Miller; Manhattan
 Ruby Elizabeth Miller; Manhattan
 Theodore Harry Miller; Kansas City
 Victor Henry Miller; Pawnee Rock
 Fred Weymouth Milner; Hartford
 Elizabeth Mohlman; Lorraine
 Harriett Eloise Monroe; Manhattan
 Sarah Idabelle Monroe; Manhattan
 Clarence Lucile Monsey; Arkansas City
 Leon Francis Montague; Irving
 George Montgomery; Sabetha
 Marjorie Lucille Moody; Riley
 Cecil Moore; Manhattan
 Frederica Bergen Moore; Manhattan
 John McKay Moore; Strathroy, Canada
 *Leo Albert Moore; Manhattan
 Mildred Moore; Carthage, Mo.
 Ruth Moore; Abilene
 William Nathaniel Moreland; Manhattan
 Clarence Elmer Morlan; Rantoul
 Katherine Morris; Manhattan
 Maria Morris; Manhattan
 Merle Dallas Morris; Paxico
 Paul Reddick Morris; Paxico
 Guy Edward Morrison; Springview, Neb.
 Ruby Marie Morton; Selden
 Thelma Marie Moss; Manhattan
 Fred Mouck; Liberal
 Ina Findley Moyer; Holton
 James Herbert Moyer; Holton
 Gladys Muilenburg; Palco
 Diantha Murdock; Manhattan
 Nancy Mary Mustoe; Norton
 Frank Lewis Myers; Manhattan
 Verda Myers; Wakefield
 Walter Emory Myers; Eskridge
 Leonard George Nehring; McFarland
 Dorothy Leona Nelson; Manhattan
 Jennie Elizabeth Nelson; Wamego
 Anna Mae Nettrouer; Manhattan
 Alma Bryner Nichols; Waterville
 Bernice Rae Noble; Manhattan
 Dorothy Esther Noble; Wichita
 Philip Myron Noble; Manhattan
 Mable Lucille Noel; Junction City
 Luther Owen Nolf; St. John
 Evelyn Marie Noll; Manhattan
 Linus Noll; Louisville
 Wilma Lisetta Norlund; Wayne
 Frances Winona Normandin; Wakefield
 Mary Norrish; Manhattan
 Margaret Northern; Greensburg
 Twila Evelyn Norton; Centralia
 Clarence Gaylord Noyce; Crete
 *Harold Alfred Noyce; Manhattan
 Ivy Beatrix Nudson; Topeka
 Einer Dow Nygren; Manhattan
 Pauline Harriette Nylund; Scandia
 Anna Elizabeth O'Connor; Gardner
 Zoe O'Leary; Phillipsburg
 Myrtle Lavine Olson; Clyde
 Guy Clifton Omer; Lebanon
 Birdie Lucile O'Neill; Smith Center
 *Wayne Santee O'Neal; Manhattan
 Clarence Oppy; Clay Center
 Bessie Mae Orr; Manhattan
 Eleanor Lucille Osner; Cleburne
 John Huntington Parker; Manhattan
 Velma Edna Parker; Manhattan
 Agnes Patterson; Manhattan
 Dwight Patton; Harper
 Henry Paulsen; Atchison
 Clara Margaret Paustian; Sterling
 Lillian Paustian; Clay Center
 Kate Maria Penn; Broken Arrow, Okla.
 George Penner; Stafford
 Laurence Todd Perrill; Dorrance
 Elliott Peterson; Randolph
 Mildred Peterson; Manhattan
 Pete Loyd Phillippi; Detroit
 Dorothy Pickard; Kansas City, Mo.
 Sylvia Opal Pierce; Riley
 Robert Edward Pirtle; Council Grove
 Glen Frank Pollom; North Topeka
 Thomas Allan Poole; Manhattan
 Hazel May Pooler; Abilene
 Harold William Poort; Manhattan
 Alice Irene Poort; Manhattan
 Gladys Popejoy; Junction City
 Garcia Floy Porter; Hill City
 Mildred Elvira Pound; Glen Elder
 Irene Marguerite Pratt; Concordia
 Lorena Prestwood; Manhattan
 Alice Elizabeth Prince; Manhattan
 Leslie Ray Putnam; Manhattan
 Henry Quinn; Manhattan
 Rosemary Railsback; Langdon
 Velma Estelle Randall; Manhattan
 Joseph Earl Rankin; Mound City
 Sophia Rankin; Manhattan
 Marjorie Wilma Rasher; Abilene
 Ezra Guy Rasmussen; Irving
 Mary Rasmussen; Irving
 Harold Vernon Rathburn; Manhattan
 Bernice Marie Read; Manhattan
 Victor Reef; Merriam
 Edythe Teresa Reel; Manhattan
 Margaret Jeanice Reel; Manhattan
 Ethelyn Pray Rees; Abilene
 Lanora Ellen Regnier; Wamego
 Mae Rose Reichart; Valley Falls
 *George Ambrose Reid; Manhattan
 Helen Marie Reid; Scranton
 Kenneth Miller Renner; Manhattan
 Harold Clifton Rhine; Manhattan
 Floye Frances Rhodes; McPherson
 Theodore Roosevelt Rice; Sapulpa, Okla.
 Ruth Josephine Richards; Manhattan
 Ralph Ricklefs; Manhattan
 Ruby Anna Ricklefs; Troy
 Mattie Evelyn Ring; McPherson
 Glenn Elvin Rixon; Cimarron
 Esther May Roach; Lowemont
 James Truman Roberts; Manhattan
 John Bissel Roberts; Kirwin
 Mary Eileen Roberts; Kirwin
 Jane Edith Roether; Ogden
 Charles Elkins Rogers; Manhattan
 Samuel Nicholas Rogers; Manhattan
 William Alfred Romary; Olivet
 Edna Mae Romick; Valencia
 Helen Belle Romig; Manhattan
 Harvey George Roots; Wamego
 Mayetta Roper; Barnes
 Gertrude Elizabeth Ross; Clifton
 Eber Roush; Lebanon
 Juanita Routt; Paola
 George Vernon Rowland; Manhattan

* Under auspices of the U. S. Veterans' Bureau.

SUMMER SCHOOL—Continued

Anna Lou Rucker; Manhattan
 Kathryn Elizabeth Rumold; Manhattan
 Lillian Irene Rundus; Blue Rapids
 Ferne Russell; Manhattan
 Harvey Alexander Russell; Topeka
 Mary Dillon Russell; Lakin
 Myron Edward Russell; Manhattan
 Orpha Eilleen Russell; Manhattan
 Ralph William Russell; Mankato
 Harry Alfred Rust; Manhattan
 Morse Henderson Salisbury; Manhattan
 Lillian Sands; Kansas City
 Dorothy Beryl Sanford; Hill City
 Emma Carol Sanford; Belleville
 Anna Augusta Saville; Blue Rapids
 Paul Baldwin Sawin; Manhattan
 Chauncey Elias Sawyer; Manhattan
 Aldene Scantlin; Pratt
 Frances Mary Schepp; Manhattan
 Ira Schindler; Jewell
 Clarence Schmidt; Wichita
 Lester John Schmutz; Junction City
 Lena Pauline Schulthess; Manhattan
 Fred Schultz; Wathena
 Grace Dorothy Schultz; Manhattan
 Liessa Jacobina Schultz; Hillsboro
 Leo Henry Schutte; Wamego
 Glen Owen Schwandt; Manhattan
 Emma Katherine Scott; Kerwin
 Elnora Wanamaker Seaton; Manhattan
 Mabel Edna Seaver; Topeka
 Gabe Alfred Sellers; Manhattan
 Lucille Anita Sellers; Manhattan
 Minnie Sequist; Manhattan
 Sheridan Settler; Council Grove
 Sophia Mae Shade; Hays
 Mattie Lucille Shaefer; Centralia
 Clara Iola Shaw; Wamego
 Ella Marie Shaw; Junction City
 Nell Aileen Shaw; Herington
 Jack William Sheetz; Admire
 Frances Dow Sheldon; Blue Rapids
 LeRoy Shepherd; Burlingame
 Paul Arthur Shepherd; Burlingame
 Roger Turner Shepherd; Burlingame
 Frank Howard Shirck; Manhattan
 Leslie Ernest Shmidt; Winfield
 Blanch Anna Shubkagel; Bigelow
 Silva Emmett; Manhattan
 Percy Sims; Little River
 Sister Mary Domitilla Arnoldy; Manhattan
 Sister Mary Nicholas Arnoldy; Manhattan
 Sister Borromeo Bonchard; Salina
 Sister Mary Adolphus Maloney; Concordia
 Sister Purificata O'Connell; Concordia
 Sister Honoria Pettitt; Concordia
 Sister Mary Grace Waring; Salina
 Sister Cosmas Weigel; Manhattan
 Sister Laurentia Wynn; Concordia
 Sister Mary De Pazzi Wynn; Beloit
 Lois Sitterley; Manhattan
 Myrna Smale; Manhattan
 Bessie Henrietta Smith; Frankfort
 Bessie May Smith; Washington
 Claudius Ellsworth Smith; Manhattan
 Emma Rebecca Smith; Cleburne
 Grace LeOra Smith; Manhattan
 Hester Read Smith; Manhattan
 Jewell Smith; Washington
 Louis Philip Smith; Carthage, Mo.
 Mabel Smith; Eskridge
 Marion Welsh Smith; Wichita
 Rolla Orvis Smith, Wichita
 Edna Brenner Snyder; Manhattan
 Elizabeth Katherine Sorenson; Kansas City
 Charlotte Sparrowhawk; Wakefield
 Paul Speer; Olathe
 William Scott Speer; Olathe
 Dorothy DeWolf Spindler; Garnett
 Loyd Ancil Spindler; Garnett
 Glenn Wesley Spring; Manhattan
 Donald Springer; Manhattan
 Web Sproul; Manhattan
 Mildred Stahlman; Potwin
 Clinton Leonard Stalker; Rossville
 Lucile Stalker; Manhattan
 Arthur Raymond Stark; Manhattan
 George Elmer Starkey; Syracuse
 Lydia Stebbins; Kansas City
 John Steiner; Manhattan
 Elma Ruth Stewart; Topeka
 LaVon Stewart; Wamego
 Martha Eldana Stewart; Frankfort
 Ruth Stewart; Manhattan
 Ferol Avalene Stickel; Manhattan
 Fred Carl Stoeckbrand; Yates Center
 Grace Stoeckbrand; Yates Center
 Alcie Evelyn Stoner; Vesper
 Charles William Stratton; Manhattan
 Fern Lois Straw; Wichita
 Euphemia Faith Strayer; Lawrence
 Everett Stroud; St. Marys
 James Holland Strowig; Paxico
 Richard Raymond Stucky; Manhattan
 Mary Lena Stutz; Manhattan
 Gertrude Bernice Swagerty; Clay Center
 Charlotte Huntington Swanson; Manhattan
 Elsie Viola Swanson; Manhattan
 Milan Burdette Swartz; Hiawatha
 Hazel Marie Sweet; Manhattan
 Oliver Ellsworth Taintor; Wichita
 Clarence John Tangeman; Newton
 Delos Clifton Taylor; Harveyville
 Earl Alphonso Taylor; Kansas City
 Harley Albert Teall; Manhattan
 John Wedd Teas; Manhattan
 Junita LaVern Telford; Manhattan
 George Henry Tennant; Langdon
 Harold Hetherington Theiss; Hutchinson
 Rosetta Maria Thierier; Manhattan
 Ellen Thomas; Harper
 Ernest Raymond Thomas; Manhattan
 Esther Margaret Thomas; Ogden
 Laurence Clifford Thomas; Clay Center
 Walter Thomas; Canton
 Doris Lillian Thompson; Belleville
 Hazel Emma Thompson; Parsons
 Mildred Hazel Thornburg; Manhattan
 Margaret Elizabeth Thornton; Clay Center
 Harold Thuma; Robinson
 Ruth Tibbetts; Leoti
 Eva Timmons; Manhattan
 Dora Marie Toburen; Barnes
 Lillian Amelia Toburen; Barnes
 Milton Henry Toburen; Cleburne
 Simon Jona Tombaugh; Manhattan
 Floyd Warren Torrey; Manhattan
 Elizabeth Martha Townsend; Holton
 Esther Irene Tracy; Manhattan
 Genevieve Thelma Tracy; Manhattan
 Lola Olive Travis; Manhattan
 Robert Grey Treat; Yates Center
 Opal Maye Trout; Eskridge
 Faye Marjorie Turner; Manhattan
 Fern Adelia Turner; Manhattan
 Joe George Tustison; Yates Center
 Minnie Marie Ubel; Wamego
 Edna Mae Unruh; Haddam
 Charles Upp; Stillwater, Okla.
 Manuel Valdes; Santiago, Chile
 Elizabeth Alice Van Ness; Topeka
 Glennwood van Valkenburg;
 Deer Creek, Okla.
 Bessie Captioli Vaughn; Okmulgee, Okla.
 Paul Velen; Olsburg
 Belle Margaret Viers; Manhattan
 Helena Mary Viers; Manhattan
 Zenobia Lenore Vilander; Cleburne

