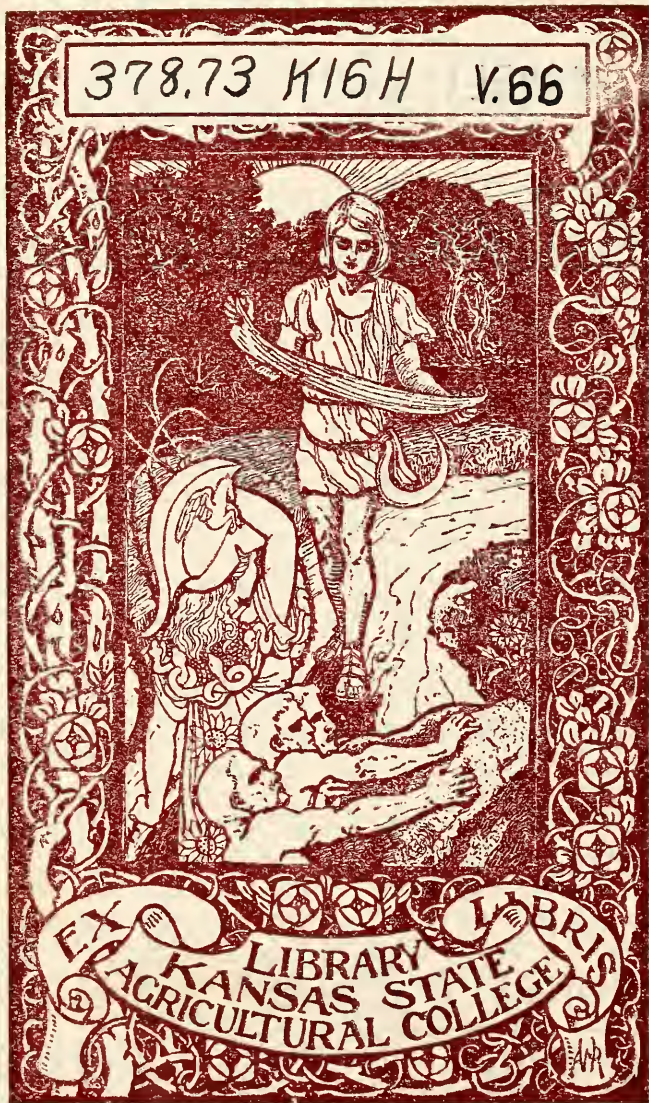
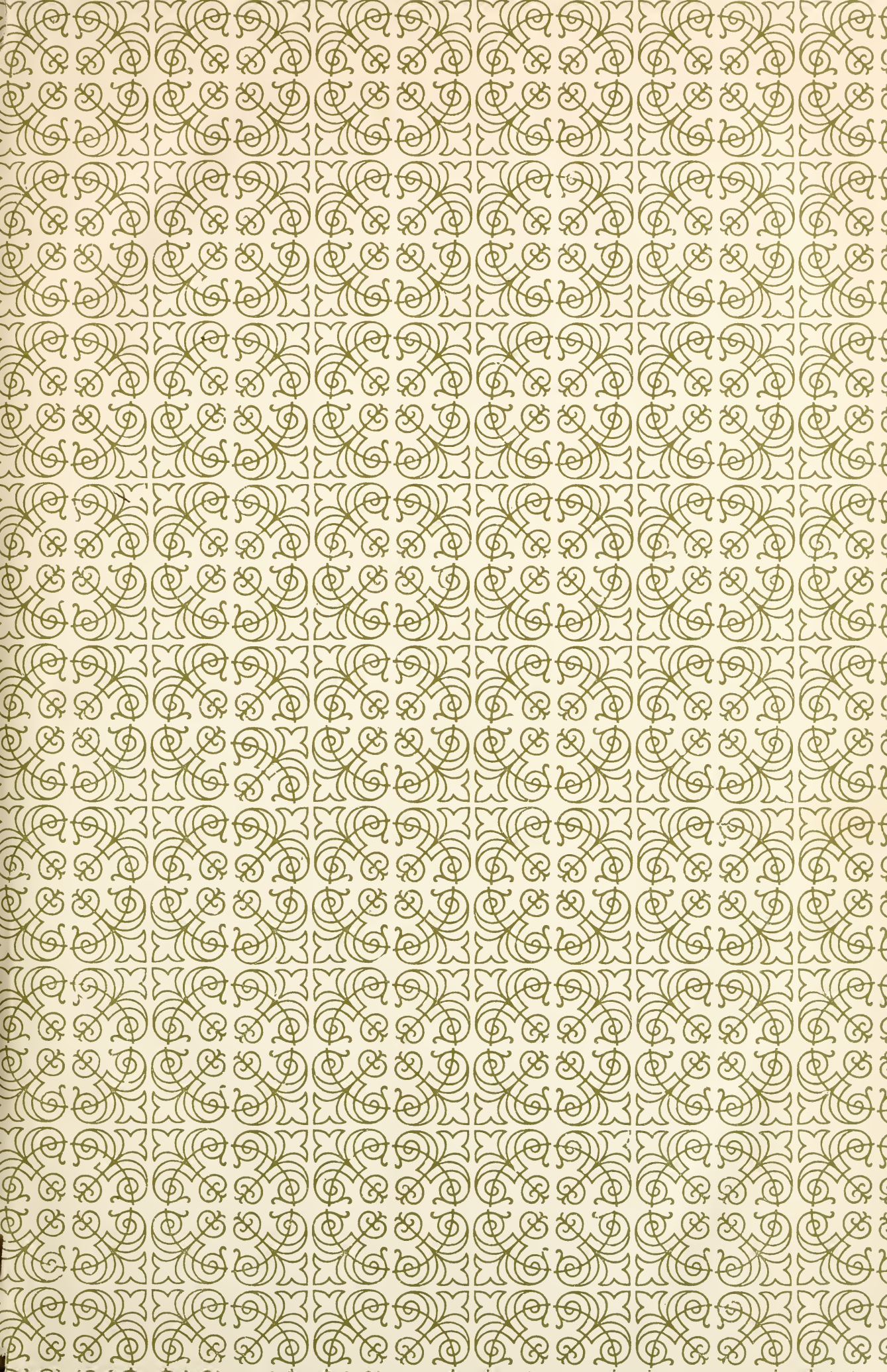


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KANSAS STATE AGRICULTURAL COLLEGE BULLETIN

VOLUME XIII

MARCH 1, 1929

NUMBER 4

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SIXTY-SIXTH SESSION, 1928-'29



WITH ANNOUNCEMENTS FOR 1929-'30

MANHATTAN, KANSAS

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21, Oct. 29, 1928

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CALENDAR

1929														1930														
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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THE COLLEGE CALENDAR

SUMMER SCHOOL, 1929

May 31, Friday.—Registration of students for Summer School begins at 8 a. m.
May 31, Friday.—Examinations for students deficient in entrance subjects, 8 a. m. to 5 p. m.
May 31 to Aug. 1.—Friday to Thursday.—Summer School in session, nine weeks.
June 3 to 8, Monday to Saturday.—4-H Club Round-up.
June 15, Saturday.—Preliminary reports on masters' theses are due.
July 4, Thursday.—Independence Day, holiday.
July 5 to Aug. 1, Friday to Thursday.—Second session of Summer School, four weeks.
July 15, Monday.—Abstracts of masters' theses are due.
July 27, Saturday.—Masters' theses are due.
July 31, Wednesday.—Commencement exercises at 8 p. m. for those receiving degrees at end of Summer School.
Aug. 8, Thursday.—Reports of all Summer School grades due in registrar's office.

FIRST SEMESTER, 1929-'30

Sept. 6, Friday.—All members of the instructional force on duty.
Sept. 7, Saturday.—Meeting of assigners with committee on schedule at 2 p. m.
Sept. 7, Saturday.—Meeting of assigners with deans at 3 p. m.
Sept. 9, Monday.—Admission and registration of students begin at 7:45 a. m.
Sept. 9, Monday.—Examinations for students deficient in entrance subjects, 8 a. m. to 5 p. m.
Sept. 11, Wednesday.—Registration of students closes at 9:30 a. m.
Sept. 11, Wednesday.—Opening convocation, 11 a. m. to 12 m.
Sept. 11, Wednesday.—*All classes, except freshmen, meet according to schedule, beginning at 1 p. m.
Sept. 11 and 12, Wednesday and Thursday.—†Mental tests for freshmen, 1 to 4:30 p. m.
Oct. 5, Saturday.—Examinations to remove conditions.
Oct. 12, Saturday.—Scholarship deficiency reports to students and deans are due.
Nov. 9, Saturday.—Midsemester scholarship deficiency reports to students and deans are due.
Nov. 15, Friday.—Preliminary reports on masters' theses are due.
Nov. 27, Wednesday.—Thanksgiving vacation begins at 12 m.
Nov. 30, Saturday.—Thanksgiving vacation closes at 6 p. m.
Dec. 21, Saturday.—Winter vacation begins at 6 p. m.
Jan. 4, 1930, Saturday.—Winter vacation closes at 6 p. m.
Jan. 6, Monday.—Farmers' Short Course and Dairy Manufacturing Short Courses begin.
Jan. 6, Monday.—Abstracts of masters' theses are due.
Jan. 20, Monday.—Masters' theses are due.
Jan. 17 to 25, Friday to Saturday.—Examinations at close of semester.
Jan. 25, Saturday.—First semester closes at 11 a. m.
Jan. 25, Saturday.—Semester scholarship deficiency reports to students and deans are due.

SECOND SEMESTER, 1929-'30

Jan. 27, Monday.—Meeting of assigners with committee on schedule at 2 p. m.
Jan. 27, Monday.—Examinations for students deficient in entrance subjects, 8 a. m. to 5 p. m.
Jan. 28, Tuesday.—Admission and registration of students begin at 7:45 a. m.
Jan. 29, Wednesday.—Registration closes at 5 p. m.
Jan. 30, Thursday.—*All classes meet according to schedule, beginning at 8 a. m.
Feb. 4 to 7, Tuesday to Friday.—Farm and Home Week.
Feb. 8, Saturday.—Reports of all grades for first semester due in registrar's office.
Feb. 21, Friday.—Examinations to remove conditions.
Feb. 22, Saturday.—Washington's birthday, holiday.
Mar. 1, Saturday.—Farmers' Short Course and Dairy Manufacturing Short Courses close at 12 m.
Mar. 1, Saturday.—Scholarship deficiency reports to students and deans are due.
Mar. 15, Saturday.—Preliminary reports on masters' theses are due.
Mar. 29, Saturday.—Midsemester scholarship deficiency reports to students and deans are due.
April 10, Thursday.—Announcement of elections of seniors to Phi Kappa Phi.
April 17, Thursday.—Easter vacation begins at 6 p. m.
April 21, Monday.—Easter vacation closes at 6 p. m.
May 5, Monday.—Abstracts of masters' theses are due.
May 13 to 20, Tuesday to Tuesday.—Examinations for seniors.
May 20 to 27, Tuesday to Tuesday.—Examinations at close of semester.
May 21, Wednesday.—Masters' theses are due.
May 25, Sunday.—Baccalaureate services, beginning at 8 p. m.
May 28, Wednesday.—Alumni Day. Business meeting at 2 p. m., banquet at 6 p. m.
May 29, Thursday.—Commencement Day. Commencement at 10 a. m.
May 31, Saturday.—Semester scholarship deficiency reports to students and deans are due.
June 12, 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.

† Required of all freshmen on both days.

SUMMER SCHOOL, 1930

May 31, Saturday.—Registration of students for first session of Summer School begins at 8 a. m.
 May 31, Saturday.—Examinations for students deficient in entrance subjects, 8 a. m. to 5 p. m.
 May 31 to Aug. 1, Saturday to Friday.—First session of Summer School, nine weeks.
 June 2 to 7, Monday to Saturday.—4-H Club Round-up.
 June 14, Saturday.—Preliminary reports on masters' theses are due.
 July 4, Friday.—Independence Day, holiday.
 July 5 to Aug. 1, Saturday to Friday.—Second session of Summer School, four weeks.
 July 15, Tuesday.—Abstracts of masters' theses are due.
 July 26, Saturday.—Masters' theses are due.
 July 31, Thursday.—Commencement exercises at 8 p. m. for those receiving degrees at end of Summer School.
 Aug. 8, Friday.—Reports of all Summer School grades due in registrar's office. .

FIRST SEMESTER, 1930-'31

Sept. 8, Monday.—Admission and registration of students begin at 7:45 a. m.
 Sept. 8, Monday.—Examinations for students deficient in entrance subjects, 8 a. m. to 5 p. m.
 Sept. 10, Wednesday.—Registration of students closes at 9:30 a. m.

REGISTRATION AND ASSIGNMENT SCHEDULE

The following tabulation shows the schedule of hours for registration and assignment of students for the college year 1929-'30, arranged according to the initial letters of their last names:

FIRST SEMESTER.

MONDAY, SEPTEMBER 9, 1929.

<i>Hours.</i>	<i>Initial letters.</i>
7:45 to 9:30.....	G, J, O, W, Y
9:45 to 11:15.....	D, F, Q, R
12:30 to 2:00.....	A, C, L
2:15 to 3:45.....	B, T, V

TUESDAY, SEPTEMBER 10, 1929

8:00 to 9:30.....	E, M, N, U, X
9:45 to 11:15.....	H, I, K, Z
12:30 to 2:00.....	P, S
2:15 to 3:45.....	Special students

WEDNESDAY, SEPTEMBER 11, 1929

8:00 to 9:30..... Trade Course students and any other students not yet assigned.

SECOND SEMESTER.

TUESDAY, JANUARY 28, 1930.

7:45 to 9:30.....	P, S
9:45 to 11:15.....	B, T, V
12:30 to 2:00.....	E, M, N, U, X
2:15 to 3:45.....	D, F, Q, R

WEDNESDAY, JANUARY 29, 1930.

8:00 to 9:30.....	H, I, K, Z
9:45 to 11:15.....	G, J, O, W, Y
12:30 to 1:45.....	A, C, L
2:00 to 5:00.....	Special students, Trade Course Students, and any other students not yet assigned.

The State Board of Regents

Name and address.	Term expires
W. Y. MORGAN, <i>Chairman</i> , Hutchinson.....	June 30, 1930
B. C. CULP, Beloit	June 30, 1932
EARLE W. EVANS, Wichita	June 30, 1929
C. M. HARGER, Abilene	June 30, 1930
M. G. VINCENT, Kansas City.....	June 30, 1930
C. B. MERRIAM, Topeka	June 30, 1931
MRS. J. S. PATRICK, Satanta	June 30, 1929
C. W. SPENCER, Sedan	June 30, 1931
W. E. IRELAND, Yates Center	June 30, 1932

H. E. SHRACK, *Business Manager*.

G. W. MYERS, *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. MACHIR.
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, 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. 11th.

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 48; 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 Government (1903).

A. B., Baker University, 1896; A. M., University of Kansas, 1898.

F 57; 615 Humboldt.

JULIUS ERNEST KAMMEYER,² 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. 14th.

2. Absent on leave, year 1928-'29.

* One date standing after the title shows when the office was assumed. In the case of two dates separated by a comma or 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.
G—Education Hall.
H—Horticulture Hall.
I—Illustrations Hall.
K—Kedzie Hall (Printing).
L—Calvin Hall (Home Economics).

Li—Library.
M—Auditorium.
MA—Music Annex.
N—Nichols Gymnasium.
P—Stock Judging Pavilion.
PP—Heat, Power and Service Building.
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.

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. 14th.

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. 17th.

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

A. B., Indiana University, 1904; Ph. D., Columbia University, 1927.

G 28A; 217 N. 14th.

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.

Li 31; 1503 Fairchild.

LELAND DAVID BUSHNELL, Ph.D., Professor and Head of Department of Bacteriology (1900, 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 of Division of Agriculture (1907, 1925); Director of Agricultural Experiment Station (1907, 1925).

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

Ag 112; 223 N. 14th.

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 30; 401 Denison.

RALPH R. 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.

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.

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, 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, A. M., Professor of Sociology (1914, 1921); Acting Head of Department of Economics and Sociology (1928-'29).
B. S., K. S. A. C., 1920; A. M., University of Missouri, 1927. A 74; Tartarax Apt.
- HARRY JOHN CHARLES UMBERGER,¹ 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; 1711 Fairchild.
- 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. 14th.
- RAY IAMS THROCKMORTON, M. S., Professor and Head of Department of Agronomy (1911, 1925); Agronomist, Agricultural Experiment Station (1911, 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 27; 1923 Leavenworth.
- ALFRED EVERETT WHITE, 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. 16th.
- 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; 513 N. 16th.
- 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.
- 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. 14th.
- 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,² 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.

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

2. Absent on leave, year 1928-'29.

- EDWIN CYRUS MILLER, Ph.D., Professor of Plant Physiology (1910, 1919); Acting Head of Department of Botany and Plant Pathology (1927-'29).

A. B., Lebanon College, 1906; A. B. Yale University, 1907; Ph. D., *ibid.*, 1910.
H 56; 211 N. 18th.

- CYRUS VANCE WILLIAMS,² 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).

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 28 B; 1704 Fairview.

- 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 Government (1911, 1920).

A. B., University of Kansas, 1905; A. M., *ibid.*, 1905.

F 58; 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. 15th.

- 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 Psychology (1917, 1926).

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. 17th.

- 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.

- MARY THERESA HARMAN,³ Ph.D., Professor of Zoölogy (1912, 1921).

A. B., Indiana University, 1907; A. M., *ibid.*, 1909; Ph. D., *ibid.*, 1912.

F 41; 1430 Poyntz.

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

B. S., 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, M. S., Professor Crop Improvement (1917, 1921).

B. S. in Agr., University of Minnesota, 1913; M. S. in Agr., Cornell University, 1916; Ph. D., Cambridge University, 1928.

Ag 103; 1728 Fairview.

2. Absent on leave, year 1928-'29.

3. On sabbatical leave, year 1928-'29.

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; 1616 Osage.

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 KELLY, Ph. D., Professor of Entomology, Division of College Extension (1918, 1922).

B. S., University of Kentucky, 1903; M. S., *ibid.*, 1904; Ph. D., Iowa State College, 1927.
F 69; 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, Ph. D., 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; Ph. D., *ibid.*, 1927.
V 261; 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 and Head of Department of Electrical Engineering (1916, 1927).

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. 11th.

CHARLES HENRY SCHOLER, B. S., Professor and Head of Department of Applied Mechanics (1920, 1922); Engineer of Tests in the Road 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. 12th.

GEORGE ALBERT 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. 16th.

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

A. B., Indiana University, 1906; A. M., *ibid.*, 1913. E 223; 511 N. Sunset.

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; 1855 Anderson.

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.

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

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

A 36; 1119 Kearney.

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 15A; 1031² Thurston.

ELDEN VALORIUS JAMES, A.M., Professor of History and Government (1912, 1924).

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

F 62; 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; 1918 Leavenworth.

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; 522 N. 14th.

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 131; 519 N. Manhattan.

CHARLES ELKINS ROGERS, M.S., Professor and Head of Department of Industrial Journalism (1919, 1926).

A. B., University of Oklahoma, 1914; M. S., K. S. A. C., 1926.

K 30; 1740 Fairview.

EDGAR TALBERT KEITH, B.S., Professor of Industrial Journalism and Printing (1912, 1925).

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

K 26; 1421 Poyntz.

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

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

F 83; 1626 Leavenworth.

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

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

C 56; 1635 Fairchild.

CHARLES WALTON MATTHEWS,¹⁶ A.M., Professor of English (1920, 1925).

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

K 52; 1745 Anderson.

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

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

L 43; 1740 Fairview.

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

B. S., University of Illinois, 1914.

E 113; 1729 Fairchild.

JAMES MARSHALL PETTY, Lieut. Col. Inf., U. S. A., Professor and Head of Department of Military Science and Tactics (1926).

Graduate, Infantry and Cavalry School, Fort Leavenworth, 1903; Graduate, Infantry School, Fort Bennington, 1925; Graduate, Command and General Staff School, Fort Leavenworth, 1926.

N 26; Wareham Hotel.

HARRY WINFIELD CAVE, M.S., Professor of Dairy Husbandry (1918, 1926).

B. S. A., Iowa State College, 1914; M. S., K. S. A. C., 1916.

Ag 151; 1638 Osage.

LOUIS COLEMAN WILLIAMS, B.S., Professor of Horticulture, Division of College Extension (1915, 1926).

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

A 34; 1116 Bluemont.

- ROGER CLETUS SMITH,⁴ Ph. D., Professor of Entomology (1920, 1926).
A. B., Miami University, 1911; A. M., Ohio State University, 1915; Ph. D., Cornell University, 1917. F 55; 1605 Leavenworth.
- EDWIN JACOB FRICK, D. V. M., Professor of Medicine (1919, 1926).
D. V. M., Cornell University, 1917. VH 54; 319 N. 16th.
- ALFRED EVANS ALDOUS, B. S., Professor of Pasture Management (1926).
B. S., Utah Agricultural College, 1910. Ag 216; 200 N. 16th.
- LOUIS HENRY LIMPER, A. M., Professor of Modern Languages (1921, 1926).
A. B., Baldwin Wallace College, 1907; A. M., University of Wisconsin, 1914. A 69; 1324 Laramie.
- HENRY ARTHUR SHINN,¹⁶ J. D., Professor of Public Speaking (1923, 1926).
A. B., University of Kansas, 1916; J. D., Leland Stanford University, 1926. G 55; 1715 Fairview.
- HELEN WHEELER FORD, Ph. D., Professor and Head of Department of Child Welfare and Euthenics (1926; July 1, 1928).
B. S., Rhode Island State College, 1914; Ph. D., Yale University, 1925. L 64; 531 N. Manhattan.
- WILLIAM LINDQUIST, B. M., Professor of Voice and Head of Department of Music (1925, 1927).
B. M., Cosmopolitan School of Music and Dramatic Art, Chicago, 1925. M 33; 1213 Kearney.
- FLOYD PATTISON,⁵ B. S., Professor of Mechanical Engineering, Home Study Service, Division of College Extension (1919, 1927).
B. S., K. S. A. C., 1912. A 5; 805 Kearney.
- BEATTY HOPE FLEENOR, M. S., Professor of Education, Home Study Service, Division of College Extension (1923, 1927).
B. S., K. S. A. C., 1919; M. S., *ibid.*, 1923. A 5; 1635 Osage.
- MAYNARD HENRY COE, B. S., Professor, State Club Leader, Division of College Extension (1922, 1927).
B. S., University of Minnesota, 1917. A 35; 336 N. 16th.
- WILMER ESLA DAVIS, A. B., Professor of Plant Physiology (1909, 1927).
Graduate, Ohio Normal University, 1894; A. B., University of Illinois, 1903. H 76; 1123 Thurston.
- ADA RICE, M. S., Professor of English (1899, 1927).
B. S., K. S. A. C., 1895; M. S., *ibid.*, 1912. A 61; 917 Osage.
- MANFORD W. FURR, C. E., Professor of Civil Engineering (1917, 1927).
B. S. in C. E., Purdue University, 1913; C. E., *ibid.*, 1925; M. S., K. S. A. C. 1926. E-122; 1426 Humboldt.
- JACOB OLIN FAULKNER, A. M., Professor of English (1922, 1927).
A. B., Washington and Lee University, 1907; A. M., Pennsylvania State College, 1920. K 52; 1720 Fairview.
- HERBERT HENLEY HAYMAKER, Ph. D., Professor of Botany (1917, 1927).
B. S., K. S. A. C., 1915; M. S., University of Wisconsin, 1916; Ph. D., *ibid.*, 1927. H 54; 315 N. 16th.
- ARTHUR BRADLEY SPERRY, B. S., Professor of Geology (1921, 1927).
B. S., University of Chicago, 1919. F 5; 1821 Poyntz.

4. Absent on leave, Aug. 1, 1928 to July 31, 1929.

5. Absent on leave beginning Oct. 1, 1928.

16. Absent on leave, Feb. 1 to May 31, 1929.

ALBERT JOHN MACK, M. E., Professor of Mechanical Engineering (1917; July 1, 1928).

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

E 109; 1619 Osage.

GABE ALFRED SELLERS, B. S., Professor of Shop Practice (1919; July 1, 1928).

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

S 62; 927 Moro.

WILLARD HUNGATE MARTIN, M. S., Professor of Dairy Husbandry (1925; July 1, 1928).

B. S., Purdue University, 1918; M. S., Pennsylvania State College, 1922.

Ag 151; 1615 Osage.

MERRILL AUGUSTUS DURLAND,⁸ M. S., M. E., Professor of Mechanical Drawing (1919; July 1, 1928); Assistant Dean of Division of Engineering (1919, 1926).

B. S., K. S. A. C., 1918; M. E., *ibid.*, 1922; M. S., *ibid.*, 1923. E 116; 1715 Houston.

FRANK LESLIE DULEY, Ph. D., Professor of Soils (1925; July 1, 1928).

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

Ag 216; 1814 Laramie.

RUDOLPH HENRY DRIFTMIER, M. S., Professor of Agricultural Engineering (1920; July 1, 1928).

B. S. in A. E., Iowa State College, 1920; M. S., K. S. A. C., 1926.

E 216; 335 N. 15th.

FREDERICK CHARLES FENTON, B. S. in A. E., Professor and Head of Department of Agricultural Engineering (July 1, 1928).

B. S. in A. E., Iowa State College, 1914.

E 214; 1617 Leavenworth.

ALVIN NUGENT McMILLIN, Professor of Physical Education and Head Coach of Athletics (July 1, 1928).

N 35; 1810 Laramie.

FRANK CALEB GATES, Ph. D., Professor of Plant Taxonomy and Ecology (1919; Sept. 1, 1928).

A. B., University of Illinois, 1910; Ph. D., University of Michigan, 1912.

H 57; 1515 Humboldt.

JESSE LAMAR BRENNEMAN, E. E., Professor of Electrical Engineering (1920; Sept. 1, 1928).

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

E 120; R. R. 8.

THOMAS JOEL ANDERSON, JR., A. M., Professor of Economics (1922; Sept. 1, 1928).

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

A 74; 1420 Laramie.

MARGARET S. CHANEY, Ph. D., Professor of Food Economics and Nutrition (1926; Sept. 1, 1928).

Ph. B. in Ed., University of Chicago, 1914; A. M., University of California, 1923; Ph. D., University of Chicago, 1925.

L 47; 1109 Kearney.

BESSIE BROOKS WEST, A. M., Professor and Head of Department of Institutional Economics (Sept. 1, 1928); Manager of Cafeteria (Sept. 1, 1928).

A. B., University of California, 1924; A. M., *ibid.*, 1928. T 27; 1723 Leavenworth.

ASSOCIATE PROFESSORS

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

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

Li 55; 1825 Leavenworth.

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

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

L 55; 513 N. 16th.

8. Absent on leave, Sept. 1 to Nov. 15, 1928.

MALCOLM CAMERON SEWELL, Ph.D., Associate Professor of Soils (1914, 1920).
B. S., K. S. A. C., 1912; Ohio State University, 1914; Ph. D., University of Chicago, 1922. Ag 213; 315 N. 15th.

WILLIAM HENRY SANDERS, M. E., Associate Professor of Agricultural Engineering (1914, 1920).

B. S., K. S. A. C., 1890; M. E., *ibid.*, 1916.

R 28; 1208 Kearney.

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,¹ B. S., Associate Professor, Field Agent, Division of College Extension (1917, 1920).

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

A 60; 810 Moro.

JAMES WALTER ZAHNLEY, M. S., Associate Professor of Farm Crops (1915, 1921).

B. S., K. S. A. C., 1909; M. S., *ibid.*, 1926.

Ag 314; R. R. 8.

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. 16th.

JOSEPH PRESTWICH SCOTT,³ 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 Anatomy (1919, 1921).

D. V. M., Iowa State College, 1917.

V 32; 1114 Bertrand.

ELSIE HARRIET SMITH, 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; 1704 Fairview.

ELLIS ADOLPH STOKDYK,⁶ 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.

Ag 347; 1617 Leavenworth.

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.

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

B. S. in Ag., K. S. A. C., 1916, 1923; M. S., *ibid.*, 1928.

Ag 24; 323 Yuma.

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

B. S. in Agr., University of Missouri, 1914; M. S., K. S. A. C., 1928.

Ag 27; 1119 Laramie.

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

A. B., University of Colorado, 1905.

C 38; 1824 Humboldt.

HARRISON BOYD SUMMERS, A. M., Associate Professor of Public Speaking (1923).

A. B., Fairmont College, 1917; A. M., University of Oklahoma, 1921.

G 55; 1645 Laramie.

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

3. On sabbatical leave, year 1928-'29.

6. Absent on leave, Sept. 1, 1928 to Sept. 1, 1929.

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; 918 N. 10th.

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 Crops, Division of College Extension (1920; Nov. 1, 1928).

B. S., K. S. A. C., 1914. Ag 250; 1109 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 7; 1614 Humboldt.

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, 1924).

B. S., K. S. A. C., 1914; M. S., *ibid.*, 1925. G 29; 1600 Humboldt.

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

Graduate, Coast Artillery School, 1915; Graduate, Advanced Course, *ibid.*, 1923; Graduate, Command and General Staff School, 1924.
N 26; 202 S. 17th.

IRA NICHOLS CHAPMAN, M. S., Associate Professor of Agricultural Economics, Division of College Extension (1922, 1925).

B. S., K. S. A. C., 1916; M. S., *ibid.*, 1926. Ag 345; 1210 Thurston.

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

B. S., University of Michigan, 1920. E 208; 931 Leavenworth.

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

B. S. in Arch., K. S. A. C., 1914. S 51; 1530 Pierre.

EARLE REED DAWLEY, M. S., Associate Professor of Applied Mechanics (1920, 1926); Assistant Engineer of Tests (1920).

B. S., University of Illinois, 1919; M. S., K. S. A. C., 1927. E 14; 1200 Kearney.

MORRIS EVANS, M. S., Associate Professor of Agricultural Economics (1920, 1926).

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

RALPH LANGLEY PARKER, Ph.D., Associate Professor of Apiculture and Entomology (1925, 1926); State Apiarist (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 82; 1523 Fairchild.

HELEN ELIZABETH ELCOCK, A. M., Associate Professor of English (1920, 1926).

A. B., College of Emporia, 1907; A. M., University of Chicago, 1921.
A 63A; 513 N. 16th.

EMMA HYDE, A. M., Associate Professor of Mathematics (1920, 1926).

A. B., University of Kansas, 1912; A. M., University of Chicago, 1916.
A 58; 320 N. 15th.

CLARENCE FLAVIUS LEWIS, M.S., Associate Professor of Mathematics (1920, 1926).

A. B., University of Denver, 1913; M. S., K. S. A. C., 1925. E 223; 1615 Humboldt.

ANNA MARIE STURMER,¹⁶ A. M., Associate Professor of English (1920, 1926).

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

CHARLES MECLAIN CORRELL, Ph. M., Associate Professor of History and Government (1922, 1926); Assistant Dean, Division of General Science (1927).

B. S., K. S. A. C., 1900; Ph. B., University of Chicago, 1907; Ph. M., *ibid.*, 1908. F 64 and A 49; 1621 Fairchild.

EUGENE CLAYTON GRAHAM, B.S., Associate Professor of Shop Practice (1922, 1926).

B. S., Carleton College, 1898; B. S. in M. E., University of Minnesota, 1902. S 36; 501 Sunset.

WALDO HIRAM LYONS, A. M., Associate Professor of Mathematics (1924, 1926).

A. B., University of Denver, 1912; A. M., *ibid.*, 1916. E 223; 1126 Laramie.

LUCILE OSBORN RUST, M.S., Associate Professor of Education (1924, 1926).

B. S., Kansas State Teachers College, Pittsburg, 1921; M. S., K. S. A. C., 1925. G 29; 710 Humboldt.

AUGUSTIN WILBER BREEDEN, A. M., Associate Professor of English (1926).

Ph. B., University of Chicago, 1924; A. M., *ibid.*, 1925. K 52; 1728 Laramie.

FRED ALBERT SHANNON, Ph. D., Associate Professor of History and Government (1926).

A. B., Indiana State Normal School, 1914; A. M., Indiana University, 1918; Ph. D., University of Iowa, 1924. F 60; 1525 Humboldt.

DWIGHT WILLIAMS, A. M., LL.B., Associate Professor of History and Government (1926).

A. B., University of Minnesota, 1916; LL. B., *ibid.*, 1918; A. M., *ibid.*, 1926. F 61; 1204 Fremont.

LUTHER EARL WILLOUGHBY, B.S., Associate Professor of Farm Crops, Division of College Extension (1917, 1927).

B. S., K. S. A. C., 1912; B. S. in Agr., *ibid.*, 1916. Ag 250; 918 Thurston.

WALTER LEROY LATSHAW, M.S., Associate Professor of Chemistry (1914, 1927).

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

ARTHUR CECIL FAY, M.S., Associate Professor of Bacteriology (1921, 1927).

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

HAROLD ALLEN,⁷ M.S., Associate Professor of Applied Mechanics (1921, 1927); Assistant Engineer of Tests (1924).

B. S. in C. E., University of Colorado, 1920; C. E., *ibid.*, 1927; M. S., K. S. A. C., 1927. E 16; 1916 Leavenworth.

ADA GRACE BILLINGS,² M.S., Associate Professor of History and Government, Home Study Service, Division of College Extension (1921, 1927).

B. S., K. S. A. C., 1916; M. S., *ibid.*, 1927. A 5; 714 Moro.

MARCIA HALL, A.B., Associate Professor of English, Home Study Service, Division of College Extension (1923, 1927).

A. B., University of Wisconsin, 1914. A 5; 1626 Laramie.

JAMES WALTER LINN, B.S., Associate Professor of Dairy Husbandry, Division of College Extension (1923, 1927).

B. S., K. S. A. C., 1915. Ag 147; R. R. 2.

2. Absent on leave, year 1928-'29.

7. Absent on leave to Dec. 31, 1928.

16. Absent on leave, Feb. 1 to May 31, 1929.

EARL MILO LITWILLER, M.S., Associate Professor of Horticulture, Home Study Service, Division of College Extension (1924, 1927).

B. S., K. S. A. C., 1924; M. S., *ibid.*, 1926.

A 5; 916 Vattier.

HUGH DURHAM, A.M., Assistant Dean, Division of Agriculture (1915, 1927); Assistant Director, Agricultural Experiment Station (1915, 1927); Associate Professor of Agricultural Education (1927).

Graduate, Kansas State Teachers College, Emporia, 1901; A. B., University of Kansas, 1909; A. M., *ibid.*, 1915.

Ag 109; 730 Osage.

LEON VINCENT WHITE, C.E., M.S., Associate Professor of Civil Engineering (1918, 1927).

B. S., K. S. A. C., 1903; C. E., *ibid.*, 1918; M. S., *ibid.*, 1927.

E 122; 1832 Anderson.

NORA ELIZABETH DALBEY, A.M., Associate Professor of Botany and Plant Pathology (1918, 1927).

A. B., University of Kansas, 1913; A. M., *ibid.*, 1914.

H 54; 1424 Fairchild.

ERNEST BAKER KEITH, Ph.D., Associate Professor of Chemistry (1918, 1927).

B. S., K. S. A. C., 1913; Ph. D., University of Chicago, 1924.

W 27; 1719 Fairchild.

RUSSELL MARION KERCHNER, M.S., Associate Professor of Electrical Engineering (1922, 1927).

B. S., University of Illinois, 1922; M. S., K. S. A. C., 1927.

E 121; 512 N. Denison.

ARTHUR FREMONT BOWEN, Capt. Inf. U. S. A., Associate Professor of Military Science and Tactics (1925, 1927).

Graduate, U. S. Infantry School, 1924.

N 26; 1440 Laramie.

BENJAMIN SPIETH,¹⁷ M.E., Associate Professor of Applied Mechanics (1926, 1927).

B. S. in M. E., University of Nebraska, 1916; M. E., University of Wisconsin, 1921.

E 113; 514 N. 17th.

WILSON FORREST BROWN, Ph.D., Associate Professor of Chemistry (Feb. 1, 1928).

B. Ch. E., Ohio State University, 1916; M. S., *ibid.*, 1926; Ph. D., *ibid.*, 1928.

D 8; 1116 Bluemont.

CLIFF ERRETT AUBEL, M.S., Associate Professor of Animal Husbandry (1919; July 1, 1928).

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

Ag 27; 323 N. 15th.

CHARLES HOWARD KITSELMAN, V.M.D., M.S., Associate Professor of Pathology (1919; July 1, 1928).

V. M. D., University of Pennsylvania, 1918; M. S., K. S. A. C., 1927.

V 55A; 1417 Pierre.

LEON REED QUINLAN, M.L.A., Associate Professor of Horticulture, in charge of Landscape Gardening (1927; July 1, 1928).

B. S., Colorado Agricultural College, 1920; M. L. A., Harvard University, 1925.

H 34; 813 Vattier.

FRANK JACOBS CHEEK, Jr., C.E., Associate Professor of Structural Design (1923; Sept. 1, 1928).

A. B., Center College, 1914; C. E., Rensselaer Polytechnic Institute, 1919.

E 304; 1109 Thurston.

ERIC ROSS LYON, M.S., Associate Professor of Physics (1921; Sept. 1, 1928).

A. B., Phillips University, 1911; M. S., *ibid.*, 1923;

C 61; 1026 Bertrand.

LOUIS PIERCE WASHBURN, M.P.E., Associate Professor of Physical Education for Men (1926; Sept. 1, 1928).

B. S., Carleton College, 1907; B. P. E., Y. M. C. A. College, 1911; M. P. E., *ibid.*, 1926.

N 36; 1700 Laramie.

17. Absent on leave, Nov. 12, 1928, to May 31, 1929.

ETHEL MAY ARNOLD,¹⁶ A. M., Associate Professor of Applied Art (1922; Sept. 1, 1928).

B. S., K. S. A. C., 1918; Graduate, French-American School of Costume Design, Los Angeles, 1921; A. M., University of Chicago, 1925. A 68; College Hill.

MARGARET AHLBORN, M. S., Associate Professor of Food Economics and Nutrition (1923; Sept. 1, 1928).

A. B., University of Kansas, 1906; M. S., K. S. A. C., 1924. L 47; 350 N. 15th.

FRED LOUIS PARRISH, A. M., Associate Professor of History and Government (1927; Sept. 1, 1928).

A. B., Northwestern University, 1917; B. D., Garrett Biblical Institute, 1920; A. M., Northwestern University, 1922. F 64; 332 N. 15th.

HELEN G. SAUM, B. S., Associate Professor of Physical Education for Women (Sept. 1, 1928).

B. S. in Ed., Ohio State University, 1927; Diploma, Battle Creek School for Physical Education, 1919. N 1; 315 N. 16th.

ASSISTANT PROFESSORS

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.

ELIZABETH HAMILTON DAVIS,² B. L. S., Reference Librarian (1920).

A. B., Illinois Women's College, 1909; B. L. S., University of Illinois, 1914. Li 51; 1224A Moro.

LAWRENCE WILLIAM HARTEL, 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 57; 1824 Humboldt.

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

B. S., K. S. A. C., 1917; M. S., *ibid.*, 1923. H 33; 1622 Osage.

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

B. S., K. S. A. C., 1921; M. S., *ibid.*, 1926. Ag 309; 1013 Laramie.

EUGENE SIDNEY LYONS,⁹ M. S., Assistant Professor of Soils (1920, 1922).

B. S., K. S. A. C., 1921; M. S., *ibid.*, 1925. Ag 216; 1124 Laramie.

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

B. S., University of Minnesota, 1920; M. S., K. S. A. C., 1926. Ag 13; 1425 Humboldt.

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; 1110 Thurston.

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

B. S., University of Ill, 1919; M. S., *ibid.*, 1921; Ph. D., *ibid.*, 1922. C 10; 1131 Kearney.

CHARLES WILLIAM CORSAUT, Assistant Professor of Physical Education (1923).

Graduate, Y. M. C. A College, 1917. N 36; 1601 Humboldt.

2. Absent on leave, year 1928-'29.

9. Absent on leave, Oct. 1, 1928, to June 30, 1929.

16. Absent on leave, Feb. 1 to May 31, 1929.

IRA KAULL LANDON, B.S. in Agr., Assistant Professor of Agronomy (1923).

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

Ag 201; 3000 Broadway, Parsons, Kan.

FRANK OTTO BLECHA, M.S., Assistant Professor of Agricultural Extension; District Agricultural Agent, Division of College Extension (1919, 1923).

B. S., K. S. A. C., 1918; M. S., *ibid.*, 1926.

A 60; 1507 Leavenworth.

RUTH HARTMAN, Assistant Professor of Music (1924).

Graduate, Department of Public School Music, Iowa State Teachers College, 1912; Two-year Certificate, Northwestern University, 1923.

M 58; 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.

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.

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 39; 1311 Laramie.

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; Wareham Hotel.

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

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

M 51; 1601 Fairchild.

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

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

N 35; 901 Bertrand.

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, Coast Artillery School, 1924.

N 26; 1605 Pierre.

CLAUDE KEDZIE SHEDD,¹² B.S. in A. E., Assistant Professor of Rural Engineering, Division of College Extension (1925-Sept. 30, 1928).

B. S. in Agr., University of Nebraska, 1909; B. S. in A. E., Iowa State College, 1914.

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; 1616 Humboldt.

HARRY WORKMAN AIMAN, A.B., Assistant Professor of Woodwork (1918, 1925).

A. B., Oskaloosa College, 1921.

S 29B; 1200 Bertrand.

ROBERT HENRY LUSH,¹⁰ M.S., Assistant Professor of Dairy Husbandry (1923, 1925).

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

Ag 145; 1616 Osage.

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

B. S., Valparaiso University, 1900; M. D., Chicago College of Medicine and Surgery, 1913.

A 59; 514 N. Juliette.

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

A. B., DePauw University, 1923; M. B., School of Music, *ibid.*, 1925.

M 54; 1230 Vattier.

12. Resigned.

10. Absent on leave, Nov. 1, 1928, to June 30, 1929.

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

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

A 36; 1649 Fairchild.

CHESTER EUGENE GRAVES, B.S., Assistant Professor of Plant Pathology, Division of College Extension (1921, 1926).

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

H 53; 1809 Leavenworth.

GAY TETLEY KLEIN, M.S., Assistant Professor of Poultry Husbandry, Division of College Extension (1925, 1926).

B. S., University of Missouri, 1923; M. S., K. S. A. C., 1926.

Ag 245; 1711 Leavenworth.

JULIAN ADAIR HODGES,⁹ M.S., Assistant Professor of Agricultural Economics (1923, 1926).

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

Ag 348; 500 Humboldt.

JOHN WALLACE LUMB, D.V.M., Assistant Professor of Veterinary Medicine, Division of College Extension (1924, 1926).

D. V. M., K. S. A. C., 1910.

V 31; 1631 Leavenworth.

FRANCIS EUGENE CHARLES, B.S., Assistant Professor of Industrial Journalism (1926).

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

K 30A; 1211 Thurston.

MARY FIDELIA TAYLOR, B.S., Assistant Professor of Household Economics (1919; Sept. 1, 1928).

B. S., K. S. A. C., 1919; A. M., Teachers College, Columbia University, 1926.

T 52; Paddleford Apts.

LOUISE HELEN EVERHARDY, A.M., Assistant Professor of Applied Art (1919, 1926).

Graduate, New York School of Fine and Applied Art, 1916; B. S., Columbia University, 1925; A. M., *ibid.*, 1926.

A 56; 1301 Poyntz.

WILLIAM CHARLES JANES, A.M., Assistant Professor of Mathematics (1922, 1926).

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

S 55; 1022 Kearney.

THIRZA ADALINE MOSSMAN, A.M., Assistant Professor of Mathematics (1922, 1926).

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

A 62A; 1601 Fairchild.

BOYD BERTRAND BRAINARD, B.S., Assistant Professor of Mechanical Engineering (1923, 1926).

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

E 109; 1209 Vattier.

ERNEST KNIGHT CHAPIN, M.S., Assistant Professor Physics (1923, 1926).

A. B., University of Michigan, 1918; M. S., *ibid.*, 1923.

C 57; 1860 Anderson.

JEAN SWIFT DOBBS, M.S., R.N., Assistant Professor of Household Economics (1923, 1926).

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

L 28; 318 N. Fifth.

9. Absent on leave, Oct. 1, 1928, to June 30, 1929.

RANDOLPH FORNEY GINGRICH, B.S. in C.E., Assistant Professor of Machine Design (1923, 1926).

B. S. in C. E., University of Nebraska, 1923.

S 51; 1731 Humboldt.

ORVILLE DON HUNT, B.S. in E.E., Assistant Professor of Electrical Engineering, (1923, 1926).

B. S. in E. E., Washington State College, 1923.

E 127; 1822 Poyntz.

JOHN FREDERICK HELM, JR., B.D., Assistant Professor of Free-hand Drawing (1924, 1926).

B. D., Syracuse University, 1924.

E 308; Rex Arms Apts.

LEO SPURRIER, A.M., Assistant Professor of Economics (1924, 1926.)

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

A 74; 1026 Vattier.

HENRY MILES HEBERER, A.B., Assistant Professor of Public Speaking (1925, 1926).

A. B., University of Illinois, 1922.

G 55; 1611 Laramie.

LOUIS MARK JORGENSEN, B.S., Assistant Professor of Electrical Engineering, (1925, 1926).

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

E 24; 730 Laramie.

CORNELIA WILLIAMS CRITTENDEN, A.M., Assistant Professor of Modern Languages (1926).

A. B., University of Nebraska, 1918; A. M., *ibid.*, 1926.

A 71; 1636 Fairchild.

REGINALD HENRY PAINTER, Ph.D., Assistant Professor of Entomology (1926).

A. B., University of Texas, 1922; A. M., *ibid.*, 1924; Ph. D., Ohio State University, 1926.

F 81; 501 Sunset.

RUSSELL SEELEY SINK, M.S., Assistant Professor of Shop Practice (1926).

B. S. in M. E., Purdue University, 1918; M. E., *ibid.*, 1925.

S 62; 1634 Laramie.

OTTO HERMAN ELMER, Ph. D., Assistant Professor of Botany and Plant Pathology (1927).

B. S., Oregon Agricultural College, 1911; M. S., *ibid.*, 1916; Ph. D., Iowa State College, 1924.

H 56; 1612 Osage.

ROLLA WILLIAMS TITUS, Ph.D., Assistant Professor of Chemistry (1923, 1927); Associate Food Analyst, Agricultural Experiment Station (1923; June 1, 1928).

A. B., Washburn College, 1909; A. M., University of Kansas, 1914; Ph. D., University of Wisconsin, 1927.

C 14; 1230 Pierre.

ALBERT JOHN SCHOTH, B.S., Assistant Professor in Junior Extension, Division of College Extension (1921, 1927).

B. S., Oregon Agricultural College, 1918.

A 35; 1116 Bluemont.

WILLIAM REDMOND MARTIN, JR., B.S., Assistant Professor of Horticulture, Division of College Extension (1924, 1927).

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

A 34; 1116 Bluemont.

GEORGIANA SMURTHWAITE, B.S., Assistant Professor of Food and Nutrition, Division of College Extension (1924, 1927).

B. S., Utah Agricultural College.

A 36; 514 N. 17th.

JEPHTHA JERRY MOXLEY, B.S., Assistant Professor of Animal Husbandry, Division of College Extension (1925, 1927).

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

A 34; 1116 Bluemont.

STELLA MAUDE HARRISS, M.S., Assistant Professor of Chemistry (1917, 1927).

Graduate, (Peru) Nebraska State Normal School, 1908; B. S., K. S. A. C., 1917; M. S., *ibid.*, 1919.

W 26; 311 Denison.

- ANNABEL ALEXANDER GARVEY,¹⁶ A. M., Assistant Professor of English (1920, 1927).
A. B., Wellesley College, 1912; A. M., University of Kansas, 1914.
A 55A; 343 N. 14th.
- HELEN DOROTHY RUSHFELDT, A. M., Assistant Professor of English (1920, 1927).
A. B., University of Minnesota, 1915; A. M., Columbia University, 1920.
A 63A; 513 N. 16th.
- ESTHER BRUNER, M. S., Assistant Professor of Clothing and Textiles (1920, 1927).
B. S., K. S. A. C., 1920; M. S., *ibid.*, 1921.
L 53; 311 Denison.
- INEZ GERTRUDE ALSOP, M. S., Assistant Professor of History and Government (1923, 1927).
B. S., K. S. T. C., Emporia, 1916; M. S., University of Kansas, 1926.
F 63; 1601 Fairchild.
- JAMES PHILLIP CALLAHAN, A. M., Assistant Professor of English (1924, 1927).
B. S., K. S. T. C., Hays, 1919; A. M., University of Kansas, 1926.
K 54; 715 Houston.
- HARRIET SHIPLEY PARKER, A. M., Assistant Professor of English (1924, 1927).
A. B., University of Kansas, 1909; A. M., Washington University, 1912.
A 53; 412 N. 16th.
- OSCEOLA HALL BURR, M. S., Assistant Professor of Public Speaking (1923, 1927).
B. S., K. S. A. C., 1923; M. S., *ibid.*, 1925.
G 55; Tatarrax Apartments.
- HAROLD HOWE, M. S., Assistant Professor of Agricultural Economics (1925, 1927).
B. S., K. S. A. C., 1922; M. S., University of Maryland, 1923. Ag 345; 1204 Fremont.
- ALICE CLAYPOOL JEFFERSON, Assistant Professor of Piano (1925, 1927).
Graduate, American Conservatory of Music, 1921.
MA 8; 906 Fremont.
- MYRTLE ANNICE GUNSELMAN, A. M., Assistant Professor of Household Economics (1926, 1927).
B. S., K. S. A. C., 1919; A. M., University of Chicago, 1926. T 62; 1016 Vattier.
- CLARENCE OWEN GRANDFIELD, B. S., Assistant Professor of Coöperative Experiments, Department of Agronomy (1920, 1927).
B. S., K. S. A. C., 1917.
Ag 202; 1630 Laramie.
- CARL ALFRED BRANDLY, D. V. M., Assistant Professor of Bacteriology (1927).
D. V. M., K. S. A. C., 1923.
V 53; 1026 Kearney.
- MILDRED CAMP, B. L. S., Head of Circulation Department, College Library (1927).
A. B., Eureka College, 1912; B. L. S., University of Illinois, 1924.
Li; 500 Humboldt.
- MAURICE ROSE, Capt. Inf., U. S. A., Assistant Professor of Military Science and Tactics (1927).
Graduate, U. S. Infantry School, 1926.
N 26; Paddleford Apt. 8.
- CHARLES HARRINGTON STEWART, Capt. C. A. C., U. S. A., Assistant Professor of Military Science and Tactics (1927).
Graduate, Coast Artillery School, 1923.
N 26; 1819 Leavenworth.
- ELDEN EMANUEL LEASURE, D. V. M., Assistant Professor of Pathology (1926, 1928).
D. V. M., K. S. A. C., 1923.
V 55; 1531 Leavenworth.

16. Absent on leave, Feb. 1 to May 31, 1929.

- EDWARD RAYMOND FRANK, D. V. M., Assistant Professor of Surgery and Medicine (1926, 1928).
B. S., in Ag., K. S. A. C., 1918; D. V. M., *ibid.*, 1924. VH 53; 1114 Fremont.
- HAROLD MARTIN SCOTT, M. S., Assistant Professor of Poultry Husbandry (June 20, 1928).
B. S., Oregon Agricultural College, 1924; M. S., K. S. A. C., 1927. Ag 252; 1633 Anderson.
- ROY BAINER, B. S., Assistant Professor of Agricultural Engineering (1926; July 1, 1928).
B. S., K. S. A. C., 1926. E 215; 321 Denison.
- KATHERINE JANE HESS, M. S., Assistant Professor of Clothing and Textiles (1925; July 1, 1928).
B. S., K. S. A. C., 1900; M. S., *ibid.*, 1926. L 53; 601 Fremont.
- MARTIN ADKISSON ALEXANDER, M. S., Assistant Professor of Animal Husbandry (1927; July 1, 1928).
B. S., Washington State College, 1923; M. S., Colorado Agricultural College, 1924. Ag 19; 1114 Bluemont.
- HOMER JAY HENNEY, M. S., Assistant Professor of Agricultural Economics (1927; July 1, 1928).
B. S., K. S. A. C., 1921; M. S., *ibid.*, 1928. Ag 353; 1723 Leavenworth.
- MARTINE A. SEATON, B. S., Assistant Professor of Poultry Husbandry, Division of College Extension (Aug. 1, 1928).
B. S. in Agr., University of Missouri, 1924. Ag 350; 1116 Bluemont.
- ROY WILSON WAMPLER, M. S., Assistant Professor of Chemistry (1921; Sept. 1, 1928).
A. B., McPherson College, 1920; M. S., K. S. A. C., 1921. C 10; 819 Kearney.
- HENRY EVERT WICHES, M. S., Assistant Professor of Rural Architecture (1924; Sept. 1, 1928).
B. S. in Arch., K. S. A. C., 1924; M. S., *ibid.*, 1925. E 224; 1501 Humboldt.
- HARRY STEPHEN BUECHE, E. E., Assistant Professor of Electrical Engineering (1925; Sept. 1, 1928).
Graduate, U. S. Naval Academy, 1920; B. S. in E. E., Villanova College, 1922; E. E., *ibid.*, 1924. E 19; 1116 Bluemont.
- HARRY MARTIN STEWART, M. B. A., Assistant Professor of Accounting (1926; Sept. 1, 1928).
A. B., University of Kansas, 1920; M. B. A., *ibid.*, 1926. S 55; 915 Fremont.
- GEORGE WILLARD MAXWELL, A. M., Assistant Professor of Physics (1927; Sept. 1, 1928).
A. M., University of Michigan, 1920. C 38; 810 Vattier.
- DOROTHY BRADFORD PETTIS, A. M., Assistant Professor of Modern Languages (1927; Sept. 1, 1928).
A. B., University of Nebraska, 1919; A. M., *ibid.*, 1924. A 70; 1203 Moro.
- MADALYN AVERY, B. S., Assistant Professor of Physics (Sept. 1, 1928).
B. S., K. S. A. C., 1924. C 36; 1613 Fairchild.
- LYLE WAYNE DOWNEY, B. M., Assistant Professor of Violin (Sept. 1, 1928).
A. B., James Millikin University, 1923; B. M., American Conservatory, 1928. M 30; 624 Houston.
- MARY ELIZABETH HOFF, B. S., in L. S., Head of Documents Department, College Library (Sept. 1, 1928).
A. B., Friends University, 1925; B. S. in L. S., University of Illinois, 1928. Li 52; 312 N. 15th.

JOHN HARVEY MADISON, First Lieut. C. A. C., U. S. A., Assistant Professor of Military Science and Tactics (Sept. 1, 1928).

N 29; 614 N. 11th.

RAY EUGENE MARSHALL, First Lieut. Inf., U. S. A., Assistant Professor of Military Science and Tactics (Sept. 1, 1928).

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

N 26; 1816 Leavenworth.

LILLIAN HUGHES NEISWANGER, A. M., Assistant Professor of Industrial Journalism (Sept. 1, 1928).

A. B., Washburn College, 1922; A. M., University of Wisconsin, 1927.

K 33A; 426 N. 17th.

DONALD ALDEN WILBUR,¹¹ A. M., Assistant Professor of Entomology (Sept. 1, 1928).

B. S., Oregon State College, 1925; A. M., Ohio State University, 1927.

F 55; 1002 Houston.

EDWARD JOSEPH WIMMER, Ph. D., Assistant Professor of Zoölogy (Sept. 1, 1928).

A. B., University of Wisconsin, 1925; A. M., *ibid.*, 1927; Ph. D., *ibid.*, 1928.

F 40; 1116 Bluemont.

LEVELLE, WOOD, M. S., Assistant Professor of Institutional Economics (Sept. 1, 1928).

B. S., Oregon Agricultural College, 1921; M. S., Teachers College, Columbia University, 1928.

Van Zile Hall.

MARY HUGHES ELLIOTT,¹² M. D., Assistant College Physician (Sept. 17-Nov. 15, 1928).

M. D., Loyola University Medical School, 1916.

A 59; 1732 Laramie.

JOHN JAY FEROE, A. M., Assistant Professor of Physics (Sept. 22, 1928).

A. B., Des Moines University, 1914; A. M., *ibid.*, 1916.

C 57; 1803 Anderson.

JOHN SNELL GLASS, B. S., Assistant Professor of Rural Engineering, Division of College Extension (Oct. 1, 1928).

B. S., Iowa State College, 1917.

E 131; R. R. 8.

JOHN COCHRANE NISBET, B. S., Assistant Professor of Dairy Husbandry, Division of College Extension (Nov. 1, 1928).

B. S., University of Wisconsin, 1923.

Ag 147; ———.

CLARENCE ROY JACCARD, B. S., Assistant Professor of Agricultural Extension; District Agricultural Agent, Division of College (1922; Nov. 1, 1928); Clay County Agricultural Agent, Division of College Extension (1922, 1924-Nov. 1, 1928).

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

A 60; 920 Leavenworth.

CECIL LYMAN MCFADDEN, B. S., Assistant Professor of Agricultural Extension, District Agricultural Agent, Division of College Extension (Feb. 3, 1928).

B. S., K. S. A. C., 1918.

A 60; ———.

EDWARD H. LEKER,* M. S., Marketing Specialist, Division of College Extension (1927; Jan. 1, 1929).

B. S. A., University of Missouri, 1917; M. S., K. S. A. C., 1928.

A 34; ———.

ASSOCIATES

ARTHUR MAXWELL BRUNSON,¹ Ph. D., Associate in Plant Breeding, Agricultural Experiment Station (1923).

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

Ag 302; 1730 Fairview.

* Transferred temporarily from county agent work.

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

11. Temporary appointment.

12. Resigned.

BENJAMIN LEVI SMITZ, Ph.D., Associate Food Analyst (1926; July 1, 1928).
 B. S., Michigan State College, 1924; M. S., *ibid.*, 1925; Ph. D., *ibid.*, 1926.
 W 29; 1719 Fairchild.

INSTRUCTORS

EDWARD GRANT, Instructor in Molding (1913); Foreman of Foundry (1913).
 S 42; 1814 Anderson.

INA EMMA HOLROYD,³ B.S., Instructor in Mathematics (1900, 1914).
 B. S., K. S. A. C., 1897; B. S., Kansas State Teachers College, Emporia, 1916.
 A 62A; 1001 Moro.

KATHERINE MAXWELL BOWER,³ 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; 1030 Kearney.

MARION COFFEE, First Sergt. C. A. C., U. S. A., Instructor in Military Science
 and Tactics (1920).
 N 26; R. R. 8.

NELLIE ABERLE, M.S., Instructor in English (1921).
 B. S., K. S. A. C., 1912; M. S., *ibid.*, 1914. A 63A; 1442 Fairchild.

CLARA BOGUE, A.M., Instructor in English (1921).
 B. S. in Ed., Kansas State Teachers College, Emporia, 1919; A. M., University of Chi-
 cago, 1921. A 61; 1445 Laramie.

CECIL AQUILA GUNNS, Instructor in Zoölogy (1921).
 F 31; 926 Vattier.

ELLEN MARGARET BATCHELOR,² B.S., Instructor and Assistant State Home
 Demonstration Leader, Division of College Extension (1917, 1921).
 B. S., K. S. A. C., 1911. A 36; 1119 Kearney.

JESSIE GULICK, Acting Head Cataloguer in Library (1907, 1923).
 Li 52; 421 N. 16th.

WILLIAM WESLEY CRAWFORD, M.Di., Instructor in Civil Engineering (1923).
 A. B., University of Iowa, 1912; B. S. in C. E., Iowa State College, 1917; M. Di., Iowa
 State Teachers College, 1908. E 220; 715 Poyntz.

CONIE CAROLINE FOOTE, B.S., Instructor and Specialist in Foods and Nutrition,
 Division of College Extension (1924).
 B. S., K. S. A. C., 1921. A 36; 513 N. 16th.

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; 1110 Kearney.

FRANCIS DALE PUGH, Sergt. Inf., U. S. A., Instructor in Military Science and
 Tactics (1925).
 N 26; 531 Osage.

HARRY RAY BRYSON, M.S., Instructor in Entomology (1924, 1925).
 B. S., K. S. A. C., 1917; M. S., *ibid.*, 1924. F 55; 1821 Leavenworth.

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

2. Absent on leave, year 1928-'29.

3. On sabbatical leave, year 1928-'29.

- HUBERT WHATLEY MARLOW, B.S., Instructor in Chemistry (1925).
B. S., North Texas Teachers College, 1925; M. S., University of Chicago, 1928.
W 31; 113 N. 9th.
- RICHARD LAWRENCE PYCHA, B.S., Instructor in Chemistry (1925).
B. S., K. S. A. C., 1925; M. S., *ibid.*, 1928.
W 30; 1319 Pierre.
- GEORGE MONTGOMERY,¹¹ M.S., Instructor in Agricultural Economics, Department of Institutes and Extension Schools, Division of College Extension (1925; Sept. 1, 1928).
B. S., K. S. A. C., 1925; M. S., *ibid.*, 1928.
Ag 347; 912 Laramie.
- EDWARD AMIN ABDUN-NUR,¹³ B.S., Instructor in Applied Mechanics (1926).
A. B., American University of Beirut, 1922; B. S., Massachusetts Institute of Technology, 1924.
- ARTHUR CLINTON ANDREWS, B.S., Instructor in Chemistry (1926).
B. S., University of Wisconsin, 1924.
D 30; Wareham Hotel.
- LINUS BURR SMITH, B.S., Instructor in Architecture (1926).
B. S., K. S. A. C., 1926.
E 308; 1811 Humboldt.
- EDNA MINERVA BENDER, B.S., Assistant State Club Leader, Division of College Extension (1926).
B. S., University of Minnesota, 1923.
A 35; 1649 Fairchild.
- MAY MILES,¹¹ B.S., Instructor and Assistant State Home Demonstration Leader, Division of College Extension (1926; Sept. 1, 1928).
B. S., University of Illinois, 1926.
A 36; 1649 Fairchild.
- FRED WILSON DOELZ, Instructor in Shop Practice (1926).
Graduate, Dunwoody Institute, 1922.
S 32; Shafer Apts.
- RUTH EMMA TUCKER, M.S., Instructor in Food Economics and Nutrition (1925, 1926).
A. B., University of Illinois, 1923; M. S., *ibid.*, 1925.
L 69; 1109 Kearney.
- ELIZABETH QUINLAN, M.S., Instructor in Clothing and Textiles (1925, 1926).
B. S., K. S. A. C., 1917; M. S., Columbia University, 1924.
L 53; 1212 Fremont.
- ROY CLINTON LANGFORD, M.S., Instructor in Psychology (1925, 1926).
B. S., K. S. A. C., 1925; M. S., *ibid.*, 1926.
G 34; 426 N. 17th.
- HAROLD JEROME BROOKS, M.S., Instructor in Dairy Husbandry (1926).
B. S., University of Missouri, 1924; M. S., South Dakota State College, 1926.
Ag 145; 1840 Anderson.
- IRENE ELDRIDGE, A. M., Instructor in Mathematics (1926).
B. S., Beloit College, 1920; A. M., *ibid.*, 1924.
A 62A; 1203 Moro.
- ARTHUR EDWIN GUEST, A. B., Instructor in General Chemistry (1926).
A. B., Simpson College, 1923.
C 56; 1201A Moro.
- CARROLL MENDENHALL LEONARD, M. E., Instructor in Mechanical Engineering (1926).
B. S. in M. E., K. S. A. C., 1924; M. E., *ibid.*, 1928.
E 109; R. R. 1.
- MAYNARD LEE McDOWELL, A. M., Instructor in Chemistry (1926).
A. B., Central College, 1924; A. M., University of Missouri, 1926.
W 30; 520 Thurston.
- HERBERT LAFERN OAKES, B.S., Instructor in Civil Engineering (1926).
B. S. in C. E., University of Oklahoma, 1926.
E 220; 414 N. Juliette.

11. Temporary appointment.

13. Absent on indefinite leave.

- LAWRENCE FREDERICK PETERSON,¹² B.S., Instructor in Physics (1926-Sept. 22, 1928).
B. S., University of Chicago, 1926.
- THOMAS ISAAC PORTER, A. B., Instructor in Mathematics (1926).
A. B., University of Missouri, 1915; B. S. in Ed., *ibid.*, 1915. F 1; 615 Humboldt.
- MORDICA MCKINNEY RYAN, M.S., Instructor in General Chemistry (1926).
A. B., Bethany (W. Va.) College, 1923; M. S., Ohio State University, 1926.
D 30; 1433 Anderson.
- MAYBELLE PRITCHARD SMITH, M. S., Instructor in General Chemistry (1926).
A. B., University of Illinois, 1922; M. S., University of Wisconsin, 1926.
W 26; 426 N. 17th.
- HOWARD DALE TYNER, B.S., Instructor in General Chemistry (1926).
B. S., Illinois Wesleyan University, 1925. D 30; 1116 Bluemont.
- MARION WHITTAKER, M.S., Instructor in General Chemistry (1926).
A. B., Mount Holyoke College, 1923; M. S., University of Michigan, 1926.
W 26; 1531 Leavenworth.
- ALDEN HEBBARD LOOMIS, B.S., Instructor in Woodworking (1926).
B. S., Oklahoma A. and M. College, 1916. S 28; R. R. 2.
- JOHN CARL OLSEN, B.S. in M. E., Instructor in Machine Design (1927).
B. S. in M. E., Colorado Agricultural College, 1925. E 209; 1804 El Paso.
- MATTHEW JOSEPH CONNOLLY, Sergt. Inf., U. S. A., Instructor in Military Science and Tactics (1927).
N 26; 517 Leavenworth.
- ROYCE OWEN PENCE, B.S. in F. M. E., Instructor in Milling Industry (1927).
B. S. in F. M. E., K. S. A. C., 1924. Ag 120; 1018 Fremont.
- LILLIAN JULIETTE SWENSON,¹¹ A.B., Acting Reference Librarian (1927; July 1, 1928).
A. B., Colorado College, 1924; B. S., Simmons College, 1927. Li 51; 1223 Bluemont.
- MARIA MORRIS, M.S., Instructor in Applied Art (1925, 1927).
B. S., K. S. A. C., 1911; Graduate, New York School of Fine and Applied Art, 1924;
M. S., K. S. A. C., 1927. A 67; 816 N. Juliette.
- ELSA OTTILIA HORN, M.S., Instructor in Botany and Plant Pathology (1926, 1927).
A. B., University of Minnesota, 1919; M. S., Oregon Agricultural College, 1926.
H 76B; 819 Thurston.
- WILBUR JOHN CAULFIELD, M.S., Instructor in Dairy Husbandry (1927).
B. S., University of Minnesota, 1924; M. S., Pennsylvania State College, 1926.
Ag 147; 1116 Bluemont.
- DURA LOUISE COCKRELL, A. M., Instructor in Household Economics (1927).
A. B., Texas Christian University, 1923; A. M., Columbia University, 1924.
L 35; 1704 Fairview.
- GEORGE FRANCIS CORCORAN, M.S., Instructor in Electrical Engineering (1927).
B. S., South Dakota State College, 1923; M. S., University of Minnesota, 1926.
E 127; 1116 Bluemont.
- HORATIO MINTER FARRAR, A. B., Instructor in Voice (1927).
A. B., Hastings College, 1927; Voice Diploma, *ibid.*, 1927. MA 12; 1116 Bluemont.
- KATHERINE GEYER,¹¹ B.S., Instructor in Physical Education for Women (1927).
Diploma, Sargent School for Physical Education, 1925; B. S. in Ed., Ohio State University, 1927. N 1; 514 N. 17th.

11. Temporary appointment.

12. Resigned.

- HOWARD KAY GLOYD, B.S., Instructor in Zoölogy (1927).
B. S., Ottawa University, 1924. F 78; 1001 Laramie.
- HILDA ROSE GROSSMANN, B. M., Instructor in Voice (1927).
B. M., Chicago Musical College, 1925; Illinois State Certificate in Public School Music, MA 14; 1104 Vattier. *ibid.*, 1927.
- VIDA AGNES HARRIS, A. M., Instructor in Applied Art (1927).
B. S., K. S. A. C., 1914; A. M., University of Chicago, 1927. A 56; West Anderson.
- LORETTA McELMURRY, B.S., Instructor in Clothing and Textiles, Division of College Extension (1927).
B. S., South Dakota State College, 1901. A 36; 1728 Fairview.
- LAWSON FRANCIS MARCY, A. M., Instructor in General Chemistry (1927).
A. B., Evansville College, 1924; A. M., Columbia University, 1926. D 26; 1201 Moro.
- DOROTHY MARGARET SAPPINGTON, B.S., Instructor in Physical Education for Women (1927).
B. S., University of Missouri, 1926. N 1; 1203 Moro.
- WILLIAM BOWEN SARLES, M.S., Instructor in Bacteriology (1927).
B. S., University of Wisconsin, 1926; M. S., *ibid.*, 1927. V 52; 1127 Kearney.
- EARL LE ROY SITZ, B.S., Instructor in Electrical Engineering (1927; Sept. 1, 1928).
B. S. in E. E., Iowa State College, 1927. E 24; 1201A Moro.
- CHARLES WILLIAM STRATTON, B. M., Instructor in Piano (1927).
B. M., K. S. A. C., 1926. MA 4; 511 N. Sunset.
- GLADYS ELLEN VAIL, M.S., Instructor in Food Economics and Nutrition (1927).
A. B., Southwestern College, 1924; M. S., University of Chicago, 1927. L 69; 522 N. 14th.
- FLORENCE PATRICIA STEEL, M. M., Instructor in Piano (1927).
B. M., Bush Conservatory, 1925; M. M., *ibid.*, 1927. M 52; 1611 Laramie.
- RALPH DALE NICHOLS,¹¹ Instructor in Agricultural Economics (1920; July 1, 1928).
B. S., K. S. A. C., 1920; M. S., *ibid.*, 1928. Ag 348; 902 Ratone.
- PERCY LEROY DE PUY,¹¹ M.S., Instructor in Animal Husbandry, Home Study Service, Division of College Extension (July 1, 1928).
B. S., K. S. A. C., 1918; M. S., *ibid.*, 1923. A 5; 1725 Leavenworth.
- RUSSELL IRA THACKREY, B.S., Instructor in Industrial Journalism (Aug. 1, 1928).
B. S., K. S. A. C., 1927. K 30B; 1519 Fairchild.
- MARGUERITE VELMA HARPER, B.S., Instructor in Household Management, Division of College Extension (Aug. 5, 1928).
B. S., K. S. A. C., 1928. A 36; 1408 Laramie.
- MARGARET ALICE NEWCOMB, M.S., Instructor in Botany and Plant Pathology (1925; Sept. 1, 1928).
B. S., K. S. A. C., 1925; M. S., *ibid.*, 1927. H 57 1733 Laramie.
- LAWRENCE FENER HALL, B.S., Instructor in Education (1926; Sept. 1, 1928).
B. S., K. S. A. C., 1923. G 29; 1221 Laramie.
- DOROTHEA RUTH DOWD,¹⁴ M.S., Instructor in Zoölogy (1927; Sept. 1, 1928).
A. B., Kalamazoo College, 1927; M. S., K. S. A. C., 1928. F 38; 1311 Laramie.