SUMMER SCHOOL—Concluded

Lola Beatrice Vincent; Manhattan	Marie White; Oswego
Velma Elizabeth Vincent; Alden	Abbie Lois Whitney; Manhattan
Emil von Riesen; Marysville	Francis Eugene Wiebrecht; Strong City
Leila Floretta Vosburgh; Macksville	Helen Wieters; Lanham, Neb.
Crystal Louise Wagner; Manhattan	Helena Gertrude Wilber; Belleville
Adelia Lavone Walker; Manhattan	Hypatia Jeanne Wilcox; Wichita
Clarence Dale Walker; Manhattan	Alice Louise Williams; Conway Springs
Diantha Walker; Manhattan	*Archie Clay Williams; Manhattan
Eleanor Irene Walker; Manhattan	Cyrus Vance Williams; Manhattan
Harry Walker; Winfield	Fred Woods Williams; Manhattan
Lewis Earl Walker; Garden City	Lila Williams; Broughton
Niles Hamilton Walker; Winfield	Stella Mae Williams; Olsburg
Walter Francis Walker; Kiowa	Mary Lois Williamson; Independence, Mo.
Dorothy Ellen Wallingford; Horton	John Peter Willman; Manhattan
Helen Laura Walter; Wakefield	Deo Orval Wilson; Manhattan
Grace Tressa Walters; Milford	Earl Jennings Wilson; Assaria
Margaret Emma Walters; Manhattan	Helen Inez Wilson; Eskridge
Earl Dawson Ward; Elmdale	Otis Harold Wilson; Jennings
Grace Ward; Kansas City	Dixie Monroe Wingfield; Junction City
Floraine Ward; Kansas City	Bernice Winkler; Alma
Carnie Gertrude Waters; Blue Rapids	*Claude Winterscheid; Kinsley
Emory Newton Watkins; Manhattan	*Walter Wisnicky; Green Bay, Wis.
Raymond Howard Watson; Kansas City	Izora Harri Wolfe; Manhattan
Virginia Elizabeth Watson; Manhattan	Waldo Deen Wollam; Protection
Jewell Kimball Watt; Topeka	Lloyd Earl Wolverton; Barnes
Lavina Amelia Waugh; Oskaloosa	Chester Stanley Wood; Manhattan
Ella Webb; Kansas City	Glen Ivan Wood; Milan
Arthur Weber; Manhattan	Homer Carlton Wood; Manhattan
Rufus Durkee Webster, Jr.; Dodge City	Jay Roy Wood; Manhattan
Clarissa Jane Weeks; Manhattan	Winifred Wood; Manhattan
Lloyd Sherman Weikal; El Dorado	Laurence Ewalt Woodman; Manhattan
Anna Vera Wells; Wagoner, Okla.	William Ray Woodring; Manhattan
Edna Metz Wells; Raleigh, N. C.	Duane Woodruff; Miltonvale
James Ralph Wells; Manhattan	Genevieve Marguerite Woodruff; Manhattan
Janet Wells; Belleville	Claude Newton Yapple; Rago
Olive Wells; Belleville	*Rochfort Glenn Yapp; Manhattan
Ruth Violet Welsh; Manhattan	Susan Elizabeth Young; Jewell
Lulu Parken Wertman; Morrowville	Freda Alveria Youngquist; Blue Rapids
Mildred Ermine Werts; Republic	Hazel Naomi Youngquist; Blue Rapids
Dorothy Viola Wescott; Phillipsburg	Clara Bryan Yowell; Paola
Nannie Agnes Wesley; Bancroft	Helen Zabel; Manhattan
Vesta Marguerite West; Manhattan	Iscah Marian Zahm; Nortonville
Fred Marion Westbrook; Hutchinson	Otto Zahn; Miltonvale
Earle Westgate; Manhattan	Helen Alice Zeidler; Manhattan
Bernice Vanetta Whipkey; Linn	Eunice Marie Zentner; Garnett
Florence Rilla Whipple; Manhattan	Naomi Zimmerman; Manhattan

August Session

Albert Leroy Berry; Merriam	Hilery Edwin Mather; St. George
Sylvester Ulric Case; Vinland	Ezra Perle Mauk; Havensville
Edward Albert Clawson; Columbus	Charles Marvin Miller; Topeka
Arthur Everett Cook; Holcomb	Paul Leroy Mize; Bonner Springs
Abner Ethan Engle; Chapman	George Montgomery; Sabetha
Robert Alexander Esdon; Manhattan	Carl Otto Nelson; Topeka
William Raymond Essick; Lawrence	John Thomas Pearson; Mankato
Orrie French; Abilene	Ira Lewis Plank; Winfield
William Luther French; Abilene	Lester Boyd Pollom; Topeka
Lawrence Fenn Hall; Cottonwood Falls	Roger Eli Regnier; Pleasanton
Eleanor Watson Hall; Cottonwood Falls	Joseph Homer Richart; Harveyville
William Frances Hearst; Alma	Harry Weber Schaper; Mullinville
Cecil Holmes; Goff	Henry William Schmitz; Manhattan
Charles Wilber Howard; Winona	George Elmer Starkey; Johnson
Loyal Virgil Hunt; Wilmore	Warren Edward Stone; Ford
James Laurence Jacobson; Greensburg	Earl Hicks Teagarden; Nickerson
Fred Franklin Lampton; Medicine Lodge	Robert Lee Welton; Cherokee
John Lowe; Winfield	Oral Martin Williamson; Paxico
Ethel Justin Marshall; Manhattan	

* Under the auspices of the U. S. Veterans' Bureau.

STUDENTS IN SPECIAL COURSES

The abbreviations following the names of students have the following significations: AOSC, automobile operation short course; ARSC, automobile repair short course; ATC, auto-mechanics' trade course; BSC, blacksmiths' short course; BTC, blacksmiths' trade course; CSC, carpenters' short course; CTC, carpenters' trade course; CCSC, commercial creamery short course; ERSC, electrical repair short course; FSC, farmers' short course; FPSC, foundry practice short course; FPTC, foundry practice trade course; HSC, housekeepers' short course; MSC, machinists' short course; MTC, machinists' trade course; TOSC, tractor operators' short course.

Hugo Victor Anderson (CTC); Weir City
Lynn Edward Angell (ATC); Portis
Gladys Lucile Ash (HSC); Roxbury
Marvin Crawford Barkley (MTC);
Manhattan

Grasson Wilson Barnard (FSC); Humboldt
Luther Irwin Barnard (FSC); Humboldt
Walter Becker (CCSC); White City
Mack Bentley (CCSC); Wichita
Joe Gordon Bergen (CCSC); Canon City,
Colo.

Howard Blubaugh (AOSC); Burrton
Tracy Boughton (FSC); Emporia
Glenn Brooks (FSC); Clyde
Emery Otis Brown (FSC); Great Bend
Ray Campbell (FSC); Ames
George Theodore Carls (FSC); Wakarusa
Forrest Francis Chambers (FSC); Winfield
Hugh Chapman (ERSC); Chanute
Emil Nathaniel Christopher (FSC);
McPherson

William Ruben Cook (FSC); Dodge City
Charles Edgar Copeland (FSC); Waterville
Fred Philip Crispell (CCSC); Parsons
Louis James Cunnea (FSC); Plains
Carl Vernon Davison (FSC); Michigan Valley
Katherine Dora Dick (HSC); Burrton
Joe Diehl (FSC); Enterprise
Chester Albert Dine (ERSC); Rose Hill
James Phillip Douglass (MTC); Marysville
Leon Gerald Ellis (ARSC); Friend
Ralph Engel (MSC); Hope
Preston Erwin (BSC); Emporia
Otis Frazier (TOSC); Montezuma
George Frisbie (MTC); Kingman
Russell Edwin Furbeck (FSC); Larned
Milton Wilber Geiger (FSC); Everest
Charles Raymond Gillilan (CCSC);
Manhattan

Roy Goff (ATC); Manhattan
Goldie Rena Gunselman (HSC); Manhattan
Gerhard Fred Harms (FSC); Whitewater
Lewis Harris (ERSC); LaGrande, Ore.
Harry Heine (CSC); Belvue
Helen Henrietta Heusi (HSC); White Cloud
Arnold Hiebert (ARSC); Ingalls
Howard Louis Holt (MTC); Sedan
James Horabls, Jr. (FSC); Irving
Carrie Abigail Jacobson (HSC); Gypsum
George Lawrence James, Jr. (FSC); Mayetta
Russell Everett James (ARSC); Wetmore
Francis Roy Jensen (FSC); Gem
Albert Fred Johannes (FSC); Marysville
Lloyd Olen Johnson (FSC); Wakarusa
Simon Oscar Johnson (MSC); Greenleaf
William Andrew Juergensen (ARSC);
Great Bend

Paul Henry Juencke (ARSC); Farmington
Harvey Kelling (BTC); Cedar
Mae Kelling (HSC); Cedar
Harry Channing Kimball (FSC); Manhattan

Arthur Klein (CCSC); Chanute
Selma Matilda Klein (HSC); Burrton
Charles Henry Knabb (ERSC); Leavenworth
Charles Edward Knop (TOSC); Ellinwood
Viola May Koelliker (HSC); Robinson
Leon Harold Krause (MTC); Council Grove
Loren Lorenzo Larkin (BSC); Haviland
Melvah Ernest Lonker (FSC);
Medicine Lodge

Joe Henry McDonald (ARSC); Goff
Roy McFall (ATC); Terilton, Okla.
Carrie Bell McMahon (HSC); Manhattan
Helen Maurine Martin (HSC); Buffalo
Milton Martin (ATC); Herington
Wallace Yale Mills (FSC); Coggon, Iowa
Harry Lyon Mount (CTC); Paola
Carl Hanson Nordman, Jr. (FSC); Goodland
George James Norrish (MTC); Manhattan
Sylvester Nyhart (ARSC); Atchison
James Manson O'Bryan (CCSC);
Kansas City, Mo.

Joseph Alfred O'Neal (FSC); Tarkio, Mo.
Wendell Osterhoudt (ERSC); Stockville, Neb.
Jack Everett Patchett (ARSC); Coffeyville
Seward Landis Picton (FSC); Hiawatha
Reason James Pinkerton (CCSC); Manhattan
Earl Porter (FSC); Merriam
Wilbur Pritchard (FSC); Dunlap
Loren Rateliff (CSC); Burr Oak
Elizabeth Frances Ratzlaff (HSC);
Moundridge

Willis Mearle Reimer (FSC); Selkirk
Bruce Richardson (ERSC); Ellsworth
Oscar George Rinkel (ATC); Haviland
Leonard LaRue Ritz (FSC); Cawker City
Evelyn Elizabeth Roberts (HSC); Vernon
Chester Schibler (TOSC); Manhattan
William Fred Schild (TOSC); Herington
Kurt Paul Schumann (FSC); Netawaka
Philip William Schwab (ATC); Keats
Valentine Stutz (ARSC); Manhattan
Myron Leland Swanson (MTC); Manhattan
Elliott Rodney Trull (FSC); Padonia
Jesse Lawrence Tyner (CCSC);
Canon City, Colo.

Eddie Vanek (MSC); Garrison
George Theodore Venburg (CCSC);
White City

Ralph Waldo Webber (FSC); Winfield
Jack Evans Wendell (CCSC);
East Portal, Colo.