11. Temporary appointment.

14. Appointed for the year 1928-'29.

- SARAH MORRIS, M. S., Instructor in Institutional Economics (1927; Sept. 1, 1928).
B. S., K. S. A. C., 1925; M. S., *ibid.*, 1928. T 27; 817 Poyntz.
- CLAY JEFFERSON ANDERSON,¹² A. M., Instructor in Department of Economics and Sociology (Sept. 1, 1928-Jan. 15, 1929).
B. S., University of Missouri, 1926; A. M., *ibid.*, 1927. A 74; 428 Humboldt.
- GLADYS VIOLA BAKER,¹¹ B. L. S., Reference Assistant in Library (Sept. 1, 1928).
A. B., Missouri Wesleyan College, 1919; B. L. S., University of Illinois, 1924.
Li 51; 500 Humboldt.
- GRATIA MARIE BURNS, A. M., Instructor in Modern Languages (Sept. 1, 1928).
B. S., University of Minnesota, 1926; A. M., *ibid.*, 1928. A 70; 1641 Fairchild.
- CHESTER LEONARD CARJOLA, B. S., Instructor in Architecture (Sept. 1, 1928).
B. S. in Arch., University of Minnesota, 1928. E 308; Rex Arms Apts.
- NELLE MAY COOK,¹¹ B. S., Instructor in Mathematics (Sept. 1, 1928).
A. B., Hiram College, 1913; B. S. in Ed., Phillips University, 1923.
A 62A; 1019 Bluemont.
- MARTHA REBECCA CULLIPHER, B. L. S., Loan Assistant in Library (Sept. 1, 1928).
A. B., Indiana University, 1926; B. L. S., University of Illinois, 1928.
Li 52; 312 N. 15th.
- FRANK WEBSTER HILL, Instructor in Violin (Sept. 1, 1928).
Certificate in Music, University of Rochester, 1928. MA 10; 1324 Laramie
- ARNOLD ROOSEVELT JONES, B. S., Instructor in Accounting (Sept. 1, 1928).
B. S., University of Kansas, 1927. S 56; 521 Osage.
- ETHEL JUSTIN MARSHALL,¹¹ M. S., Instructor in History and Civics, Home Study Service, Division of College Extension (Sept. 1, 1928).
B. S., K. S. A. C., 1910; M. S., *ibid.*, 1926. A 2; 630 Moro.
- MARION HERFORT PELTON, B. M., Instructor in Piano (Sept. 1, 1928).
B. M., University of Wisconsin, 1927. MA 5; 1212 Fremont.
- MYRON EDWARD RUSSELL, B. M., Instructor in Music, and Director of Band (Sept. 1, 1928).
B. M., K. S. A. C., 1927. M 53; 1006 Kearney.
- VELMA MAY TALMADGE, B. M., Instructor in Voice (Sept. 1, 1928).
B. M., Chicago Musical College, 1923. MA 7; 1704 Fairview.
- GLENN LYONAL RUCKER,¹¹ B. S., Instructor in Mechanical Engineering, Home Study Service, Division of College Extension (Oct. 1, 1928).
B. S., K. S. A. C., 1924. A 2; 1201 Moro.
- ALPHA CORINNE LATZKE, M. S., Instructor in Household Management, Division of College Extension (Jan. 1, 1929).
B. S., K. S. A. C., 1919; M. S., *ibid.*, 1928. A 36; 344 N. 15th.
- EARL HICKS TEAGARDEN,¹¹ B. S., Instructor in Crops, Division of College Extension (Jan. 10, 1920).
B. S., K. S. A. C., 1920. A 34; ———.
- HAROLD CARL LINDBERG,¹¹ B. S., Instructor in Applied Mechanics (Feb. 1, 1929).
B. S., K. S. A. C., 1929. E 113; 1115 Laramie.
- MABEL BEULAH PLATZ,¹¹ A. M., Instructor in English (Feb. 1 to May 31, 1929).
A. B., Northwestern University, 1919; A. M., University of California, 1922.
A 54; 1613 Fairchild.

11. Temporary appointment.

12. Resigned.

WILLIAM MCKINLEY STENSAAS,¹¹ A. B., Instructor in English (Feb. 1 to May 31, 1929).

A. B., Bethany College, 1922.

K 52; 1728 Laramie.

ASSISTANTS

ALANSON LOLA HALLSTED,¹ 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; 717 Laramie.

HATTIE HELEN WHITE, Secretary, Business Office (1912).

A 27; 717 Laramie.

ROBERT GETTY,¹ B. S. A., Assistant in Forage Crops, Fort Hays Branch Agricultural Experiment Station (1913).

B. S. A., University of Nebraska, 1913.

Hays, Kan.

MABEL GERTRUDE BAXTER, Assistant in Charge of Continuations, College Library (1916, 1918).

Li 26; 1624 Fairchild.

ELISABETH PERRY HARLING, Seed Analyst, Department of Agronomy (1912, 1917).

Ag 77; 628 Fremont.

MARY KIMBALL, B. S., First 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 47; 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 Leavenworth.

BRUCE BUNYAN SMITH, Assistant in Agricultural Engineering (1918).

Bks. 2; 830 Laramie.

ALICE MAUDE MELTON, B. S., Assistant to the Dean, Division of General Science (1900, 1919).

B. S., K. S. A. C., 1898.

A 50; 831 Leavenworth.

EDWARD L. CLAEREN, Major, U. S. R., Military Property Custodian, Department of Military Science and Tactics (1910, 1919).

N 29; 900 Pierre.

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, Assistant to the Dean, Division of College Extension (1920).

Graduate, Lawrence Business College.

A 33; 817 Poyntz.

¹. In coöperation with the U. S. Department of Agriculture.

¹¹. Temporary appointment.

- CHARLES OTIS JOHNSTON,¹ M.S., Assistant Plant Pathologist, Agricultural Experiment Station (1920).
B. S., K. S. A. C., 1918; M. S., *ibid.*, 1924. H 53; 1323 Laramie.
- CLARENCE OSBORN PRICE, Assistant to the President (1920).
A 30; 501 Blument.
- JOSEPH FARRINGTON MERRILL, B.S., Assistant Chemist, Agricultural Experiment Station (1921).
B. S., University of Maine, 1907. C 3; 318 N. 16th.
- FLOYD JOSEPH HANNA, Assistant in Department of Illustrations (1922).
I; 1612 Leavenworth.
- EMBERT HARVEY COLES,¹ B.S., Assistant in Dry-land Agricultural Investigations, Garden City Branch Agricultural Experiment Station (1922).
B. S., K. S. A. C., 1922. Garden City, Kan.
- CLARA MAGDALENE SIEM, Financial Secretary, Division of College Extension (1920, 1924).
A 33; 1425 Humboldt.
- ANDREW EDWARD OMAN,¹⁵ 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. Li 1; 1030 Moro.
- FRED FOSTER GREELEY, Assistant in Shop Practice (1903).
S 30; 931 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, 1900. College Hospital.
- ROY MOORE,¹⁵ Specialist in Rodent Control Work, Division of College Extension (1923).
A 34A; 111 N. 15th.
- HAZEL ELIZABETH TAYLOR PFUETZE,* Secretary, Department of Education (1925).
G 28; 1449 Laramie.
- JEANNE MACBRIDE, Housekeeper in College Hospital, Department of Student Health (1925).
College Hospital.
- JOSEPH BENJAMIN KUSKA, B.S., Scientific Assistant, Colby Branch Agricultural Experiment Station (1926).
Colby, Kan.
- RUTH MARY TRANT, A.B., Assistant in Physical Education for Women (1925, 1926).
A. B., University of Kansas, 1920. N 1; 1119 Kearney.
- FRANK LEWIS MEYERS, B.M., Assistant to the Director of Physical Education (1926).
B. M., K. S. A. C., 1924. N 35; 821 Vattier.
- JACK HARRIS LINSOTT, Assistant in Heat and Power (1927).
E 27; 1030 Houston.

* On leave of absence, December 1, 1928, to August 31, 1929.

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

15. In coöperation with Biological Survey, U. S. D. A.

ERNEST WILLIAM JOHNSON, B.S., Forest Nurseryman, Fort Hays Branch Agricultural Experiment Station (1927).

B. S., Colorado Agricultural College, 1926.

Hays, Kan.

RAYMOND HOWARD DAVIS, B.S., Assistant in Soil Survey (1927).

B. S. in Agr., K. S. A. C., 1927.

Ag 216; 414 N. Juliette.

LISLE LESLIE LONGSDORF, M.S., Extension Editor, Division of College Extension (1927).

B. S., University of Wisconsin, 1925; M. S., *ibid.*, 1926.

A 3; Wareham Hotel.

CHRISTOPHER HENRY FICKE,¹¹ M.S., Assistant Pathologist, Department of Botany and Plant Pathology (1925, 1927).

B. S., Iowa State College, 1925; M. S., K. S. A. C., 1927.

H 53; 930 Ratone.

KATHARYN PHOEBE ZIPSE, B.S., Critic Teacher, Home Economics Education (1927).

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

L 66; 1821 Poyntz.

EMERY JACK COULSON, B.S., Assistant Chemist, Agricultural Experiment Station (1927).

B. S., K. S. A. C., 1927.

C 4; 1006 Bertrand.

GLENN EVERETT WEBSTER, Radio Operator, Division of College Extension (June 1, 1928).

N 83; 730 Vattier.

JANE WILSON BARNES, B.S., Secretary to the Dean, Division of Home Economics (July 1, 1928).

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

L 29; 910 Bluemont.

ROSE LOUISE CHILD, Assistant to the Dean of Women (July 1, 1928).

A 61; 1637 Anderson.

CLARENCE EDWARD CREWS, B.S., Assistant in Agronomy (July 1, 1928); Foreman of Agronomy Farm (July 1, 1928).

B. S., K. S. A. C., 1928.

Agronomy Farm.

CHARLOTTE CROUCH LAMPRECHT, Assistant to the Dean, Division of Home Economics (July 1, 1928).

Diploma, Kansas State Teachers College, Emporia, 1903.

L 29; 815 Osage.

KARL WILLIAM NIEMANN,¹¹ B.S., Assistant in Veterinary Medicine (July 1, 1928).

B. S., K. S. A. C., 1926.

V 2; 1030 Fremont.

LIBBIE ELLEN REEVES, Assistant to the Superintendent, Fort Hays Branch Agricultural Experiment Station (July 9, 1928).

Hays, Kan.

LEONE BOWER KELL,¹¹ M.S., Assistant in Household Economics (1927; Sept. 1, 1928).

B. S., K. S. A. C., 1923; M. S., *ibid.*, 1928.

L 35; 727 Leavenworth.

IVA LARSON, A. B., Assistant in Genetics, Department of Zoölogy (1927; Sept. 1, 1928).

A. B., University of South Dakota, 1927.

Insectary; 1311 Laramie.

THEODORE ROOSEVELT WARREN,¹¹ M.S., Assistant in Dairy Husbandry (1927; Sept. 1, 1928).

B. S. in Agr., University of Idaho, 1927; M. S., K. S. A. C., 1928.

Ag 145; 1116 Bluemont.

LAURA BELLE BAXTER, B.S., Assistant in Education (1927; Sept. 1, 1928).

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

M. H. S.; 610 Vattier.

11. Temporary appointment.

- EFFIE LOVISA HASTINGS, Second Assistant to the Registrar (1927; Sept. 1, 1928).
A 29; 122 S. Manhattan.
- WARD HILLMAN HAYLETT, A. B., Assistant in Physical Education (Sept. 1, 1928).
A. B., Doane College, 1926. N 34; 1642 Laramie.
- RALPH ALDRICH PIPER, B. P. E., Assistant in Physical Education (Sept. 1, 1928).
B. P. E., Y. M. C. A. College, 1928. N 36; 1212 Fremont.
- MYRA THELMA POTTER, B. S., Technician, Department of Food Economics and Nutrition (Sept. 1, 1928).
B. S., K. S. A. C., 1928. L 18; 1214 Vattier.
- MYRA EDNA SCOTT,¹¹ A. M., Assistant in English (Sept. 1, 1928).
B. S., K. S. A. C., 1921; A. M., Stanford University, 1928. A 54; 924 Moro.
- MARY LOIS WILLIAMSON,¹¹ B. S., Critic Teacher, Home Economics Education (Sept. 1, 1928).
M. H. S.; 1514 Humboldt.
- BELLE CLARKE HOWARD, R. N., Nurse, Department of Student Health (Sept. 1, 1928).
R. N., Charlotte Swift Hospital, 1919. College Hospital.
- FLORENCE MURRAY,¹² Nurse, Department of Student Health (Sept. 1, 1928-Dec. 31, 1928).
Graduate Nurse, Clay Center, Kan., 1923. College Hospital.
- MILDRED ANNE WALKER, Third Assistant to Registrar (Sept. 10, 1928).
A 29; 1219 Poyntz.
- CHARLES A. PYLE,¹¹ D. V. M., Animal Pathologist, Department of Veterinary Medicine (Oct. 10, 1928).
D. V. M., K. S. A. C., 1907. Sedan, Kan.
- HARRIET MAY CLARK,¹¹ A. M., Assistant in English (Feb. 1, 1929-May 31, 1929).
A. B., University of Nebraska, 1923; A. M., *ibid.*, 1928. A 53; 1636 Fairchild.

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 (1883, 1925); Custodian of Buildings and Grounds, Emeritus (1893, 1925).
B. S., K. S. A. C., 1883; M. S., *ibid.*, 1886. E 26B; 1414 Fairchild
- 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 Repairs, Custodian, and Heat and Power Departments (1916, 1925).
PP 30; 1015 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).
B. S., K. S. A. C., 1918. Colby, Kan.

11. Temporary appointment.

12. Resigned.

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

ALLEN PEARSON LOOMIS, Superintendent of Poultry Farm (1926).
Poultry Farm, Route 8.

HARRY ALCID SWIM, B.S., Assistant Superintendent of Building and Repair (1926).
B. S. in E. E., K. S. A. C., 1925. PP 28; 1613 Humboldt.

AGRICULTURAL AGENTS¹

HERBERT LYNNE HILDWEIN, B.S., Sedgwick County Agricultural Agent, Division of College Extension (1917, 1926).
B. S., K. S. A. C., 1914. Wichita, 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, 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.

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.

ARTHUR I. GILKISON, Douglas County Agricultural Agent, Division of College Extension (1920, 1926).
Lawrence, Kan.

CARL LEWIS HOWARD, B.S., Lyon County Agricultural Agent, Division of College Extension (1920, 1926).
B. S., K. S. A. C., 1920. 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.

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

- PAUL BERNARD GWIN, B.S., Geary County Agricultural Agent, Division of College Extension (1921, 1925).
B. S., K. S. A. C., 1916. Junction City, Kan.
- WILLIAM LOUIS TAYLOE, B.S.A., Crawford County Agricultural Agent, Division of College Extension (1921).
B. S. A., University of Missouri, 1917. Girard, Kan.
- CHARLES HAROLD STINSON, B.S., Pawnee County Agricultural Agent, Division of College Extension (1921; Aug. 5, 1928).
B. S., K. S. A. C., 1921. Larned, Kan.
- CLARENCE ROY JACCARD,* B.S., Clay County Agricultural Agent, Division of College Extension (1922, 1924; Nov. 1, 1928).
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.
- WILLIAM HERBERT ROBINSON, B.S., Shawnee County Agricultural Agent, Division of College Extension (1923, 1926).
B. S., K. S. A. C., 1916. Topeka, 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., Sumner County Agricultural Agent, Division of College Extension (1923, 1926).
B. S., K. S. A. C., 1923. Wellington, Kan.
- CHARLES ENOCH LYNESS, B.S., Doniphan County Agricultural Agent, Division of College Extension (1923).
B. S., K. S. A. C., 1912. Troy, Kan.
- RAY LEIGHTON GRAVES, B.S., Clay County Agricultural Agent, Division of College Extension (1923, 1925; Nov. 1, 1928); Harvey County Agricultural Agent (1923, 1925; Oct. 31, 1928).
B. S., K. S. A. C., 1912. Clay Center, Kan.
- GEORGE W. SIDWELL, A.B., Edwards County Agricultural Agent, Division of College Extension (1913; May 7, 1928).
A. B., Fairmount College, 1915. Kinsley, Kan.
- SAMUEL DAVID CAPPER, B.S., Riley County Agricultural Agent, Division of College Extension (1923, 1925).
B. S., K. S. A. C., 1921. Manhattan, Kan.
- MOTT LUTHER ROBINSON, B.S., McPherson County Agricultural Agent, Division of College Extension (1923).
B. S., K. S. A. C., 1923. McPherson, Kan.
- JUNIUS WARREN FARMER, B.S., Greenwood County Agricultural Agent, Division of College Extension (1923).
B. S., K. S. A. C., 1923. Eureka, Kan.
- WILLIAM O'CONNELL, B.S., Marshall County Agricultural Agent, Division of College Extension (1924).
B. S., K. S. A. C., 1916. Marysville, Kan.

* Transferred.

- RALPH REUBEN McFADDEN, B.S., Harvey County Agricultural Agent, Division of College Extension (1922; Nov. 1, 1928); Clark County Agricultural Agent (1922-Oct. 31, 1928).
B. S., K. S. A. C., 1921. Newton, Kan.
- CLARENCE GLADFELTER,¹² B.S., Chase County Agricultural Agent, Division of College Extension (1924-Dec. 31, 1928).
B. S., K. S. A. C., 1924. Cottonwood Falls, Kan.
- DWIGHT ELLSWORTH HULL, B.S., Saline County Agricultural Agent, Division of College Extension (1924, 1927).
B. S., K. S. A. C., 1917. Salina, Kan.
- LEONARD NEFF, B.S. A., Cloud County Agricultural Agent, Division of College Extension (1925).
B. S. A., Purdue University, 1922. Concordia, Kan.
- EDWARD AICHER, D.V.S., Cowley County Agricultural Agent, Division of College Extension (1925).
D. V. S., Colorado State College, 1910. Winfield, Kan.
- DEWEY ZOLLIE McCORMICK, B.S., Morris County Agricultural Agent, Division of College Extension (1925).
B. S., K. S. A. C., 1921. Council Grove, Kan.
- WALTER JONES DALY, B.S., Linn County Agricultural Agent, Division of College Extension (1925, 1927).
B. S. in Agr., K. S. A. C., 1925. Mound City, Kan.
- DUKE DANIEL BROWN, B.S., Jefferson County Agricultural Agent, Division of College Extension (1925, 1926).
B. S. in Agr., K. S. A. C., 1921. Oskaloosa, Kan.
- GLEN MCKINLEY REED, B.S., Nemaha County Agricultural Agent, Division of College Extension (1925; Mar. 25, 1928).
B. S., K. S. A. C., 1925. Seneca, Kan.
- WILLIAM SCOTT SPEER, B.S., Kingman County Agricultural Agent, Division of College Extension (1926).
B. S., K. S. A. C., 1925. Kingman, Kan.
- NEIL LEWIS RUCKER, B.S., Sherman County Agricultural Agent, Division of College Extension (1926).
B. S., K. S. A. C., 1913. Goodland, Kan.
- RICHARD LOUIS VON TREBRA, B.S., Wyandotte County Agricultural Agent, Division of College Extension (1926).
B. S., K. S. A. C., 1926. Kansas City, Kan.
- WALTER HENRY VON TREBRA, B.S., Rice County Agricultural Agent, Division of College Extension (1926).
B. S., K. S. A. C., 1924. Lyons, Kan.
- WALTER HENRY ATZENWEILER, B.S., Brown County Agricultural Agent, Division of College Extension (1926).
B. S., K. S. A. C., 1926. Hiawatha, Kan.
- GEORGE SMITH ATWOOD, B.S., Hodgeman County Agricultural Agent, Division of College Extension (1926).
B. S., K. S. A. C., 1924. Jetmore, Kan.
- JOHN HENRY SHIRKEY, B.S., Meade County Agricultural Agent, Division of College Extension (1926).
B. S., K. S. A. C., 1926. Meade, Kan.

12. Resigned.

JOHN HERBERT COOLIDGE, B.S., Gray County Agricultural Agent, Division of College Extension (1926).

B. S., Knox College, 1925.

Cimarron, Kan.

FRED JAMES SYKES, B.S., Comanche County Agricultural Agent, Division of College Extension (1926).

B. S., K. S. A. C., 1926.

Coldwater, Kan.

JOHN DELMONT MONTAGUE, B.S., Marion County Agricultural Agent, Division of College Extension (1926).

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

Marion, Kan.

ARTHUR WILLIAM KNOTT, B.S., Montgomery County Agricultural Agent, Division of College Extension (1927).

B. S., University of Wisconsin, 1917.

Independence, Kan.

AMWEL EDWIN JONES, B.S., Dickinson County Agricultural Agent, Division of College Extension (1927).

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

Abilene, Kan.

RALPH PAUL RAMSEY, B.S., Jewell County Agricultural Agent, Division of College Extension (1927).

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

Mankato, Kan.

CARL MILTON CARLSON, B.S., Reno County Agricultural Agent, Division of College Extension (1927).

B. S., K. S. A. C., 1927.

Hutchinson, Kan.

EUGENE ARTHUR CLEAVINGER, B.S., Coffey County Agricultural Agent, Division of College Extension (1927).

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

Burlington, Kan.

EARL CARR, B.S., Rawlins County Agricultural Agent, Division of College Extension (1927).

B. S., K. S. A. C., 1927.

Atwood, Kan.

EDWARD H. LEKER, M.S., Leavenworth County Agricultural Agent, Division of College Extension (1927).

B. S. A., University of Missouri, 1917; M. S., K. S. A. C., 1927.

Leavenworth, Kan.

RAYMOND LUTHER STOVER, M.S., Lincoln County Agricultural Agent, Division of College Extension (1927).

B. S., K. S. A. C., 1924; M. S., Oregon Agricultural College, 1927.

Lincoln, Kan.

CHARLES ARCHER JONES, B.S., Johnson County Agricultural Agent, Division of College Extension (1927).

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

Olathe, Kan.

JOHN HAROLD JOHNSON, B.S., Sedgwick County Club Agent, Division of College Extension (1927).

B. S., K. S. A. C., 1927.

Wichita, Kan.

JOHN TANTON WHETZEL, B.S., Miami County Agricultural Agent, Division of College Extension (1927).

B. S., K. S. A. C., 1927.

Paola, Kan.

THEODORE FRANKLIN YOST, B.S., Bourbon County Agricultural Agent, Division of College Extension (1927).

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

Fort Scott, Kan.

WALTER CARL FARNER,¹² B.S.A., Labette County Agricultural Agent, Division of College Extension (Jan. 1, 1928-Nov. 15, 1928).

B. S. A., University of Wisconsin.

Altamont, Kan.

12. Resigned.

MELVIN CLAIR KIRKWOOD, B.S., Cheyenne County Agricultural Agent, Division of College Extension (Feb. 1, 1928).

B. S. in Agr., K. S. A. C., 1928.

St. Francis, Kan.

ORVILLE RAY CALDWELL, B.S., Finney County Agricultural Agent, Division of College Extension (Mar. 12, 1928).

B. S. in Agr., K. S. A. C., 1928.

Garden City, Kan.

HARRY ROBB POLLOCK, B.S., Ness County Agricultural Agent, Division of College Extension (May 1, 1928).

B. S., University of Illinois, 1914.

Ness City, Kan.

VANCE MATHER RUCKER, B.S., Harper County Agricultural Agent, Division of College Extension (June 1, 1928).

B. S., K. S. A. C., 1928.

Anthony, Kan.

ROBERT THOMAS PATTERSON, B.S., Cherokee County Agricultural Agent, Division of College Extension (June 15, 1928).

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

Columbus, Kan.

HERMAN ALBERT BISKIE, B.S., Franklin County Agricultural Agent, Division of College Extension (July 1, 1928).

B. S., University of Nebraska, 1917.

Ottawa, Kan.

LESTER SHEPARD, B.S., Neosho County Agricultural Agent, Division of College Extension (July 1, 1928).

A. B., University of Iowa, 1913; B. S., Iowa State College, 1916.

Erie, Kan.

FRANCIS LEONARD TIMMONS, B.S., Pratt County Agricultural Agent, Division of College Extension (Aug. 5, 1928).

B. S., K. S. A. C., 1928.

Pratt, Kan.

LYLE MAYFIELD, B.S., Clark County Agricultural Agent, Division of College Extension (Nov. 8, 1928).

B. S., K. S. A. C., 1928.

Ashland, Kan.

LEONARD BEATH HARDEN, B.S., Labette County Agricultural Agent, Division of College Extension (Nov. 16, 1928).

B. S., K. S. A. C., 1926.

Altamont, Kan.

EDWARD ALBERT STEPHENSON, JR., B.S., Chase County Agricultural Agent, Division of College Extension (Jan. 1, 1929).

B. S., K. S. A. C., 1928.

Cottonwood Falls, Kan.

HENRY LEWIS LOBENSTEIN, B.S., Atchison County Assistant Agricultural Agent, Division of College Extension (Jan. 1, 1928).

B. S., K. S. A. C., 1926.

Atchison, Kan.

WALTER CARL FARNER, B.S.A., Washington County Assistant Agricultural Agent, Division of College Extension (Nov. 24, 1928).

B. S. A., University of Wisconsin.

Washington, Kan.

SHERMAN HOAR, B.S., Leavenworth County Assistant Agricultural Agent, Division of College Extension (Jan. 2, 1929).

B. S., K. S. A. C., 1928.

Leavenworth, Kan.

RAGNAR NATHANIEL LINDBURG, B.S., Butler County Club Agent, Division of College Extension (Jan. 1, 1929).

B. S., K. S. A. C., 1928.

El Dorado, Kan.

HOME DEMONSTRATION AGENTS ¹

LAURA WINTER, Sedgwick County Home Demonstration Agent, Division of College Extension (1925).

Wichita, Kan.

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

- FLORENCE DRESSER SYVERUD, B.S., Allen County Home Demonstration Agent, Division of College Extension (1925).
B. S., K. S. A. C., 1908. Iola, Kan.
- ESTHER MAE HUYCK, B.S., Rawlins County Home Demonstration Agent, Division of College Extension (1925).
B. S., South Dakota State College, 1925. Atwood, Kan.
- MABEL McCOMB, Reno County Home Demonstration Agent, Division of College Extension (1925, 1927).
B. S., K. S. A. C., 1925. Hutchinson, Kan.
- ELLA M. MEYER, B.S., Franklin County Home Demonstration Agent, Division of College Extension (1925).
B. S., K. S. A. C., 1907. Ottawa, Kan.
- ELIZABETH RANDLE, B.S., Douglas County Home Demonstration Agent, Division of College Extension (1926).
B. S., K. S. A. C., 1907. Lawrence, Kan.
- CHARLOTTE ELIZABETH BIESTER, B.S., Johnson County Home Demonstration Agent, Division of College Extension (1924, 1926).
B. S., University of Illinois, 1921. Olathe, Kan.
- GRACE MILDRED HENDERSON, B.S., Riley County Home Demonstration Agent, Division of College Extension (1926, 1928).
B. S., University of Nebraska, 1924. Manhattan, Kan.
- NELLIE MABLE BARE,¹² B.S., Clay County Home Demonstration Agent, Division of College Extension (1926-Nov. 16, 1928).
B. S., K. S. A. C., 1926. Clay Center, Kan.
- MARY ELSIE BORDER, B.S., Cherokee County Home Demonstration Agent, Division of College Extension (1927).
B. S., Ohio State University, 1926. Columbus, Kan.
- LOIS HOLDERBAUM, B.S., Shawnee County Home Demonstration Agent, Division of College Extension (1927, 1928).
B. S., K. S. A. C., 1925. Topeka, Kan.
- NORA ELIZABETH BARE, B.S., Butler County Home Demonstration Agent, Division of College Extension (1927).
B. S., K. S. A. C., 1925. El Dorado, Kan.
- WINIFRED MAUDE EDWARDS, B.S., Leavenworth County Home Demonstration Agent, Division of College Extension (1927).
B. S., K. S. A. C., 1927. Leavenworth, Kan.
- LUCRETIA SCHOLER, B.S., Harvey County Home Demonstration Agent, Division of College Extension (1927).
B. S., K. S. A. C., 1920. Newton, Kan.
- GRACE HERR, B.S., Bourbon County Home Demonstration Agent, Division of College Extension (1927).
B. S., K. S. A. C., 1922. Fort Scott, Kan.
- GLYDE ESTELLA ANDERSON,¹² B. S., Greenwood County Home Demonstration Agent, Division of College Extension (Jan. 1-Dec. 31, 1928).
B. S., K. S. A. C., 1926. Eureka, Kan.
- SARA JANE PATTON, Neosho County Home Demonstration Agent, Division of College Extension (Jan. 1, 1928).
B. S., K. S. A. C., 1915. Erie, Kan.

12. Resigned.

LEONA PETERSON, B.S., Kingman County Home Demonstration Agent, Division of College Extension (Jan. 3, 1928).

B. S., South Dakota State College, 1927.

Kingman, Kan.

MARY DUNLAP ZIEGLER, Pratt County Home Demonstration Agent, Division of College Extension (Jan. 26, 1928).

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

Pratt, Kan.

CHRISTIE CYNTHIA HEPLER, B.S., Labette County Home Demonstration Agent, Division of College Extension (Mar. 10, 1928).

B. S., K. S. A. C., 1926.

Altamont, Kan.

VERNETTA FAIRBAIRN, A. B., Montgomery County Home Demonstration Agent, Division of College Extension (Mar. 15, 1928).

A. B., University of Kansas, 1927.

Independence, Kan.

EDITH ANTONETTE HOLMBERG, B.S., Ford County Home Demonstration Agent, Division of College Extension (Mar. 16, 1928).

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

Dodge City, Kan.

LOUELLA ELIZABETH MARGARET MCCALL, M.S., Ford County Home Demonstration Agent, Division of College Extension (June 11, 1928).

B. S., K. S. A. C., 1918; M. S., Iowa State College, 1927.

Dodge City, Kan.

RUTH JEANETTE PECK, B.S., Wyandotte County Home Demonstration Agent, Division of College Extension (Aug. 10, 1928).

B. S., K. S. A. C., 1928.

Kansas City, Kan.

JESSIE CAMPBELL, B.S., Rice County Home Demonstration Agent, Division of College Extension (Nov. 14, 1928; Jan. 1, 1929).

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

Lyons, Kan.

MARGARET ANNABEL KOENIG, B.S., Clay County Home Demonstration Agent, Division of College Extension (Jan. 1, 1929).

B. S., K. S. A. C., 1928.

Clay Center, Kan.

ALBERTA WENKHEIMER, A.B., Harper County Home Demonstration Agent, Division of College Extension (Jan. 1, 1929).

B. S., K. S. A. C., 1909; A. B., University of Kansas, 1928.

Anthony, Kan.

MABEL RACHEL SMITH, B.S., Crawford County Home Demonstration Agent, Division of College Extension (Feb. 1, 1929).

B. S., K. S. A. C., 1926.

Girard, Kan.

GRADUATE ASSISTANTS

EARL BLACKBOURN BELSCAMPER, A.B., Graduate Assistant in Botany and Plant Pathology (1927).

A. B., College of Emporia, 1925.

H 77; 1605 Anderson.

VERNON DANIEL FOLTZ, B.S., Graduate Assistant in Bacteriology (1927).

B. S., K. S. A. C., 1927.

V 54; 340 N. 16th.

VINCENT CHARLES HUBBARD,¹² B.S., Graduate Assistant in Crops (1927-Jan. 31, 1929).

B. S., University of Minnesota, 1927.

Ag 102; 830 Laramie.

ARTHUR EINAR MORTENSEN, B.S., Graduate Assistant in Soils (1927).

B. S., South Dakota State College, 1926.

Ag 202; 1428 Laramie.

RALPH ALEXANDER IRWIN, B.S., Graduate Assistant in Education (July 1, 1928).

B. S., K. S. A. C., 1928.

G 33; 1001 Moro.

12. Resigned.

JEAN FREINER ALEXANDER, A.B., Graduate Assistant in Zoölogy (Sept. 1, 1928).
A. B., Oklahoma City University, 1928. F 30; 1317 Laramie.

ARTHUR THEODORE BARTEL, B.S., Graduate Assistant in Botany and Plant Pathology (Sept. 1, 1928).
B. S., University of Idaho, 1928. H 77; 1116 Bluemont.

CECIL THOMAS BLUNN, B.S., Graduate Assistant in Animal Husbandry (Sept. 1, 1928).
B. S., University of California, 1928. Ag 95; 1116 Bluemont.

HOMER CLEO BRAY, B.S., Graduate Assistant in Dairy Husbandry (Sept. 1, 1928).
B. S., Oregon State College, 1928. Ag 155; 1840 Anderson.

LILA MARGUERITE CANAVAN, A.B., Graduate Assistant in Food Economics and Nutrition (Sept. 1, 1928).
A. B., University of Kansas, 1919. L 28; 344 N. 15th.

HELEN ELIZABETH COBB, B.S., Graduate Assistant in Clothing and Textiles (Sept. 1, 1928).
B. S., University of Wisconsin, 1924. L 66; 1641 Fairchild.

WILLIAM EUGENE CONNELL, B.S., Graduate Assistant in Animal Husbandry (Sept. 1, 1928).
B. S., Oklahoma A. and M. College, 1928. Ag 24; 1231 Vattier.

MARTHA LOUELLA HENSLEY, B.S., Graduate Assistant in Child Welfare and Euthenics (Sept. 1, 1928).
B. S., University of Missouri, 1926. L 65; 912 Laramie.

WILLIAM ROBERT HORSFALL, B.S.A., Graduate Assistant in Entomology (Sept. 1, 1928).
B. S.A., University of Arkansas, 1928. F 67; 1116 Bluemont.

DALE FRANKLIN KING, B.S., Graduate Assistant in Poultry Husbandry (Sept. 1, 1928).
B. S., Oregon State College, 1928. Ag 252; 1219 Poyntz.

MARY HOPE MORRIS, B.S., Graduate Assistant in Zoölogy (Sept. 1, 1928).
B. S., K. S. A. C., 1928. F 38; R. R. 1.

MARGUERITE SAMCO, A.B., Graduate Assistant in Zoölogy (Sept. 1, 1928).
A. B., University of South Dakota, 1928. F 27; 519 N. Manhattan.

VEDA ROZELLA SKILLIN, B.S., Graduate Assistant in Dean's Office, Division of Home Economics (Sept. 1, 1928).
B. S., K. S. A. C., 1928; R. N., Charlotte Swift Hospital, Manhattan, 1928.
L 29; Charlotte Swift Hospital.

CARL OSCAR YOUNGSTROM, B.S., Graduate Assistant in Agricultural Economics (Sept. 1, 1928).
B. S., Oregon State College, 1928. Ag 363; 1840 Anderson.

AUSTIN GOTH, B. S., Graduate Assistant in Agronomy (Feb. 1, 1929).
Ag 102; ———.

RESEARCH ASSISTANTS

LUTHER OWEN NOLF, B.S., Research Assistant in Parasitology (1927).
B. S., K. S. A. C., 1926. F 27; 1000 Vattier.

ROBERT TOWNER HILL,¹⁴ B.S., Research Assistant in Mammalogy (July 1, 1928).
B. S., South Dakota State College, 1928. F 7; 1428 Laramie.

14. Appointed for the year 1928-'29.

- EDWARD SCHNEBERGER, B. S., Research Assistant in Zoölogy (July 1, 1928).
B. S., K. S. A. C., 1928. F 38; 918 N. Manhattan.
- COIT ALFRED SUNESON, B. S., Research Assistant in Agronomy (July 1, 1928).
B. S., Montana State College, 1928. Ag 217; 931 Moro.
- FRANCES MABLE BACKSTROM, B. S., Research Assistant in Clothing and Textiles (Sept. 1, 1928).
B. S., K. S. A. C., 1928. L 67; 1625 Leavenworth.
- MARGARET ANGELINE BRENNER, B. S., Research Assistant in Food Economics and Nutrition (Sept. 1, 1928).
B. S., K. S. A. C., 1926. L 65; 1019 Bluemont.
- JOANNA SEILER CHALLANS, A. B., Research Assistant in Mammalogy (Sept. 1, 1928).
A. B., University of Kansas, 1927. F 7; 1000 Kearney.
- ALICE JOSEPHINE ENGLUND, B. S., Research Assistant in Household Economics (Sept. 1, 1928).
B. S., K. S. A. C., 1926. T 52; 1641 Anderson.
- ISABELLE GILLUM, B. S., Research Assistant in Food Economics and Nutrition (Sept. 1, 1928).
B. S., University of Texas, 1927: L 44; 344 N. 15th.
- GEORGE LAURIN GRAHAM, A. B., Research Assistant in Zoölogy (Sept. 1, 1928).
A. B., Grand Island College, 1927. F 38; 1114 Bluemont.
- FLORENCE HARRIS, B. S., Research Assistant in Institutional Economics (Sept. 1, 1928).
B. S., K. S. A. C., 1925. L 30; 2000 Anderson.
- GEORGE EDWARD MARSHALL,¹⁴ B. S., Research Assistant in Entomology (Sept. 1, 1928).
B. S., K. S. A. C., 1928. F 65; 515 N. 9th.

FELLOWS

- ALMOND DERRILL BULL, B. S., Holstein-Friesian Fellow, Department of Dairy Husbandry (Feb. 1, 1928).
B. S., Oklahoma A. and M. College, 1925. 1116 Bluemont.
- DAVID GOODSSELL HALL, B. S., Crop Protection Institute Fellow, Department of Entomology (Sept. 1, 1928).
B. S., Ohio State University, 1926. F 66; 1030 Houston.
- BEULAH FERN SHOCKEY, B. S., Montgomery, Ward and Company Fellow in Home Economics, Department of Clothing and Textiles (Sept. 1, 1928).
B. S., Kansas State Teachers College, Pittsburg, 1921. L 65; 1031 Houston.
- RAYMOND EDWIN SAMUELSON, B. S., Poultry Research Society Fellow, Department of Poultry Husbandry (Sept. 17, 1928).
B. S., Iowa State College, 1928. Ag 225; 1116 Bluemont.