Mainard Coin Wertz (FSC); Trenton, Neb.
Lewis Edwin Whitney (ARSC); Almena
Paul Herman Wieland (FSC); Clay Center
John Willan (TOSC); Medicine Lodge
Renwick Henry Wilson (ATC); Manhattan
Frank Bridenstine Wing (FSC); Marienthal
Vernon Arthur Wittmer (FSC); Oneida
Claude Arb Wonderlick (FSC); Bloomington
George Walter Wooley (FSC); Osborne

Summary of Attendance, 1925-1926

	M.	W.	Total
Grand totals.....			
Totals.....	M.	W.	Total
Physical Education.....	M.	W.	
Industrial Chemistry.....	M.	W.	
Music.....	M.	W.	
Industrial Journalism.....	M.	W.	
Rural Commerce.....	M.	W.	
General Science.....	M.	W.	
Home Economics.....	M.	W.	
Engineering, Miscellaneous.....	M.	W.	
Mechanical Engineering.....	M.	W.	
Landscape Architecture.....	M.	W.	
Flour-mill Engineering.....	M.	W.	
Electrical Engineering.....	M.	W.	
Civil Engineering.....	M.	W.	
Chemical Engineering.....	M.	W.	
Architectural Engineering.....	M.	W.	
Architecture.....	M.	W.	
Agricultural Engineering.....	M.	W.	
Veterinary Medicine.....	M.	W.	
Agriculture.....	M.	W.	
Senior.....			
Junior.....			
Sophomore.....			
Freshman.....			
Special.....			
Graduate.....			
Trade Courses:			
Auto Mechanics.....			
Blacksmithing.....			
Carpentry.....			
Machinists.....			
Short Courses:			
Automobile Operation.....			
Automobile Repair.....			
Blacksmithing.....			
Carpentry.....			
Electrical Repair.....			
Machine Shop.....			
Tractor Operation.....			
Farmers.....			
Commercial Creamery.....			
Housekeepers.....			
Summer School (1925).....			
Totals.....			
Counted twice.....			
Net totals.....			

* One woman.
† Two women.
‡ Three women.

* One woman.
† Two women.
‡ Three women.

* One woman. † Two women. ‡ Three women.
The above figures include seventeen men who are under the auspices of the United States War Veterans' Bureau.

Students by States and Counties

Arkansas.....	3	Minnesota.....	3	Oregon.....	4
California.....	6	Missouri.....	64	South Dakota.....	2
Colorado.....	10	Montana.....	2	Tennessee.....	2
District of Columbia....	2	Nebraska.....	19	Texas.....	12
Illinois.....	7	New Jersey.....	1	Utah.....	1
Indiana.....	2	New Mexico.....	3	Wisconsin.....	4
Iowa.....	5	New York.....	2	Wyoming.....	3
Kansas.....	3,799	North Carolina.....	2		
Massachusetts.....	1	Ohio.....	2	Total.....	4,002
Michigan.....	1	Oklahoma.....	40		

FOREIGN COUNTRIES.

Argentina, S. A.....	1	India.....	1	South Africa.....	2
Brazil, S. A.....	1	Mesopotamia.....	1		
Canada.....	2	Mexico.....	2	Total.....	17
Chile.....	1	Palestine.....	1		
Egypt.....	1	Philippine Islands.....	4	Grand total...	4,019

KANSAS COUNTIES.

Allen.....	26	Greenwood.....	31	Phillips.....	35
Anderson.....	15	Hamilton.....	9	Pottawatomie.....	68
Atchison.....	30	Harper.....	34	Pratt.....	15
Barber.....	24	Harvey.....	30	Rawlins.....	6
Barton.....	38	Jackson.....	55	Reno.....	82
Bourbon.....	11	Jefferson.....	29	Republic.....	61
Brown.....	41	Jewell.....	49	Rice.....	24
Butler.....	48	Johnson.....	27	Riley.....	1,005
Chase.....	30	Kearny.....	2	Rooks.....	12
Chautauqua.....	17	Kingman.....	10	Rush.....	7
Cherokee.....	22	Kiowa.....	14	Russell.....	21
Clark.....	11	Labette.....	21	Saline.....	67
Clay.....	65	Lane.....	1	Scott.....	10
Cloud.....	51	Leavenworth.....	20	Sedgwick.....	106
Coffey.....	20	Lincoln.....	26	Seward.....	16
Comanche.....	16	Linn.....	8	Shawnee.....	118
Cowley.....	29	Logan.....	8	Sheridan.....	1
Crawford.....	14	Lyon.....	36	Sherman.....	11
Decatur.....	19	McPherson.....	37	Smith.....	33
Dickinson.....	100	Marion.....	33	Stafford.....	31
Doniphan.....	19	Marshall.....	93	Stanton.....	1
Douglas.....	13	Meade.....	8	Stevens.....	5
Edwards.....	12	Miami.....	14	Sumner.....	42
Elk.....	8	Mitchell.....	31	Thomas.....	9
Ellis.....	16	Montgomery.....	26	Trego.....	5
Ellsworth.....	16	Morris.....	26	Wabaunsee.....	49
Finney.....	18	Morton.....	3	Washington.....	59
Ford.....	38	Nemaha.....	23	Wichita.....	7
Franklin.....	10	Neosho.....	23	Wilson.....	20
Geary.....	46	Ness.....	14	Woodson.....	15
Gove.....	12	Norton.....	34	Wyandotte.....	90
Graham.....	10	Osage.....	33		
Grant.....	2	Osborne.....	42	Total.....	3,799
Gray.....	8	Ottawa.....	33		
Greeley.....	1	Pawnee.....	28		

College Enrollment, 1925-1926

THE DIVISION.	Men.	Women.	Total.
The Division of Agriculture	483	2	485
Graduate students.....	50	.....	50
Seniors.....	54	1	55
Juniors.....	57	.....	57
Sophomores.....	92	1	93
Freshmen.....	165	.....	165
Special students.....	13	.....	13
Short-course students.....	52	.....	52
The Division of Veterinary Medicine	60	.....	60
Graduate students.....	1	.....	1
Seniors.....	9	.....	9
Juniors.....	12	.....	12
Sophomores.....	15	.....	15
Freshmen.....	23	.....	23
Special students.....	.....	.....	.....
The Division of Engineering	1,015	3	1,018
Graduate students.....	27	.....	27
Seniors.....	89	.....	89
Juniors.....	167	.....	167
Sophomores.....	202	1	203
Freshmen.....	478	1	479
Special students.....	6	1	7
Trade-course students.....	17	.....	17
Short-course students.....	29	.....	29
The Division of Home Economics.....	.....	578	578
Graduate students.....	.....	32	32
Seniors.....	.....	85	85
Juniors.....	.....	94	94
Sophomores.....	.....	135	135
Freshmen.....	.....	217	217
Special students.....	.....	3	3
Short-course students.....	.....	12	12
The Division of General Science	764	551	1,315
Graduate students.....	44	28	72
Seniors.....	62	44	106
Juniors.....	96	86	182
Sophomores.....	157	122	279
Freshmen.....	370	240	610
Special students.....	35	31	66
The Summer School	410	537	947
Totals.....	2,732	1,671	4,403
Counted twice.....	204	180	384
Net totals	2,528	1,491	4,019

Record of Attendance, 1863-1926

	Advanced degrees †.....	Graduated.....	Total.....	Counted twice.....	Graduate.....	Senior.....	Junior.....	Sophomore.....	Freshman.....	Vocational school.....	Subfreshman.....	Preparatory.....	Special.....	Apprentice.....	Farmers' short course.....	Dairy short course.....	Commercial Creamery short course.....	Housekeepers' short course.....	Summer school.....
1863-'64..		107	107						14			93							
1864-'65..		113	113					8	14			90							
1865†....		150	150					5	28			112							
1866-'67..		178	178					7	11			154							
1867-'68..		168	168																
1868-'69..		170	170																
1870-'71..		194	194					2	13			164							
1871-'72..		202	202					3	22			162							
1873†....		*217	217																
1873-'74..		183	183						24			136							
1874-'75..		143	143						26			103							
1875-'76..		232	232																
1876-'77..		234	234																
1877-'78..		150	150					5	42			75							
1878-'79..		207	207					16	89			1							
1879-'80..		276	276					35	166			1							
1880-'81..		267	267					24	178			6							
1881-'82..		312	312					19	227			5							
1882-'83..		347	347					11	241			4							
1883-'84..		395	395					26	255			2							
1884-'85..		401	401					16	271			2							
1885-'86..		428	428					24	273			1							
1886-'87..		481	481					44	303										
1887-'88..		472	472					27	305										
1888-'89..		445	445					28	266										
1889-'90..		514	514					28	307			1							
1890-'91..		593	593					53	343										
1891-'92..		584	584					37	336										
1892-'93..		587	587					43	339										
1893-'94..		555	555					72	275										
1894-'95..		572	572					64	276			5							
1895-'96..		647	647					71	353			3							
1896-'97..		734	734					62	321			6							
1897-'98..		803	803					77	316			15							
1898-'99..		870	870					65	306			35							
1899-1900..		1,094	1,094					69	376			50							
1900-'01..		1,321	1,321					40	348			23							
1901-'02..		1,396	1,396					62	396			19							
1902-'03..		1,574	1,574					86	471			36							
1903-'04..		1,605	1,605					114	403			33							
1904-'05..		1,462	1,462					26	289			30							
1905-'06..		1,690	1,690					30	373			46							
1906-'07..		1,937	1,937					24	411			48							
1907-'08..		2,192	2,192					26	450			42							
1908-'09..		2,308	2,308					28	491			42							
1909-'10..		2,305	2,305					26	456			87							
1910-'11..		2,407	2,407					34	533			94							
1911-'12..		2,523	2,523					44	337			85							
1912-'13..		2,928	2,928					50	444			129							
1913-'14..		3,027	3,027					64	516			112							
1914-'15..		3,091	3,091					50	560			120							
1915-'16..		3,314	3,314					76	484			175							
1916-'17..		3,340	3,340					68	422			171							
1917-'18..		2,406	2,406					36	231			119							
1918-'19..		2,991	2,991					34	216			160							
1919-'20..		3,352	3,352					43	224			354							
1920-'21..		3,395	3,395					42	280			270							
1921-'22..		3,560	3,560					125	221			297							
1922-'23..		3,626	3,626					118	220			163							
1923-'24..		3,812	3,812					475	167			161							
1924-'25..		4,031	4,031					486	47			139							
1925-'26..		4,019	4,019						1494			89							

* Estimated. † Calendar year. ‡ Incomplete data.

Home Study Students

(Instruction by Correspondence)

For the year November 1, 1924, to November 1, 1925, those enrolled numbered 930. This did not include 3,500 persons who took other work such as reading courses.

In the following list those taking college courses are indicated by (C), those taking high-school courses by (H), and those taking vocational courses by (V).