OTHER OFFICERS

- JESSIE McDOWELL MACHIR, Registrar (1913).
A 29; 1641 Fairchild.
- KENNEY LEE FORD, B. S., Alumni Secretary (Nov. 1, 1928).
B. S., K. S. A. C., 1924. A 38A; 1516 Leavenworth.
- 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.

14. Appointed for the year 1928-'29.

RUTH MEAD FERTIG, A. B., Secretary of the Young Women's Christian Association (Sept. 1, 1928).

A. B., Mount Holyoke College, 1925.

L 41; 421 N. 16th.

STEPHEN ARNOLD GEAUQUE, Custodian (1918, 1926).

G 1; 1014 Laramie.

LESTER HENRY DRAYER, Chief Engineer, Heat and Power Department (1916, 1927).

E 3; 531 Moro.

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, Walter Burr.

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

ASSIGNMENT: Jessie McD. Machir, A. E. White, Araminta Holman, C. H. Scholer, W. E. Grimes, J. H. Robert, A. B. Sperry.

ATHLETIC COUNCIL: F. D. Farrell, H. H. King, M. F. Ahearn, E. L. Holton, R. A. Seaton, R. I. Throckmorton, G. A. Dean.

CALENDAR: Mary P. Van Zile, J. C. Peterson, M. F. Ahearn, H. T. Hill, J. T. Willard, Ina Holroyd, Wm. Lindquist, F. E. Charles.

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

COMMUNITY CHEST EXECUTIVE: W. H. Andrews, Mary P. Van Zile, F. D. Farrell, A. A. Holtz, Ruth Fertig.

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

EXAMINATIONS: A. E. White, C. W. Colver, R. A. Seaton.

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

GRADUATE COUNCIL: 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, H. T. Hill, Carl Kipp, Mrs. C. O. Swanson, Wm. Lindquist.

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

REINSTATEMENT: R. I. Throckmorton, Margaret Ahlborn, W. M. McLeod, J. H. Robert, W. T. Stratton.

RELATION WITH JUNIOR COLLEGES AND ARTS COLLEGES: George Gemmel, Margaret Chaney, R. R. Dykstra, M. A. Durland, J. H. Parker, F. L. Parrish.

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, A. A. Holtz, H. A. Shinn, L. E. Conrad, R. I. Throckmorton, A. F. Bowen, Grace E. Derby.

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

STUDENT HONORS: J. O. Hamilton, R. W. Conover, B. L. Remick, M. W. Furr.

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.

H. E. SHRACK, Business Manager.

HUGH DURHAM, Assistant to Director.

AGRICULTURAL ECONOMICS—

W. E. GRIMES, Farm Organization, in Charge.

HAROLD HOWE, Land Economics.

R. M. GREEN, Marketing.

MORRIS EVANS, Farm Organization.

J. A. HODGES, Farm Organization (on leave).

HOMER J. HENNEY, Marketing Live Stock.

R. D. NICHOLS, Farm Organization.

CAROL O. YOUNGSTROM, Graduate Assistant.

AGRONOMY—

R. I. THROCKMORTON, in Charge.

S. C. SALMON, Crops.

J. H. PARKER, Plant Breeding.¹

A. E. ALDOUS, Pasture Management.

F. L. DULEY, Soils.

M. C. SEWELL, Soils.

A. M. BRUNSON, Corn Breeding.¹

J. W. ZAHNLEY, Crops.

H. H. LAUDE, Coöperative Experiments.

E. S. LYONS, Soils (on sabattical leave).

C. O. GRANDFIELD, Coöperative Experiments.

I. K. LANDON, Southeastern Kansas Experimental Fields.

R. H. DAVIS, Soil Survey.

C. W. BOWER, Field Agent, Corn Breeding.¹

C. E. CREWS, Farm Superintendent.

ELISABETH HARLING, Seed Analyst.

L. L. DAVIS, Nursery Foreman.¹

V. C. HUBBARD, Graduate Assistant.

A. E. MORTENSEN, Graduate Assistant.

C. A. SUNESON, Research Assistant.

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.

C. E. AUBEL, Swine Investigations.

M. A. ALEXANDER, Live Stock.

C. T. BLUNN, Graduate Assistant.

W. E. CONNELL, Graduate Assistant.

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

BACTERIOLOGY—

L. D. BUSHNELL, in Charge.
A. C. FAY, Dairy Bacteriology.
P. L. GAINNEY, Soil Bacteriology.
C. A. BRANDLY, Poultry Disease Investigations.

BOTANY—

L. E. MELCHERS, Plant Pathology, in Charge (on leave).¹
E. C. MILLER, Plant Physiology.
O. H. ELMER, Plant Pathology.
C. O. JOHNSTON, Cereal Disease Investigations.¹
HURLEY FELLOWS, Cereal Disease Investigations.¹
JAMES L. WEIMER, Forage Crop Disease Investigations.¹
ARTHUR T. BARTEL, Graduate Assistant.

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.
A. T. PERKINS, Soil Investigations.

DAIRY HUSBANDRY—

J. B. FITCH, in Charge.
H. W. CAVE, Dairy Production.
W. H. MARTIN, Dairy Manufactures.
H. J. BROOKS, Official Testing.
R. H. LUSH, Dairy Production (on leave).
THEODORE R. WARREN, Dairy Production.
W. J. CAULFIELD, Dairy Manufactures.
HOMER C. BRAY, Graduate Assistant.

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 (on leave).
R. H. PAINTER, Staple Crop Insect Investigations.
H. R. BRYSON, Staple Crop Insect Investigations.
DONALD A. WILBUR, Staple Crop Insect Investigations.
W. R. HORSFALL, Graduate Assistant.
GEORGE E. MARSHALL, Research assistant.

HOME ECONOMICS—

MARGARET M. JUSTIN, in Charge.
MARTHA KRAMER, Food Economics and Nutrition.
MARGARET CHANEY, Food Economics and Nutrition.
LILIAN BAKER, Clothing and Textiles.
KATHERINE HESS, Clothing and Textiles.
ISABELLE GILLUM, Research Assistant.
FRANCES BACKSTROM, Research Assistant.

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

HORTICULTURE—

ALBERT DICKENS, in Charge.
R. J. BARNETT, Pomology.
W. F. PICKETT, Orchard Investigations.
L. R. QUINLAN, Landscape Gardening.
W. B. BALCH, Floriculture and Vegetable Gardening.
———, Graduate Assistant.

MILLING INDUSTRY—

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

POULTRY HUSBANDRY—

L. F. PAYNE, in Charge.
D. C. WARREN, Genetics.
H. M. SCOTT, Poultry Production.
A. P. LOOMIS, Superintendent of Poultry Plant.
DALE F. KING, Graduate Assistant.
RAYMOND E. SAMUELSON, Research Assistant.

VETERINARY MEDICINE—

R. R. DYKSTRA, in Charge.
C. W. HOBBS, Field Veterinarian.
H. F. LIENHARDT, Pathology.
J. P. SCOTT, Blackleg Investigations (on leave).
C. H. KITSELMAN, Abortion Disease Investigations.

ZOOLOGY—

R. K. NABOURS, in Charge.
J. E. ACKERT, Parasitology.
IVA LARSON, Genetics.
G. E. JOHNSON, Injurious Mammals.
C. A. GUNNS, Technician.
MARGARET SAMCO, Research Assistant.
JOANNA S. CHALLANS, Research Assistant.
L. O. NOLF, Research Assistant.

BRANCH EXPERIMENT STATIONS

FORT HAYS—

L. C. AICHER, Superintendent.
A. L. HALLSTED, Dry-farming Investigations.¹
R. E. GETTY, Forage Crop Investigations.¹
A. F. SWANSON, Cereal Crops.¹

GARDEN CITY—

F. A. WAGNER, Superintendent.
E. H. COLES, Dry-land Agriculture Investigations.¹

COLBY—

B. F. BARNES, Superintendent.¹
J. B. KUSKA, Scientific Assistant.

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.

M. A. DURLAND, Bulletin Editor.

AGRICULTURAL ENGINEERING—

F. C. FENTON, in Charge.

R. H. DRIFTMIER, Farm Machinery.

W. H. SANDERS, Tractors.

ROY BAINER, General Investigations.

APPLIED MECHANICS—

C. H. SCHOLER, in Charge.

E. R. DAWLEY, Materials of Construction.

HAROLD ALLEN, Road Materials.

ARCHITECTURE—

PAUL WEIGEL, in Charge.

H. E. WICHERS, Rural Architecture.

L. B. SMITH, General Investigations.

CHEMICAL ENGINEERING—

H. H. KING, in Charge.

W. F. BROWN, General Investigations.

CIVIL ENGINEERING—

L. E. CONRAD, in Charge.

F. F. FRAZIER, General Investigations.

M. W. FURR, Highway Engineering.

ELECTRICAL ENGINEERING—

R. G. KLOEFFLER, in Charge.

J. L. BRENNEMAN, Storage Batteries.

O. D. HUNT, General Investigations.

L. M. JORGENSEN, Household Appliances.

H. S. BUECHE, Radio Investigations.

G. F. CORCORAN, Rural Electrification.

E. L. SITZ, General Investigations.

MACHINE DESIGN—

C. E. PEARCE, in Charge.

M. A. DURLAND, General Investigations.

J. C. OLSEN, General Investigations.

MECHANICAL ENGINEERING—

J. P. CALDERWOOD, in Charge.

A. J. MACK, General Investigations.

B. B. BRAINARD, General Investigations.

C. M. LEONARD, General Investigations.

PHYSICS—

J. O. HAMILTON, in Charge.

G. E. RABURN, General Investigations.

SHOP PRACTICE—

W. W. CARLSON, in Charge.

G. A. SELLERS, General Investigations.

E. C. GRAHAM, Farm Shop Problems.

E. C. JONES, Machine Tools.

D. E. LYNCH, Forging Practice.

R. S. SINK, Automotive Engineering.

EDWARD GRANT, Foundry Practice.

Bureau of Research in Home Economics

OFFICERS OF THE BUREAU

F. D. FARRELL, President of the College.
MARGARET M. JUSTIN, Director.

CHILD WELFARE AND EUTHENICS—

HELEN WHEELER FORD, in Charge.
JEAN DOBBS, Public Health.

CLOTHING AND TEXTILES—

LILIAN BAKER, in Charge.
KATHERINE HESS, Physics of Textiles.
ESTHER BRUNER, Chemistry of Textiles.
FRANCES BACKSTROM, Assistant.

FOOD ECONOMICS AND NUTRITION—

MARTHA S. PITTMAN, in Charge.
MARTHA KRAMER, Nutrition.
MARGARET CHANEY, Applied Nutrition.
MYRA POTTER, Food and Nutrition.
ISABELLE GILLUM, Assistant.

HOUSEHOLD ECONOMICS—

MARGARET M. JUSTIN, in Charge.
MYRTLE GUNSELMAN, Household Management.
MARY TAYLOR, Equipment.

INSTITUTIONAL ECONOMICS—

BESSIE B. WEST, Institutional Economics.
LA VELLE WOOD, Institutional Economics.

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 Bluemont 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 the 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 highways Nos. 13 and 29, and U. S. highways 40, 40N, and 40S. It has motor-bus service between the railway stations and the College, and with cities to the east and to the west. 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 agricultural 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 motor-bus 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 146.6 acres, the College owns 1,420.3 acres of land at Manhattan, valued at \$413,093. Outside the campus proper, all of the land is devoted to educational and experimental work in agriculture. Within the College grounds, much 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, and have a total value of \$2,634,860.

ANDERSON HALL. Erected, 1879, 1883, and 1885; cost, \$79,000; dimensions, 152x250 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, 13 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 feet 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 classrooms 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 is 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, Electrical Engineering, Machine Design, Mathematics, and Mechanical Engineering.

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 30 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 a 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; remodeled, 1927; cost, \$91,750; dimensions, 100 x 140 feet; two stories, basement, and attic. Occupied by offices, classrooms, and laboratories of the Departments of Entomology, Zoölogy, and History and Government. The museums of natural history also are housed here. For many years, till the fall of 1927, the major part of this building was occupied by the College library.

FARM BARN. Erected, 1913; 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.

HEAT, POWER, AND SERVICE BUILDING. Erected, 1928; cost, with plant equipment, \$375,000; dimensions, 122 x 210 feet; three stories high. The building houses the Departments of Heat and Power, and Building and Repair, and the offices of the custodian and superintendent of maintenance. The heat and power plant furnishes steam for the heating system and power and light for the entire campus. The plant has a rated boiler capacity of 1,900 horsepower and an engine capacity of 1125 kilowatts. A complete system of

underground tunnels connects the main buildings and through these tunnels are carried the steam and electrical energy to the different parts of the campus.

HORTICULTURE BARN. Erected, 1917; cost, \$1,500; dimensions, 38 x 55 feet. Two stories, first story stone, second frame. This building is located one mile west of the College campus.

HORTICULTURE 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 Departments 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.

LIBRARY. Erected, 1926; 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 are 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 is devoted to stack rooms, seminar rooms, offices, working quarters, and an exhibition gallery.

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, \$260,000; 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.

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.

PRESIDENT'S RESIDENCE. Erected, 1924; cost, \$31,000; three stories and basement; built from funds bequeathed by Mehitabel Caler Copenhagen Wilson in memory of her husband, Davies Wilson.

THOMPSON HALL. Erected, 1921; cost, \$125,000; dimensions, 138 x 60 feet and 38 x 24 feet; 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, \$175,000; dimensions, 169 x 85 feet; three stories and basement. The building contains bedrooms, dining hall, kitchen facilities, and social quarters for 125 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, 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; moved to the present location in 1927; dimensions, 30 x 75 feet; two stories high. This building is part of the structure erected for the S. A. T. C. as mess hall (barracks No. 5). The

building is occupied by the repair and ignition sections of the auto mechanics laboratories.

EXPERIMENT STATION BUILDING. Erected, 1918; dimensions, 40x176 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, 40x80 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, 114x150 feet. Contains six sections used by the various departments as follows: Horticulture, three; Botany, one; Agronomy, one; Entomology and Zoölogy, one.

NEW GREENHOUSE. Erected, 1926; cost, \$10,000; dimensions, 29x100; occupied by the Departments of Agronomy and Botany.

PLANT MUSEUM. Erected, 1907; cost \$2,500; dimensions, 20x100 feet. Used by the Department of Horticulture. Contains a large number of rare growing plants, including many subtropical species.

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, 20x60 feet; two stories.

SHEEP BARN. Erected, 1926; cost, \$10,000; dimensions: main structure, 43x51 feet, and wings, 32x90 feet. Situated north of the main campus.

TRACTION ENGINE LABORATORIES. Erected, 1918. These are two frame buildings on concrete foundations, built originally as barracks Nos. 2 and 3 for the S. A. T. C.

PUMP HOUSE. 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 June 30, 1928, the Library contained 86,200 bound volumes, besides much unbound material. It receives currently about 1,200 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.

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. Two doctors give their 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 department owns equipment valued at \$8,793.

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. Those 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.

<i>Curricula.</i>	<i>Units of fixed entrance requirements.</i>
Agriculture (4 years)	English, 3; science, 1; algebra, 1; geometry, 1.
Agricultural Administration (4 years).....	Same as for Agriculture.
Agricultural Engineering (4 years).....	Same as for Architecture.
Animal Husbandry and Veterinary Medicine (6 years)	Same as for Agriculture.
Architecture (4 years)	English, 3; science, 1; algebra, 1½; geometry, 1½.
Architectural Engineering (4 years).....	Same as for Architecture.
Chemical Engineering (4 years).....	Same as for Architecture.
Civil Engineering (4 years).....	Same as for Architecture.
Commerce (4 years).....	Same as for General Science.
Electrical Engineering (4 years).....	Same as for Architecture.
Flour-mill Engineering (4 years).....	Same as for Architecture.
General Science (4 years).....	English, 3; science, 1; algebra, 1½; geometry, 1.
General Science and Veterinary Medicine (6 years)	Same as for General Science.
Home Economics (4 years).....	English, 3; science, 1; algebra, 1; geometry, 1.
Home Economics, with stress upon Applied Art (4 years)	Same as for Home Economics.
Home Economics and Nursing (5 years).....	Same as for Home Economics.
Industrial Chemistry (4 years).....	Same as for Architecture.
Industrial Journalism (4 years).....	Same as for Agriculture.
Landscape Architecture (4 years).....	Same as for Architecture.
Landscape Gardening (4 years).....	Same as for Agriculture.
Mechanical Engineering (4 years).....	Same as for Architecture.
Physical Education for Men (4 years).....	Same as for Agriculture.
Physical Education for Women (4 years).....	Same as for Agriculture.
Piano (4 years)	English, 3; science, 1; algebra, 1; geometry, 1.
Public-school Music (4 years).....	Same as for Piano.
Public-school Band and Orchestra (4 years).....	Same as for Piano.
Veterinary Medicine (4 years).....	Same as for Agriculture.
Violin (4 years).....	Same as for Piano.
Voice (4 years).....	Same as for Piano.

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: Algebra III, two semester hours, and Solid Geometry, two 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 defi-

ciency (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.
	Constitution, one-half 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, twelve 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. Entrance requirements in Algebra and Solid Geometry 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 average grade in all subjects falls below B 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.

* 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.

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 substitutes 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.

It is strongly urged that persons entering with advanced credit send to the registrar, at least two or three weeks in advance of entrance, certified transcripts of their work at other colleges. Transcripts received after September 2, 1929, cannot be acted upon before the opening days of College.

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 9, 1929; Monday, January 27, 1930; and Saturday, May 31, 1930. 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 of 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. High-school transcripts received after September 2, 1929, cannot be acted upon before the opening days of College.

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.

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 meet the regular entrance requirements, 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 occurs the major subjects to be pursued.

Special students are subject to all the general regulations and requirements of regular students, such as assignments to physical education and military training.

KANSAS HIGH SCHOOLS AND ACADEMIES IN ACCREDITED RELATIONS WITH THE COLLEGE

(Candidates admitted without examination.)

Abbyville.	Baldwin.	Burdick.
Abilene.	Bancroft.	Diamond Valley.
Ada.	Barclay.	Burlingame.
Adams.	Barnard.	Burlington.
Admire.	Barnes.	Burns.
Agenda.	Basehor.	Burr Oak.
Agra.	Bavaria.	Burrton.
Alden.	Baxter Springs.	Bushong.
Alexander.	Bazine.	Bushton.
Allen.	Beattie.	Byers.
Alma.	Beeler.	Caldwell.
Almena.	Belle Plaine.	Cambridge.
Altamont.	Belleville.	Caneiro.
Labette Co. Com.	Belmont.	Caney.
Alta Vista.	Beloit.	Canton.
Alton.	Beloit H. S.	Carbondale.
Altoona.	St. John's H. S.	Cassoday.
Americus.	Belpre.	Castleton.
Andover.	Belvue.	Cawker City.
Anthony.	Bendena.	Cedar.
Anthony.	Benedict.	Cedar Point.
Spring Twp.	Bennington.	Cedarvale.
Antrim.	Bentley.	Centerview.
St. John P. O.	Benton.	Centralia.
Appanoose.	Bern.	Chanute.
Pomona P. O.	Berryton.	Chapman.
Arcadia.	Beverly.	Dickinson Co. Com.
Argonia.	Bird City.	Chase.
Arkansas City.	Bison.	Chautauqua.
Arlington.	Blaine.	Cheney.
Arma.	Bloom.	Cherokee.
Arnold.	Blue Mound.	Crawford Co. Com.
Asherville.	Blue Rapids.	Cherryvale.
Ashland.	Bluff City.	Chetopa.
Assaria.	Bogue.	Cimarron.
Atchison.	Bonner Springs.	Circleville.
Atchison H. S.	Brewster.	Clafin.
St. Benedict's College	Brewster H. S.	Clay Center.
Academy.	Brownville Con. H. S.	Clayton.
Mt. St. Scholastica	Bronson.	Clearwater.
Academy.	Brookville.	Cleburne.
Athens.	Brownell.	Clements.
Glen Elder P. O.	Brownville.	Clifton.
Athol.	Brewster P. O.	Climax.
Atlanta.	Bucklin.	Clyde.
Attica.	Bucyrus.	Coats.
Atwood.	Bucyrus H. S.	Cockerill.
Auburn.	Wea H. S.	Mulberry P. O.
Augusta.	Buffalo.	Codell.
Aurora.	Buhler.	Coffeyville.
Axtell.	Bunkerhill.	Colby.
Axtell H. S.	Burden.	Coldwater.
St. Michael's H. S.	Burdett.	Collyer.

Colony.
 Columbus.
 Cherokee Co. Com.
 Concordia.
 Concordia H. S.
 Nazareth H. S.
 Conway Springs.
 Coolidge.
 Copeland.
 Corning.
 Cottonwood Falls.
 Chase Co. Com.
 Council Grove.
 Courtland.
 Covert.
 Coyville.
 Cuba.
 Cullison.
 Culver.
 Cunningham.
 Deerfield.
 Delavan.
 Delia.
 Washington Twp.
 Delphos.
 Denison.
 Dennis.
 Densmore.
 Denton.
 Derby.
 De Soto.
 Dexter.
 Dighton.
 Lane Co. Com.
 Dodge City.
 Dodge City H. S.
 St. Mary of the Plains
 Academy.
 Doniphan.
 Dorrance.
 Douglass.
 Dover.
 Downs.
 Dresden.
 Dunlap.
 Durham.
 Dwight.
 Easton.
 Edgerton.
 Edmond.
 Edna.
 Edson.
 Edwardsville.
 Effingham.
 Atchison Co. Com.
 El Dorado.
 Elgin.
 Elk City.
 Elk Falls.
 Elkhart.
 Ellinwood.
 Ellis.
 Ellsworth.
 Elmdale.
 Elsmore.
 Elwood.
 Emmett.
 Emporia.
 Englewood.
 Ensign.
 Enterprize.
 Erie.
 Esbon.
 Eskridge.
 Eudora.
 Eureka.
 Everest.
 Fairview.
 Fall River.
 Falun.

Fellsburg.
 Florence.
 Fontana.
 Osage Twp.
 Ford.
 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.
 Geuda Springs.
 Girard.
 Glasco.
 Glendale.
 Brookville P. O.
 Glen Elder.
 Goddard.
 Goessel.
 Goff.
 Goodland.
 Sherman Co. Com.
 Gorham.
 St. Mary's H. S.
 Gove.
 Grainfield.
 Great Bend.
 Greeley.
 Green.
 Greenleaf.
 Greensburg.
 Grenola.
 Gridley.
 Grinnell.
 Gypsum.
 Haddam.
 Halstead.
 Hamilton.
 Hamlin.
 Hanover.
 Hanston.
 Hardtner.
 Harlan.
 Harper.
 Hartford.
 Harveyville.
 Havana.
 Haven.
 Havensville.
 Haviland.
 Haviland R. H. S.
 Friend's Academy.
 Hays.
 Hays H. S.
 Girls Catholic H. S.
 Catholic College Academy.
 Hazelton.
 Healy.
 Hepler.
 Herington.
 Herndon.
 Hesston.
 Hesston College Academy.
 Hiawatha.

Highland.
 Highland Park.
 Topeka P. O.
 Hill City.
 Hillsboro.
 Hillsboro H. S.
 Tabor College Academy.
 Hoisington.
 Holcomb.
 Hollenberg.
 Holton.
 Holyrood.
 Hope.
 Horton.
 Horton H. S.
 St. Leo's H. S.
 Howard.
 Hoxie.
 Sheridan Co. Com.
 Hoyt.
 Hudson.
 Hugoton.
 Stevens Co. Com.
 Humboldt.
 Hunter.
 Hutchinson.
 Hutchinson H. S.
 Bressee College Academy.
 St. Teresa Academy.
 Independence.
 Ingalls.
 Inman.
 Iola.
 Ionia.
 Irving.
 Jamestown.
 Jarbalo.
 Jennings.
 Jetmore.
 Jewell City.
 Johnson.
 Stanton Co. Com.
 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.
 Pembroke School.
 State School for Blind.
 Sumner H. S.
 Welborn H. S.
 Western Univ. Academy.
 Keats.
 Kensington.
 Kincaid.
 Kingman.
 Kingsdown.
 Kinsley.
 Kipp.
 Kiowa.
 Kirwin.
 Kismet.
 La Crosse.
 La Cygne.
 Lafontaine.
 La Harpe.
 Lake City.
 Lakin.
 Lane.
 Langdon.
 Lansing.
 Larned.
 Larned H. S.
 Zook H. S.
 Latham.

- Lawrence.
 Haskell Institute.
 Liberty Memorial H. S.
 Oread Training School.
 Leavenworth.
 Immaculate Conception
 H. S.
 Leavenworth H. S.
 St. Mary's Academy.
 Lebanon.
 Lebo.
 Lecompton.
 Lehigh.
 Lenora.
 Leon.
 Leona.
 Leonardville.
 Leoti.
 Wichita Co. Com.
 Leoville.
 Le Roy.
 Levant.
 Lewis.
 Liberal.
 Lillis.
 Lincoln.
 Lincolnville.
 Lindsborg.
 Lindsborg H. S.
 Bethany Academy.
 Linn.
 Linwood.
 Little River.
 Logan.
 Lone Elm.
 Longford.
 Long Island.
 Longton.
 Lorraine.
 Lost Springs.
 Louisburg.
 Louisville.
 Lovewell.
 Sinclair R. H. S.
 Lucas.
 Luray.
 Lyndon.
 Lyons.
 McCracken.
 McCune.
 McDonald.
 McLouth.
 McPherson.
 McPherson H. S.
 Central College Academy.
 Macksville.
 Madison.
 Mahaska.
 Maize.
 Manhattan.
 Manhattan H. S.
 Sacred Heart Academy.
 Mankato.
 Manter.
 Maplehill.
 Marion.
 Marquette.
 Marysville.
 Matfield Green.
 Mayetta.
 Meade.
 Medicine Lodge.
 Melvern.
 Menlo.
 Meridan.
 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.
 Morrowville.
 Moscow.
 Mound City.
 Mound Ridge.
 Mound Valley.
 Mount Hope.
 Mulberry.
 Mullinville.
 Mulvane.
 Munden.
 Muscotah.
 Narka.
 Nashville.
 Natoma.
 Neal.
 Neodesha.
 Neosho Falls.
 Neosho Rapids.
 Ness City.
 Netawaka.
 Newton.
 Nickerson.
 Reno Co. Com.
 Norcatour.
 Northbranch.
 Northbranch Academy.
 North Topeka.
 Seaman H. S.
 Norton.
 Nortonville.
 Norway.
 Norwich.
 Oakley.
 Oberlin.
 Decatur Co. Com.
 Offerle.
 Oketo.
 Olathe.
 Olivet.
 Olpe.
 St. Joseph's H. S.
 Olsburg.
 Onaga.
 Oneida.
 Osage City.
 Osawatomie.
 Osborne.
 Oskaloosa.
 Oswego.
 Otis.
 Ottawa.
 Overbrook.
 Oxford.
 Ozawkie.
 Page City.
 Palco.
 Paola.
 Paola H. S.
 Ursuline Academy.
 Paradise.
 Parker.
 Parkerville.
 Parsons.
 Partridge.
 Pawnee Rock.
 Paxico.
 Peabody.
 Penalosa.
 Perry.
 Peru.
 Phillipsburg.
 Piedmont.
 Pierceville.
 Piper.
 Pittsburg.
 Plains.
 Plainville.
 Pleasanton.
 Plevna.
 Pomona.
 Portis.
 Potter.
 Potwin.
 Powhattan.
 Prairie View.
 Pratt.
 Prescott.
 Pretty Prairie.
 Preston.
 Princeton.
 Protection.
 Quenemo.
 Quincy.
 Quinter.
 Radium.
 Ramona.
 Randall.
 Randolph.
 Ransom.
 Rantoul.
 Raymond.
 Reading.
 Reece.
 Republic.
 Reserve.
 Rexford.
 Richmond.
 Riley.
 Riverton.
 Robinson.
 Rock Creek.
 Rolla.
 Rosalia.
 Rosedale.
 Rose Hill.
 Rossville.
 Roxbury.
 Rozel.
 Russell.
 Russell Springs.
 Sabetha.
 Saffordsville.
 Toledo Twp. H. S.
 St. Francis.
 St. Francis Com.
 St. Francis H. S.
 St. Paul P. O.
 St. George.
 St. John.
 St. John H. S.
 Antrim R. H. S.
 St. Marys.
 St. Marys H. S.
 St. Marys College
 Academy.
 Immaculate Conception
 H. S.
 St. Paul.
 St. Paul H. S.
 St. Francis H. S.

Salina.	Sun City.	Washburn R. H. S.
Salina H. S.	Sylvan Grove.	Topeka P. O.
Sacred Heart H. S.	Sylvia.	Washington.
Marymount Academy.	Syracuse.	Washington Twp. H. S.
St. John's Military Academy.	Talmadge.	Delia P. O.
Satanta.	Tampa.	Waterville.
Savonburg.	Tescott.	Wathena.
Sawyer.	Thayer.	Waverly.
Scandia.	Tipton.	Wayside.
Schoenchen.	Tonganoxie.	Wea.
Scott City.	Tonovay.	Bucyrus P. O.
Scottsville.	Utopia P. O.	Webber.
Scranton.	Topeka.	Webster.
Seaman.	Topeka H. S.	Weir.
North Topeka P. O.	Bethany Academy.	Welborn.
Sedan.	Catholic High School.	Kansas City, Kan., P. O.
Sedgwick.	Highland Park H. S.	Welda.
Selden.	Kansas Vocational School.	Wellington.
Seneca.	Washburn R. H. S.	Wellsville.
Seneca H. S.	Toronto.	Weskan.
Sts. Peter and Paul. H. S.	Towanda.	West Mineral.
Severance.	Tribune.	Westmoreland.
Severy.	Greeley Co. Com.	Westphalia.
Shallow Water.	Trousdale.	Wetmore.
Sharon.	Troy.	Wheaton.
Sharon Springs.	Turner.	White City.
Shawnee Mission.	Turon.	White Cloud.
Merriam P. O.	Tyro.	Whitewater.
Silver Lake.	Udall.	Whiting.
Simpson.	Ulysses.	Wichita.
Smith Center.	Grant Co. Com.	Wichita H. S.
Smolan.	Uniontown.	American Indian Institute.
Soldier.	Utica.	Cathedral H. S.
Solomon.	Valley Center.	Mt. Carmel Academy.
South Haven.	Valley Falls.	St. Johns Academy.
Sparks.	Vermillion.	Wilburton.
Spearsville.	Vernon.	Williamsburg.
Speed.	Vesper.	Willis.
Spivey.	Victoria.	Wilmore.
Spring Hill.	St. Fidelis H. S.	Wilsey.
Spring Twp.	Vilas.	Wilson.
Anthony P. O.	Vinland.	Winchester.
Stafford.	Viola.	Windom.
Stanley.	Virgil.	Winfield.
Stark.	Wakeeney.	Winona.
Sterling.	Trego Co. Com.	Woodbine.
Stilwell.	Wakefield.	Woodruff.
Stockdale.	Waldo.	Woodston.
Stockton.	Wallace.	Yates Center.
Strawn.	Walnut.	Zenda.
Sublette.	Walton.	Zook.
Summerfield.	Wamego.	Larned P. O.

JUNIOR COLLEGES

Every junior college student who expects to complete his education at this College is urged to model his course in junior college in such a way as to meet all of the requirements for the particular curriculum which he expects to pursue here. Different curricula have different prerequisites; but admission to advanced standing in the College is reasonably flexible, hour-for-hour credit being given for two years' work wherever the work done in an accredited junior college can be directly applied or can be accepted as substitutions or electives in the curriculum chosen. If the work done in junior college has been carefully selected with regard to the curriculum to be pursued here, the average junior college graduate carrying the maximum assignment can usually complete the requirements for the degree of Bachelor of Science in two additional years.

Detailed statements as to the requirements for graduation in each of the several curricula at the College may be found in other sections of this catalogue.

KANSAS JUNIOR COLLEGES IN FULLY ACCREDITED RELATIONS WITH
THE COLLEGE.

PUBLIC

Arkansas City Junior College, Arkansas City.
Coffeyville Junior College, Coffeyville.
El Dorado Junior College, El Dorado.
Fort Scott Junior College, Fort Scott.
Garden City Junior College, Garden City.
Hutchinson Junior College, Hutchinson.
Independence Junior College, Independence.
Iola Junior College, Iola.
Kansas City Junior College, Kansas City.
Parsons Junior College, Parsons.

PRIVATE

Central Academy and College, McPherson.
Hesston College, Hesston.
Highland Junior College, Highland.
Kansas City University, Kansas City, Kan.
Mt. Saint Scholastica, Atchison.
Paola Junior College, Paola.
St. Marys Junior College, Leavenworth.
Tabor College, Hillsboro.

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 124 to 142 hours, or semester credits, according to the curriculum taken. (A semester credit is one hour of recitation or lecture work, or three hours of laboratory 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 close of the second semester of the year of 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 required 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. Candidates for graduation are required to be present at the exercises of baccalaureate Sunday, unless excused by the council of deans.

DEGREES

The degree of Bachelor of Science (B.S.) is conferred upon those who complete the four-year curriculum in agriculture, agricultural administration, agricultural engineering, chemical engineering, civil engineering, electrical engineering, mechanical engineering, flour-mill engineering, architecture, architectural engineering, landscape architecture, home economics, industrial journalism, industrial chemistry, physical education, 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.

Upon those who have completed the six-year curriculum in animal husbandry and veterinary medicine or the six-year curriculum in general science and veterinary medicine the B.S. degree is conferred when the first four years are completed and the D.V.M. degree is conferred upon completion of the remaining two years of the curriculum.

CERTIFICATES

An appropriate certificate is granted upon completion of any one of the following:

1. The farmers' short course.
2. Any one of the dairy-manufacturing short courses.
3. Any one of the one-year or two-year courses in trades related to engineering.

Graduate Study

JAMES EDWARD ACKERT, *Chairman of Graduate Council*

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 President of the College, the deans of the academic divisions, and 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.

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 27, 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.

DEGREES

Of the advanced academic degrees, the Master of Science degree is conferred. The following professional degrees are conferred: Agricultural Engineer, Architect, Architectural Engineer or Landscape Architect, Chemical Engineer, Civil Engineer, Electrical Engineer, Flour Mill Engineer and Mechanical Engineer.

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 secured in a single semester. Students holding graduate assistantships may not obtain more than twelve credits, including thesis, in one semester.

GRADES. Graduate students' work is graded in five classes: A, B, C, D, and F. The last indicates a failure. D indicates unsatisfactory though passable work. The degree will not be conferred on any student who does not receive a grade of B 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 two modern languages 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, and the instructors with whom he has taken his 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 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 major instructor.

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 announcements 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 the period between the close of the first summer school and the beginning of the next succeeding semester under the following provisions: (1) The approval of the Graduate Council must be secured. (2) The work must be done under the supervision of a member of the graduate faculty.

The credit 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 WORK IN ABSENTIA

Graduates on full-time employment may be enrolled for from one to six credit hours of research or problem work on a *pro rata* basis, on the recommendation of a member of the graduate faculty and of the Graduate Council.

GRADUATE ASSISTANTSHIPS

In order to encourage graduates of this College and of 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 approximately one-third of 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 graduate assistant or research assistant may receive more than twelve graduate credits per semester nor satisfy the residence requirements in less than two semesters and one first summer school.

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	2
Food Economics and Nutrition	1
Home Economics	1
Horticulture	1
Household Economics	1
Institutional Economics	1
Poultry Husbandry	1
Zoölogy	3

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	2
Animal Husbandry	1
Bacteriology	1
Botany and Plant Pathology	1
Clothing and Textiles	1

<i>Subject.</i>	<i>Number.</i>
Dairy Husbandry	1
Education	1
Entomology	2
Food Economics and Nutrition	2
Horticulture	1
Household Economics	1
Poultry Husbandry	1
Zoölogy	4

By satisfactorily completing eight credits of graduate work in the first 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.

SENIORS AND GRADUATE STUDY

A senior who has completed so much of his work for the bachelor's degree that his program for the year is not full may, with the consent of his dean and of the Graduate Council, be assigned to one or more courses for graduate credit. In no case shall such combination of courses exceed the number of credit hours of a normal senior assignment for his curriculum.

GRADUATE WORK IN THE SUMMER SESSIONS

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 first 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 in three first summer sessions.

A detailed statement concerning the graduate work in the Summer Schools may be obtained by applying to the dean of the Summer School, Kansas State Agricultural College, Manhattan, Kan.

CANDIDACY FOR 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, Agricultural 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 phase 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.

THE GRADUATE CLUB

The Graduate Club is an organization composed of graduate students and members of the graduate faculty. Its purpose is to promote sociability and wide acquaintance among its members.