- Acree, George (C); Manhattan
 Adams, Amy (H); Whitewater
 Allard, Henry W. (C); Manhattan
 Aldrich, Charles T. (H); Norton
 Allen, Donald R. (C); Wichita
 Allen, Hazel (H); Garrison
 Allerton, F. R. (H); Manhattan
 Ambler, Ellen Hall (C); Wellington
 Amiss, Daisy (H); Wamego
 Anderson, Carl (H); Waterville
 Anderson, Eunice (C); Phillipsburg
 Anderson, Harlow (C); Linwood
 Anderson, D. H. (C); Manhattan
 Anderson, Harold E. (V); Blakeman,
 Anderson, Joe (C); Salina
 Anderson, Mabel (C); Hunter
 Anderson, Mae (C); Logan
 Anderson, Pearl (H); Osage City
 Andrick, Lester (H); Onaga
 Angell, Lynn (H); Portis
 Andrews, Lottie (C); Junction City
 Annis, Ester (C); Solomon
 Arnold, Alfred L. (C); Manhattan
 Artley, Dorsey (V); Independence, Mo.
 Aylard, John William Clark (C);
 Brunswick, Ohio
 Bachelder, Ruth (C); Manhattan
 Bacon, Mary F. (C); Maryville, Mo.
 Bailey, Charlotte (C); Topeka
 Baker, Stella Iva (C); Haviland
 Baker, Elsie Jessie (H); Haviland
 Bales, Esther (C); Manhattan
 Barr, Grace H. (C); Manhattan
 Barr, Fern (H); Manhattan
 Bare, Nora E. (C); Manhattan
 Banta, Howard (C); Oberlin
 Barkmann, Eda (C); Junction City
 Barkley, Marion C. (C); Manhattan
 Barnett, Dahy B. (C); Manhattan
 Bassett, Capitola B. (C); Manhattan
 Barnes, Ethel (C); Morrowville
 Barshisel, Ruth (C); Wichita
 Baxter, Mrs. Laura (C); Manhattan
 Beachel, Esther (C); Norcatu
 Beazle, Mrs. Lillian S. (C); Salina
 Beckey, Neva (C); Salina
 Beedle, F. H. (H); Stapleton, Neb.
 Bell, R. W. (C); Kinsley
 Bellairs, D. E. (C); Niotaze
 Bellcour, Paul P. (V); White Earth, Minn.
 Belt, Carl (H); Eskridge
 Bernheisel, Catherine (C); Manhattan
 Benne, Dora (H); Morrowville
 Benjamin, Grace, M. (C); Kansas City, Mo.
 Beougher, Mrs. G. D. (H); Manhattan
 Bergur, E. E. (C); Salina
 Bergstrom, Lawrence (H); Osage City
 Berthelseon, J. G. (H); Herington
 Beyer, Gladys (C); Hope
 Beyer, Leola (C); Arrington
 Biehn, A. L. (C); Hebron, Neb.
 Bilger, Gladys (C); Hunter
 Billings, Ada (C); Manhattan
 Birket, Frances (H); Partridge
 Blackledge, Ralph (C); Sheridan, Wyo.
 Blanchard, Werner (C); Manhattan
 Blain, Donald (H); Manhattan
 Blank, Lester M. (C); Topeka
 Bloomer, Mrs. O. G. (C); Coffeyville
 Bogart, Edith (H); Norton
 Boid, Pearl (C); Culbertson, Mont.
 Bond, Geo. T. (C); Oil Hill
 Bonfield, J. P. (C); Elmo
 Bottenfield, Leo D., (V); Joplin, Mo.
 Bower, Gerald (H); Norton
 Bower, Irene (C); Norton
 Bower, Emogene (C); Santa Barbara, Cal.
 Bradley, Ada P. (H); Manhattan
 Brandly, Lillie (C); Manhattan
 Brant, Vera (C); Morrowville
 Brandt, Elmer (H); Hill City
 Brandejsky, Frank (C); Severy
 Braun, Miltin (V); Dallas, Tex.
 Brickey, B. E. (C); Elgin
 Boadley, Earl H. (C); Winfield
 Brenner, Mariam E. (C); Waterville
 Bressler, Elizabeth (C); Manhattan
 Broadbent, Phyllis (H); Corning
 Brown, Blanche (C); Manhattan
 Brown, H. H. (C); Edmond
 Brown, M. O. (C); Larned
 Brown, Orpha (C); Edmond
 Brown, Ralph E. (C); Salina
 Brown, Ralph I. (H); Hutchinson
 Brown, Rowena (C); Alta Vista
 Brown, Victorine (H); Norton
 Brownlee, Frank (C); Zenith
 Brockway, H. A. (C); Olathe
 Brubaker, Randall (H); Neodesha
 Brune, Willis E. (H); Linwood
 Brunson, Robert A. (H); Manhattan
 Bryan, Hugh C. (C); Partridge
 Buchanan, Willa Lois (C); Coldwater
 Bucknell, Wilma Mae (C); Olathe
 Burch, Wayne (H); Manhattan
 Burditt, A. N. (C); Ness City
 Burgin, Geo. W. (C); Lawrence
 Burge, K. A. (C); Fort Scott
 Burton, Raymond G. (C); Manhattan
 Bruckner, Wm. (H); Burlington
 Butler, O. P. Farmington
 Caldwell, Sadie (C); Broughton
 Calkins, C. H. (C); Pueblo, Colo.
 Campbell, Arden (C); Wilsey
 Campbell, Oren (C); Cimarron
 Campbell, Ruth (C); Cimarron
 Carter, Doyle, (C); Trenton, Mo.
 Carter, H. B. (C); Vinita, Okla.
 Carlson, Emery W. (H); Garrison
 Carlson, Laura P. (C); Atwood
 Carman, Lucille (C); St. Francis
 Carney, Virginia (C); Manhattan
 Case, Glen M. (C); Cherryvale
 Cary, H. N. (C); Manhattan
 Chambers, Donald (H); Cleburne
 Chappell, Kenneth (C); Manhattan
 Chase, Clarence H. (C); Manhattan
 Chase, Esther (C); Protection
 Child, Anna (H); Longford
 Clark, Florence (C); Rock
 Clark, Helen (C); Valley Center
 Clark, Frank (H); Junction City

HOME STUDY STUDENTS—Continued

- Clark, Ralph O. (C); Junction City
 Clear, Arthur E. (V); Blue Rapids
 Coffman, Clarence (H); Manhattan
 Coffman, Margaret (H); Leocompton
 Coffman, Melvin C. (C); Wakefield
 Colaw, Mable L. (C); Cherryvale
 Cole, W. D. (C); Topeka
 Coleman, Erma (C); Mayetta
 Coleman, Florence (C); Goddard
 Colwell, Gwendolyn (C); Manhattan
 Combs, Leslie (C); Manhattan
 Conaway, Clarence (H); Goff
 Conaway, Alpha (C); Medicine Lodge
 Conner, William (C); Clayton
 Connolly, M. J. (H); Manhattan
 Cook, Helen E. (C); Manhattan
 Conrad, Ralph (V); Osceola, Mo.
 Conley, Annabel J. (H); Wilson
 Cooke, Earnest (H); Emporia
 Cool, Vincent (C); Chautauqua
 Cornue, Golda (H); Elk City
 Coyle, Francis (H); Manhattan
 Coyle, Lila (C); Wichita
 Cox, Alice (C); Mulberry
 Cox, Louise (H); Bucklin
 Cox, Wayne (C); Harveyville
 Cox, John (C); Assaria
 Craft, Hazel (C); Blue Rapids
 Craft, Frank (C); Haddam
 Craig, Judith B. (C); Manhattan
 Crannell, Max (C); Manhattan
 Crews, C. E. (C); Elk, Falls
 Crissman, Nettie E. (C); Junction City
 Crowley Claude S. (V); Chicago, Ill.
 Cummings, Elizabeth O. (C); Tulsa, Okla.
 Currie, Beth (C); Manhattan
 Curtis, Anna B. (H); Osage City
 Cyr, Hazel M. (H); Aurora
 Dale, Lee Edwin (H); Ellinwood
 Daniels, Imogene (C); Caney
 Danheim, May (C); Blue Rapids
 Dannecker, Jack (H); Bucklin
 Davis, Dollie (C); Altamont
 Davis, Bessie (H); Junction City
 Davis, Daisy (C); Cawker City
 Davis, Harold (V); Norton
 Davis, Jannett (C); Franklin
 Davis, Norma (C); Frankfort
 Davies, L. H. (C); Manhattan
 Davis, Rex (C); Madison
 Davis, Lyle H. (C); Tescott
 Dalrymple, Eugene (C); Manhattan
 Decker, Reuben (V); Hutchinson
 Deibler, Orville (C); Kansas City, Mo.
 Dettmer, I. G. (C); Bushong
 Devereux, Margaret E. (C); Ottawa
 Dickerson, Edward (C); Parsons
 Diers, Herman (C); Kinsley
 Dimmitt, H. A. (C); Manhattan
 Dittemore, Louis (C); Manhattan
 Dizmang, Oscar K. (C); Manhattan
 Doudna, Norton (C); Lees' Summit, Mo.
 Dominy, Chas. E. (C); Ludell
 Doyle, Mildred (C); Clay Center
 Dresser, Opal (H); Leavenworth
 Driscoll, Jimmy (H); Dorrance
 Drown, Evelyn (H); Manhattan
 Drown, Irene (C); Manhattan
 Dugan, Eathel (H); Bucklin
 Dunn, Zula (H); Manhattan
 Durham, H. I. (C); Manhattan
 Dwelly, Doris (C); Manhattan
 Dymrna, Sister M. (C); St. Paul
 Eastwood, Ethel (C); Independence, Mo.
 Eberhart, Ida M. (C); Alma
 Edwards, L. S. (V); Oswego
 Egger, Bertha (C); Ellis
 Eggleston, A. D. (H); Burns
 Elder, Harold C. (C); Mankato
 Elder, Loren (H); Beloit
 Ellis, Geo. F. (C); Manhattan
 Emerson, Irene (C); Coldwater
 Endsley, Opal M. (C); Manhattan
 Enns, Karl C. (C); Inman
 Enos, Julia (H); Fort Riley
 Epperson, Bernice (H); Miltonvale
 Ernst, Lyle Wayne (H); Manhattan
 Essau, Marie (H); Inman
 Esau, Kathryn (C); Inman
 Etrick, Milo M. (C); Dodge City
 Evans, Kennis (C); Soldier
 Everhardy, Louise (SC); Manhattan
 Farr, Glen (H); Waldo
 Farrington, Malcolm (H); Manhattan
 Farrell, Louis, Jr. (H); Fort Leavenworth
 Farrell, Stewart (C); Manhattan
 Fast, Mary (C); Potwin
 Fattig, Josie (H); Stapleton, Neb.
 Faubion, Ina Mae (C); Solomon
 Faulconer, Kitty (SC); Manhattan
 Faulconer, Ruth (C); Manhattan
 Fay, John A. (V); Seattle, Wash.
 Faith, Frances (C); Salina
 Farmer, J. A. (C); St. Joseph, Mo.
 Ferris, G. E. (C); Manhattan
 Ferguson, Ester L. (H); Jasper, Mo.
 Fields, Glenn (H); Manhattan
 Finney, D. A. (C); Topeka
 Flick, Mark H. (C); Manhattan
 Fletcher, H. M. (H); Salina
 Fitzgerald, John (H); Marysville
 Fogo, Violet (C); Burr Oak
 Fogo, Verda (C); Burr Oak
 Foltz, V. D. (C); Belle Plaine
 Ford, Violet (H); Manhattan
 Ford, Merle (C); Linwood
 Foster, Margaret (C); Manhattan
 Foulk, Vernon W. (H); Turon
 Francis, Rebecca L. (C); Westmoreland
 Franz, Ella (C); Manhattan
 Freid, Virgil (H); Osage City
 Freisen, John D. (H); Buhler
 Frey, Wayne (C); Manhattan
 Frye, Bethel (H); Formoso
 Furness, Gladys (C); Rantoul
 Gargatto, Joseph (H); Leavenworth
 Gardner, Raymond E. (C); Lawrence
 Garlock, Karleen (C); Kansas City, Mo.
 Garrett, Russell (H); Norton
 Garrard, Leland (H); Severy
 Garvin, Evelyn (C); Lawrence
 Gaston, Jerry (H); Manhattan
 Gates, Lloyd A. (C); Downs
 Geffert, Bessie (C); Manhattan
 Geffert, Harriet (C); Manhattan
 Gere, Mrs. Edith (V); Pretty Prairie
 German, Harvey (C); Little River
 German, Henry I. (C); Fairview
 German, Loy (H); Preston
 Glass, Susie (C); Winfield
 Glassburn, Estella (H); Freeport
 Gilliam, Crawford (H); Mullinville
 Gilbert, Clair V. (H); Broadwater, Neb.
 Girlinghouse, Philip C. (V); Summerville, La.
 Glover, Edwin K. (H); Manhattan
 Givin, G. W. (C); Manhattan
 Given, Kingsley W. (C); Manhattan
 Goodyear, Ellsworth (C); Wichita
 Gray, Arthur (C); Wichita
 Green, Mrs. Ruth (C); Jewell City
 Greene, Helen (C); Beverly
 Grieve, Gertrude (SC); Wamego
 Gresser, Letha (C); Wakefield
 Griffiee, Kenneth (H); Blue Rapids
 Griffith, L. M. (C); Greeley, Colo.
 Grimes, James I. (H); Kansas City, Mo.
 Grinstead, Merle (C); Mulvane