General Information

DUTIES AND PRIVILEGES

Good conduct is expected of all students. Aid and stimulus toward the development of good character is given by the 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. 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 is provided 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 available for student and faculty receptions and parties during the late afternoon and the evening hours.

Absences from class or laboratory 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 a semester except by previous arrangement with the deans concerned.

Opportunities for general scientific, literary, music, and forensic training are afforded, in addition to the College courses, by various societies and clubs, which are described elsewhere in the catalogue and afford excellent training in their diverse lines.

At various times during the year 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 \$25 a semester or \$20 a summer term is charged residents of Kansas; nonresidents pay \$37 a semester or \$25 a summer term. Eight-week short-course students pay an incidental fee of \$5; the incidental fee for the two-week short courses is \$3. The incidental fee for the second summer term is \$10.

STUDENT-HEALTH FEE. Each student in the College pays a student-health fee of \$3 a semester or \$1.50 a summer term. For students in the short courses, lasting eight weeks only, this fee is \$1.50.

The student-health fee entitles the student to receive the services 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 the 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. The fund is used to support ten student activities, including athletics, intercollegiate debate, the Student Governing Association, intercollegiate judging contests, and the College Band. 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 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 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 (paid only once).....	None.	\$10.00
Incidental (one semester)	\$25.00	25.00
Student-health (one semester)	3.00	3.00
Student-activity (one semester)	5.00	5.00
Totals	\$33.00	\$43.00

FOR NONRESIDENTS OF KANSAS.

	<i>Old students.</i>	<i>New students.</i>
Matriculation (paid only once).....	None.	\$15.00
Incidental (one semester)	\$37.00	37.00
Student-health (one semester)	3.00	3.00
Student-activity (one semester)	5.00	5.00
Totals	\$45.00	\$60.00

FOR ALL SHORT-COURSE STUDENTS

	<i>2 weeks.</i>	<i>8 weeks.</i>
Incidental	\$3.00	\$5.00
Student-health	None.	1.50
Totals	\$3.00	\$6.50

LATE ASSIGNMENT FEE. For assignment after the close of the regular registration period the student is charged \$5. *There is no exception to this rule.*

LABORATORY EXPENSE. In all laboratories students are required to pay for supplies used and for apparatus broken or lost. The cost in the several subjects ranges from 50 cents to \$10 a semester. These charges, effective September 1, 1928, 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.

PAYMENT OF FEES. The matriculation fee is paid upon admission to the College. The incidental fee, the student-health fee, laboratory fees, and the student-activity fee are payable at the beginning of each semester.

FEE RECEIPTS ARE TO BE SAVED. Receipts for fees must be shown to the assigner at the beginning of each semester before a student is permitted to take out his assignment.

REFUND OF FEES. *No refund is made on the matriculation fee.* Certain refunds are made on other fees, as shown below, and *no exceptions are made to these rules.*

A student permitted to withdraw on or before the end of the first one-fourth of a semester or summer term may receive a refund of one-half the fees paid for that semester.

A student permitted to withdraw after remaining one-fourth and less than one-half semester or summer term 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.

A student dropping music before the end of a term or semester may receive a refund of fees paid corresponding to the remaining time of the first three-fourths of the term or semester; that is, the fees for at least the last one-fourth of a term or a semester are retained.

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>
Agricultural Administration	\$18.85	\$7.60
Agricultural Engineering	20.35	7.60
Agriculture	18.85	7.60
Agriculture with Landscape Gardening.....	18.85	7.60
Animal Husbandry and Veterinary Medicine.....	18.85	7.60
Architectural Engineering	20.55	5.35
Architecture	29.45	5.35
Chemical Engineering	20.35	10.60
Civil Engineering	20.85	8.10
Commerce	12.25	2.90
Electrical Engineering	27.85	11.60
Flour Mill Engineering	20.35	8.60
General Science	18.50	2.90
General Science and Veterinary Medicine (six-year)..<	21.85	.....
Home Economics	14.20	6.75
Home Economics and Applied Art	8.80	8.00
Home Economics and Nursing	15.10	13.00
Industrial Chemistry	23.25	5.85
Industrial Journalism	12.45	.80
Landscape Architecture	23.00	5.10
Mechanical Engineering	22.35	8.60
Physical Education for Men	12.25	8.25
Physical Education for Women.....	11.50	3.50
Piano	8.50	2.05
Public-school Band and Orchestra	9.00	.....
Public School Music	11.55	1.75
Veterinary Medicine	19.85	3.00
Veterinary Medicine and Animal Husbandry.....	18.85	7.60
Violin	10.50	2.05
Voice	10.50	2.05

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 who takes military training must have a uniform. For the basic courses the uniform, except shoes, is furnished by the war department. For the advanced courses an allowance is made toward the cost of the uniform used.

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 offices 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.

Van Zile Hall, a dormitory for women students, is located on the campus. It accommodates one hundred twenty-five women. It is a beautifully furnished, well-equipped, fireproof building of stone. Applications for rooms are considered in the order in which they are received. To validate an application for residence in the Hall a deposit of \$10 is required. This amount is credited on the first payment for room and board, or is refunded provided request is made to the dean of women by August 1. The contract for room and board in Van Zile Hall is for a full semester (eighteen weeks) and the obligation is canceled only for reasons satisfactory to the dean of women. All correspondence in regard to the dormitory should be addressed to "Dean of Women, Kansas State Agricultural College, Manhattan, Kan."

SELF-SUPPORT

The courses of instruction are based upon the supposition that the student is here for study. 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 the 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 \$3 a year, and on payment of \$50 in one sum they are relieved from such dues. If a husband and wife are both eligible to membership, joint membership may be obtained by payment of \$75. The fund so created, amounting now to about \$15,850, 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 Dr. W. E. Grimes, chairman of the Alumni Loan Fund Committee, Manhattan, Kan.

Acknowledgment of additions to the Life Membership Fund is made at this place from year to year. Since the last report and up to October 15, 1928, the following-named persons have completed payments for life membership: Elizabeth Mills, Josephine Brooks, Vesta West, Georgia Persons, Alta Hepler, Anna Larsen, E. Lee Thackrey, Marguerite Akin, Irma Fulhage, Herbert Wishart, Stella Mae Heywood, Una Morlan, Arthur H. Gilles, Vida Harris, C. W. Eshbaugh, John T. Whetzel, Maggie Jeffrey, Carrie Justice, W. H. Sikes, Ralph Schopp, Homer Henney, Albert H. Ottaway, Mary F. Taylor, Herschel Scott, Elizabeth Cox, Esther Sorenson, Helen Clydesdale, Lucy Ellis, F. M. Seekamp, Garnet Kastner Carter, L. V. White, Earl Hinden, C. E. Crews, Raymond Davis, George Stewart, A. D. Whipple, Guy Bigelow, Helen Batchelor, Mignon House, Mabel McComb, W. W. Taylor, and Alice Johnston. During this period also many pledges have been made and many partial payments have been received.

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 have amounted to approximately \$2,000, which sum has been augmented by gifts of \$100 each from Senator Capper and L. R. Eakin 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 regarding 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 education 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.

THE WOMAN'S CLUB LOAN FUND. This is a fund established by the Woman's Club of Manhattan, and is available to both men and women students. This loan is administered by the Waters Loan Fund Committee.

THE BELLE SELBY CURTICE LOAN FUND. Mrs. Belle Selby Curtice, a graduate of the class of 1882, established a loan fund of \$1,000 in memory of the influence and inspiration the College has given her life. This fund is available to young women in the curriculum in Home Economics and is administered by the Henry Jackson Waters Loan Fund Committee.

MASONIC LOAN FUNDS. The Scottish Rite Consistory and the Knights Templar Commandery have established loan funds that are available for men and women who have given evidence of scholarship and worth. Applicants should seek recommendations from the consistory and commandery with whose members they may be acquainted.

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.

POULTRY JUDGING. The Department of Poultry Husbandry offers prizes to the value of \$150 to students in poultry-judging contests.

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.

AGRICULTURAL ENGINEERING. The Agricultural Engineering faculty offers annually to the senior agricultural engineering student having the highest scholarship standing in his junior and senior subjects a cash prize of \$25.

ARCHITECTURE. The American Institute of Architects offers a medal to the senior architects showing the highest degree of general excellence. The faculty of the Department of Architecture offers prizes of books to those freshmen, sophomores, and juniors who do the best work. Lorentz Schmidt offers a cash prize to the student doing the best work in courses in working drawings and specifications.

CIVIL ENGINEERING. The Kansas section of the American Society of Civil Engineers offers payment of the initiation fee into the American Society of Civil Engineers to the senior civil engineer making the highest grades during his senior year.

ELECTRICAL ENGINEERING. Two medals, first (gold) and second (silver), are awarded those seniors who have made the best records in twenty hours of certain fundamental, required electrical engineering subjects. Also, two medals, first (gold) and second (silver), are awarded to the ranking juniors who have completed not less than eighty semester credits of the required electrical engineering curriculum.

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.

SCHOLARSHIP. Freshman women. Phi Alpha Mu, the women's honor society of the division of general science, offers each year a prize of \$20 to the young woman making the highest scholarship standing in the freshman work. Omicron Nu, the honor society of the division of home economics, grants annually a prize of \$10 to the young woman achieving highest rank in scholarship among the freshmen of that division.

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.

JOURNALISM. The United Companies offer two prizes of \$25 each for students in advertising who write the best copy. Professors Rogers and Charles offer \$25 annually for the best rural press team. The outstanding student in Agricultural Journalism each year is honored by having his name engraved upon one of the several smaller shields surrounding a larger shield containing these words: "Recognition for superior attainments in Agricultural Journalism. Presented by Arthur Capper to students in the Department of Industrial Journalism and Printing, Kansas State Agricultural College."

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.

SOCIOLOGY. The Kappa Alpha Chapter of 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.

VETERINARY MEDICINE. Dr. Edward A. Schmocker offers two prizes of \$10 and \$5 respectively to the senior veterinarians showing the greatest general proficiency. The Jensen Salsbery Laboratories of Kansas City, Mo., offers two prizes of \$10 and \$5 respectively to junior veterinarians having the highest standing in therapeutics. The veterinary staff offer \$7.50 to the sophomore ranking highest in physiology, and \$7.50 to the senior ranking highest in pathology.

SCHOLARSHIPS

The Manhattan branch of the American Association of University Women offers a graduate fellowship, a gift, of \$200 annually. Work may be pursued in any department of the College recognized by the Graduate Council. Applications must be in the hands of the scholarship committee on or before March 1 previous to the academic year in which the scholarship is desired.

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.

FOR HIGH-SCHOOL STUDENTS. The Department of Education offers scholarships to high school students as follows: \$100 for the best score in the annual scholarship contest, \$75 for the second best score, \$50 for the third best score, and \$25 each to individuals scoring fourth, fifth, and sixth highest respectively.

FOR 4-H CLUB MEMBERS. The Union Pacific System offers \$100 scholarships to winners in 4-H Club work (in 36 counties named), the money to be used to enroll for a full term course in agriculture or home economics.

FOR WORLD WAR VETERANS AND THEIR DESCENDANTS. The trustees of the estate of La Verne Noyes award scholarships annually to various colleges and universities. In 1928-'29 five such scholarships were awarded to the Kansas State Agricultural College and it is expected that a similar or larger number will be awarded annually in the future. These scholarships are available with certain reservations to deserving students who served in the Army or Navy of the United States between the dates of April 6, 1917, and September 11, 1918, and who need this assistance. Applications for these scholarships should be made through the student's dean.

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 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. 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 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 \$3 a year. The alumni having active membership in the Alumni Association receive *The Kansas Industrialist* free of charge.

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 interests 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 Economic 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

The student, primarily, is responsible for seeing that he conforms to the requirements of the curriculum for which he is enrolled. His assigner and his dean will assist him in planning his work, but are not responsible for his errors. The catalogue is the authentic source of information. College officers try to see that requirements are complied with, but if they fail the student is not thereby relieved. All of the catalogue statements concerning assignments, and the student's curriculum, should be read.

No student may be enrolled in classes or for private lessons in music or other subjects before receiving an assignment, and no assignment is completed until after the incidental fee and any special fees or charges are 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.

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 circumstances to anyone who failed or was conditioned or deficient in any subject the preceding semester, or whose average grade was below B.

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.

CHANGES IN ASSIGNMENTS

Subjects are not dropped from assignments within two weeks preceding the close of a period covered by midsemester or final scholarship-deficiency reports.

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. 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.

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 guard-

ian 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. The deans notify parents and guardians of the fact when students are dismissed or put on probation on account of scholarship deficiencies.

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.

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 in-

stead 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 A for the semester, in any subject, and whose absences for all causes from the class in each 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 Con. 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 Con. to F, except that in individual instances, where the reason is sufficient, the student's dean may authorize such examination at a date different from 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 A, B, C, D, Con., Inc., and F, having the following significance and order of rank:

The grade A 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 B 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 A, but the sum of grades A and B should approximate twenty-five per cent of all grades assigned.

The grade C 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 D, 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 D awarded, together with the grades Con., and F, should not, on the whole, exceed twenty-five per cent of all, and are expected to include about that proportion.

The grade Con., meaning conditioned, is the symbol used to represent work which is deficient in quality. The results of examinations to remove conditions are reported simply as D (passed) or F (failed). In case such examinations are not taken at the first opportunity offered, the grade Con. automatically becomes an F.

The grade F, meaning failed, is used to indicate work that is so unsatisfac-

tory as to require that the work be repeated in class or under an approved tutor.

Inc., meaning incomplete, 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. Inc., is also reported when the work of the student is satisfactory as to quality but inadequate as to quantity. This is only a temporary report and in no way prejudices the student's final grade in a course. Incomplete work for which a grade of Inc., has been reported, if not made up within the first semester the student is in attendance automatically becomes an F.

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 A 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 out of College before midsemester a grade of Wd (withdrawn) is reported for each subject, irrespective of the standing of the student in the subject. Similarly, if a student drops a subject before midsemester a grade of Wd is reported. However, subjects are not dropped from assignments within two weeks preceding the close of a period covered by midsemester or final scholarship-deficiency reports. A subject dropped at any time after midsemester on account of failure is given a semester grade of F.

The result of an examination to remove a condition is reported in quadruplicate to the dean of the student, who transmits copies to the registrar, the student and the student's assigner. The same procedure is followed in reporting grades to replace "Inc.'s" and in reporting corrections of grades.

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 Inc. 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 Inc. 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 connections 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 A, 3 points; B, 2 points; C, 1 point; and D (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 requirements 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>
Orchestra	1	4
Band	1	4
Debate	2	4
Oratorical Contest	2	4
<i>Kansas State Collegian</i> journalism	1	4
<i>Home Economics News</i> journalism	1	4
<i>Agricultural Student</i> journalism	1	4
<i>Kansas State Engineer</i> 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 STUDENT GOVERNING ASSOCIATION

The governing association of the student body was organized in the spring of 1919, as the Student Self-governing Association, and reorganized in the spring of 1926 as the Student Governing Association.

The executive council of the association consists of seven members, elected each spring for the following school year by the student body as a whole. The council discharges all executive functions of the association, and sits as a court in disciplinary cases. Actions of the council are subject to approval by the faculty council. In cases of disagreement which are not compromised successfully, the decision of the president of the college is final.

Officers of the association are a president, vice president, secretary, and treasurer, elected by the council. Though the council sits as a committee of the whole in all its affairs, certain members are put in charge of certain activities, such as discipline, social affairs, etc. Membership in the student association is contingent upon payment of the varsity activity fee.

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. Calvin 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 re-

sponsible 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 Christian 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 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-rodolphian 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.

SCIENCE CLUB

The Science Club, meeting monthly, is an organization of instructors, students and others interested in science. Its programs include popular lectures by prominent men of science, and papers giving the result of research work at the College. The meetings are also characterized by free discussion of the subjects presented.

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 interest 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 curriculum 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 students in agricultural, civil, electrical, and mechanical engineering are organized as student branches of the American Society of Agricultural Engineers, The American Society of Civil Engineers, The American Institute of Electrical Engineers, and The American Society of Mechanical Engineers, respectively. The Architects Club conducts the meetings of the students in architecture.

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.

GENERAL SCIENCE SOCIETIES

The Popenoe Entomological Club meets twice a month. The object of the club is to promote interest in entomological work at the College. Membership is open to students and faculty members interested in insects. Entomological topics are discussed by members of the club and outside speakers. Occasional field trips are sponsored by the club.

HOME ECONOMICS SOCIETIES

The Home Economics Association is an organization in which membership is open to any student in the Division of Home Economics.

Its purpose is to promote professional interest by means of social contact and through talks by leaders in the field of home economics. It aids in the publication of the *Home Economics News*, the divisional magazine issued four

times a year. It is affiliated with the American Home Economics Association and is designed to lead to continued membership in that organization after graduation from college.

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 A, 3; B, 2; C, 1; D, 0; Con., 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 B 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 July 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.

A chapter of Sigma XI was installed at this institution in March, 1928. The object of this society is to encourage original investigations in pure and applied science. Members of the faculty and graduate students who have shown noteworthy achievement in original investigations are eligible for election to active membership; seniors who have shown marked excellence in two or more departments of pure or applied science are eligible for election to associate membership.

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.
Alpha Kappa Psi	Commerce.
K Fraternity	Athletics.
Mu Phi Epsilon	Music.
Omicron Nu	Home Economics.
Phi Alpha Mu	Women's Science.
Phi Delta Kappa	Education.
Phi Mu Alpha	Music.
Pi Kappa Delta	Debating.
Purple Masque	Dramatics.

<i>Organization.</i>	<i>Division or department.</i>
Quill Club	College Writers.
Scabbard and Blade	Military.
Sigma Delta Chi	Industrial Journalism.
Sigma Tau	Engineering.
Theta Sigma Phi	Industrial Journalism.

In addition to these student organizations there are chapters of Phi Kappa Phi, Gamma Sigma Delta and Sigma Xi. In 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, basket ball; 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. Basket ball 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 house 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 and at 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 1,420.3 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 agricultural administration.

A four-year curriculum in agriculture with special training in 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.

CHOOSING A CURRICULUM

All curricula in the Division of Agriculture have a common freshman year. During the second semester of the freshman year, each student in the division is required to file in the dean's office a formal statement of his selection of a curriculum.

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 CURRICULUM IN AGRICULTURE

The four-year curriculum in agriculture is designed primarily to meet the needs 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 opportunity 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 much 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 twenty-four semester credits in addition to military science are required for graduation, as follows:

	Semester credits.
Prescribed in agriculture.....	31
Electives in agriculture, required with the prerequisites.....	21
Required in agriculture.....	52
Prescribed in nonagriculture.....	48
Electives in nonagriculture, required.....	6
Electives that may be nonagricultural.....	18
Total allowed in nonagriculture.....	72
Required in military science.....	4
Total semester credits for graduation.....	128

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 fundamental work in chemistry, zoölogy, geology, botany, and English, basic 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 to 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. This is made possible by numerous electives in soils, crops, agricultural economics, animal husbandry, dairy husbandry, horticulture, milling, and poultry husbandry.

THE CURRICULUM IN AGRICULTURAL ADMINISTRATION

The curriculum in agricultural administration is planned to meet the needs of students preparing for industries that are closely related to farming and in which basic training in both agriculture and business principles is desirable. Important among such industries and occupations are: Rural banking, the marketing and processing of grains, the sale and development of lands, hardware and implement retailing, promotion and sales, writing on farm subjects or in other phases of agricultural journalism, and the teaching of agriculture in high schools and elsewhere. Those wishing to engage in certain specialized types of farming will find this curriculum suited to their needs. An increasing demand for men trained in the business phases of agriculture and closely related industries is coming from industries whose customers are primarily in rural communities. The United States Department of Agriculture, the state agricultural colleges and departments of agriculture, high schools, and many other interests are also in need of men trained along these lines.

The interdependence of town and farm is increasing. Recognition of this increased interdependence is to be found in many of the activities of farmers' and civic organizations in which the farmers and the business men of the towns join to attain mutually desired ends. The business man of the rural town must render service to farmers and service can be rendered best when the needs of customers are understood. In addition, every business man needs to know the principles underlying successful business activity. The curriculum in agricultural administration is planned to give this combined understanding of the needs and problems of agriculture and of the principles that must be observed to make a business successful. Ample opportunity is given to elect business subjects such as accounting, business organization, credit and finance, business law, marketing, and subjects in other related fields.

ANALYSIS OF CURRICULUM IN AGRICULTURAL ADMINISTRATION

One hundred twenty-four semester credits in addition to military science are required for graduation, as follows:

	<i>Semester credits.</i>
Prescribed in agriculture.....	25
Electives in agriculture required with the prerequisites.....	30
Required in agriculture.....	55
Prescribed in nonagriculture.....	39
Electives in nonagriculture, required.....	15
Electives that may be nonagricultural.....	15
Total allowed in nonagriculture.....	69
Required in military science.....	4
Total semester credits for graduation.....	128

The fifteen hours of major electives are chosen from courses in agricultural economics according to the field for which the student is preparing. The other electives in agricultural and nonagricultural subjects are grouped according to the industry or occupation for which the student is preparing.

STATE TEACHER'S CERTIFICATE

By the selection of proper electives in the Department of Education, the four-year curriculum in agriculture or in agricultural administration may not only lead to the degree of Bachelor of Science in agriculture, but also qualify the student for the three-year Kansas state teacher's certificate, renewable for life and valid in any high school or other public school in the state. A student in the curriculum in agriculture, desiring to qualify for teaching, should begin his professional preparation by electing Psychology, first semester, junior year. (This course is required in the first semester of the sophomore year in the curriculum in agricultural administration.) 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 Psychology.

STATE CERTIFICATE FOR TEACHERS OF VOCATIONAL AGRICULTURE

Electives in the curriculum in agricultural administration and in the field of agricultural education may be so chosen as to meet the requirements for the state certificate for the teaching of vocational agriculture in Kansas high schools participating in the federal Smith-Hughes funds. In this case the group of minor electives in related nonagricultural subjects must complete the candidate's professional preparation in education and the group of general electives must include the necessary training in mechanical lines for the handling of farm shop problems. These groups must, therefore, consist of the following courses or their equivalent:

	<i>Semester credits.</i>
Minor electives	15
Educational Administration B.....	3
Educational Psychology	3
Special Methods of Teaching Agriculture.....	3
Supervised Observation and Teaching in Agriculture.....	3
Vocational Education	3
General electives	18
Gas Engines and Tractors.....	3
Farm Buildings	3
Farm equipment	2
Farm Sanitation and Water Supply.....	2
Farm Carpentry I.....	3
Farm Blacksmithing I	1
Farm Blacksmithing II	1
Farm Shop Methods.....	3
Total	33

CURRICULUM IN LANDSCAPE GARDENING

This four-year curriculum leading to the degree of Bachelor of Science in agriculture with special training in landscape gardening is planned to prepare those who complete it for the practice of general landscape gardening. The training given includes the engineering features of the profession, the design of landscape improvements, and the plant materials and architectural structures which are used in the arrangement and beautification of both public and private grounds.

As the general culture and wealth of the country increases, one of their most common expressions is the improvement of home surroundings, for both utility and beauty, and the enlargement and beautification of public parks, recreational areas, school grounds, and cemeteries. The design and supervision of this work requires professionally trained men. Those so trained have increasingly great opportunity for profitable, interesting, and valuable employment in a profession which requires the talents of an artist and the practicality of a builder.

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.

The outline of this curriculum is to be found in the section of this catalogue under the heading "Division of Veterinary Medicine."

Curriculum in Agriculture

FRESHMAN

FIRST SEMESTER

Coll. Rhetoric I, Engl. 101.....	*3(3-0)
Gen. Botany I, Bot 101.....	3(1-4, 2)
Gen. Chemistry, Chem. 110.....	5(3-6)
L. St. Judging, An. Husb. 120.....	3(2-4)or
El. of Dairying, Dairy. Husb. 101.....	3(2-3)
Freshman Lect., Gen. Agric. 102.....	1(2-0)
Infantry I, Mil. Tr. 101A.....	1(0-3)
Phys. Education M, Phys. Ed. 103..	R(0-2)
Agric. Seminar, ¹ Gen. Agric. 103.....	R

Total 16

SECOND SEMESTER

Gen. Geology, Geol. 103.....	3(3-0)
Gen. Botany II, Bot. 105.....	3(1-4, 2)
Gen. Org. Chemistry, Chem. 122.....	5(3-6)
El. of Dairying, Dairy Husb. 101..	3(2-3)or
L. St. Judging, An. Husb. 120.....	3(2-4)
Library Methods, Lib. Ec. 101.....	1(1-0)
Infantry II, Mil. Tr. 102A.....	1(0-3)
Phys. Edu. M, Phys. Ed. 104.....	R(0-2)
Agric. Seminar, ¹ Gen. Agric. 103.....	R

Total 16

SOPHOMORE

FIRST SEMESTER

El. of Horticulture, Hort. 107.....	3(2-3)
Agric. Economics, Ag. Ec. 101.....	3(3-0)
Anat. and Physiol., Anat. 131.....	3(2-3)or
Plant Physiology I, ² Bot. 208.....	3(3-0)
Soils, Agron. 130.....	4(3-3)or
Farm Crops, Agron. 101.....	4(2-6)
Farm Poul. Pro., Poul. Husb. 101..	2(1-2, 1)
Infantry III, Mil. Tr. 103A.....	1(0-3)
Phys. Education M, Phys. Ed. 105..	R(0-2)
Agric. Seminar, ¹ Gen. Agric. 103.....	R

Total 16

SECOND SEMESTER²

Prin. of Feeding, An. Husb. 152.....	3(3-0)
Col. Rhetoric II, Engl. 104.....	3(3-0)
Farm Crops, Agron. 101.....	4(2-6)or
Soils, Agron. 130.....	4(3-3)
General Zoölogy, Zoöl. 105.....	5(3-6)
Infantry IV, Mil. Tr. 104A.....	1(0-3)
Phys. Education M, Phys. Ed. 106..	R(0-2)
Agric. Seminar, ¹ Gen. Agric. 103.....	R

Total 16

* The number before the parenthesis indicates the number of semester hours of credit; the first number 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 each week.

1. Four meetings each semester.

2. 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.

3. 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. 208) instead of Anatomy and Physiology.

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Genetics, An. Husb. 221.....	3(3-0)	Gen. Entomology, Ent. 203.....	3(2-3)
Plant Pathology I, Bot. 205.....	3(1-4, 2)	Farm Organization, Ag. Ec. 106.....	3(2-3)
Agric. Microbiology, Bact. 106.....	3(1-6)	El. Journalism, Ind. Jour. 151.....	2(2-0)
Electives	7	Journalism Prac. I, Ind. Jour. 154.....	2(0-6)
Agric. Seminar, ¹ Gen. Agric. 103.....	R	Electives	6
		Agric. Seminar, ¹ Gen. Agric. 103.....	R
Total	16	Total ..	16

SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Electives	16	Agric. Relationships, Gen. Agric. 105, R(1-0)	
Agric. Seminar, ¹ Gen. Agric. 103.....	R	Electives	16
		Agric. Seminar, ¹ Gen. Agric. 103.....	R
Total	16	Total	16

Number of semester hours required for graduation, 128.

Electives

The electives in the curriculum in agriculture are grouped as follows:

	<i>Semester credits.</i>
MAJOR ELECTIVES	12
These electives may be taken in any one of the departments of the Division of Agriculture. In certain cases also a science department outside of the division may be selected for a major department; <i>e. g.</i> , Chemistry, Entomology, Bacteriology.	
MINOR AGRICULTURAL ELECTIVES	9
These electives may be taken from one or more departments but must directly strengthen the student's preparation in agriculture.	
MINOR NONAGRICULTURAL ELECTIVES.....	6
These electives must be chosen from one or more of the following departments: Education, Economics and Sociology, History and Government, Mathematics, Modern Languages.	
GENERAL ELECTIVES	18
These electives are expected to be chosen because they are adapted to meet individual needs and to round out the preparation provided by the rest of the student's curriculum. All students not offering one unit of high-school physics for entrance are required to include three credit hours of general physics in their electives.	

All electives must be officially approved before assignment by both the dean of the Division of Agriculture and the head of the department in which the student majors.

Adaptation of Curriculum in Agriculture for Class of 1931

FRESHMAN

Freshman year of the curriculum in agriculture as outlined on page 100 of catalogue issued under date of May 1, 1927.

SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
El. Organic Chemistry, Chem. 123....	3(2-3)	El. of Horticulture, Hort. 107.....	3(2-3)
Agric. Economics, Agric. Econ. 101....	3(3-0)	Prin. of Feeding, An. Husb. 152.....	3(3-0)
Anat. and Physiol., Anat. 131.....	3(2-3) <i>or</i>	Soils, Agron. 130.....	4(3-3) <i>or</i>
Plant Physiology I, Bot. 208.....	3(3-0)	Farm Crops, Agron. 101.....	4(2-6)
Soils, Agron. 130.....	4(3-3) <i>or</i>	General Zoölogy, Zoöl. 105.....	5(3-6)
Farm Crops, Agron. 101.....	4(2-6)		
Farm Poult. Pro., Poult. Husb. 101..	2(1-2, 1)		
Infantry III, Mil. Tr. 103.....	1½(0-4)	Infantry IV, Mil. Tr. 104.....	1½(0-4)
Phys. Education M, Phys. Ed. 105..	R(0-2)	Phys. Education M, Phys. Ed. 106..	R(0-2)
Agric. Seminar, Gen. Agr. 103.....	R	Agric. Seminar, Gen. Agric. 103.....	R
Total	16½	Total	16½

JUNIOR AND SENIOR

Junior and senior years as outlined on a preceding page of this catalogue.

Number of semester hours required for graduation, 134.

1. Four meetings each semester.

Curriculum in Agricultural Administration**FRESHMAN**

Freshman year of the Curriculum in Agriculture

SOPHOMORE**FIRST SEMESTER**

Psychology A, Educ. 101.....	3(3-0)
Agric. Economics, Agric. Ec. 101.....	3(3-0)
College Algebra A, Math. 107.....	5(5-0)
Soils, Agron. 130.....	4(3-3)or
Farm Crops, Agron. 101.....	4(2-6)

Infantry III, Mil. Tr. 103A.....	1(0-3)
Phys. Education M, Phys. Ed. 105..	R(0-2)
Agric. Seminar,* Gen. Agric. 103.....	R

Total 16

SECOND SEMESTER

El. of Hort., Hort. 107.....	3(2-3)
Feeding L. S., An. Husb. 172.....	3(3-0)
College Rhetoric II, Engl. 104.....	3(3-0)
Soils, Agron. 130.....	4(3-3)or
Farm Crops, Agron. 101.....	4(2-6)

Farm Poult. Pro., Poult. Husb. 101..	2(1-2, 1)
Infantry IV, Mil. Tr. 104A.....	1(0-3)
Phys. Education M, Phys. Ed. 106..	R(0-2)
Agric. Seminar,* Gen. Agric. 103.....	R

Total 16

JUNIOR**FIRST SEMESTER**

El. Journalism, Ind. Jour. 151.....	2(2-0)
Journalism Practice I, Ind. Jour. 154..	2(0-6)
Agric. Seminar,* Gen. Agric. 103.....	R
Electives	12

Total 16

SECOND SEMESTER

Agric. Seminar,* Gen. Agric. 103.....	R
Electives	16

Total 16

SENIOR**FIRST SEMESTER**

Agric. Seminar,* Gen. Agric. 103.....	R
Electives	16

Total 16

SECOND SEMESTER

Agric. Relationships, Gen. Agric. 105..	R(1-0)
Agric. Seminar,* Gen. Agric. 103.....	R
Electives	16

Total 16

Number of semester hours required for graduation, 128.

Electives

The electives in the curriculum in agricultural administration are grouped as indicated below in the following fields: (1) Rural banking, (2) land economics, (3) grain industries, (4) agricultural journalism, (5) agricultural engineering, and (6) agricultural education.

SEMESTER CREDITS OF ELECTIVES REQUIRED FOR VARIOUS FIELDS

GROUP.	Credits in fields 1, 2, 3, 4, 5	Credits in field 6
Major electives in agricultural economics.....	15	10
Minor agricultural electives (not more than nine semester credits from one department)	15	17
Minor electives in related nonagricultural subjects.....	15	15
General electives	15	18
Total	60	60

NOTE.—All students not offering one unit of high-school physics for entrance are required to include three credit hours of general physics in their electives.

All electives must be officially approved before assignment by both the dean of the Division of Agriculture and the head of the Department of Agricultural Economics.

**Adaptation of Curriculum in Agricultural Administration for
Class of 1931**

The class of 1931 will be held for the freshman year as outlined on page 100 of the catalogue issued under date of May 1, 1927. The other years will be the same as outlined on a preceding page of this catalogue, except that in the second semester of the sophomore year, three semester credits of options will displace College Rhetoric II.

Number of semester credits required for graduation, 134.

* Four meetings each semester.

Curriculum Leading to the Degree of Bachelor of Science in Agriculture, With Special Training in Landscape Gardening

FRESHMAN

Freshman year of the Curriculum in Agriculture.

SOPHOMORE

FIRST SEMESTER

Object Drawing I, Arch. 111.....	2(0-6)
Agric. Economics, Agric. Ec. 101.....	3(3-0)
Plant Physiology I. Bot. 208.....	3(3-0)
Soils, Agron. 130.....	4(3-3)
Landscape Gardening I, Hort. 125....	3(3-0)
Infantry III, Mil. Tr. 103A.....	1(0-3)
Phys. Education M, Phys. Ed. 105..R	(0-2)
Agric. Seminar,* Gen. Agric. 103.....	R

Total 16

SECOND SEMESTER

Object Drawing II, Arch. 114.....	2(0-6)
Plane Trigonometry, Math. 101.....	3(3-0)
General Zoölogy, Zoöl. 105.....	5(3-6)
Elements of Horticulture, Hort. 107..	3(2-3)
College Rhetoric II, Engl. 104.....	3(3-0)
Infantry IV, Mil. Tr. 104A.....	1(0-3)
Phys. Education M, Phys. Ed. 106..R	(0-2)
Agric. Seminar,* Gen. Agric. 103.....	R

Total 17

JUNIOR

FIRST SEMESTER

Plant Materials I, Hort. 224.....	3(2-3)
Plant Pathology I, Bot. 205.....	3(1-4, 2)
Surveying I, Civ. Engr. 102.....	2(0-6)
Theory of Lands. Design, Hort. 243..	2(2-0)
Spraying, Hort. 207.....	3(2-3)
Taxo. Bot. of Fl. Plants, Bot. 225..	3(1-4, 2)
Agric. Seminar,* Gen. Agric. 103.....	R

Total 16

SECOND SEMESTER

General Entomology, Ent. 203.....	3(2-3)
El. Journalism, Ind. Jour. 151.....	2(2-0)
Journalism Practice I, Ind. Jour. 154..	2(0-6)
Surveying II, Civ. Engr. 111.....	2(0-6)
Plant Materials II, Hort. 226A.....	3(2-3)
Plant Ecology, Bot. 228.....	2(2-0)
Forcing Fl. and Veg., Hort. 221.....	2(-)
Agric. Seminar,* Gen. Agric. 103.....	R

Total 16

SENIOR

FIRST SEMESTER

Landscape Gardening II, Hort. 238....	3(1-6)
Dendrology, Hort. 116.....	3(1-6)
Greenhouse Con. & Man., Hort 128....	3(3-0)
Pencil Rend. & Sketch., Arch 116....	2(0-6)
Landscape Constr., Hort. 227.....	3(2-3)
Electives†	3
Agric. Seminar,* Gen. Agric. 103.....	R

Total 17

SECOND SEMESTER

Agric. Relationships, Gen. Agric. 105..R	(1-0)
Silviculture, Hort. 119.....	3(2-3)
Landscape Gardening III, Hort. 246..	3(1-6)
Water Color I, Arch. 118.....	2(0-6)
Civic Art, Hort. 223.....	3(1-6)
Landscape Gard. Prob., Hort. 240....	4(-)
Electives	1
Agric. Seminar,* Gen. Agric. 103.....	R

Total 16

Number of semester hours required for graduation, 130.

Electives in Industrial Journalism

Provision is made for students desiring to prepare for the field of agricultural journalism to major in industrial journalism. They thus secure to a large extent the agricultural training provided in either the curriculum in agriculture or the curriculum in agricultural administration, but instead of securing advanced intensive training in some field of agricultural production or agricultural administration, secure some fundamental training in journalism. They are then well prepared for a large vocational field as agricultural writers, magazine and newspaper publishers, or leaders in other journalistic activities, especially those closely related to agriculture. The electives provided for students selecting such a field for major work are as follows:

Electives for Students of Agriculture Majoring in Industrial Journalism

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)
The Rural Press	3(3-0)

SECOND SEMESTER

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)

* Four meetings each semester.