HOME STUDY STUDENTS—Continued

- Grinstaff, Thora (H); Scottsville
 Hackler, Lydia (H); Chanute
 Haden, Clyde D. (H); Blue Rapids
 Hager, Hazel (H); Waterville
 Hahn, Merle (H); Norton
 Hall, Rev. Fred E. (C); Randolph
 Hall, Mamie (C); Augusta
 Halladay, Iva (C); Wright
 Halbower, Kenneth (C); Manhattan
 Hammond, Jamal (C); Manhattan
 Hammond, Clarence (C); Ulysses
 Hamilton, Cecile (C); Topeka
 Hampson, Walter L. (C); Ft. Madison, Ia.
 Humpy, Clarence R. (H); Bucklin
 Humpy, Irene (H); Bucklin
 Handlin, Doris (H); Riley
 Hanlin, Alice (H); Manhattan
 Hanna, Eva (C); Centralia
 Hardy, Zella (H); Haviland
 Harms, William F. (C); Whitewater
 Hanson, Floyd V. (C); Manhattan
 Hanson, Maurine (C); Manhattan
 Harris, Florence (C); Manhattan
 Harris, Mabel (C); Woodward, Okla.
 Harrington, C. L. (C); Parsons
 Hartwig, Nelle (C); Goodland
 Hardin, N. Carl (C); Kasson, W. Va.
 Haskard, Richard (C); Hutchinson
 Hatteberg, Evelyn May (H); Winfield
 Hauser, Leonard A. (C); Emporia
 Hayes, Helen (H); Norton
 Hays, Gerald (C); Ozark, Mo.
 Hays, John (C); Junction City
 Haymond, Ferne (C); Burdett
 Hawkins, Gladys (C); Tampa
 Hawkins, Inza (H); Quincy
 Hawley, Florence E. (C); Garrison
 Heath, Lucile (C); Wakefield
 Heath, Minnie (C); Manhattan
 Heller, Roe (C); Detroit
 Helwig, Flora G. (C); Kansas City
 Heinbach, Paul (C); Neodesha
 Heinz, Loretta (H); Ellinwood
 Henderson, Lillian (C); Haddam
 Henry, John (C); St. Francis
 Herr, Floyd F. (C); Manhattan
 Hess, Katharine (C); Manhattan
 Hewett, Elzoe R. (C); Wellsville
 Higbee, Howard Wm. (C); Climax
 Highfall, Anna (H); Sylvia
 Hill, Paul L. (H); Manhattan
 Hill, Gaylord F. (H); Chapman
 Hirt, Blanche (C); Parkerville
 Hilton, Emma (C); Caney
 Hinden, Earl L. (C); Strong City
 Hines, Lois (H); Norton
 Hinds, Geo. W. (C); Pleasanton
 Hinnen, Mildred (C); Potwin
 Hinshaw, Foster A. (C); Manhattan
 Hnizda, Edwin (H); Blue Rapids
 Hobbie, Mrs. Eva (H); Dodge City
 Hobbs, Alvin F. (H) Rolla
 Hoelzel, Carl (C); Manhattan
 Hoerman, Louise (H); Junction City
 Holderman, Noah (H); Hesston
 Holladay, Iva L. (C); Wright
 Howe, Doris (C); Union Star, Mo.
 Howe, Oren (C); Manhattan
 Howell, Helen H. (C); Kansas City, Mo.
 Howard, Rachel Esther (H); Pratt
 Horne, Myrtle E. (C); Alma
 Hooven, Bernice (C); Westmoreland
 Howard, Carl L. (C); Larned
 Howard, Marjorie (C); Centerville
 Horlacher, Mabel (C); Colby
 Houston, Harris (C); Potwin
 Hoynckaki, Jos. F. (V); Tomahawk Lake, Wis.
 Hubbard, Ruth G., (C); Enterprise
 Huffman, Melba (H); Beloit
 Hughes, Marie (C); Manhattan
 Hugunin, V. L. (C); Kirwin
 Hulett, Dorothy (C); Merriam
 Humphrey, Helen L. (C); Manhattan
 Huntington, C. C. (C); Manhattan
 Hurst, Glade (H); Padonia
 Hutcheson, Harland (H); Oakhill
 Hutchinson, Ozeta (C); Canton
 Hunter, Adda A. (C); Eureka
 Huston, Susie K. (C); Manhattan
 Hyde, Margaret (H); Kansas City
 Hyndman, Mrs. Perle L. (SC); Fort Riley
 Ingwersen, James (H); Le Roy
 Insley, Pearl (H); Manhattan
 Ioeiger, Dariell (H); Harper
 Irwin, Ralph A. (C); Manhattan
 Israel, Floyd E. (C); Le Roy
 Jackman, Harry F. (H); Minneapolis
 Jackson, Mildred (C); Powersville, Mo.
 James, Arthur (C); St. Charles, Mo.
 James, Harold (C); Topeka
 Janes, Ethel (C); Kansas City
 Jarvis, Elsie (C); Kansas City
 Jennings, Lulu (C); Greenwood, Mo.
 Jones, Eunice (H); Eldora, Iowa
 Jones, Mary Josephine (H); Leavenworth
 Jones, Zardus (C); Manhattan
 Jones, Edwin (V); Topeka
 Jones, Florence (C); Nara Visa, N. Mex.
 Jolley, Sara V. (C); Manhattan
 Johnson, Herbert (H); Manhattan
 Johnson, Leora C. (C); Brookville
 Johnson, Challice A. (C); Phillipsburg
 Johnson, Geo. G. (C); Altamont
 Johnson, Frankie (SC); Wamego
 Johnson, Beryl (C); Olsburg
 Johnson, R. B. (C); Salina
 Johnson, El Delle (C); Olsburg
 Johnson, Milo H. (C); Manhattan
 Johnson, E. L. (C); Randolph
 Johnson, Lillie (C); Walsburg
 Johnson, Earl (C); Norton
 Johnson, Glenn (C); Charles City, Iowa
 Johnson, Bernarl (H); Olsburg
 Johnston, Alice (C); Irving
 Johnston, Harold (C); Manhattan
 Jordan, Grace (SC); Manhattan
 Jussip, John (V); Royalton, Minn.
 Kahn, Brighton A. (C); Emporia
 Kahler, Mary (SC); Wamego
 Kearns, Arthur K. (V); Madison, Wis.
 Kearns, G. Clark (H); Girard
 Kearnes, Alberta (H); Auburn, Neb.
 Keath, Mary Lee (C); Chillicothe, Mo.
 Kellogg, Robert (C); Manhattan
 Kellogg, Floyd M. (H); Lebanon
 Kelly, L. E. (C); Newton
 Kelly, Amy (C); Manhattan
 Kendall, Hazel (H); Sylvan Grove
 Kenison, C. H. (C); Solomon
 Kerr, John (C); Regina, N. Mex.
 Kesler, Bessie M. (C); Altamont
 Keefer, L. E. (C); Paola
 Kiddo, Julia (C); Independence
 Kiehl, Doris Mae (C); Franklin
 Kiene, Mrs. Julia (C); Topeka
 Kimball, Marjorie (C); Manhattan
 King, Kathryn (C); Manhattan
 Kirkpatrick, B. R. (C); Manhattan
 Klein, G. T. (C); Manhattan
 Knecht, Jacob W. (V); Bismark, N. Dak.
 Kneeland, Milie (C); Kismet
 Kleinenberg, T. W. (H); Manhattan
 Kleinman, Henry (H); Scohey, Mont.
 Knoch, Norma (C); Lincoln
 Knouse, Joyce (H); Valley Falls
 Knox, Fern (C); South Haven
 Koerner, W. (C); Manhattan
 Kollar, S. (C); Manhattan

HOME STUDY STUDENTS—Continued

- Koster, John (H); Manhattan
 Koster, Aloysius (H); Manhattan
 Krost, Clara (C); Manhattan
 Krone, Ida Maye (H); Delphos
 Kruse, Fred H. (V); Brook Park, Minn.
 Kuiken, Walter (C); Glen Elder
 Laman, Vanda (C); Portis
 Lampe, Anna M. (H); Spearville
 Larmer, Florence (C); Courtland
 Larson, Walter N. (V); Vilas, S. Dak.
 Lancaster, Ruth (C); Strong City
 Langford, R. C. (C); Manhattan
 Lansing, James W. (C); Hutchinson
 LaSourd, Keith H. (V); Union Mills. Ind.
 Lauchland, Agnes (C); Nash, Okla.
 Laughlin, Chester (H); Manhattan
 Layman, Olive (C); Kingman
 Layman, Howard (H); Arlington
 Layman, Frances (C); Kingman
 Lathrop, Donald E. (C); Manhattan
 Learned, Wilmer (C); Zenith
 Lear, Claud (H); Rago
 Leatherman, John (H); Moundridge
 Lee, Mary (C); Manhattan
 Lee, Paul A. (C); Bonner Springs
 LeFevre, Hilda (H); Norton
 Lehman, Glenn (C); Manhattan
 Leichter, Cecil (H); Norton
 Leonard, J. M. (C); Newton
 Leu, Esther (H); Valley Falls
 Leyerle, Mrs. Nina B. (C); Joplin, Mo.
 Lilly, Laveda (C); Manhattan
 Linden, Carl (V); Ogilvie, Minn.
 Linn, L. E. (V); Bridgeport
 Linscheid, Elmer (H); Abbyville
 Linscheid, Harold (H); Abbyville
 Lippincott, Aulerey E. (C); Fort Riley
 Little, Mack O. (C); Hopewell
 Lockard, Hilda E. (H); Littlerock, Cal.
 Logan, Charles (C); Eskridge
 Long, Charles E. (C); Manhattan
 Lorimer, Catharine (C); Kansas City, Mo.
 Loser, August (V); Eagle Bend, Minn.
 Loy, Mildred (C); Barnes
 Lund, Curtis (C); Lasita
 Lundberg, Charles (V); Kansas City, Mo.
 Lundquist, Maybelle (H); Osage City
 Lutz, Elsie (H); Sharon Springs
 Machmer, Bernice (C); Wakefield
 Mack, Howard (H); Ottawa
 Madsen, H. L. (C); Manhattan
 Magaw, Elden S. (C); Ames
 Magaw, Donald J. (C); Downs
 Mailen, Clarinda Phyllis (C); Cottonwood Falls
 Mann, Herbert (H); Blue Rapids
 Manning, Oleva (C); Peabody
 Manley, Algie (V); Albertville, Ala.
 May, Delila (H); Aetna
 Matlack, Leland (H); Burrton
 Matoush, Mabel (C); Holyrood
 Maschesseault, Charles (C); Junction City
 Marshall, R. R. (C); Clifton
 Markley, L. W. (V); Topeka
 Martin, Martina (C); Converse, Mo.
 Martin, Helen (C); Wellington
 Martin, C. A. (C); Abilene
 McCord, Irene (C); Manhattan
 McCoy, J. M. (C); Miltonvale
 McClure, Evangeline L. (H); Bristol, Colo.
 McComb, Nelle (C); Riverside, Cal.
 McCracken, Olive (H); Sylvan Grove
 McCracken, Sidney A. (C); White Cloud
 McCray, Claude (H); Cherokee
 McCoppin, Grace (C); Phillipsburg
 McCullough, John (H); Belleville
 McBurney, Everett (H); Penalosa
 McCormack, Benton (H); Wellington
 McDaniel, L. S. (C); Kasson, W. Va.
 McGee, Estella L., (H);
 Colorado Springs, Colo.
 McGrath, John J. (C); Holton
 McGregor, Tom (H); Solomon
 McIntosh, C. O. (C); Laporte, Colo.
 McKee, Bernice (C); Rexford
 McKee, Mary (H); Norton
 McKibban, H. E. (V);
 College Station, Ark.
 McLain, Mrs. Rebecca (C); Scranton
 McKimms, George (C); Manhattan
 McKinney, Florence (C); Great Bend
 McLeod, Ethel Mae (H); Marysville
 McLeod, Nellie (H); Osage City
 McMahon, George R. (H); Manhattan
 McMahan, Vesta (C); Kingman
 McMullen, Mildred (C); Norton
 McNay, Helen (C); Manhattan
 McNulty, Mrs. W. F. (C); Stockton
 Mead, Nora (C); Smith Center
 Mears, Paul (C); Beloit
 Meils, Earl (C); Manhattan
 Melia, Bernard I. (C); Ford
 Meyer, Allegra V. (H); Junction City
 Mercer, Clarence (H); Manhattan
 Miller, Irene (C); Galva
 Miller, Rosa C. (H); Abilene
 Miller, Hazel (C); Lincoln
 Miller, Marie M. (C); Whitewater
 Miller, Rosa L. (C); Whitewater
 Miller, Howard C. (H); Valley Falls
 Miller, M. B. (C); Manhattan
 Miller, Mrs. Jane (V); Muscotah
 Misbach, Cora A. (C); Wichita
 Montgomery, George (C); Manhattan
 Montgomery, Blanche (H); Newton
 Moore, Mildred (C); Manhattan
 Moore, H. A. (C); Manhattan
 Moore, Hazel Lee (C); Protection
 Moore, Cecil (H); Manhattan
 Moore, Myrl (H); Blue Rapids
 Morgan, Archie LeRoy (C); Emporia
 Morgan, A. R. (C); Topeka
 Morris, Dale (H); Medicine Lodge
 Morris, Paul (C); Alta Vista
 Moyer, James H. (C); Holton
 Mueller, Major F. (C); Charles City, Iowa
 Mulvey, Florence (C); Rogers, Ark.
 Murphy, Hannah Bridget (C); Perth
 Murry, Scott (H); Elkhart
 Myers, Frank L. (C); Junction City
 Myers, Joyce (C); Slvia
 Myers, Robert (C); Salina
 Nass, V. W. (C); Manhattan
 Needham, Mildred (H); Oswego
 Neer, Eugene (V); Charleston, Ill.
 Neibling, Thos. C. (H); Hiawatha
 Neilson, Mrs. Lillian W. (SC); Fort Riley
 Nelson, Chrystal (H); Manhattan
 Nelson, Lillian (H); Osage City
 Nelson, R. D. (V); Jamestown
 Nesbitt, Leafy J. (C); Mapleton
 Newman, Besse (C); Elgin
 Newson, Paul (H); Norton
 Nielson, Gladys (SC); Manhattan
 Nidever, Mrs. Clara (C);
 Tucumcari, N. Mex.
 Nielson, C. O. (C); Independence
 Nieman, K. W. (C); Muskogee, Okla.
 Noble, Aline (H); Bartlett
 Noll, L. A. (C); Louisville
 Norris, Edith (C); Whitewater
 Norton, Lawrence (C); Kalvesta
 Noyce, Harold A. (C); Manhattan
 Nowland, Marie (C); Axtell
 Nuttle, Mary E. (C); Lawrence
 Nuttal, Thos. C. (V); Lake Villa, Ill.
 Nuzman, Loren M. (C); Holton
 Nystrom, Mrs. Persis (C); Norton

HOME STUDY STUDENTS—Continued

- Obrecht, R. G. (C); Topeka
 O'Donnell, Frances (H); Green
 Oerke, Marie (C); Neodesha
 Oesterreich, Alvin (H); Woodbine
 Olson, Alice E. (H); Manhattan
 Olson, Elmo (H); Manhattan
 Osborne, Opal (C); Hutchinson
 Osborn, Daisy Marietta (C); Elmont
 Overbay, LeClaire (C); Chanute
 Owens, Bessie (C); Kansas City, Mo.
 Pankratz, Edward (H); Lehigh
 Parker, N. (C); Nara Visa, N. Mex.
 Parker, Lucille (C); Leavenworth
 Parlin, Paul H. (V); St. Paul, Minn.
 Parshall, Homer L. (C); Manhattan
 Parry, W. T. (C); Paxico
 Patton, Mabel (C); Chase
 Patton, Richard D. (C); Newtno
 Payne, James Ernest (C); Manhattan
 Paul, C. L. (H); Eskridge
 Percival, Gladys A. (H); Wilson
 Peck, Ruth (C); Beatrice, Neb.
 Penn, Kate M. (C); Broken Arrow, Okla.
 Pennell, Beulah (C); Junction City
 Pennell, Corda (C); Junction City
 Pfleger, Esther (C); Eudora
 Persinger, Mildred (H); Norton
 Perham, W. W. (C); Manhattan
 Pettitt, Sister Honoria (H); Schoenchen
 Petrasek, Alma (C); Lincoln
 Perry, Mrs. Hazel (C); Wichita
 Peterson, Doris (C); Wellington
 Peterson, Leona (C); Junction City
 Peterson, Lucille (C); Randolph
 Piatt, Mary F. (C); Hamilton
 Pickins, Frances (C); Lake City
 Pitney, Mary (H); Wamego
 Poole, Paul M. (C); Galena
 Poochke, Rubye (H); Gandy, Neb.
 Pogue, Genevieve (C); Gallatin, Mo.
 Porter, Harold M. (C); Topeka
 Powell, Alma (H); Neodesha
 Prince, A. E. (C); Manhattan
 Price, Iru P. (C); Syracuse
 Price, Leota (H); Montezuma
 Price, Clarence O. (H); Manhattan
 Price, Rubye K. (H); Bucklin
 Price, William S. (C); Topeka
 Priesley, Helen (C); Kansas City
 Pyle, Edna W. (C); Morrill
 Pyle, Eleanor (C); Topeka
 Quick, Ernest F. (C); Bellefont
 Radke, Eli (V); Crookston
 Raleigh, S. M. (C); Clyde
 Rankin, Jean (C); Wakefield
 Rankin, J. E. (C); Manhattan
 Rankin, Sophis (SC); Wamego
 Rasmussen, Ernest C. (V); Haley, N. Dak.
 Rasmussen, E. G. (C); Irving
 Rasher, Marjorie (C); Abilene
 Ratcliffe, Thelma M. (H); Bucklin
 Rathbun, H. V. (C); Manhattan
 Ray, William F. (V); Lufkin, Tex.
 Ray, Mildred (C); Ottawa
 Raymond, Marjoria (H); Sylvan Grove
 Rees, Mrs. Fred (C); Abilene
 Regnier, La Nora E. (SC); Wamego
 Retzlaff, Grace (H); Blue Rapids
 Reynolds, Everett (H); Arlington
 Rixon, Glenn (C); Cimarron
 Richards, Ruth (C); Manhattan
 Richardson, Clyde (H); Manhattan
 Riffel, Harry M. (C); Ramona
 Roach, Veda (C); Salina
 Roach, Esther (C); Lowemont
 Robinson, Alveretta (H); Iuka
 Roberson, Violet (H); Darlow
 Robert, Frank (V); Potchefstroom,
 Transvaal, South Africa
 Robertson, Dillard J. (V); Sanitor, S. Dak.
 Robertson, Gladys (C); Winfield
 Roberts, Helen (C); Kirwin
 Roberts, Eilleen (C); Kirwin
 Roberts, Norman L. (C); St. Joseph, Mo.
 Roepka, Laura (H); Topeka
 Roberts, C. W. (C); Oskaloosa
 Rodney, Matthew (C); Abilene
 Rogers, Edward Victor (C); Louisburg
 Rogers, John A. (V); Waverley, Minn.
 Rollings, Carroll E. (C); Delphos
 Ronnick, Edna M. (C); Valencia
 Rowell, Byron T. (H); Winfield
 Rowland, Rhogene (C); Hutchinson
 Rorabaugh, Pearl (C); Lebanon
 Roush, Eber (C); Lebanon
 Rusco, Helen M. (C); Vining
 Rusco, Easborn (C); West Lynn, Mass.
 Russell, Lillian (C); Wichita
 Roth, Robert (H); Ellingwood
 Rothschild, Donald Allen (C);
 Madison, S. Dak.
 Rowe, Coila (H); Beloit
 Rucker, Vance (C); Manhattan
 Rumford, Fred (C); Jetmore
 Rundle, Jean (C); Clay Center
 Ryan, Elsie C. (H); Blue Rapids
 Sanders, Marjorie (C); Clay Center
 Sanderson, Agnes E. (C); Lindsborg
 Sargent Wm. (H); Manhattan
 Sargent, Mary Elizabeth (H); Riley
 Sargent, Mrs. Vesta H. (H); Manhattan
 Sans, Beulah (C); Murry, Neb.
 Schaffer, Lucille (H); Ellinwood
 Sheetz, Jack (C); Manhattan
 Schaible, Kent H. (C); Fairview
 Schecher, N. J. (H); Downs
 Schindler, W. H. (C); Valley Falls
 Shallenberger, L. B. (C); Baldwin, Iowa
 Schultz, Richard A. (C); Wichita
 Schermerhorn, Dorothy (H); Wilson
 Schattenberg, Margaret James (C); Riley
 Scott, Leroy (H); Studley
 Scott, Floyd (C); Independence
 Scott, Verna L. (C); Columbus
 Seavy, Irene (C); Stapleton, Neb.
 Searles, Maude (C); Wetmore
 Sewell, Lillian (C); Horton
 Servis, Lester (C); Rock
 Sheetz, Frank S. (C); Chillicothe, Mo.
 Shaw, Nell Aileen (H); Herington
 Shepherd, Paul A. (C); Burlingame
 Sherman, H. A. (C); Elk City
 Sherwood, F. M. (C); Manhattan
 Shockey, Pauline Merle (C); Emporia
 Shoner, Sarah A. (C); Topeka
 Showalter, Ruth S. (C); Lebanon
 Schmidl, L. E. (C); Manhattan
 Simpson, Harold (H); Minneapolis
 Silvey, Hobart (V); Ava, Mo.
 Simpson, Opal (C); Conway Springs
 Simmons, Loula (H); Manhattan
 Six, Deal (C); Manhattan
 Skinner, Mrs. Mildred L. (C); Marion
 Slatten, Agnes (C); Jamesport, Mo.
 Sloan, Gertrude (C); Ottawa
 Smith, Ned (C); Howard
 Smith, Grace (C); Kingsdown
 Smith, Raymond (C); Manhattan
 Smith, La Verne C. (C); Elgin
 Smith, Mabel R. (C); Eskridge
 Smith, Julia (C); Manhattan
 Smith, Treva (H); Bucklin
 Smith, Melville (H); Winona
 Smith, Roger W. (H); Independence
 Smith, Mrs. Stanley (C); Pullman, Wash.
 Smith, Elgene (H); Manhattan
 Snyder, Marie (H); La Cygne
 Snyder, D. Gordon (H); Bucklin