† All students not offering one unit of high-school physics for entrance are required to include three credit hours of general physics in their electives.

Agricultural Economics

Professor GRIMES
Professor GREEN
Associate Professor EVANS
Assistant Professor HODGES†

Assistant Professor HOWE
Assistant Professor HENNEY
Instructor NICHOLS
Graduate Assistant YOUNGSTROM

The investigational work in agricultural economics brings together the latest information concerning the business of farming and of closely related industries. These data are used in the instructional work of the department and illustrate the principles of successful farm organization and operation, the marketing of farm products, and the conduct of business enterprises that are closely related to agriculture. The student has an opportunity to learn of the factors and economic forces involved in marketing, credit, taxation, land utilization, conservation, and similar subjects. Attention is given to the probable future consequences of various policies and practices, in addition to providing opportunity to become acquainted with existing conditions. The student in agricultural economics has exceptional opportunity to work with facts taken from the actual business of farming and of other industries that are closely related to agriculture.

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.

The equipment belonging to the department is valued at \$4,138.†

COURSES IN AGRICULTURAL ECONOMICS

FOR UNDERGRADUATE CREDIT

101. § AGRICULTURAL ECONOMICS. 3(3-0);* I. Prerequisite: Sophomore standing. Dr. Grimes, Mr. Howe, Mr. Henney and Mr. Youngstrom.

Economic principles as they relate to agriculture. Text: Ely and Wicker, *Elementary Principles of Economics*.

106. FARM ORGANIZATION. 3(2-3); I and II. Prerequisites: Ag. Ec. 101, Agron. 130, and An. Husb. 152. Dr. Grimes, Mr. Evans, Mr. Hodges, and Mr. Nichols.

The economic factors affecting the organization and operation of the farm business, and their effect on profits. Results from actual farms are studied in the laboratory. Charge, \$1.

112. FARM COST ACCOUNTING. 3(2-3); I and II. Prerequisite: Ag. Ec. 101. Mr. Evans, Mr. Hodges, and Mr. Nichols.

Various systems of farm records and accounts. In the laboratory, problems from actual farms. Cost of producing farm products; analysis and utilization of cost of production data. Charge, \$1.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. MARKETING OF FARM PRODUCTS. 3(3-0); I and II. Prerequisite: Ag. Ec. 101. Mr. Green and Mr. Henney.

Price problems affecting time of buying and selling; buyers' and sellers' relations; marketing organizations and the control of marketing, and the adaptability of products to market demands and preferences.

* The number, before the parenthesis indicates the number of semester hours of credit; the first number 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. I, II, and SS indicate that the course is given the first semester, second semester, and summer session respectively.

† The figures for equipment given here and on pages following are based on the official reports of June 30, 1928.

‡ Absent on leave year of 1928-'29.

§ For an explanation of the system used in numbering courses, see the paragraph on "Course Numbers," given elsewhere in this catalogue.

203. GRAIN MARKETING. 3(3-0); I. Prerequisite: Ag. Ec. 202. Mr. Green. Price influences and price relationships, buying and selling problems; domestic and export trade in grain; grain trade organization; regulation and control of the trade.

204. TRANSPORTATION OF FARM PRODUCTS. 3(3-0); I. Prerequisite: Ag. Ec. 101. Mr. Henney.

Rate making and other transportation problems having an important influence on the marketing of farm products.

206A. ADVANCED FARM ORGANIZATION. 3(2-3); II. Prerequisite: Ag. Ec. 106. Dr. Grimes and Mr. Evans.

Factors affecting the successful organization and operation of the farm business; effects of external factors. A number of the better and more profitable farms are visited.

212. CONSERVATION OF AGRICULTURAL RESOURCES. 2(2-0); II. Prerequisites: Ag. Ec. 101; junior standing. Mr. Howe.

The world's agricultural resources, the economics of their utilization, and their present and future relationship to human well-being.

218. AGRICULTURAL LAND PROBLEMS. 3(3-0); I. Prerequisite: Ag. Ec. 101. Mr. Howe.

A study of the relation of population to land supply and the conditions affecting tenure, ownership, and valuation of land.

219. TAXATION AND LAND OWNERSHIP. 3(3-0); II. Prerequisite: Ag. Ec. 101, or consult instructor. Mr. Howe.

Analysis of public expenditures and revenues, public credit, and fiscal administration with special emphasis upon the effects of each upon agriculture,

LAND LAW. See Land Law (Hist. 276).

221. AGRICULTURAL FINANCE. 2(2-0); II. Prerequisite: Ag. Ec. 101. Mr. Howe.

Sources and kinds of credit for purchasing farm land and financing farm operations.

227. FARMER MOVEMENTS. 3(3-0); I. Prerequisite: Ag. Ec. 101. Dr. Grimes.

Farmers' efforts to improve economic status through organization. Principles underlying successful organization of farmers.

231. AGRICULTURAL ECONOMICS SEMINAR. 1(1-0); I and II. Prerequisites: Ag. Ec. 101. Dr. Grimes, Mr. Green, Mr. Evans, Mr. Howe, Mr. Hodges, and Mr. Henney.

Current questions in agricultural economics reviewed and discussed; topics prepared and presented by students.

235. LIVE-STOCK MARKETING. 3(3-0); II. Prerequisite: Ag. Ec. 202. Mr. Henney.

The economics of live-stock marketing and factors affecting live-stock prices.

270. AGRICULTURAL ECONOMIC PROBLEMS. 1 to 4 credits; I, II, and SS. Prerequisites: Ag. Ec. 106 or 202, or such other courses as are necessary for the study of the problem selected. Dr. Grimes, Mr. Green, Mr. Evans, Mr. Hodges, Mr. Howe, and Mr. Henney.

FOR GRADUATE CREDIT

301. RESEARCH IN AGRICULTURAL ECONOMICS. 1 to 5 credits; I, II and SS. Prerequisites: Consult instructors. Dr. Grimes, Mr. Green, Mr. Evans, Mr. Hodges, Mr. Howe, and Mr. Henney.

Individual research problems in the marketing of farm products, coöperation among farmers, farmer movements, land problems, taxation, tenancy, agricul-

tural industries, agricultural finance, farm labor, farm power, farm organization, and cost of producing farm products. Any of the subjects assigned may furnish data for a master's thesis.

305. ADVANCED AGRICULTURAL ECONOMICS. 3(3-0); I. For prerequisites, consult instructor. Mr. Green.

The basic principles of economics, a strengthened foundation in fundamentals; planned readings in the works of leading economists, and discussion of principles and their application to problems confronting specialists in agricultural economics.

310. HISTORY OF AGRICULTURAL ECONOMIC THOUGHT. 3(3-0); II. Prerequisites: Consult instructor. Dr. Grimes.

Development of agricultural economics and relation of agricultural economic doctrines to conditions existing when they were formulated.

Agronomy

Professor THROCKMORTON
Professor SALMON
Professor PARKER
Professor ALDOUS
Professor DULEY
Associate Professor SEWELL
Associate Professor ZAHNLEY
Associate Professor LAUDE
Assistant Professor DAVIS

Assistant Professor LYONS‡
Assistant Professor GRANDFIELD
Assistant DAVIS
Assistant HARLING
Farm Superintendent CREWS
Assistant SUNESON
Graduate Assistant GOTH
Graduate Assistant MORTENSEN

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 \$28,211.

COURSES IN FARM CROPS

FOR UNDERGRADUATE CREDIT

101. FARM CROPS. 4(2-6); I and II. Prerequisite: Bot. 101. Mr. Davis.

The distribution, relative importance, value, and production of the more important grain and forage crops. Deposit, \$5.

105. SEED IDENTIFICATION AND WEED CONTROL. 2(1-3); I. Prerequisite: Agron. 101. Mr. Zahnley and Mrs. Harling.

Methods of propagation, control, and eradication of weeds.

Laboratory.—Identification of weed plants and seeds; germination and purity testing; field trips. Charge, \$2.50.

108. GRAIN GRADING AND JUDGING. 2(0-6); II. Prerequisite: Agron. 101. Mr. Zahnley.

Practice in grading and judging crops and crop products, including wheat,

‡ Absent on leave, year 1928-'29.

corn, oats, barley, rye, buckwheat, flax, rice, alfalfa, clover, soybeans, cowpeas, and various kinds of hay. Charge, \$3.50.

114. ADVANCED GRAIN JUDGING. 2(0-6); I. Prerequisite: Agron. 108. Mr. Zahnley.

Identification, commercial grading and judging, and presenting orally and in writing the merits of samples of the various kinds of field crops. Charge, \$3.50.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. CROP IMPROVEMENT. 3(2-3) or 4(2-6); II. Prerequisites: Agron. 101 and An. Husb. 221. Dr. Parker.

Principles of plant breeding reviewed and applied to the principal groups of field crops; methods of selection, hybridization, and breeding for special qualities. Text: Hayes and Garber, *Breeding Crop Plants* (Revised edition).

Laboratory.—A study of heritable characters in crop plants and of laboratory, greenhouse, and field methods of plant breeding. Charge, \$2.50.

203. ADVANCED FORAGE CROPS. 2(1-3); I. Prerequisite: Agron. 101. Mr. Zahnley.

Results of the most recent investigations in forage crops here and abroad; a more intensive study of the sorghums, alfalfa, sweet clover, soy beans, and other important or promising forage crops.

Laboratory.—The growth habits of crops considered in the lecture, especially as related to the production and improvement of these crops, storing, market grading, and marketing of hay. Charge, \$1.

205B. PRINCIPLES OF AGRONOMIC EXPERIMENTATION. 3(2-3); I. Prerequisites: Agron. 101 and 130. Mr. Salmon.

The principles of experimentation in general, and their application to agronomic problems; important contributions to agronomic science studied from the historical and statistical viewpoint. Charge, \$2.50.

206. AGRONOMY SEMINAR. 1(1-0); II. Prerequisites: Agron. 101 and 130. Mr. Throckmorton.

Students review before the class timely articles appearing in bulletins and current journals.

207A. PASTURE IMPROVEMENT. 3(2-3); II. Prerequisites: Bot. 102 and Agron. 101. Mr. Aldous.

Native forage plants, their distribution, value, life history and habits, and their management; management of pastures and ranges, including determination of their carrying capacity, character of stock best suited to a range or pasture, and proper methods of handling areas for maintenance or increase of forage cover.

208. PLANT GENETICS. 3(3-0); I. Prerequisite: An. Husb. 221. Dr. Parker.

An advanced course for students interested in plant breeding and principles of genetics. Offered in 1928-'29 and alternate years thereafter.

209. GENETICS SEMINAR. 1 credit; the year. Prerequisite: Consult instructors. Dr. Nabours, Dr. Parker, Dr. Warren, Dr. Ibsen, and Dr. Brunson.

Study and criticism of genetic experiments in plants and animals, of the biological and mathematical methods employed, and of the validity of conclusions drawn.

210. CROP PROBLEMS. 1(0-3) to 4(0-12); I, II, and SS. Prerequisite: Agron. 203. Mr. Salmon, Dr. Parker, Mr. Aldous, and Mr. Zahnley.

Special problems chosen or assigned; written reports upon completion of problems; credit varies with amount and quality of work done. Deposit, \$5.

211. CROP ECOLOGY. 2(2-0); II. Prerequisite: Agron. 101. Mr. Salmon. 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; possibilities of further increases in crop-producing areas and probable nature and direction of such increases.

212. ORIGIN AND CLASSIFICATION OF CROP PLANTS. 3(1½-4½); I. Prerequisite: Agron. 101. Offered in 1929-'30 and alternate years thereafter. Dr. Parker, Mr. Zahnley, and Mr. Laude.

Geographical and botanical origin of crop plants; characters used in identification of varieties of crop plants and related wild forms. Charge, \$2.50.

213. SPECIAL CROPS. 2(2-0); II. Prerequisite: Agron. 101. Mr. Zahnley. Distribution, climatic and soil requirements, relative importance, and production of sugar beets, cotton, flax, hemp, tobacco, and other minor crops.

FOR GRADUATE CREDIT

301. CROP RESEARCH. 1 to 10 credits; I, II, and SS. Prerequisite: Agron. 203. Mr. Salmon, Dr. Parker, Mr. Aldous, and Mr. Zahnley.

Special problems chosen or assigned, resulting data being available for master's thesis. Charge, \$5.

302. PASTURE IMPROVEMENT RESEARCH. 1 to 5 credits; I, II, and SS. Prerequisites: Agron. 207, Civ. Engr. 111, and Bot. 225. Mr. Aldous.

Special problems chosen or assigned; investigations may furnish data for master's thesis.

303. PLANT BREEDING LITERATURE. 1(0-3); I, II, and SS. Prerequisite: An. Husb. 221. Dr. Parker.

An opportunity is offered to familiarize students with current literature in genetics and plant breeding.

COURSES IN SOILS

FOR UNDERGRADUATE CREDIT

130. SOILS. 4(3-3); I and II. Prerequisites: Chem. 110 and Geol. 103. Mr. Throckmorton, Dr. Sewell, and Mr. Davis.

Fundamental principles underlying the management of soils. Charge, \$3.50.

FOR GRADUATE AND UNDERGRADUATE CREDIT

231. DRY-LAND FARMING. 2(2-0); I. Prerequisite: Agron. 130. Dr. Sewell. Principles underlying the cultivation methods and farming systems under light rainfall conditions.

232A. ADVANCED SOIL FERTILITY. 3(2-3); I. Prerequisite: Agron. 130. Dr. Duley.

Physical, chemical, and biological factors which influence the fertility of the soil and practical use of manure, fertilizer, lime, and legumes. Charge, \$5.

233. SOIL SURVEY. 2(1-3); II. Prerequisite: Agron. 130. Mr. Davis.

Types of soils of the United States and methods of mapping soil areas; special attention to study of Kansas soils in the field. Charge, \$1.

235. ADVANCED SOILS LABORATORY. 1(0-3) to 4(0-12); I, II, or the year. Prerequisite: Agron. 130. Dr. Duley, Dr. Sewell, and Mr. Davis.

The more advanced problems of soil physics and fertility, the making of mechanical analyses; determination of moisture equivalent; specific heat; pot work with soils in the greenhouse. Charge, \$2.50.

236. SOIL PROBLEMS. 1(0-3) to 4(0-12); I, II, and SS. Prerequisites depend on problem assigned. Mr. Throckmorton, Dr. Sewell, and Dr. Duley.

Special problems in soils, chosen or assigned. Deposit, \$5.

243. SOIL AND CROP MANAGEMENT. 3(2-3); II. Prerequisites: Agron. 101 and 130. Dr. Duley.

Discussion and investigation of practical management of soils and crops.

247. INTERRELATIONS OF SOILS AND CROP PLANTS. 3(3-0); II. Prerequisites: Agron. 130 and Bot. 208. Dr. Sewell.

Chemical laws, plant physiology, and ecological factors applied to soil problems in relation to crop production.

FOR GRADUATE CREDIT

331. SOIL RESEARCH. 1 to 10 credits; I, II, and SS. Prerequisites: Agron. 130 and Chem. 250. Mr. Throckmorton, Dr. Duley, and Dr. Sewell.

Special soil problems, which may extend throughout the year and furnish data for a master's thesis. Charge, \$5.

Animal Husbandry

Professor McCAMPBELL
Professor BELL
Professor IBSEN
Associate Professor REED
Associate Professor ANDERSON

Associate Professor AUBEL
Assistant Professor MACKINTOSH
Assistant Professor ALEXANDER
Graduate Assistant CONNELL
Graduate Assistant BLUNN

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 624 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 those qualities in the animal best suited to meet these needs.

The department owns equipment valued at \$36,673. This includes live stock having a value of \$24,995.

COURSES IN ANIMAL HUSBANDRY

FOR UNDERGRADUATE CREDIT

120. LIVE-STOCK JUDGING. 3(2-4); I and II. Mr. Bell, Mr. Mackintosh, and Mr. Alexander.

Type conformation and quality of market and breeding live stock, also breed characteristics and character in breeding live stock. Texts: Vaughn, *Types and Market Classes of Live Stock*. Charge, 50 cents.

140. ADVANCED STOCK JUDGING I. 2(0-6); I. Prerequisite: An. Husb. 120. Mr. Bell.

The judging of market animals and of different breeds of pure-bred stock, four to six animals in a group as is customary at county and state fairs. Charge, 50 cents.

143. ADVANCED STOCK JUDGING II. 2(0-6); II. Prerequisite: An. Husb. 140. Mr. Bell.

Continuation of An. Husb. 140; occasional trips to the best live-stock farms of the state, where the management of herds and flocks as handled by the most successful stockmen of the state are judged and observed. Charge, 50 cents.

146. FORM AND FUNCTION IN LIVE STOCK. 2(0-6); I. Prerequisite: An. Husb. 143 and 180. Mr. Bell.

A detailed and specific study of animal form and type, and influence of type upon function; relation of form, type, and condition to growth and development; comparative measurements of growing and fattening animals, speed and draft horses, mutton and wool sheep, and lard and bacon types of hogs, special training in presenting orally the relative merits of animals of all breeds. Charge, 50 cents.

152. PRINCIPLES OF FEEDING. 3(3-0); II. Prerequisites: Anat. 131 and Chem. 122. Mr. Anderson.

The digestive system and processes of nutrition; the origin, chemical analysis, grades, and feeding values of different feeds; the theory of practical economy of rations for the maintenance and for the fattening of all classes of farm animals. Text: Henry and Morrison, *Feeds and Feeding*, Parts I and II.

155. BEEF-CATTLE PRODUCTION. 3(2-3); II. Prerequisites: An. Husb. 120, 180, and 152. Dr. McCampbell and Mr. Anderson.

Economical methods of growing and fattening market cattle; practice in feeding, management, and housing of cattle.

158. SWINE PRODUCTION. 3(2-3); II. Prerequisites: An. Husb. 120, 180, and 152. Mr. Aubel.

Economical methods of growing swine for the market; practice in the feeding, management, and housing of swine. Text: Smith, *Pork Production*.

161. SHEEP PRODUCTION. 3(2-3); I. Prerequisites: An. Husb. 120 180, and 152. Mr. Reed.

Economical methods of growing, fitting, and finishing sheep for market; practice in the feeding, management, and housing of sheep. Text: Coffey, *Productive Sheep Husbandry*.

164. HORSE PRODUCTION. 3(2-3); I. Prerequisites: An. Husb. 120, 180, and 152. Mr. Mackintosh.

Economical methods for growing, handling, and housing horses for breeding purposes, for work, and for the market; practice in feeding, handling, and housing horses. Text: Gay, *Productive Horse Husbandry*.

167. MEATS. 2(1-3); II. Prerequisites: An. Husb. 120 and 152. Mr. Mackintosh.

Killing and dressing, cutting, and curing meats. Text: Hesler, *Farm Meats*. Charge, \$1.

171. LIVE-STOCK PRODUCTION. 3(3-0); II and SS. Prerequisite: An. Husb. 152 or 172. Open only to juniors and seniors not majoring in animal husbandry. Mr. Bell.

Practical insight into the production of beef cattle, horses, swine, and sheep.

172. FEEDING LIVE STOCK. 3(3-0); II. Open only to students in agricultural administration and agricultural engineering. Mr. Alexander.

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: Bull, *Principles of Feeding Farm Animals*.

176. MEATS HE. 1(0-3); II. For juniors and seniors in home economics. Prerequisite: Food and Nut. 106. Mr. Mackintosh.

The selection, cutting, and curing of meats; particular attention to grading of carcasses and the uses of the various cuts of meats. Charge, \$1.

180. FITTING AND SHOWING LIVE STOCK. 2(1-3); I. Prerequisite: An. Husb. 152 or 172. Mr. Reed, Mr. Anderson, Mr. Aubel, and Mr. Mackintosh.

The why and how of showing live stock at local, county, state, and national live-stock shows.

181. BREEDS OF LIVE STOCK. 3(3-0); I. Prerequisite: An. Husb. 120. Mr. Mackintosh.

A study of the origin, development, adaptability, families, strains, noted sires, and noted breeders of the leading breeds of farm live stock other than dairy cattle.

FOR GRADUATE AND UNDERGRADUATE CREDIT

221. GENETICS. 3(3-0); I, II, and SS. Prerequisites: Zoöl. 105 and Bot. 105. Dr. Ibsen.

A general study of variation, Mendelian inheritance, and related subjects.

223. ANIMAL BREEDING. 3(3-0); I. Prerequisite: An. Husb. 221. Mr. Aubel.

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. 4(3-3); II. Prerequisite: An. Husb. 221. Dr. Ibsen.

Genetics studied in greater detail than in An. Husb. 221; particular attention to the relation of chromosomes to heredity.

227. GENETICS SEMINAR. 1 credit; the year. Prerequisites: Consult instructors. Dr. Nabours, Dr. Ibsen, Dr. Parker, and Dr. Warren.

Genetic experiments in plants and animals, the biological and mathematical methods employed, and validity of conclusions drawn.

229. RESEARCH IN GENETICS. 1 to 10 credits; I and II. Prerequisite: An. Husb. 225. Dr. Ibsen.

A two-semester course offering opportunity for individual study of problems in which small mammals are used as the experimental animals.

231. ADVANCED STUDIES IN PEDIGREES. 3(1-6); II. Prerequisite: An. Husb. 181. Mr. Mackintosh.

Pedigrees and prepotency of individuals representing the more important strains and families of beef cattle, horses, sheep, and swine.

233. ADVANCED FEEDING. 2(2-0); I. Prerequisite: An. Husb. 152. Mr. Anderson.

A survey of the experimental feeding of horses, cattle, sheep, and hogs; fundamental and practical feeding problems of the various sections of the country; results obtained in experimental investigation of these problems.

244. ANIMAL HUSBANDRY SEMINAR. (1-0); II. Open only to seniors and graduate students majoring in animal husbandry. Prerequisite: An. Husb. 152. Mr. Reed.

245. ANIMAL HUSBANDRY PROBLEMS. 1 to 5 credits; I, II, and SS. Prerequisites: An. Husb. 152 and other courses; consult instructor. Dr. McCampbell.

250. PURE-BRED LIVE-STOCK PRODUCTION. 2(2-0); II. Prerequisite: An. Husb. 181 and 223; senior or graduate standing. Mr. Reed.

The real function of pure-bred live stock; the many factors upon which the successful production of pure-bred live stock depends; and possibilities in pure-bred live-stock production.

260. THE AMERICAN LIVE-STOCK AND MEAT INDUSTRY. 3(3-0); II. Prerequisites: An. Husb. 120 and 152. Dr. McCampbell.

An advanced study of the live-stock and meat industry; its organization, operation, and development; and the relation of its diversified activities to each other and to the public. Lectures, assigned readings, and reports.

268. LIVE-STOCK EXPERIMENTAL METHODS. 2(2-0); II. Prerequisites: An. Husb. 152 and 221. Dr. McCampbell and Dr. Ibsen.

How to plan, conduct, and interpret experiments involving the use of animals.

FOR GRADUATE CREDIT

301. RESEARCH IN ANIMAL HUSBANDRY. 1 to 10 credits; I and II. Prerequisites: An. Husb. 155, 158, 161, and 164. Dr. McCampbell.

Special problems in beef-cattle production, swine production, sheep production, horse production, pure-bred live-stock production, and genetics.

306. ADVANCED MEATS. 1 to 4 credits; II. Prerequisite: An Husb. 167. Mr. Mackintosh.

Grading of carcasses; studies in nutritive value of different grades of meat; factors influencing the quality of meats; factors influencing dressing percentage of meat animals; and identification of meats from different animals.

311. THE WOOL INDUSTRY. 3(2-3); II. Prerequisite: An. Husb. 161. Mr. Reed.

The supply of wool and the demand for it; and the method of producing, marketing, storing, grading, and manufacturing wool.

Dairy Husbandry

Professor FITCH
Professor CAVE
Professor MARTIN
Assistant Professor LUSH†

Instructor BROOKS
Instructor CAULFIELD
Assistant WARREN‡
Graduate Assistant BRAY

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 9,532 pounds of milk and 432 pounds of butter fat; for the Ayrshires, 11,614 pounds of milk and 442 pounds of butter fat; for the Holsteins 13,925 pounds of milk and 492 pounds of butter fat; and for Jerseys 6,897 pounds of milk and 400 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, ice cream, and condensed milk 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

† Absent on leave, year 1928-'29.

‡ Temporary appointment.

assumed from the fact that in thirteen contests the Kansas team has averaged better than third place.

This department owns equipment valued at \$52,819. This figure includes live stock to the value of \$30,640.

COURSES IN DAIRY HUSBANDRY

FOR UNDERGRADUATE CREDIT.

101. ELEMENTS OF DAIRYING. 3(2-3); I, II, and SS. Mr. Cave, Mr. Caulfield, Mr. Brooks, and Mr. Warren.

The secretion, composition, and properties of milk; factors influencing the quantity and quality of milk; care of milk and cream on the farm; different methods of creaming; construction and operation of farm separators; principles and application of the Babcock test; use of the lactometer; and butter making on the farm. Text: Judkins, *Principles of Dairying*.

Laboratory.—Practice in making the Babcock test, in use of the lactometer, in separation of milk, and in farm butter making. Charge, \$2.

104. DAIRY JUDGING. 1(0-3); I and II. Mr. Lush and Mr. Brooks.

Judging dairy stock from the standpoint of economical production and breed type. Reference: *Types and Breeds of Farm Animals* by Plumb, and breed-association literature.

106. DAIRY INSPECTION I. 2(1-3); I. Prerequisites: Bact. 106 and Dairy Husb. 101. Mr. Caulfield.

Advanced work in the testing of dairy products and testing for adulterations; practice in use of score cards for inspecting and grading milk plants, farm dairies, and creameries; outlining of state and city ordinances governing the handling and public sale of dairy products; training in duties of city, state, and government inspectors. Charge, \$3.

108. MILK PRODUCTION. 3(3-0); II. Prerequisites: Dairy Husb. 101 and An. Husb. 152 or 172. Mr. Fitch.

Economical production of milk and the most approved method of handling the dairy herd; construction of dairy barns and buildings; other subjects relating to the dairy farmer. Text: Eckles, *Dairy Cattle and Milk Production*.

109. BUTTER MAKING I. 3(2-3); I. Prerequisites: Dairy Husb. 101 and Bact. 211. Mr. Martin.

Principles of creamery butter making; construction and care of creameries and their appliances; methods of sampling and grading cream; pasteurization; starter making; cream ripening; and creamery accounting. Text: Hunziker, *The Butter Industry*.

Laboratory.—Practice in the sampling and grading of milk and cream, etc.; the making of salt, fat, and moisture determinations of the finished product; judging and scoring butter. Charge, \$3.

111. BUTTER MAKING II. 4(2-6); I. Prerequisites: Dairy Husb. 101 and Bact. 211. Mr. Martin.

Similar to course 109; for students specializing in dairy manufacturing. Charge, \$3.

116A. MARKET MILK. 3(2-3); II. Prerequisites: Dairy Husb. 101 and Bact. 211. Mr. Martin and Mr. Caulfield.

Classes of market milk; equipment and methods for clean milk production; relation of clean milk to producer, dealer, and consumer; systems of milk inspection, score cards, and milk and cream contests; milk plants, including their methods and equipment. Text: Kelley and Clement, *Market Milk*.

Laboratory.—Actual practice in all the steps in the production of market milk and cream in the College milk plant. Charge, \$3.

118. DAIRY INSPECTION II. (Vet.) 1(0-3); II. Mr. Caulfield.

The testing of dairy products; the inspection and scoring of dairies and milk depots; the testing for adulterants in dairy products. Text: Newlander, *Testing Dairy Products*. Charge, \$3.

120. ADVANCED DAIRY JUDGING. 1(0-3); II. Mr. Cave.

Continuation of Dairy Husb. 104; visits to the best farms of the state; opportunity to judge and handle stock kept by the most successful breeders.

127. CONDENSED AND POWDERED MILK. 2(1-3); I. Prerequisites: Dairy Husb. 116 and Bact. 211. Mr. Martin.

The history of milk condensing, methods of manufacture, condensing machinery, and the powdered-milk industry.

Laboratory.—Condensing milk in the college plant.

130. ICE-CREAM MAKING. 3(2-3); II. Prerequisites: Dairy Husb. 106 and 116. Mr. Martin.

A thorough study of the science and practice of the commercial manufacture of ice cream and ices. Text: Fisk, *Book of Ice Cream*.

Laboratory.—Practice in all phases of the manufacture of ice cream and ices in the college plant. Charge, \$3.

135A. CHEESE MAKING. 2(1-3); II. Prerequisites: Dairy Husb. 106 and Bact. 211. Mr. Caulfield.

Manufacture of American cheddar cheese, soft cheeses, and the most important foreign varieties.

Laboratory.—Actual manufacture of the various types of cheese. Charge, \$3.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. DAIRY SEMINAR. 1(1-0); II. Prerequisites: Dairy Husb. 101, 106, and 108. Mr. Fitch.

A study and review of dairy periodicals and experiment station bulletins, books, and other dairy literature.

207. FEEDING AND MANAGEMENT OF DAIRY CATTLE. 3(2-3); II. Prerequisites: Dairy Husb. 108 and An. Husb. 152. Mr. Cave.

An advanced course in feeding as it applies to dairy cattle under ordinary conditions and to cows on advanced registry test; general management problems and the fitting of animals for show and sale. Reference texts: Larson and Putney, *Dairy Cattle Feeding and Management*, and Eckles, *Dairy Cattle and Milk Production*. Charge, \$1.

211. DAIRY BREEDS AND PEDIGREES. 2(1-3); I. Prerequisite: Dairy Husb. 108. Mr. Lush.

The history and development of the different breeds of dairy cattle.

Laboratory.—Study of the herdbooks of the dairy breeds and study of the pedigrees of some of the prominent animals of each breed. Charge, \$1.

216. DAIRY PRODUCTION PROBLEMS. 1 to 5 credits; I and II. Prerequisites: Dairy Husb. 101, 104, and 108, and An. Husb. 152. Mr. Fitch and Mr. Cave.

An investigation pertaining to dairy production problems, plans for said investigation to be so formulated that the study may be continued for more than one semester, if necessary.

221. DAIRY MANUFACTURING PROBLEMS. 1 to 5 credits; I and II. Prerequisites: Dairy Husb. 101, 106, 108, 111, and 114. Mr. Martin.

An investigation pertaining to dairy manufacturing problems, plans for said investigation to be so formulated that, if necessary, the study may be continued for more than one semester.

226. CREAMERY MANAGEMENT. 2(2-0); II. Prerequisite: Dairy Husb. 111. Mr. Martin.

An advanced course in creamery management for students specializing in dairy manufacturing.

FOR GRADUATE CREDIT

301. DAIRY RESEARCH. 1 to 10 credits; I and II. Prerequisites: Dairy Husb. 108, 109, 211, or 108, 111, 116, and 226.

Special investigations in dairy husbandry or dairy manufactures which may form the basis of a thesis in partial fulfillment of the requirement for the degree of master of science.

General Agriculture

Dean CALL

102. FRESHMAN LECTURES. 1(2-0); I. Dean, assistant dean, heads of departments and freshman advisers of the Division of Agriculture, assisted by a professor of education and various other members of the College faculty.

A two-fold object: (1) To assist in development of ability to study effectively, and (2) to inform regarding prospective opportunities for service in various fields of work open to agricultural graduates, and requirements for success in these fields; and regarding the relationship between agricultural and other subject matter in well-balanced agricultural training.

103. AGRICULTURAL SEMINAR. R(four meetings each semester).

Discussion of general agricultural questions and of agricultural student affairs; programs presented by students, members of the faculty, and invited speakers from outside.

105. AGRICULTURAL RELATIONSHIPS. R(1-0); II.

Agricultural graduates and their duties, responsibilities, and opportunities for service as citizens of the agricultural community and as specialists in various phases of agricultural activity.

Horticulture

Professor DICKENS
Professor BARNETT
Assistant Professor PICKETT

Associate Professor QUINLAN
Assistant Professor BALCH
Graduate Assistant _____

Instruction offered in the Department of Horticulture covers pomology, vegetable gardening, greenhouse practice, forestry, and all phases of landscape gardening.

The horticultural farm consists of eighty acres of land devoted exclusively to horticultural and forestry work. 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 and on them are located the vegetable gardens.

Instruction in landscape gardening is planned to meet the requirements of two classes of students: (1) Students who wish a general knowledge 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 the equipment belonging to this department is \$4,943.

COURSES IN HORTICULTURE

FOR UNDERGRADUATE CREDIT

105. SYSTEMATIC POMOLOGY. 4(2-6); I. Prerequisite: Hort. 107. Mr. Barnett and Mr. Pickett.

Technical study of fruit varieties, including varietal relationships; principles underlying pomological nomenclature, variety description, and artificial and natural systems of variety classifications. Text: Hedrick, *Systematic Pomology*.

Laboratory.—Study of actual fruits, from many parts of the United States; description, identification, judging and preparation of fruit displays. Charge, \$1.

107. ELEMENTS OF HORTICULTURE. 3(2-3); I and II. 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; practices necessary for success in orcharding and gardening and the principles on which these practices are based. Text: Gardner, Bradford, and Hooker, *Orcharding*.

Laboratory.—Study of fruit-bearing habits, propagation, pruning, spraying, transplanting, cover crops, fruit varieties, etc. Charge, \$1.

110. SMALL FRUITS. 2(2-0); II and SS. Prerequisite: Bot. 105. Mr. Barnett.

Culture, harvesting and marketing small fruits; management of home and commercial plantations. Text: Sears, *Productive Small Fruit Culture*.

114. FARM FORESTRY. 3(2-3); I. Prerequisite: Bot. 105. Mr. Dickens.

The needs of Kansas farms for windbreaks and wood lots for post and fuel production; forest conservation and methods of handling timber; the growing of trees in locations better suited for timber than for other crops; composition of windbreaks and their value as protection to home orchards and fields. Text: Ferguson, *Farm Forestry*.

Laboratory.—Identification of species, methods of forming windbreaks, nursery work in transplanting trees of various sizes, determination of rate of growth of trees under various conditions.

116. DENDROLOGY. 3(1-6); I. Prerequisite: Bot. 105. Mr. Dickens.

Classification and identification of forest trees; forest ecology and taxonomy; classification of commercial species; relative importance of timber species; the life history and requirements of trees.

Laboratory.—Studies in the College arboretum and excursions to nearby wood lots; becoming acquainted with trees that do well in Kansas.

119. SILVICULTURE. 3(2-3); II. Prerequisite Hort. 114 or 116. Mr. Dickens.

The business of tree growing for economic purposes; requirements of species, their range and requirements as to soils, climate and the various factors that determine their reproduction and rate of growth; protection of forests from fires and insects; and the applications of various systems of silviculture. Text: Toumey, *Seeding and Planting in the Practice of Forestry*.

125. LANDSCAPE GARDENING I. 3(3-0); I and SS. Mr. Quinlan.

An introductory course in the fundamental principles of landscape gardening. Text: Waugh, *Book of Landscape Gardening*.

128. GREENHOUSE CONSTRUCTION AND MANAGEMENT. 3(3-0); I. Mr. Balch.

The more important points of greenhouse construction and the proper methods of greenhouse management; the commercial standpoint and private conservatories.

129. FLORAL ARRANGEMENT. 2(1-3); I. Mr. Balch.

The use of flowers and floral pieces for the home and the store. Text: White, *Principles of Flower Arrangement*.

Laboratory.—The arrangement of seasonable flowers for various uses.

130. SCHOOL GARDENING. 2(2-0); SS. Mr. Balch.

A general study of soils, insects, diseases, and machinery as related to vegetable crops and their culture.

133. ELEMENTS OF VEGETABLE GARDENING. 3(2-3); II. Mr. Balch.

The practices necessary for success in vegetable gardening—the fundamentals for the student who becomes a teacher, a county agricultural agent or a vegetable grower, and a foundation for advanced courses in vegetable production. Charge, \$1. Text: Thompson, *Vegetable Crops*.

FOR GRADUATE AND UNDERGRADUATE CREDIT.

201. PRACTICAL POMOLOGY. 3(2-3); II. Prerequisite: Hort. 105. Mr. Barnett and Mr. Pickett.

Fruit geography, orchard locations, financing the orchard, orchard equipment, orchard economics, fruit manufactured products, and fruit marketing. Lectures and recitations.

Laboratory.—Laboratory practice in grading and packing fruits, intensive field work in identification of fruit plant varieties; propagation and advanced pruning of fruit plants. Charge, \$1.