HOME STUDY STUDENTS—Continued

- Soeken, Norman J. (H); Ellinwood
 Spear, N. F. (C); Bushong
 Speer, Paul (C); Olathe
 Spence, Lenore (C); Randolph
 Spencer, Harold C. (C); Manhattan
 Spicer, John (H); Abilene
 Spizzy, Mrs. Mabel (C); Topeka
 Squires, Raymond (H); Neodesha
 Standiferd, Rufus (H); Reading
 Stark, Arthur R. (C); Manhattan
 Stebbins, J. R. (C); Ellis
 Steckelberg, Anna (C); Gunnison, Colo.
 Steele, E. S. (C); Kansas City, Mo.
 Stevenson, Ruth (C); Lindsborg
 Steigleder, Rosa S. (H); Broughton
 Stenile, Freda (H); Wilson
 Stenile, Meda (H); Wilson
 Stillman, Perry (C); Nortonville
 Stewart, H. Arlo (C); Topeka
 Stewart, J. A. (C); Manhattan
 Stewart, Martha Eldora (C); Frankfort
 Stewart, Anna (C); Cuba
 Sterett, Kenneth R. (H); Leavenworth
 Stitt, Maud (C); Coates
 Stone, Opal (C); Bethany, Mo.
 Stone, John Paul (C); Bethany, Mo.
 Stone, Edmund (C); Manhattan
 Strand, Harry (H); Blue Rapids
 Stratford, C. O. (C); Manhattan
 Stuive, Leona L. (H); Sylvan Grove
 Strain, Charles (H); Medicine Lodge
 Strine, Ardyth (C); Monrovia
 Strom, C. H. (C); Junction City
 Stromberg, Fred (H); Republic
 Strobe, Bertha V. (C); Franklin
 Swanson, Mabel H. (H); Waterville
 Swenson, Clarence (C); Kirwin
 Swain, Hazel (H); Fort Leavenworth
 Swales, James K. (C); Kansas City
 Swarm, Mary May (C); Wamego
 Swinhart, De (V); Peabody
 Suiter, Edna (C); Macksville
 Sunley, Emil (C); Paola
 Supernaugh, Leona (H); Lindsborg
 Sutton, Myrtle (H); Blue Rapids
 Swingley, Winston (C) Turner
 Taber, Nadine (H); Osborne
 Taylor, Paul (C); Chapman
 Taylor, Delos C. (C); Manhattan
 Taylor, Vera (H); Norton
 Taylor, Gladys M. (H); Harveyville
 Taylor, Donald (C); Topeka
 Teare, Daniel W. (C); Portales, N. Mex.
 Tebow, E. T. (C); Scandia
 Templeton, Clara (H); Junction City
 Thiele, Rose (H); Manhattan
 Thierer, Rosetta (C); Manhattan
 Thomas, Alberta (H); Spearville
 Thompson, Alta (H); Norton
 Thompson, Marguerite (SC); Manhattan
 Thompson, Laureda (C); Manhattan
 Tompkins, Ralph (C); Manhattan
 Thorman, Marion F. (H); Blue Rapids
 Thornton, Margaret (C); Clay Center
 Thornton, H. W. (C); Hoisington
 Tonn, Arthur (C); Haven
 Tillotson, Raymond J. (C); Shields
 Timmons, F. L. (C); Niles
 Toomey, Opal (H); Neodesha
 Towle, C. H. (C); Manhattan
 Tracy, Sarah E. (SC); Manhattan
 Turner, Fern A. (C); Manhattan
 Turner, Lois Belle (H); Valley Falls
 Tyler, Paul (H); Delphos
 Uglow, Alice (C); Ames
 Uhlos, Lela (C); Elgin
 Underkoffler, Faith (H); Lamar
 Unruh, Flossie (H); Pawnee Rock
 Vague, Jess (H); Osborne
 Vohs, Paul (C); Milwaukee, Wis.
 Valentine, Lillian (C); Emporia
 Vance, Carolyn J. (C); Topeka
 Van Zile, Mary (C); Manhattan
 Von Riesen, E. (C); Marysville
 Venneberg, Geo. A. (C); Havensville
 Varland, Freda (C); Jennings
 Wall, Elsie Gertrude (C); Cawker City
 Wallace, Marvin W. (V); Kingman
 Walker, Eunice (C); Valley Falls
 Walker, Clarence (C); Manhattan
 Walter, Mrs. Harriet (C); Rydal
 Walters, Grace T. (C); Milford
 Wagar, Frances (C); Florence
 Wagar, Vera (C); Florence
 Wagner, Frances (C); Manhattan
 Wagner, Cecil (C); Concordia
 Wagner, Emma (C); Lawrence
 Wagner, Geo. B. (C); Manhattan
 Wahl, Wilbur (H); Westmoreland
 Wann, G. S. (C); Hays
 Ward, Eunice (H); Topeka
 Ward, Earl D. (C); Elmdale
 Warnock, Vera (H); Manhattan
 Wasson, Vera (V); Neosho, Mo.
 Waters, Bertha (C); Junction City
 Waterman, John H. (V); Parkville, Mo.
 Watt, Jewell K. (C); Manhattan
 Watson, J. A. (C); Sedan
 Waugh, Lavina (C); Manhattan
 Webber, H. C. (C); Manhattan
 Wedel, Mrs. Edward B. (C); Newton
 Weeks, Everett J. (H); Manhattan
 Wells, Chas. (H); Chanute
 Wells, Mabel N. (C); Chanute
 Weideman, Geo. M. (C); Wichita
 Weimer, Wilbur (C); Girard
 Weinheimer, Grace (C); Ottawa
 Weinheimer, Marie (C); Manhattan
 Wentz, Wilma (C); Ames
 Welsh, R. Emmitt (C); Manhattan
 Wertman, Mrs. Lulu (H); Manhattan
 Wenger, Harry (H); Moundridge
 West, D. Clinton (C); Lawrence
 Westbrook, Fred (C); Manhattan
 Whan, Forest (C); Manhattan
 Whan, V. E. (C); Chicago, Ill.
 White, Lester L. (H); Ulysses
 White, Mabel (C); Croweburg
 Whitney, Lois (H); Manhattan
 Whitney, Copeland (C); Manhattan
 Withey, Walter (C); Home
 Whitfield, Kerr (C); Manhattan
 Wick, Andrew (C); Oswego
 Wickmann, E. W. (C); Mendon, Mo.
 Wiley, Ethel (H); Beverley
 Wilkinson, Lewis D. (H); Manhattan
 Wilkerson, Thelma G. (C); Kansas City, Mo.
 Williams, Mrs. Cora (C); Attica
 Williams, Robert (C); Great Bend
 Willis, Chloe M. (C); Manhattan
 Willis, Hugh (C); Lincoln, Neb.
 Willis, Carl W. (V); Horton
 Wilson, Otis H. (C); Manhattan
 Wilson, Gladys (H); Beloit
 Wilson, W. C. (C); Kansas City, Mo.
 Wilson, Henry M. (H); Pratt
 Wilson, Inez (C); Eskridge
 Wilson, Dair (H); Beloit
 Wilson, Albert (C); Chula, Mo.
 Wiltrout, Corrine (C); Logan
 Wert, Rebecca (C); Action, Ind.
 Wix, Ethel May (C); Powersville, Mo.
 Wood, Hazel (H); Norton
 Wood, Glenn (C); Milan
 Wood, George (C); Anthony
 Wood, Clarence (H); Liberal
 Wood, Winifred (C); Manhattan
 Woodyard, James (H); Waterville

HOME STUDY STUDENTS—*Concluded*

Woolman, Goldie (C); Simpson	Yapp, Rockford G. (H); Manhattan
Woodworth, Charlotte (C); Newton	Youngstrom, G. A. (C); Fredonia
Worl, Herbert W. (C); Emporia	Yost, Lena (H); Culver
Worster, Mildred (H); Manhattan	Young, W. W. (V); Long Island
Wright, Dorwin C. (C); Bronson	Young, Eunice (C); Macksville
Wycoff, C. C. (V); Luray	Young, L. Hobart, (C); Macksville
Wynne, Sister Laurentia (C); Junction City	Young, Frederick George (C); Enterprise
Yaple, Claude N. (C); Manhattan	Youngquist, Hazel (C); Manhattan

Student Organizations

THE STUDENTS' SELF-GOVERNING ASSOCIATION

OFFICERS

President, Christian Rugh
Secretary, Margaret Avery

Vice President, Fred Shideler
Treasurer, Russell Ira Thackery

REPRESENTATIVES, THE EXECUTIVE COUNCIL

Senior Class:
Francis Eugene Wiebrecht
Margaret Avery

Junior Class:
Ruth A. Phillips
Russell Ira Thackery

Sophomore Class:
Dorothy Belle Fulton
Paul Alonzo Skinner

Freshman Class:
Helen Smith
Garth Champaigne

Men's Pan-Hellenic Council:
Frank Hoyt Purcell

Women's Pan-Hellenic Council:
Imogene Daniels

Intersociety Council:
Margaret Kirby Burtis

Y. W. C. A.:
Achsa Johnson

Y. M. C. A.:
Harvey Wayne Rogler

W. A. A.:
Alice Josephine Englund

"K" Fraternity:
Ralph Emerson Kimport

COMMITTEE CHAIRMEN

Finance:
Russell Ira Thackery

Discipline:
Christian Rugh

School Spirit ("Pep"):
Ralph Emerson Kimport

Social Affairs and Calendar:
Frank Hoyt Purcell

MEN'S GLEE CLUB

Beach, Kay
Black, Clifford
Blackledge, James
Brenner, Robert
Brower, Edwin
Brown, Donald
Butcher, Archie Wm.
Carroll, Floyd Eugene
Chappell, Paul
Chase, Clarence
Clency, Orem R.
Curtis, M. Darvin
Enoch, Duard W.
Evans, Leslie H.
Farrell, L. Stewart
Goering, Clarence
Haberkorn, Ferdinand
Hemker, Arthur
Howe, Harold Hixson
Jackson, Arthur Amos
Lamme, D. J.

Maddy, Reuben C.
Martin, Paul Gordon
Masters, Vernor I.
Moggie, Maurice
Moyer, John Ross
Powers, Horace Pierce
Price, James
Reeder, Charles E.
Reitz, Louis
Rethmeyer, Harold
Sawyer, Clifford C.
Snyder, Hugh
Sproul, Harold
Thackrey, Edmund Lee
Wampler, Herkle
Westgate, Earl
Wilson, Harry Robert
Zeidler, Alfred Henry
Stratton, Charles, *Accompanist*
Lindquist, William, *Director*

CHORUS

Abbott, Alice
Allen, Elizabeth Allen
Anderson, Helen Margaret
Anderson, Rubie Alice
Atkins, Hazel Bernadine
Austin, Gracie Roberta
Bailey, Charlotte Leah
Brainer, Ruth Martha
Barkley, Mary Elvina
Bess, Ethel Mae
Bess, Ruth Opal
Beach, Kay Haines
Beeler, Alice Elizabeth
Bernstorff, Cora Cynthia
Blackledge, Grace

Branham, Lucy Irene
Bobb, Mildred Hazel
Bond, W. Marvin
Bryan, Doris Isabelle
Brenner, Robert Hershel
Braun, William Jacob
Brinker, Beulah Lorene
Brinker, Lola Gladys
Brown, Maxine Rilda
Bunn, Lucile
Burkholder, Ruth Aileen
Burt, Henry Alonzo
Burnette, Mary Lucretia
Burnison, Geneva
Butler, Elizabeth

CHORUS—Concluded

Carswell, Ruth Elaine
 Carver, Lillian Iva
 Champlin, Ardath Grace
 Chapin, Earnest K.
 Child, Rose Louise
 Child, Thelma Elizabeth
 Circle, Edna Ellen
 Clency, Orem R.
 Coleman, Marion Alonzo
 Conroy, Nelle
 Cook, Kenneth Marion
 Cool, Ida Corinne
 Cress, Alma Rose
 Cress, Lenore Marguerite
 Crumbaker, Gladys Harriet
 Cunningham, Fern Elaine
 Cunningham, Ruth Virginia
 Curtis, Darvin Mayo
 Curtiss, Saul Sidney
 Cutler, Geraldene Jeanette
 Daily, June Marguerite
 Dale, Dorothy Dean
 Davison, Daisy Deane
 DeRigne, Evelyn
 Dismang, Esther Eulalia
 Dismang, Vianna Ruth
 Doctor, Janet
 Dooley, Pauline
 Dwelly, Doris Irene
 Endsley, Opal Marion
 Engle, Martha Vera
 Evans, Lucile Marguerite
 Faley, Joseph Rennselaer
 Faulconer, Ruth Marie
 Fergus, Marion Kerr
 Fleming, Marjorie Minnette
 Fleming, Mary Louise
 Fields, Eileene
 Freeman, Ruth Elizabeth
 Gates, Charlie G.
 Guthrie, Warren William
 Hale, Helen Bertine
 Hammett, Alice
 Handlin, Doris
 Hatton, Ora Adehlia
 Hellworth, Janet
 Hemphill, Helen Alberta
 Hill, Lois Ruth
 Hochuli, Alma
 Hodge, Mary Myrtle
 Horchem, Fern
 Hostinsky, Bert L.
 Howe, Harold Hixson
 Hull, Florence Hazel
 Hulse, Jessie Grace
 Jackson, Arthur Amos
 Jerard, Helen
 Jewett, Vivian
 Johnson, Helen Lillian
 Johnson, Mary Hannah
 Johnson, Lillie Marie
 Kelly, Inez Virginia
 Kapp, Mildred Muriel
 Kastner, Garnett Elizabeth
 Kuhnle, Dorothy Beryl
 Lansing, Mary
 Lapham, Bertha Harriet
 Lapham, Blanche
 Lee, Marvel Ruth
 Lee, Waldo Raymond
 Leece, Lizzie Avis
 Leech, Mildred Inette
 Little, Flody Engstrom
 Lewis, Iris
 Loomis, Louise
 McAninch, Gail
 McAninch, Galene Eleanor
 McGuire, Hazel Alberta
 McIntosh, Edith Marguerite
 McNitt, Lois Elizabeth
 Magee, Alice Gertrude
 Masters, Vernon Ives
 Maddy, Reuben Cleo
 Mann, Mary Ruth
 Moody, Marjorie Lucille
 McCroskey, Paul Joseph
 Morlan, Una
 Moreland, William Nathaniel
 Moyer, John Ross
 Murch, Gertrude Ellen
 Norris, Daniel Vernon
 Orth, Ruby E.
 Parrott, Edythe La Verne
 Parrott, Luella Gertrude
 Parsons, Pearl Pauline
 Paxton, Edris Cecil
 Pearson, Mary Louise
 Perrill, Robert Harlan
 Peterson, Mildred
 Phillips, Elva
 Piatt, Mary Frances
 Read, Mildred
 Read, Bernice
 Reed, Myron Wesley
 Reel, Edythe
 Reel, Janice Margaret
 Rees, Margaret Frances
 Ricky, Madge
 Robinson, Frances Gertrude
 Ross, Clarice Phyllis
 Ross, Jesse Mulvane
 Rumold, Kathryn
 Rundle, Gerna Maude
 Russell, Mary Dillon
 Rust, Iva Salinda
 Samuel, Maria
 Sanders, Dorothy
 Schippert, Margaret Mary
 Schrupf, Dorothy Carolyn
 Shaw, Ella Marie
 Sheetz, Carolyn Vandiver
 Smith, Helen Winifred
 Short, Roland
 Spear, Norman Flett
 Snyder, Hugh Stevenson
 Sproul, Harold William
 Stahlamm, Mildred
 Stalker, Lucile
 Streeter, Mary Marjorie
 Stener, Ruth Elizabeth
 Stewardson, May Viola
 Stewart, Ruth
 Sutton, Elizabeth Reid
 St. John, James Leslie
 Swartz, Gladys Alice
 Thackrey, Edmund Lee
 Toburen, Ethel Elvina
 Torrence, Evelyn
 Tudhope, Hattie Edythe
 Tulloss, Robert Wickard
 Turner, Ruth Lillian
 Turner, Thomas James
 Vance, Carolyn Jean
 Veeh, Beatrice Eleanor
 Viers, Helena Mary
 Viergever, Adrienne
 Voigt, Helen Augusta
 Wade, Forrest R.
 Walter, Hazel Maude
 Walker, Vernon Clair
 Walters, Helen Louise
 Wampler, Herkle Lester
 Wasson, Genevieve
 Weisser, Ruth
 Whitten, Elizabeth Anne
 Wilson, Harry Robert
 Willis, Maurine Mary
 Willhoite, Frances Elizabeth
 Woodward, Alberta Marian
 Youngman, Lawrence W.
 Zeller, Kenneth Earl