202. SUBTROPICAL POMOLOGY. 2(2-0); II. Prerequisite: Hort. 105. Mr. Barnett.

The geography and methods of production of the principal subtropical fruits grown in the United States. Text: Hume, *Cultivation of Citrus Fruits*, and assigned readings.

205. ADVANCED POMOLOGY. 3(2-3); I. Prerequisite: Hort. 105. Mr. Barnett and Mr. Pickett.

A course on the fundamentals of orcharding. Text: Chandler, *Fruit Growing*.

Laboratory.—Advanced apple judging; production and marketing studies. Charge, \$1.

207. SPRAYING. 3(2-3); I. Prerequisite: Chem. 110. Mr. Pickett.

Spray machinery and accessories; chemical properties, manufacture and use of the important insecticides and fungicides; determination of spray dates.

Laboratory.—Preparation and testing of spray materials; special study of spray machinery and accessories. Charge, \$1.

209. ORCHARD PROBLEMS. 1 to 5 credits; I or II, and SS. Prerequisites: Hort. 105, and senior or graduate standing. Mr. Dickens and Mr. Pickett.

Problems related to commercial orcharding, such as orchard surveys, production costs, root-stock adaptations, pruning tests, and studies of fruit in common storage. A charge may be made.

210. MARKET GARDENING. 3(2-3); II. Prerequisites: Agron. 130 and Hort. 133. Mr. Balch.

The business side of market gardening; preparation of seed orders; estimates of cost per acre of growing various garden crops; harvesting, storing, and marketing vegetables. Text, Jones and Rosa, *Truck Crop Plants*.

Laboratory.—Each student is assigned a plot of ground to plant and care for during the semester. Careful records of cultural operations and of yields; disease and insect control. Charge, \$1.

218. MARKET-GARDENING PROBLEMS. 1 to 5 credits. Prerequisite: Hort. 210. Mr. Balch.

The important methods of production of standard vegetables of both garden and greenhouse; problems of marketing, storage and shipping.

221. FORCING FLOWERS AND VEGETABLES. 1 to 5 credits. Prerequisite: Hort. 128 or 133. Mr. Balch.

Propagation and cultural methods, soil studies, ventilation, heating, watering, and the control of greenhouse pests.

223. CIVIC ART. 3(1-6); II. Prerequisite: Hort. 243. Mr. Quinlan.

A study of the growth and development of cities and towns; emphasis is laid on the design of community and civic centers, parks, land subdivisions, etc. Text: James, *Land Planning*.

224. PLANT MATERIALS I. 3(2-3); I. Prerequisite: Bot. 105. Mr. Quinlan. Study and identification of trees, shrubs, vines, perennials, and annuals for general ornamenting planting.

226A. PLANT MATERIALS II. 3(2-3); II. Prerequisite: Hort. 224. Mr. Quinlan.

Practical use of plant materials in landscape gardening with reference to types and kinds of gardens, private and public areas. Planting plans, sketches, elevations, estimates, and written reports will be required.

227. LANDSCAPE CONSTRUCTION. 3(2-3); I. Prerequisite: Civil Engr. 111. Mr. Quinlan.

Interpretation of topographic maps, preparation of grading plans; structures in relation to the topography; sewage, water supply, lighting, and drainage on the private estate.

235. HORTICULTURE SEMINAR. 1(1-0); I and II. Prerequisites: Hort. 105, 133 or 128. Mr. Barnett.

A study and critical discussion of recent horticultural publications and of experimental and research projects now under way in this and other agricultural experiment stations.

238. LANDSCAPE GARDENING II. 3(1-6); I. Prerequisites: Hort. 125 and 226. Mr. Quinlan.

An elementary course in the designing of the home grounds, the country estate, special gardens, and playgrounds. Several sketch problems will be given during the course. Charge, \$1.

240. LANDSCAPE GARDENING PROBLEMS. 1 to 5 credits. Prerequisites: Hort. 238 and 243. Mr. Quinlan.

In this course the student solves original advanced problems in landscape design, construction, maintenance, and materials for landscape gardening. The course may extend through the school year.

243. THEORY OF LANDSCAPE DESIGN. 2(2-0); I. Prerequisite: Hort. 126. Mr. Quinlan.

The economic and æsthetic theory of design; taste, character, historic styles, composition; natural elements in design; and planting design.

246. LANDSCAPE GARDENING III. 3(1-6); II and SS. Prerequisites: Hort. 226, 243, and 238. Mr. Quinlan.

Advanced course in designing of large parks, cemeteries, golf courses, educational groups, and high-class land subdivisions; construction details; contracts and specifications. Several sketch problems will be given during the course. Charge, \$1.

FOR GRADUATE CREDIT

316. HORTICULTURAL RESEARCH. 1 to 10 credits; I, II, and SS. Prerequisites: Consult instructor. Mr. Dickens, Mr. Barnett, Mr. Balch, and Mr. Quinlan.

Any feasible problem relating to the student's major line of graduate study—pomology, olericulture, forestry, or landscape gardening. Data collected may form basis for a master's thesis.

Milling Industry

Professor SWANSON
Associate Professor WORKING

Instructor PENCE
Miller OAKES

The milling of wheat and other cereals is one of the leading manufacturing industries of the United States, and 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 \$38,544.

COURSES IN MILLING INDUSTRY

FOR UNDERGRADUATE CREDIT

104. PRINCIPLES OF MILLING I. 2(1-3); II. Dr. Swanson and Mr. Oakes. The theory and principles of flour-milling operations; practice work on an experimental mill. Charge, \$2.

106. PRINCIPLES OF MILLING II. 1(0-3); II. Mr. Pence and Mr. Oakes. Wheat conditioning and the study of the course of different products through the mill with the aid of a flow-sheet. Charge, \$2.

109. MILLING PRACTICE I. 3(1-6); I. Prerequisite: Mill. Ind. 106. Mr. Pence and Mr. Oakes.

A study of the operation of wheat-cleaning machines, tempering controls, grinders, sifters, and purifiers. Charge, \$2.

111. MILLING PRACTICE II. 3(1-6); II. Prerequisite: Mill. Ind. 109. Mr. Pence and Mr. Oakes.

Relation of roll and bolting surfaces, flour blending, redressing, principles of bleaching, belt management, lubrication, spout construction, methods of checking mill operation. Charge, \$2.

115. THESIS. 1 to 5 credits; I and II. Dr. Swanson, Dr. Working, and Mr. Pence.

Experimental work on problems connected with flour milling or the testing of wheat and flour, the subject of investigation to be selected in consultation with the head of the department at the beginning of the senior year.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. MILLING TECHNOLOGY I. 2(0-6); I. Prerequisite: Mill. Ind. 111. Mr. Pence.

Problems related to management of flour mill operations, variation in wheat conditioning, corrugation, roll spiral, roll surfaces, purifiers, and bolters. Charge, \$2.

202. MILLING TECHNOLOGY II. 2(0-6); II. Prerequisite: Mill. Ind. 201. Mr. Pence.

Study of the influence of external conditions on flour-mill operations, management of air control, exhaust, dust collectors, flour bleachers, determining the flow of mill streams. Charge, \$2.

205. WHEAT AND FLOUR TESTING. 3(0-9); I. Prerequisites: Mill. Ind. 212 and Chem. 123 and 251 or 260. Dr. Working.

Special quantitative tests applied to cereals and their products; methods of analysis and interpretation of results. Deposit, \$7.50.

206. EXPERIMENTAL BAKING. 3(1-6); II. Prerequisite: Mill. Ind. 205. Dr. Working.

Practice in baking tests; comparison of methods, formulas, and flours; interpretation of results. Charge, \$4.

210. ADVANCED WHEAT AND FLOUR TESTING. 1 to 5 credits; I and II. Prerequisites: Mill. Ind. 205 and other courses; consult instructors. Dr. Swanson and Dr. Working.

Physiochemical and other methods used in testing wheat and flour. Deposit, \$2.50 per credit.

212. MILLING QUALITIES OF WHEAT. 3(3-0); II. Prerequisite: Chem. 123. Dr. Swanson.

Factors which affect the milling qualities of wheat and the quality of flour, such as moisture, respiration, enzymes, harvesting, storage, climate, and soil.

214. MILLING INDUSTRY PROBLEMS. 1 to 5 credits; I, II, and SS. Prerequisites: Mill. Ind. 212, or such other courses as are necessary for the problem selected. Dr. Swanson, Dr. Working, and Mr. Pence. Charge, \$2.50 per credit hour.

FOR GRADUATE CREDIT

301. MILLING INDUSTRY RESEARCH. 1 to 10 credits; I, II, and SS. Prerequisite: Mill Ind. 205 and 206, and other courses required by the problem selected. Dr. Swanson, Dr. Working, and Mr. Pence.

A definite line of investigation 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 SCOTT

Graduate Assistant KING
Superintendent LOOMIS

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 \$12,483.

COURSES IN POULTRY HUSBANDRY

FOR UNDERGRADUATE CREDIT

101. FARM POULTRY PRODUCTION. 2(1-3); I and II. Mr. Payne, Mr. Scott and Mr. King.

Problems of poultry management on the general farm. Text: Lippincott, *Poultry Production* (Fourth edition). Charge, \$2.

104. PRACTICE IN POULTRY FEEDING. 1(3 times a day, 7 days a week, for 3 weeks, at hours outside the regular schedules); II. Prerequisite: Poult. Husb. 101. Mr. Scott.

A flock of fowls cared for under supervision of an instructor; careful records kept of feeds consumed and eggs produced; survey of recent literature on poultry feeding. Charge, \$2.

109. POULTRY JUDGING. 3(1-6); I. Prerequisite: Poult. Husb. 101. Mr. Scott.

A historical study of the various breeds commonly found on the Kansas farm; particular attention to production characteristics and tracing evolution of present breed types.

Laboratory.—Judging the standard breeds and varieties by score card and by comparison; judging hens for egg production on the basis of their trap-nest records. Charge, \$3.

116. MARKET POULTRY AND EGGS. 4(2-6); I. Prerequisite: Poult. Husb. 101. Mr. Payne and Mr. King.

Methods of handling market eggs and live and dressed poultry.

Laboratory.—Candling and grading eggs; crate-feeding, killing, dressing, grading, and packing market poultry. Text: Benjamin, *Marketing Poultry Products*. Charge, \$3.

120. ARTIFICIAL INCUBATION AND BROODING. 3(1-6) (laboratory 3 times a day, 7 days a week for not less than 8 weeks, at hours outside the regular schedule); II. Prerequisite: Poult. Husb. 101. Mr. Scott and Mr. King.

Survey of the literature upon incubation and brooding; actual care of an incubator throughout the incubation period; bringing off the hatch; care of chicks in brooder for three weeks. Charge, \$3.

125. ADVANCED INCUBATION. 1 credit (3 times a day, 7 days a week, for not less than 3 weeks, at hours outside the regular schedule); II. Prerequisites: Poult. Husb. 101 and 120. Mr. Payne and Mr. King.

Study of the baby chick industry; operation of a Mammoth incubator; packing and shipping of baby chicks. Charge, \$2.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. POULTRY BREEDING. 2(2-0); II. Prerequisite: An. Husb. 221. Dr. Warren.

Experimental work on inheritance in poultry is reviewed.

POULTRY FARM ORGANIZATION. See Advanced Farm Organization (Ag. Ec. 206A).

POULTRY BACTERIOLOGY. See Poultry Bacteriology. (Bact. 216).

POULTRY ANATOMY. See Special Anatomy (Anat. 201).

206. POULTRY PROBLEMS. 1 to 5 credits; I, II, and SS. Prerequisites: Poult. Husb. 101, 104, and such other courses as required. Mr. Payne.

A definite investigation covering some phase of poultry work, to be continued into the next semester if necessary.

210. GENETICS SEMINAR. 1 credit; the year. Prerequisites: Consult instructors. Dr. Nabours, Dr. Ibsen, Dr. Warren, and Dr. Parker.

Genetic experiments in plants and animals, the biological and mathematical methods employed, and validity of conclusions drawn.

215. POULTRY MANAGEMENT. 2(2-0); II and SS. Prerequisites: Poult. Husb. 101; senior or graduate standing. Mr. Payne and Mr. Scott.

A detailed study of all phases of farm and commercial flocks, including cost of production. Text: Rice and Botsford, *Practical Poultry Management*.

220. POULTRY SEMINAR. 1(1-0); I. Prerequisite: Poult. Husb. 101. Required of all graduate students and of both juniors and seniors majoring in poultry husbandry. Dr. Warren.

A review of current literature appearing in periodicals and bulletins and reports on research projects and topics of special interest.

FOR GRADUATE CREDIT

301. POULTRY RESEARCH. 1 to 10 credits; I, II, and SS. Prerequisites: Poult. Husb. 101, 104, 109, 116, 120, or their equivalent, and such other courses as required. Mr. Payne and Dr. Warren.

A definite line of investigation which may form the basis of a master's thesis.

Agriculture in the Summer School

Teachers in the high schools and grade schools of Kansas appreciate the value of the work offered in the Summer School of Kansas State Agricultural College. Besides first-class professional courses in education 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. Basic college courses are offered in most of the departments in the Division of Agriculture, and opportunity for graduate work is being broadened each year. This is especially true as regards graduate work provided for high school teachers of vocational agriculture. Brief information regarding many of these courses offered in the Summer School may be found in the department descriptions of courses in this catalogue. Further information may be secured by addressing a request to Dean of the Summer School, Kansas State Agricultural College, Manhattan, Kansas.

SPECIAL COURSES IN AGRICULTURE

The Farmer's Short Course and the Dairy Manufacturing Short Courses are discussed with other special courses in another part of this catalogue. They may be found by reference to the general index.

The Division of Engineering

ROY ANDREW SEATON, *Dean.*

The Division of Engineering offers curricula in agricultural engineering, architectural engineering, architecture, chemical engineering, civil engineering, electrical engineering, flour mill engineering, landscape architecture, and mechanical engineering, 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 teachers' 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 the science of agriculture; 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 advisers, 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 curriculum in electrical engineering aims to prepare the student for leadership in the field of his chosen profession. The graduate may enter upon one of several divisions in the field of electrical engineering, such as electrical design, application, commercial, or operation in either the electric power or the electric communication industry.

In order to qualify for the various divisions of the profession, the student should have a thorough grounding in mathematics and the sciences; practice and theoretical training in drawing, surveying, and shop practice; and a liberal training in the cultural subjects of English, history and economics. Such a broad foundation serves as the basis for the more technical training in electrical engineering. This technical training begins with a course during the first year in College, is followed by another course during the second year and is completed by several courses extending through the junior and senior years. The curriculum provides, in addition, for approximately one semester of elec-

tive work, giving the student ample opportunity for the selection of extra work along cultural, economic or technical lines.

Instruction is provided by lecture, recitation, and laboratory methods, with particular stress on the deductions and reports of laboratory experiments.

An opportunity for contact with the field of electrical engineering is offered by special lecturers and by inspection trips. The student is aided in securing professional experience during the summer vacation periods.

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 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, 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 operating the machinery and performing the 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 and elective courses are available in the senior year and give the student an opportunity for instruction in the more specialized branches of mechanical 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

FRESHMAN

FIRST SEMESTER	SECOND SEMESTER
Chemistry E-I, Chem. 107.....*4(3-3)	Chemistry E-II, Chem. 108.....4(3-3)
College Algebra,† Math. 104.....3(3-0)	Plane Trigonometry, Math. 101.....3(3-0)
College Rhetoric I, Engl. 101.....3(3-0)	College Rhetoric II, Engl. 104.....3(3-0)
Engr. Draw, Mach. Design 101.....2(0-6)	Descriptive Geom., Mach. Design 106.....2(0-6)
Agric. Machines and Construction, Ag. Engr. 122.....2(1-3)	Live Stock Judging, An. Husb. 120, 3(2-4)
Engr. Woodwork I, Shop 101.....1(0-3)	Forging I, Shop 150.....1(0-3)
Artillery I, Mil. Tr. 113A.....1(0-3)	Artillery II, Mil. Tr. 114A.....1(0-3)
Engr. Lectures, Gen. Engr. 101.....R	Engr. Lectures, Gen. Engr. 101.....R
Phys. Ed. M, Phys. Ed. 103.....R(0-2)	Phys. Ed. M, Phys. Ed. 104.....R(0-2)
Total 16	Total 17

SOPHOMORE

FIRST SEMESTER	SECOND SEMESTER
Engr. Physics I, Phys. 145.....5(4-3)	Engr. Physics II, Phys. 150.....5(4-3)
Pl. Analyt. Geometry, Math. 110....4(4-0)	Calculus I, Mach. 205.....5(5-0)
American Industrial Hist., Hist. 105, 3(3-0)	General Geology, Geol. 103.....3(3-0)
Mechanism, Mach. Design 121.....3(3-0)	Mach. Draw. I, Mach. Design 111, 2(0-6)
Surveying I, Civ. Engr. 102.....2(0-6)	Surveying II, Civ. Engr. 111.....2(0-6)
Artillery III, Mil. Tr. 115A.....1(0-3)	Artillery IV, Mil. Tr. 116A.....1(0-3)
Seminar, Gen. Engr. 105.....R	Seminar, Gen. Engr. 105.....R
Phys. Ed. M, Phys. Ed. 105.....R(0-2)	Phys. Ed. M, Phys. Ed. 106.....R(0-2)
Total 18	Total 18

JUNIOR

FIRST SEMESTER	SECOND SEMESTER
Applied Mech., Ap. Mech. 202.....4(4-0)	Str. of Mat., Ap. Mech. 211, 220....6(5-3)
Calculus II, Math. 206.....3(3-0)	Farm Motors, Ag. Engr. 125, 126....3(2-3)
Soils, Agron. 130.....4(3-3)	Farm Crops, Agron. 101.....4(2-6)
Fld. & Power Mach., Agr. Engr. 110, 3(2-3)	Feeding L. S., An. Husb. 172.....3(3-0)
Extempore Speech I, Pub. Spk. 106..2(2-0)	Foundry Production, Shop 161.....1(0-3)
Mach. Tool Work I, Shop 170.....2(0-6)	Seminar, Gen. Engr. 105.....R
Seminar, Gen. Engr. 105.....R	
Total 18	Total 17

* The number before the parenthesis indicates the number of semester hours of credit; the first number 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 each week.

† Students who offer but one unit of algebra for admission take a five-hour course in College Algebra, Math. 107, the first semester, postponing two hours of other work.

SENIOR §

FIRST SEMESTER

Economics, Econ. 101.....	3(3-0)
Tract. & Tcks., Ag. Engr. 116, 117, 3(2-3)	
Farm Structures, Ag. Engr. 104.....	3(1-6)
Highway Engineering I, Civ. Engr.	
230 and Ap. Mech. 250.....	3(2-3)
Hydraulics, Ap. Mech. 230, 235.....	4(3-3)
Business Law A, Hist. 161.....	2(2-0)
Seminar, Gen. Engr. 105.....	R
Total	18

SECOND SEMESTER

Farm Organization, Ag. Ec. 106.....	3(2-3)
Land Reclamation, Ag. Engr. 150....	3(2-3)
Rural Water Supply and Sewage	
Disposal, Ag. Engr. 118.....	2(2-0)
Electrical Engineering C, Elect.	
Engr. 160, 165	3(2-2, 1)
Steam and Gas Engineering C,	
Mech. Engr. 120, 125.....	3(2-3)
Nontechnical Elective†	4(-)
Seminar, Gen. Engr. 105.....	R
Total	18

Number of hours required for graduation, 140.

Curriculum in Architectural Engineering

FRESHMAN

FIRST SEMESTER

Chemistry E-I, Chem. 107.....	4(3-3)
College Algebra,* Math. 104.....	3(3-0)
College Rhetoric I, Engl. 101.....	3(3-0)
Descr. Geom. A, Mach. Design 107..	3(0-9)
El. of Arch. I, Arch. 106A.....	3(0-9)
Artillery I, Mil. Tr. 113A.....	1(0-3)
Engr. Lectures, Gen. Engr. 101.....	R
Phys. Ed. M, Phys. Ed. 103.....	R(0-2)
Total	17

SECOND SEMESTER

Chemistry E-II, Chem. 108.....	4(3-3)
Plane Trigonometry, Math. 101.....	3(3-0)
Coll. Rhetoric II, Engl. 104.....	3(3-0)
Shades and Shadows, and Per-	
spective, Mach. Design 108.....	3(0-9)
El. of Architecture II, Arch. 107A....	3(0-9)
Artillery II, Mil. Tr. 114A.....	1(0-3)
Engr. Lectures, Gen. Engr. 101.....	R
Phys. Ed. M, Phys. Ed. 104.....	R(0-2)
Total	17

SOPHOMORE

FIRST SEMESTER

Engr. Physics I, Phys. 145.....	5(4-3)
Hist. of Arch. I, Arch. 154A.....	2(2-0)
Plane Analytical Geom., Math. 110..	4(4-0)
Object Drawing I, Arch. 111.....	2(0-6)
Extem. Speech I, Pub. Spk. 106....	2(2-0)
Surveying I, Civ. Engr. 102.....	2(0-6)
Artillery III, Mil. Tr. 115A.....	1(0-3)
Seminar, Gen. Engr. 105.....	R
Phys. Ed. M, Phys. Ed. 105.....	R(0-2)
Total	18

SECOND SEMESTER

Engr. Physics II, Phys. 150.....	5(4-3)
Hist. of Arch. II, Arch. 157A.....	2(2-0)
Calculus I, Math. 205.....	5(5-0)
Object Drawing II, Arch. 114.....	2(0-6)
Electrical Machinery and Construc-	
tion, Elec. Engr. 170.....	2(0-6)
Artillery IV, Mil. Tr. 116A.....	1(0-3)
Seminar, Gen. Engr. 105.....	R
Phys. Ed. M, Phys. Ed. 106.....	R(0-2)
Total	17

JUNIOR

FIRST SEMESTER

Applied Mechanics, Ap. Mech. 202..	4(4-0)
Calculus II, Math. 206.....	3(3-0)
Hist. of Arch. III, Arch. 158A.....	2(2-0)
Masonry and Found., Civ. Engr. 120,	2(2-0)
Design I, Arch. 142.....	3(0-9)
Pen. Rend. & Sketch., Arch. 116....	2(0-6)
Elective†	2(-)
Seminar, Gen. Engr. 105.....	R
Total	18

SECOND SEMESTER

Str. of Mat., Ap. Mech. 211, 220....	6(5-3)
Work. Draw. and Speci., Arch. 191,	3(0-9)
Hist. of Arch. IV, Arch. 160A.....	2(2-0)
Design II, Arch. 144.....	3(0-9)
Water Color I, Arch. 118.....	2(0-6)
Elective†	2(-)
Seminar, Gen. Engr. 105.....	R
Total	18

* Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, the first semester, postponing two hours of other work.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

§ Optional subjects are offered during the senior year for those wishing to specialize in rural electrification.

SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Str. in Framed Struc., Civ. Engr. 201, 4(4-0)		Des. of Fr. Struc., Civ. Engr. 246, 3(0-9)	
Civil Engr. Draw. II, Civ. Engr. 205, 2(0-6)		Con. Des., Civ. Engr. 250, 255.....3(2-3)	
Design III, Arch. 145.....5(0-15)		Design IV, Arch. 147 .....5(0-15)	
Rural Architecture, Arch. 153.....2(0-6)		St. & Gas Engr. C, Mech. Engr.	
		120, 125 .....3(2-3)	
Economics, Econ. 101 .....3(3-0)		Business Management, Econ. 126....2(2-0)	
Business Law A, Hist. 161.....2(2-0)		Elective† .....2(-)	
Seminar, Gen. Engr. 105.....R		Seminar, Gen. Engr. 105.....R	
Total	18	Total	18

Number of semester hours required for graduation, 141.

Curriculum in Architecture

FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
Col. Algebra,* Math. 104.....3(3-0)		Plane Trigonometry, Math. 101.....3(3-0)	
Hist. of Arch. I, Arch. 154A.....2(2-0)		Hist. of Arch. II, Arch. 157A.....2(2-0)	
Col. Rhetoric I, Engl. 101.....3(3-0)		Col. Rhetoric II, Engl. 104.....3(3-0)	
Desc. Geom. A, Mach. Des. 107.....3(0-9)		Sh. & Shad. & Per., Mach. Des. 108, 3(0-9)	
Object Drawing I, Arch. 111.....2(0-6)		Object Drawing II, Arch. 114.....2(0-6)	
El. of Arch. I, Arch. 106A.....3(0-9)		El. of Arch. II, Arch. 107A.....3(0-9)	
Artillery I, Mil. Tr. 113A.....1(0-3)and		Artillery II, Mil. Tr. 114A.....1(3-0)and	
Phys. Ed. M, Phys. Ed. 103		Phys. Ed. M, Phys. Ed. 104	
(men) .....R(0-2)or		(men) .....R(0-2)or	
Phys. Ed. W, Phys. Ed. 151A		Phys. Ed. W, Phys. Ed. 152A	
(women) .....R(0-3)		(women) .....R(0-3)	
Engr. Lectures, Gen. 101 .....R		Engr. Lectures, Gen. Engr. 101.....R	
Total men	17	Total men	17
Total women	16	Total women	16

SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
Gen. Physics I, Phys. 135.....4(3-3)		General Physics II, Physics. 140....4(3-3)	
Hist. of Arch. III, Arch. 158A.....2(2-0)		Hist. of Arch. IV, Arch. 160A.....2(2-0)	
Bld. Mat. & Con., Arch. 187A.....3(3-0)		Work. Draw. & Spec., Arch 191.....3(0-9)	
Pencil Rend. & Sketch., Arch. 116....2(0-6)		Water Color I, Arch. 118.....2(0-6)	
Design I, Arch. 142 .....3(0-9)		Design II, Arch. 144.....3(0-9)	
French I, Mod. Lang. 151.....3(3-0)		French II, Mod. Lang. 152.....3(3-0)	
Artillery III, Mil. Tr. 115A.....1(0-3)		Artillery IV, Mil. Tr. 116A.....1(0-3)	
Seminar, Gen. Engr. 105.....R		Seminar, Gen. Engr. 105.....R	
Phys. Ed. M, Phys. Ed. 105		Phys. Ed. M, Phys. Ed. 106	
(men) .....R(0-2)or		(men) .....R(0-2)or	
Phys. Ed. W, Phys. Ed. 153		Phys. Ed. W, Phys. Ed. 154	
(women) .....R(0-3)		(women) .....R(0-3)	
Total men	18	Total men	18
Total women	17	Total women	17

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Ap. Mech. A, Ap. Mech. 102.....3(3-0)		Str. of Mat. A, Ap. Mech. 116, 121, 4(3-3)	
Still-life Drawing, Arch. 117.....2(0-6)		Life Drawing I, Arch. 121.....2(0-6)	
Design III, Arch. 145 .....5(0-15)		Design IV, Arch. 147 .....5(0-15)	
Rural Architecture, Arch. 153.....2(0-6)		Extern. Speech I, Pub. Spk. 106....2(2-0)	
Economics, Econ. 101 .....3(3-0)		Business Law A, Hist. 161.....2(2-0)	
Hist. of Civ. & Art I, Arch. 178....2(3-0)		Hist. of Civ. & Art II, Arch. 182....2(3-0)	
Seminar, Gen. Engr. 105.....R		Seminar, Gen. Engr. 105.....R	
Total	17	Total	17

* Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, the first semester, postponing two hours of other work.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Interior Design, Arch. 120.....	2(0-6)	Life Drawing II, Arch. 123.....	2(0-6)
Design V, Arch. 253.....	8(0-24)	Design VI, Arch. 256.....	8(0-24)
Theory of Struc. I, Arch. 192.....	4(2-6)	Theory of Struc. II, Arch. 194A.....	5(3-6)
Elective†.....	4(-)	Elective†.....	2(-)
Seminar, Gen. Engr. 105.....	R	Seminar, Gen. Engr. 105.....	R
Total.....	18	Total.....	17

Number of semester hours required for graduation: Men, 139; women, 135.

Curriculum for Chemical Engineering

FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
Chemistry I, Chem. 101.....	5(3-6)	Chemistry II, Chem. 102.....	5(3-6)
Coll. Algebra,* Math. 104.....	3(3-0)	Plane Trigonometry, Math. 101.....	3(3-0)
Coll. Rhetoric I, Engl. 101.....	3(3-0)	Coll. Rhetoric II, Engl. 104.....	3(3-0)
Engr. Drawing, Mach. Des. 101.....	2(0-6)	Des. Geometry, Mach. Des. 106.....	2(0-6)
German I, Mod. Lang. 101.....	3(3-0)	German II, Mod. Lang. 102.....	3(3-0)
Artillery I, Mil. Tr. 113A.....	1(0-3)	Artillery II, Mil. Tr. 114A.....	1(0-3)
Engr. Lectures, Gen. Engr. 101.....	R	Engr. Lectures, Gen. Engr. 101.....	R
Phys. Ed. M, Phys. Ed. 103.....	R(0-2)	Phys. Ed. M, Phys. Ed. 104.....	R(0-2)
Total.....	17	Total.....	17

SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
Engr. Physics I, Phys. 145.....	5(4-3)	Engr. Physics II, Phys. 150.....	5(4-3)
Plane Anal. Geom., Math. 110.....	4(4-0)	Calculus I, Math. 205.....	5(5-0)
Adv. Inorganic Chem., Chem. 207.....	3(3-0)	Quantitative Analysis, Chem. 241.....	5(1-12)
Cryst. and Min., Geol. 209.....	4(2-6)	Metallurgy, Shops 165.....	2(2-0)
Artillery III, Mil. Tr. 115A.....	1(0-3)	Artillery IV, Mil. Tr. 116A.....	1(0-3)
Seminar, Gen. Engr. 105.....	R	Seminar, Gen. Engr. 105.....	R
Phys. Ed. M, Phys. Ed. 105.....	R(0-2)	Phys. Ed. M, Phys. Ed. 106.....	R(0-2)
Total.....	17	Total.....	18

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Calculus II, Math. 206.....	3(3-0)	Str. of Mat. E, Ap. Mech. 216, 220.....	4(3-3)
Ap. Mech., Ap. Mech. 202.....	4(4-0)	St. and Gas Engr. II, Mech. Engr.	
St. and Gas Engr. I, Mech. Engr.		110, 115.....	4(3-3)
101, 105.....	5(4-3)	Organic Chem. II, Chem. 219.....	4(2-6)
Organic Chem. I, Chem. 218.....	4(2-6)	Elec. Engr. C, Elec. Engr. 160, 165, 3(2-2,1)	
Mach. Drawing I, Mach. Des. 111.....	2(0-6)	Economics, Econ. 101.....	3(0-9)
Seminar, Gen. Engr. 105.....	R	Seminar, Gen. Engr. 105.....	R
Total.....	18	Total.....	18

SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Industrial Chem. I, Chem. 203.....	5(3-6)	Industrial Chem. II, Chem. 204.....	5(3-6)
El. of Chemical Engr., Chem. 280.....	3(2-3)	Chemical Engr. Prin., Chem. 281.....	2(2-0)
Phys. Chem. I, Chem. 206.....	5(3-6)	Chem. Problems, Chem. 270.....	3(0-9)
Mechanism, Mach. Des. 121.....	3(3-0)	Phys. Chem. II, Chem. 272.....	3(3-0)
Fire Assaying, Chem. 242.....	2(0-6)	Electives†.....	4(-)
Seminar, Gen. Engr. 105.....	R	Seminar, Gen. Engr. 105.....	R
Total.....	18	Total.....	17

Number of semester hours required for graduation, 140.

* Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, the first semester, postponing two hours of other work.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

Curriculum in Civil Engineering

FRESHMAN

FIRST SEMESTER

Chemistry E-I, Chem. 107.....	4(3-3)
Plane Trigonometry,* Math. 101.....	3(3-0)
Coll. Rhetoric I, Engl. 101.....	3(3-0)
Engr. Drawing, Mach. Des. 101.....	2(0-6)
Surveying I, Civ. Engr. 102.....	2(0-6)
Extem. Speech I, Pub. Spk. 106.....	2(0-2)
Artillery I, Mil. Tr. 113A.....	1(0-3)
Engr. Lectures, Gen. Engr. 101.....	R
Phys. Ed. M, Phys. Ed. 102.....	R(0-2)

Total 17

SECOND SEMESTER

Chemistry E-II, Chem. 108.....	4(3-3)
Coll. Algebra,* Math. 104.....	3(3-0)
Coll. Rhetoric II, Engl. 104.....	3(3-0)
Des. Geometry, Mach. Des. 106.....	2(0-6)
Surveying II, Civ. Engr. 111.....	2(0-6)
Engr. Woodwork I, Shop 101.....	1(0-3)
Forging I, Shop 150.....	1(0-3)
Artillery II, Mil. Tr. 114A.....	1(0-3)
Engr. Lectures, Gen. Engr. 101.....	R
Phys. Ed. M, Phys. Ed. 104.....	R(0-2)

Total 17

SOPHOMORE

FIRST SEMESTER

Engr. Physics I, Phys. 145.....	5(4-3)
Plane Anal. Geom., Math. 110.....	4(4-0)
Amer. Industrial Hist., Hist. 105.....	3(3-0)
Surveying III, Civ. Engr. 151, 155.....	3(2-3)
Mach. Drawing I, Mach. Des. 111.....	2(0-6)
Artillery III, Mil. Tr. 115A.....	1(0-3)
Seminar, Gen. Engr. 105.....	R
Phys. Ed. M, Phys. Ed. 105.....	R(0-2)

Total 18

SECOND SEMESTER

Engr. Physics II, Phys. 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)
C. E. Drawing I, Civ. Engr. 125.....	2(0-6)
Artillery IV, Mil. Tr. 116A.....	1(0-3)
Seminar, Gen. Engr. 105.....	R
Phys. Ed. M, Phys. Ed. 106.....	R(0-2)

Total 18

JUNIOR

FIRST SEMESTER

Ap. Mech., Ap. Mech. 202.....	4(4-0)
Calculus II, Math. 206.....	3(3-0)
Highway Engr. I, Civ. Engr. 230	
and Ap. Mech. 250.....	3(2-3)
Masonry and Found., 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

Total 17

SECOND SEMESTER

Str. of Mat., Ap. Mech. 211, 220....	6(5-3)
Hydraulics, Ap. Mech. 230, 235....	4(3-3)
Ry. Engr. I, Civ. Engr. 145.....	2(2-0)
Drain. & Irrig. I, Civ. Engr. 161....	2(2-0)
St. & Gas Engr. C, Mech. Engr.	
120, 125	3(2-3)
Seminar, Gen. Engr. 105.....	R

Total 17

SENIOR

FIRST SEMESTER

Str. in Fr. Struc., Civ. Engr. 201..	4(4-0)
C. E. Drawing II, Civ. Engr. 205....	2(0-6)
Astr. & Geod., Civ. Engr. 211, 216..	4(2-6)
Water Supply, Civ. Engr. 220.....	2(2-0)
Sewerage, Civ. Engr. 225.....	2(2-0)

Engr. Geology, Geol. 102.....	4(3-3)
Seminar, Gen. Engr. 105.....	R

Total 18

SECOND SEMESTER

Des. of Fr. Struc., Civ. Engr. 246, 3(0-9)	
Elec. Engr. C, Elec. Engr. 160, 165, 3(2-2, 1)	
Engr. English, Engl. 110.....	2(2-0)
Business Management, Econ. 126....	2(2-0)
Con. Design, Civ. Engr. 250, 255....	3(2-3)
Ry. Engr. II, Civ. Engr. 260, 265..	4(2-6)or
Hy. Engr. II, Civ. Engr. 270, 275, 4(2-6)or	
Drain & Irrig. II, Civ. Engr. 280, 285, 4(2-6)	
Seminar, Gen. Engr. 105.....	R

Total 17

Number of semester hours required for graduation, 139.

* 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.