GIRLS' GLEE CLUB

Austin, Irene
 Allen, Elizabeth
 Bainer, Ruth
 Blackledge, Grace
 Burnette, Mary
 Buck, Nadine
 Carver, Lillian
 Caskey, Helen
 Craft, Hazel
 Evans, Lucile
 Handlin, Doris
 Hellworth, Janet
 Jerard, Helen
 Loomis, Louise
 Mann, Mary Ruth
 Moody, Marjorie
 Kerr, Winifred
 Alford, Mary
 Anderson, Rubie
 Cortelyou, Helen
 Carswell, Ruth
 Bailey, Charlotte
 Beeler, Alice
 Biddle, Wilma
 Butler, Elizabeth
 Brinker, Beulah
 Brinker, Lola
 Child, Thelma
 Clammer, Virginia
 Cool, Ida
 Conroy, Nelle
 Crumbaker, Gladys
 Cutler, Geraldine
 Daniels, Fleeta
 Dale, Dorothy
 Murch, Gertrude

Osborne, Opal
 Piatt, Mary Frances
 Read, Mildred
 Ricky, Madge
 Russell, Mary
 Smith, Corinne
 Stewart, Ruth
 Torrence, Evelyn
 Turner, Ruth
 Reel, Edith
 Robinson, Frances
 Sheetz, Carolyn
 Stalker, Lucile
 Wasson, Genevieve
 Whitten, Elizabeth Anne
 Faulconer, Ruth, *Accompanist*
 Herman, Esther
 Hill, Lois
 Leaman, Frances
 Lunbeck, Reland
 Lewis, Iris
 McGuire, Esther
 McNitt, Lois
 Miller, Lucille
 Osborn, Mildred
 Ormiston, Florence
 Rees, Margaret
 Rust, Iva
 Reel, Janice
 Rucker, Anna Lou
 Walker, Violet
 Worster, Mildred
 Woodward, Alberta
 Cunningham, Fern, *Accompanist*
 Smith, Maurine, *Director*

COLLEGE CHOIR

Bainer, Ruth M.
 Blackledge, Grace
 Hellworth, Janet
 Murch, Gertrude Ellen
 Piatt, Mary Frances
 Ricky, Madge
 Torrence, Evelyn
 Smith, Corrine
 Sheetz, Carolyn
 Whitten, Elizabeth Anne
 Caskey, Helen Mildred

Berger, Paul Eugene
 Black, Clifford Herbert
 Chappell, Paul Eugene
 Jackson, Arthur Amos
 Moyer, John Ross
 Rethmeyer, Harold George
 Sproul, Harold
 Thackrey, Edmund Lee
 Wilson, Harry Robert
 Sayre, Edwin, *Director*

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 Barnhart, Jesse Glenn
 Bayne, Henry Miller
 Barrett, R. Hodges
 Bradley, Richard Donald
 Brown, Gerald George
 Bruney, Sue Wadsworth
 Campbell, Alex Byron
 Collins, Garlie
 Cook, Kenneth Harold
 Costello, John Francis
 Dexter, Miriam
 Dice, Robert Franklin
 Draut, Ralph H.
 Du Mars, Leonard Wesley
 Durham, Joseph Edgar
 Erickson, Harry Emanuel
 Farrell, Lawrence Stewart
 Faulconer, Carl
 Fear, Everett Emerson
 Fear, Frank Leroy
 Fockele, Glen Robert

Foster, Margaret Lansden
 Haines, Joe
 Halley, Le Roy F.
 Hardman, Wm. Fred
 Hazzard, Harry Irvin
 Heath, Lucile
 Hemker, Arthur Henry
 Hohn, Gordon Sheffield
 Hostinsky, Bert
 Huff, Fred Lincoln
 Johnston, John Blair
 Kelly, Leonard Edwin
 Kesi, John, Jr.
 Koger, Glenn
 Latzke, Orril
 Marshall, Charles LeRoy
 Newhard, William Harold
 Moyer, Ralph Parkinson
 North, Walter
 Porter, Correll Cook
 Price, Iru Paul
 Reenta, Herman Edward
 Seeley, Ray
 Shenk, Eli C.

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Wentworth, Charles Delivan
Wollner, Duane Everett

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Wimer, L. V.
Wisecup, Clell Burns
Zeidler, Alfred Henry
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Brunson, Robert Ambrose
Boyd, McDill
Bond, Marvin Wickersham
Child, Louise
Cessna, Eldon
Dunnington, Raymond Earl
Daly, Paul Charles
Emrie, Chester
French, Orval
Freeman, Theodore Freeman
Ferguson, William
Glover, Herbert
Garbe, Howard William
Hancock, John Lewis
Hemker, Arthur Henry
Herron, Wesley McKimby
Johnson, Raymond Delbert
Klahr, Joseph Donald
Kesi, William
Moyer, Gerald
Moggie, Maurice Charles
Miller, Ralph J.
Melville, Ralph

Martin, Ellsworth
Nelson, Carl Oscar
Neff, Leslie
Nash, Loyale Mac
Olds, Charles Belgrove
Pincome, John Maurice
Paddleford, Merton Elias
Reitz, Louis Powers
Resch, Niles
Shenk, Joe
Shenk, John
Sherwood, Joy Lester
Spicklemier, John Paul
Thomas, Alfred Dale
Uhl, Clarence Correll
Withey, Charles Walter
White, Rex
Watson, Van C.
Watkins, William Albert
Wallerstedt, Everett Robert
Youngman, Paul Armstrong
Yoder, Homer
Wheeler, Harold Parker, *Director*

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Harold Witt
Lucile Stalker
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Emily Rumold
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Robert Burr Gordon
Ashley Monahan
Dr. Joseph Lowell Hall
Helen Graham
Roger Cletus Smith

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Iru Paul Price
Dorothy Stiles
Margaret Foster
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Carl Faulconer
Louis Elbert Barber
Lucile Heath
Gerald George Brown
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Howard Dean Skaggs
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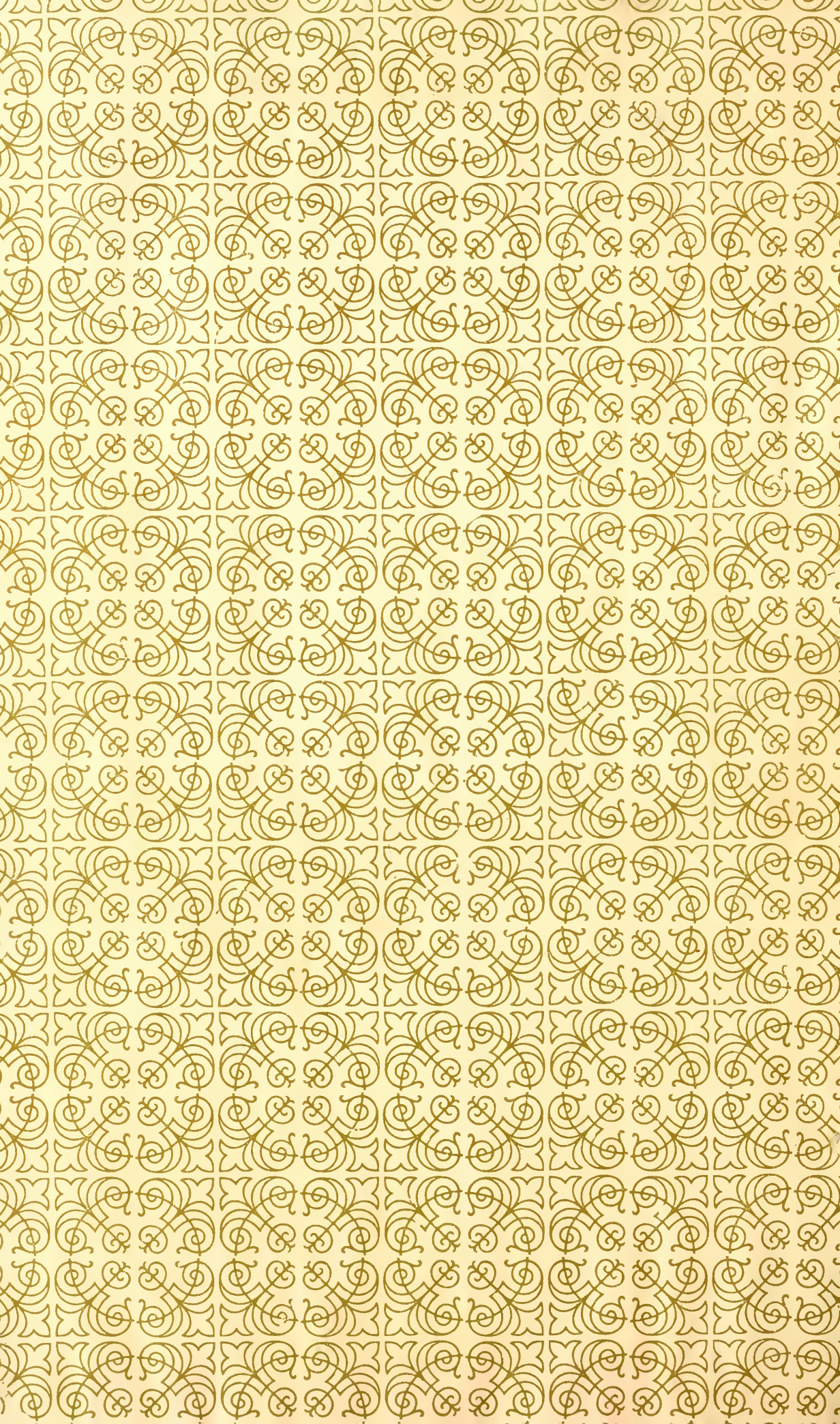
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