Curriculum in Electrical Engineering

FRESHMAN

FIRST SEMESTER

Chemistry E-I, Chem. 107.....	4(3-3)
Plane Trigonometry,* Math. 101....	3(3-0)
Coll. Rhetoric I, Engl. 101.....	3(3-0)
Engr. Drawing, Mach. Des. 101.....	2(0-6)
Engr. Woodwork I, Shop 101.....	1(0-3)
Forging I, Shop 150.....	1(0-3)
Elec. Mach. & Con., Elect. Engr. 170	2(0-6)or
Surveying I, Civ. Engr. 102.....	2(0-6)
Artillery I, Mil. Tr. 113A.....	1(0-3)
Engr. Lectures, Gen. Engr. 101.....	R
Phys. Ed. M, Phys. Ed. 103.....	R(0-2)

Total 17

SECOND SEMESTER

Chemistry E-II, Chem. 108.....	4(3-3)
Coll. Algebra,* Math. 104.....	3(3-0)
Coll. Rhetoric II, Engl. 104.....	3(3-0)
Desc. Geom., Mach. Des. 106.....	2(0-6)
Extem. Speech I, Pub. Spk. 106.....	2(2-0)
Elect. Mach. & Con., Elect. Engr. 170	2(0-6)or
Surveying I, Civ. Engr. 102.....	2(0-6)
Artillery II, Mil. Tr. 114A.....	1(0-3)
Engr. Lectures, Gen. Engr. 101.....	R
Phys. Ed. M, Phys. Ed. 104.....	R(0-2)

Total 17

SOPHOMORE

FIRST SEMESTER

Engr. Physics I, Phys. 145.....	5(4-3)
Plane Analyt. Geometry, Math. 110, 4	4(4-0)
Mechanism, Mach. Des. 121.....	3(3-0)
Mach. Draw. I, Mach. Des. 111.....	2(0-6)
Metallurgy, Shop 165	2(2-0)or
Prin. of Elec. Engr. Elect. Engr. 179,	2(2-0)
Foundry Production, Shop 161.....	1(0-3)
Artillery III, Mil. Tr. 115A.....	1(0-3)
Seminar, Gen. Engr. 105.....	R
Phys. Ed. M, Phys. Ed. 105.....	R(0-2)

Total 18

SECOND SEMESTER

Engr. Physics II, Phys. 150.....	5(4-3)
Calculus I, Math. 205.....	5(5-0)
Amer. Indus. Hist., Hist. 105.....	3(3-0)
Mach. Draw. E-II, Mach. Des. 117.	2(0-6)
Prin. Elect. Engr., Elect. Engr. 179,	2(2-0)or
Metallurgy, Shop 165	2(2-0)
Artillery IV, Mil. Tr. 116A.....	1(0-3)
Seminar, Gen. Engr. 105.....	R
Phys. Ed. M, Phys. Ed. 106.....	R(0-2)

Total 18

JUNIOR

FIRST SEMESTER

St. & Gas Engr. I, Mech. Engr. 101, 105	5(4-3)
Calculus II, Math. 206.....	3(3-0)
Direct-current Mach. I, Elect. Engr. 203, 204	4(3-2, 1)
Elect. Meas., Elect. Engr. 227, 228,	3(2-3)
Economics, Econ. 101	3(3-0)
Seminar, Gen. Engr. 105.....	R

Total 18

SECOND SEMESTER

St. & Gas Engr. II, Mech. Engr. 110, 115	4(3-3)
Ap. Mech., Ap. Mech. 202.....	4(4-0)
Direct-current Mach. II, Elect. Engr. 206, 207	3(2-2, 1)
Alternating-current Mach. I, Elect. Engr. 209, 211	5(4-2, 1)
Elect. Mach. Des. I, Elect. Engr. 270,	1(0-3)
Seminar, Gen. Engr. 105.....	R

Total 17

SENIOR

FIRST SEMESTER

Str. of Mat. E, Ap. Mech. 216, 220....	4(3-3)
Hydraulics, Ap. Mech. 230, 235.....	4(3-3)
Alternating-current Mach. II, Elect. Engr. 214, 216.....	4(3-3)
Elective†	5(-)
Seminar, Gen. Engr. 105.....	R

Total 17

SECOND SEMESTER

Machine Tool Work I, Shop 170....	2(0-6)
Alternating-current Mach. III, Elect. Engr. 224, 225.....	5(3-6)
Nontechnical elective†	6(-)
Elective†	4(-)
Seminar, Gen. Engr. 105.....	R

Total 17

Number of semester hours required for graduation, 139.

* 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.

Curriculum in Flour-mill Engineering

FRESHMAN

FIRST SEMESTER

Chemistry E-I, Chem. 107.....	4(3-3)
Coll. Algebra,* Math. 104	3(3-0)
Coll. Rhetoric I, Engl. 101.....	3(3-0)
Extem. Speech I, Pub. Spk. 106....	2(2-0)
Engr. Drawing, Mach. Des. 101.....	2(0-6)
Engr. Woodwork I, Shop 101.....	1(0-3)
Forging I, Shop 150	1(0-3)
Artillery I, Mil. Tr. 113A.....	1(0-3)
Engr. Lectures, Gen. Engr. 101.....	R
Phys. Ed. M, Phys. Ed. 103.....	R(0-2)

Total 17

SECOND SEMESTER

Chemistry E-II, Chem. 108.....	4(3-3)
Plane Trigonometry, Math. 101.....	3(3-0)
Coll. Rhetoric II, Engl. 104.....	3(3-0)
Des. Geom., Mach. Des. 106.....	2(0-6)
Prin. of Milling I, Mil. Ind. 104.....	2(1-3)
Surveying I, Civ. Engr. 102.....	2(0-6)
Artillery II, Mil. Tr. 114A.....	1(0-3)
Engr. Lectures, Gen. Engr. 101.....	R
Phys. Ed. M, Phys. Ed. 104.....	R(0-2)

Total 17

SOPHOMORE

FIRST SEMESTER

Engr. Physics I, Phys. 145.....	5(4-3)
Plane Analyt. Geom., Math. 110....	4(4-0)
Elem. Organic Chem., Chem. 123....	3(2-3)
Mach. Draw. I, Mach. Des. 111.....	2(0-6)
Quantitative Analysis A, Chem. 250..	3(1-6)
Artillery III, Mil. Tr. 115A	1(0-3)
Seminar, Gen. Engr. 105.....	R
Phys. Ed. M, Phys. Ed. 105.....	R(0-2)

Total 18

SECOND SEMESTER

Engr. Physics II, Phys. 150.....	5(4-3)
Calculus I, Math. 205.....	5(5-0)
Mechanism, Mach. Des. 121.....	3(3-0)
Mach. Draw. II, Mach. Des. 116....	3(0-9)
Prin. of Mill. II, Mil. Ind. 106.....	1(0-3)
Artillery IV, Mil. Tr. 116A.....	1(0-3)
Seminar, Gen. Engr. 105.....	R
Phys. Ed. M, Phys. Ed. 106.....	R(0-2)

Total 18

JUNIOR

FIRST SEMESTER

Ap. Mech., Ap. Mech. 202.....	4(4-0)
Calculus II, Math. 206.....	3(3-0)
Ad. Quantitative Anal., Chem. 260..	1(0-3)
American Ind. Hist., Hist. 105.....	3(3-0)
Farm Crops Laboratory, Agron. 101..	2(0-6)
Milling Practice I, Mill. Ind. 109....	3(1-6)
Milling Entomology, Ent. 116.....	1(1-0)
Seminar, Gen. Engr. 105.....	R

Total 17

SECOND SEMESTER

Str. of Mat. E. Ap. Mech. 216, 220..	4(3-3)
Economics, Econ. 101	4(3-0)
Grain Grad. and Judg., Agron. 108..	2(0-6)
Mill. Qual. of Wheat, Mill. Ind. 212,	3(3-0)
Milling Practice II, Mill. Ind. 111..	3(1-6)
Machine Tool Work I, Shop 170.....	2(0-6)
Seminar, Gen. Engr. 105.....	R

Total 17

SENIOR

FIRST SEMESTER

Wheat and Flr. Test., Mill. Ind. 205,	3(0-9)
Grain Marketing, Ag. Ec. 203.....	3(3-0)
Flow Sheet Design, Mach. Des. 214..	2(0-6)
Mill. Tech. I, Mill. Ind. 201.....	2(0-6)
St. and Gas Engr. I, Mech. Engr.	
101, 105	5(4-3)
Elective†	3(-)
Seminar, Gen. Engr. 105.....	R

Total 18

SECOND SEMESTER

Exper. Baking, Mill. Ind. 206.....	3(1-6)
Elec. Engr. C, Elec. Engr. 160, 165,	3(2-2, 1)
Flour-mill Design, Mach. Des. 215..	2(0-6)
Mill. Tech. II, Mill. Ind. 202.....	2(0-6)
St. and Gas Engr. II, Mech.	
Engr. 110, 115	4(3-3)
Elective†	4(-)
Seminar, Gen. Engr. 105.....	R

Total 18

Number of semester hours required for graduation, 140.

* Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, the first semester, postponing two hours of other work.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

Curriculum in Landscape Architecture

FRESHMAN

FIRST SEMESTER

Plane Trigonometry,* Math. 101.....	3(3-0)
Coll. Rhetoric I, Engl. 101.....	3(3-0)
General Botany I, Bot. 101.....	3(1-4, 2)
Des. Geom. A, Mach. Des. 107.....	3(0-9)
Object Drawing I, Arch. 111.....	2(0-6)
Surveying I, Civ. Engr. 102.....	2(0-6)
Artillery I, Mil. Tr. 113A (men).....	1(0-3)and
Phys. Ed. M, Phys. Ed. 103	
(men)	R(0-2)or
Phys. Ed. W, Phys. Ed. 151A	
(women)	R(0-3)
Engr. Lectures, Gen. Engr. 101.....	R

Total men	17
Total women	16

SECOND SEMESTER

Coll. Algebra,* Math. 104.....	3(3-0)
Coll. Rhetoric II, Engl. 104.....	3(3-0)
Gen. Botany II, Bot. 105.....	3(1-4, 2)
Sh. & Shad., & Per., Mach. Des. 108, 3(0-9)	
Object Drawing II, Arch. 114.....	2(0-6)
Surveying II, Civ. Engr. 111.....	2(0-6)
Artillery II, Mil. Tr. 114A (men), 1(0-3)and	
Phys. Ed. M, Phys. Ed. 104	
(men)	R(0-2)or
Phys. Ed. W, Phys. Ed. 152A	
(women)	R(0-3)
Engr. Lectures, Gen. Engr. 101.....	R

Total men	17
Total women	16

SOPHOMORE

FIRST SEMESTER

Hist. of Arch. I, Arch. 154A.....	2(2-0)
El. of Arch. I, Arch. 106A.....	3(0-9)
Surveying III, Civ. Engr. 151, 155.....	3(2-3)
General Chem., Chem. 110.....	5(3-6)
Land. Gardening I, Hort. 125.....	3(3-0)
Artillery III, Mil. Tr. 115A (men), 1(0-3)and	
Phys. Ed. M, Phys. Ed. 105	
(men)	R(0-2)or
Phys. Ed. W, Phys. Ed. 153	
(women)	R(0-3)
Seminar, Gen. Engr. 105.....	R

Total men	17
Total women	16

SECOND SEMESTER

Hist. of Arch. II, Arch. 157A.....	2(2-0)
El. of Arch. II, Arch. 107A.....	3(0-9)
Water Color I, Arch. 118.....	2(0-6)
Plant Ecology, Bot. 228	2(2-0)
El. of Hort., Hort. 107.....	3(2-3)
General Geology, Geol. 103.....	3(3-0)
Artillery IV, Mil. Tr. 116A (men), 1(0-3)and	
Phys. Ed. M, Phys. Ed. 106	
(men)	R(0-2)or
Phys. Ed. W, Phys. Ed. 154	
(women)	R(0-3)
Elective †	1(-)
Seminar, Gen. Engr. 105.....	R

Total men	17
Total women	16

JUNIOR

FIRST SEMESTER

Hist. of Arch. III, Arch. 158A.....	2(2-0)
Pen. Rend. and Sketch., Arch. 116.....	2(0-6)
Design I, Arch. 142	3(0-9)
Bldg. Mat. & Con., Arch. 187A	3(3-0)
Theory of Land. Des., Hort. 243.....	2(2-0)
Plant Materials I, Hort. 224.....	3(2-3)
Plant Physiology I, Bot. 208.....	3(3-0)
Seminar, Gen. Engr. 105.....	R

Total	18
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SECOND SEMESTER

Hist. of Arch. IV, Arch. 160A.....	2(2-0)
Silviculture, Hort. 119	3(2-3)
Design II, Arch. 144	3(0-9)
Plant Materials II, Hort. 226A.....	3(2-3)
Work. Draw. & Spec., Arch. 191.....	3(0-9)
Soils, Agron. 130	4(3-3)
Seminar, Gen. Engr. 105.....	R

Total	18
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SENIOR

FIRST SEMESTER

Land. Con., Hort. 227	3(2-3)
Greenhouse Con. & Man., Hort. 128.....	3(3-0)
Highway Engr. I, Civ. Engr. 230	
and Ap. Mech. 250.....	3(2-3)
Rural Architecture, Arch. 153.....	2(0-6)
Landscape Gardening II, Hort. 238.....	3(1-6)
Plant Pathology I, Bot. 205.....	3(1-4, 2)
Seminar, Gen. Engr. 105.....	R

Total	17
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SECOND SEMESTER

Civic Art, Hort. 223	3(1-6)
Landscape Gardening III, Hort. 246, 3(1-6)	
City Planning, Arch. 249.....	3(0-9)
Economics, Econ. 101.....	3(3-0)
Elective†	6(-)
Seminar, Gen. Engr. 105.....	R

Total	18
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Number of semester hours required for graduation: Men, 139; women, 135.

* 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.

Curriculum in Mechanical Engineering

FRESHMAN

FIRST SEMESTER

Chemistry E-I, Chem. 107.....	4(3-3)
Coll. Algebra,* Math. 104.....	3(3-0)
Coll. Rhetoric I, Engl. 101.....	3(3-0)
Engr. Draw., Mach. Des. 101.....	2(0-6)
Extens. Speech I, Pub. Spk. 106....	2 0-2
{ Engr. Woodwork I, Shop 101.... }	1(0-3) }
{ Forging I, Shop 150	1(0-3) } or
Elements of Steam and Gas Power,	
Mech. Engr. 130	2(0-6)
Artillery I, Mil. Tr. 113A.....	1(0-3)
Engr. Lectures, Gen. Engr. 101.....	R
Phys. Ed. M, Phys. Ed. 103.....	R(0-2)

Total 17

SECOND SEMESTER

Chemistry E-II, Chem. 108.....	4(3-3)
Plane Trigonometry, Math. 101.....	3(3-0)
Coll. Rhetoric II, Engl. 104.....	3(3-0)
Des. Geom., Mach. Des. 106.....	2(0-6)
Surveying I, Civ. Engr. 102.....	2(0-6)
Elements of Steam and Gas Power,	
Mech. Engr. 130.....	2(0-6) or
{ Engr. Woodwork I. Shop 101.... }	1(0-3) }
{ Forging I, Shop 150..... }	1(0-3) }
Artillery II, Mil. Tr. 114A.....	1(0-3)
Engr. Lectures, Gen. Engr. 101.....	R
Phys. Ed. M, Phys. Ed. 104.....	R(0-2)

Total 17

SOPHOMORE

FIRST SEMESTER

Engr. Physics I, Phys. 145.....	5(4-3)
Plane Analyt. Geometry, Math. 110..	4(4-0)
Mechanism, Mach. Des. 121.....	3(3-0)
Mach. Drawing I, Mach. Des. 111....	2(0-6)
Metallurgy, Shop 165.....	2(2-0)
Metallography, Shop 167.....	1(0-3)
Artillery III, Mil. Tr. 115A.....	1(0-3)
Seminar, Gen. Engr. 105.....	R
Phys. Ed. M, Phys. Ed. 105.....	R(0-2)

Total 18

SECOND SEMESTER

Engr. Physics II, Phys. 150.....	5(4-3)
Calculus I, Math. 205	5(5-0)
Amer. Indus. Hist., Hist. 105.....	3(3-0)
Mach. Draw. II, Mach. Des. 116....	3(0-9)
Foundry Production, Shop 161.....	1(0-3)
Artillery IV, Mil. Tr. 116A.....	1(0-3)
Seminar, Gen. Engr. 105.....	R
Phys. Ed. M, Phys. Ed. 106.....	R(0-2)

Total 18

JUNIOR

FIRST SEMESTER

Ap. Mech., Ap. Mech. 202.....	4(4-0)
Calculus II, Math. 206.....	3(3-0)
Steam and Gas Engr. I, Mech.	
Engr. 101, 105	5(4-3)
Machine Tool Work I, Shop 170....	2(0-6)
Economics, Econ. 101	3(3-0)
Seminar, Gen. Engr. 105.....	R

Total 17

SECOND SEMESTER

Str. of Mat., Ap. Mech. 211, 220....	6(5-3)
Graphic Statics, Ap. Mech. 225.....	1(0-3)
Steam and Gas Engr. II, Mech.	
Engr. 110, 115	4(3-3)
Machine Tool Work II, Shop 192....	2(0-6)
Nontechnical Elective†	4(-)
Seminar, Gen. Engr. 105.....	R

Total 17

SENIOR

FIRST SEMESTER

Electrical Engr. M-I, Elect. Engr.	
230, 231	4(3-2, 1)
Power Plant Engr., Mech. Engr. 206..	3(0-9)
Mach. Design I, Mach. Des. 204, 205,	5(3-6)
Hydraulics, Ap. Mech. 230, 235.....	4(3-3)

Factory Option:

Factory Engr., Shop 245A.....2(2-0)

Power Option:

Ad. Thermody., Mech. Engr. 230..2(2-0)

Seminar, Gen. Engr. 105.....R

Total 18

SECOND SEMESTER

Electrical Engr. M-II, Elect.	
Engr. 242, 243	4(3-2, 1)
Refrig., Heat. and Ven.,	
Mech. Engr. 210, 215	3(2-3)
Machine Design II, Mach. Des. 210,	2(0-6)
Commercial Engr., Elect. Engr. 250,	2(2-0)

Factory Option:

Factory Design, Shop 255.....2(0-6)

Machine Tool Work III, Shop 193, 1(0-3)

Elective† 3(-) |

Power Option:

Steam Turb., Mech. Engr. 235....2(2-0)

Elective† 4(-) |

Seminar, Gen. Engr. 105.....R

Total 17

Number of semester hours required for graduation, 139.

* Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, the first semester, postponing two hours of other work.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

Agricultural Engineering

Professor FENTON
Professor DRIFTMIER
Associate Professor SANDERS

Assistant Professor BAINER
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, hence their construction, operation, adjustment, and care may be fully covered 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, render investigational study very valuable, and special attention is given to the courses covering this phase of the subject.

The department possesses equipment valued at \$9,578.

COURSES IN AGRICULTURAL ENGINEERING

FOR UNDERGRADUATE CREDIT

103. FARM BUILDINGS. 3(1-6)*; II and SS. Mr. Fenton and assistants.

Requirements, details of arrangements, and materials of construction for barns, storage, and work buildings for the farm; preparation of specifications, bills of material, and estimates of costs.

104. FARM STRUCTURES. 3(1-6); I. Prerequisite: Applied Mechanics (Ap. Mech. 202). Mr. Fenton and assistants.

Design of farm structures, details and materials of construction; specifications and estimates.

108. FIELD AND POWER MACHINERY C. 3(2-3); I. Mr. Driftmier and assistants.

Construction, operation and use of tillage, seeding, harvesting and miscellaneous farm machinery operated by animal and mechanical power. Charge, \$2.

* The number before the parenthesis indicates the number of semester hours of credit; the first number 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. I, II, and SS indicate that the course is given the first semester, second semester, and summer session respectively.

110. FIELD AND POWER MACHINERY. 3(2-3); I. Prerequisites: Mechanism (Mach. Des. 121), Engineering Physics II (Phys. 150). Mr. Driftmier and assistants.

Development, design and utilization of tillage, seeding and harvesting machinery for all forms of farm power. Charge, \$2.

116, 117.† TRACTORS AND TRUCKS. 3(2-3); I. Prerequisites: Farm Motors (Agr. Engr. 125, 126). Mr. Sanders and assistants.

Principles of construction, operation, and application of tractors and trucks to agriculture. Charge, \$2.

118. RURAL WATER SUPPLY AND SEWAGE DISPOSAL. 2(2-0); II. Prerequisites: General Geology (Geol. 103), Hydraulics (Ap. Mech. 230, 235). Mr. Fenton and assistants.

The development, storage, distribution, and purification of rural water supplies, and the collection and disposal of farm and rural wastes.

119. FARM SANITATION AND WATER SUPPLY. 2(2-0); II. Prerequisite: General Geology (Geol. 103). Mr. Fenton and assistants.

Development of water supplies for the farm, water contamination, water systems, household sewage disposal, collection of farm wastes, and sanitary arrangement of farm buildings.

120, 121. FARM EQUIPMENT. 2(1-3); II. Mr. Driftmier and assistants.

Basic principles of mechanics, farm construction methods, farm survey and lighting, water and sewage disposal systems. Charge, \$1.

122. AGRICULTURAL MACHINES AND CONSTRUCTION. 2(1-3); II. Mr. Driftmier and assistants.

Introductory principles of mechanics and physics as applied to agricultural equipment. Charge, \$1.

125, 126. FARM MOTORS. 3(2-3); II. Prerequisites: Engineering Physics II (Phys. 150), Calculus I (Math. 205). Mr. Sanders and assistants.

Theory, design and construction of internal combustion engines adapted to agricultural uses. Charge, \$2.

130. GAS ENGINES AND TRACTORS. 3(2-3); I, II, and SS. Mr. Sanders and assistants.

Principles and application of the internal combustion engine, engine mechanisms, carburetion, valve timing, cooling, lubrication and ignition. Charge, \$2.

140, 145. ELEMENTS OF IRRIGATION AND DRAINAGE. 3(2-3); I. Prerequisites: Soils (Agron. 133). Mr. Fenton and Mr. Driftmier.

The fundamental principles of land reclamation by drainage and irrigation, with special reference to agricultural development. Charge, \$1.

150. LAND RECLAMATION. 3(2-3); II. Prerequisites: Hydraulics (Ap. Mech. 230, 235), Soils (Agron. 133). Mr. Fenton and Mr. Driftmier.

Principles and methods of bringing waste lands into production by drainage, irrigation, terracing, and land clearing. Charge, \$1.

FOR GRADUATE AND UNDERGRADUATE CREDIT

205. FARM MACHINERY RESEARCH. 2(0-6) to 5(0-15); II. Prerequisites: Field and Power Machinery (Agr. Engr. 110), such other courses as required, and permission of instructors. Mr. Fenton, Mr. Driftmier, and Mr. Bainer.

Original investigations along the lines of draft requirements, power consumption, or operation of farm machinery.

215. TRACTOR RESEARCH. 2(0-6) to 5(0-15); I. Prerequisites: Tractors and Trucks (Agr. Engr. 116, 117), and such other courses as required. Mr. Driftmier and Mr. Sanders.

Research studies relating to tractor construction and operation.

† In the case of many of the engineering courses, one course number is used for the recitation and another for the laboratory part of the course.

FOR GRADUATE CREDIT

301. AGRICULTURAL ENGINEERING RESEARCH. 1 to 10 credits; I and II. Prerequisites: Soils (Agron. 133), and Engineering Physics II (Physics 150) or equivalent. Mr. Fenton.

The laboratories of the College are available for research in the design, use, and application of machinery and equipment in the development of agriculture. The results of such investigations, if suitable, may be incorporated in bulletins of the Engineering Experiment Station, or the work may furnish material for the master's thesis.

Applied Mechanics

Professor SCHOLER
Professor ROBERT
Associate Professor WOJTAZAK
Associate Professor DAWLEY

Associate Professor ALLEN
Associate Professor SPIETH
Associate Professor CHEEK

The aim of the course 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 \$31,554.

COURSES IN APPLIED MECHANICS

FOR UNDERGRADUATE CREDIT

102. APPLIED MECHANICS A. 3(3-0); I. Prerequisites: Plane Trigonometry and Engineering Physics I. Mr. Robert and Mr. Cheek.

A study of statics, with applications to stresses in structures; center of gravity; and moment of inertia.

116. STRENGTH OF MATERIALS A RECITATION. 3(3-0); II. Prerequisite: Applied Mechanics A. 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. 1(0-3); II. Prerequisites: Applied Mechanics A. Mr. Robert and Mr. Cheek.

A study of various testing machines; tension, compression, shear, and bend-

ing tests on iron, steel, wood, and concrete; tests on cement and on the fine and coarse aggregates for concrete. Charge, \$2.

150. THESIS. 1(0-3), I; and 2(0-6), II. Mr. Scholer and Mr. Robert.

An excellent opportunity for experimental work in strength of materials, road materials, concrete and hydraulics, suitable for thesis projects in any branch of engineering; subject of investigation to be selected in consultation with the head of the department at the beginning of the senior year.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. APPLIED MECHANICS. 4(4-0); I, II, and SS. Prerequisites: Calculus I and Engineering Physics II. Mr. Scholer, Mr. Robert and Mr. Spieth.

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, *Applied Mechanics*.

211. STRENGTH OF MATERIALS RECITATION. 5(5-0); I, II and SS. Prerequisite: Applied Mechanics. Mr. Scholer, Mr. Robert, Mr. Wojtaszak.

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; bending moments and shear forces in beams; design of beams; stresses in columns and hooks; and the design of columns. Text: Boyd, *Strength of Materials*, and Hool, *Reinforced Concrete*, Vol. I. Carnegie, *Pocket Companion*, used for reference.

216. STRENGTH OF MATERIALS E RECITATION. 3(3-0); I, II, and SS. Prerequisite: Applied Mechanics. Mr. Robert and Mr. Dawley. Similar to course 211, but much less time given to study of continuous girders and of reinforced concrete. Text: Boyd, *Strength of Materials*. Carnegie, *Pocket Companion*, used for reference.

220. STRENGTH OF MATERIALS LABORATORY. 1(0-3); I, II, and SS. Must accompany or follow course 211 or 216. Mr. Robert, Mr. Spieth, Mr. Dawley, and Mr. Allen.

Tension, compression, shear, and bending tests on specimens of iron, steel, wood and concrete; torsion tests on steel shafting; standard tests on fine and coarse aggregates for concrete. Text: Hatt and Schofield, *Laboratory Manual for Testing Materials*. Charge, \$2.

225. GRAPHIC STATICS. 1(0-3); II. Must accompany or follow course 102 or 202. Mr. Robert.

Graphical solutions of the stresses existing in a number of typical trusses, under a variety of loadings. Text: Hudson and Squire, *Elements of Graphic Statics*.

230. HYDRAULICS RECITATION. 3(3-0); I, II, and SS. Prerequisite: Applied Mechanics. Mr. Robert, Mr. Spieth and Mr. Wojtaszak.

Fluid pressures, center of pressure, immersion and flotation; Bernoulli's theorem; orifices, weirs, short and long pipes; flow of water in open channels, and its measurement; elements of water power, impulse, wheels, reaction turbines, and centrifugal pumps. Text: Hughes and Safford, *Hydraulics*.

235. HYDRAULICS LABORATORY. 1(0-3). I, II, and SS. Prerequisite: Applied Mechanics. Mr. Robert, Mr. Spieth, and Mr. Wojtaszak.

Tests to determine the coefficients of weirs and orifices, loss of head in pipes, water wheels, water turbines, rams, and pumps, also use and calibration of water meters. Charge, \$1.

250. HIGHWAY ENGINEERING I LABORATORY. 1(0-3); I. Prerequisite: Strength of Materials Laboratory. Mr. Scholer and Mr. Allen.

A comprehensive course in the examination and testing of road materials. Text: Blanchard, *Highway Engineer's Handbook*. Charge, \$1.50.

260. **ADVANCED APPLIED KINETICS.** 2(2-0); II. Prerequisite: Strength of Materials or Strength of Materials E. Mr. Robert.

Advanced problems in kinetics with special attention to kinetics of rigid bodies.

265. **ADVANCED MECHANICS OF MATERIALS.** 2(2-0); I. Prerequisite: Strength of Materials. Mr. Scholer.

Theory of elasticity and its applications; advanced problems in continuous girders involving general three-moment equations.

270. **HYDRAULIC MACHINERY.** 2(2-0); I. Prerequisite: Hydraulics. Mr. Robert.

Characteristics and applications of water wheels, turbines, pumps, and other hydraulic machinery.

275. **ROAD MATERIALS.** 2(1-3); II. Prerequisite: Highway Engineering I Laboratory. Mr. Scholer.

An advanced course in the properties and testing of the various materials used in road construction.

280. **MECHANICS OF REINFORCED CONCRETE.** 2(2-0); I. No credit for students who have had Strength of Materials. Prerequisite: Strength of Materials E. Mr. Scholer.

The behavior of reinforced concrete structural elements, including slabs, rectangular beams, T-beams, columns, and special floor systems under load.

FOR GRADUATE CREDIT

301. **RESEARCH IN MATERIALS OF CONSTRUCTION.** 1 to 10 credits; I or II. 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 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 materials for the master's thesis.

Architecture

Professor WEIGEL
Professor WALTERS (Emeritus)
Associate Professor CHEEK
Assistant Professor HELM

Assistant Professor WICHERS
Instructor SMITH
Instructor CARJOLA

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 \$13,588.

COURSES IN ARCHITECTURE

FOR UNDERGRADUATE CREDIT

106A. ELEMENTS OF ARCHITECTURE I. 3(0-9); I and SS. Mr. Wichers and Mr. Carjola.

A thorough treatment of the orders and fundamental elements of architectural forms; special attention to the development of a high standard of lettering and draftsmanship. Text: Charles Gourley, *The Italian Orders of Architecture*. Charge, \$1.

107A. ELEMENTS OF ARCHITECTURE II. 3(0-9); II and SS. Prerequisite: Elements of Architecture I. Mr. Wichers and Mr. Carjola.

Simple application of the forms studied in course 106A; simple architectural rendering. Charge, \$1.

111. OBJECT DRAWING I. 2(0-6); I, II, and SS. Mr. Helm and Mr. Wichers.

The drawing of simple geometric objects; studies from fragments of antique architectural ornament.

114. OBJECT DRAWING II. 2(0-6); II, and SS. Prerequisite: Object Drawing I. Mr. Helm and Mr. Wichers.

An amplification and expansion of the principles taught in Object Drawing I.

116. PENCIL RENDERING AND SKETCHING. 2(0-6); I, and SS. Prerequisite: Object drawing II. Mr. Helm and Mr. Wichers.

The drawing of architectural ornament, architectural fragments, and pencil sketches from nature.

117. STILL-LIFE DRAWING. 2(0-6); I, and SS. Prerequisite: Water Color I (Arch. 118). Mr. Helm.

Advanced studies from full-length plaster casts in charcoal; pen and ink rendering.

118. WATER COLOR I. 2(0-6); II, and SS. Prerequisite: Arch. 116 or approval of instructor. Mr. Helm.

Exercises in the handling of the medium and of the translation of color; theory of color.

119. WATER COLOR II. 2(0-6); I, II, and SS. Prerequisite: Arch. 118. Mr. Helm.

Advanced study in the technique of the medium. Includes both studio work and out-of-door sketching.

120. INTERIOR DESIGN. 2(0-6); I, and SS. Prerequisites: Arch. 118, 145, and 244. Mr. Helm.

The principles of interior architecture with special attention to period design.

121. LIFE DRAWING I. 2(0-6); II. Prerequisite: Arch. 118. Mr. Helm. Drawing from the living model in charcoal. Deposit, \$5.

123. LIFE DRAWING II. 2(0-6); II. Prerequisite: Arch. 121. Mr. Helm. A continuation of Life Drawing I. Deposit, \$5.

124. DOMESTIC ARCHITECTURE. 2(2-0); I and II. Mr. Wichers.

The course is designed to help the student understand home building problems. A detailed study is made of home designing and planning with the help of lantern slides.

133. CLAY MODELING. 2(0-6); I, and SS. Prerequisite: Arch. 117. Mr. Weigel and Mr. Helm.

The making of clay models, plaster casts of simple decorative fragments and anatomical forms; and construction of relief maps. Charge, \$1.

134. PEN AND INK DRAWING I. 2(0-6); I, II, and SS. Prerequisite: Arch. 116 or approval of instructor. Mr. Helm.

A study of the technique and drawing of fragments, casts, still-life, etc., in this medium, also outdoor sketching.

142, 144. DESIGN I AND II. 3(0-9) each; I and II respectively. Prerequisites: For I, Arch. 107A and 114; for II, Arch. 142. Mr. Weigel and Mr. Smith.

An analysis of architectural composition and rendering. Text: Harbeson, *The Study of Architectural Design*. Charge, \$1 for each course.

145, 147. DESIGN III AND IV. 5(0-15) each; I and II respectively. Prerequisites: For III, Arch. 117 and 144; for IV, Arch. 145. Mr. Weigel and Mr. Smith.

Continuation of Design II; time problems and rapid design sketches required, at frequent intervals. Text: Harbeson, *The Study of Architectural Design*. Charge, \$1 for each course.

153. RURAL ARCHITECTURE. 2(0-6); I. Prerequisites: Arch. 144 and 191. Mr. Wichers.

A detailed study of the small home and the architectural needs of rural communities.

154A, 157A. HISTORY OF ARCHITECTURE I AND II. 2(2-0) each; I and II respectively. Mr. Smith.

The history of architecture from the dawn of civilization to the end of the Roman Empire, in I; II covers the Gothic period, to 1400. Text: Fletcher, *A History of Architecture on the Comparative Method*.

158A, 160A. HISTORY OF ARCHITECTURE III AND IV. 2(2-0) each; I and II respectively. Prerequisites: Arch. 114 and 157A. Mr. Smith.

Continuation of Arch. 157A; finishes the history of architecture to modern times. Text: Fletcher, *A History of Architecture on the Comparative Method*.

163, 164. HISTORIC ORNAMENT I AND II. 2(1-3) each; I and II respectively. Prerequisites: Arch. 118 and Arch. 160A. Mr. Helm.

The study and analysis of historic ornament and its application to architectural and decorative design. Charge, \$1 for each course.

165, 170. COMMERCIAL ILLUSTRATION I AND II. 2(0-6) each; I and II respectively. Mr. Helm.

The principles of advertising arrangements; making various types of ad-

vertising designs, such as newspaper advertisements, lettering, and posters; making cover designs for magazines, books, and trade catalogues; for headings, tail pieces, and decorative page arrangements; drawings carried out in black and white and in one or more colors.

178, 182. HISTORY OF CIVILIZATION AND ART I AND II. 2(3-0) each; I and II respectively. Mr. Smith.

In course 178, a study of development of painting, sculpture, furniture and the minor arts to the fifteenth century. In course 182, continuation to the beginning of the twentieth century.

187A. BUILDING MATERIALS AND CONSTRUCTION. 3(3-0); I. Prerequisite: Elements of Architecture II (Arch. 107A). Mr. Cheek.

An introduction to the properties and uses of the materials of construction; also plumbing, heating, and lighting systems; occasional visits to buildings under construction.

191. WORKING DRAWINGS AND SPECIFICATIONS. 3(0-9); II. Prerequisites: Arch. 142 and 187A. Mr. Weigel and Mr. Wichers.

Preparing working drawings and specifications for suburban residences; drawing complete details for buildings, working out heating, plumbing, and structural problems.

192. THEORY OF STRUCTURES I. 4(2-6); I. Prerequisites: Arch. 191, Applied Mechanics A (Ap. Mech. 102), and Strength of Materials A (Ap. Mech. 116, 121). Mr. Cheek.

Mathematical and graphical solutions of stresses in framed structures under static loading; practical problems in the design of wood construction; occasional inspection trips to buildings under construction.

194A. THEORY OF STRUCTURES II. 5(3-6); II. Prerequisite: Arch. 192. Mr. Cheek.

A continuation of Theory of Structures I applied to steel and masonry structures.

196, 198. STRUCTURAL DESIGN I AND II. 3(1-6) each; I and II, respectively. Prerequisite: Theory of Structures II (Arch. 194A). Mr. Cheek.

Application of the principles covered under Theory of Structures to the coordinated, grouped design of an entire structure with complete working drawings and details; preferably a problem simultaneously under consideration in an architectural design course.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201, 206. ADVANCED FREE-HAND DRAWING I AND II. 2(0-6) each; I and II, respectively. Prerequisites: Arch. 117 and 118. Mr. Helm.

Study of the human figure and exercises in original composition of architectural ornament, various mediums being employed.

208. FURNITURE DESIGN. 3(1-6); I. Prerequisites: Arch. 120 and Arch. 160A. Mr. Helm.

A study of the history of furniture design and its relationship to architectural development.

211, 216. ADVANCED HISTORY OF CIVILIZATION AND ART I AND II. 2(2-0) each; I and II respectively. Prerequisite: Arch. 182. Mr. Weigel.

In course 211, a detailed study of civilization from the Babylonian and Assyrian empires to the fifteenth century, tracing the artistic development of each epoch; in course 216, a continuation of course 211.

217, 218. ETCHING I AND II. 2(0-6) each; I and II respectively. Prerequisites: Arch. 117 and Arch. 134. Mr. Helm.

Instruction is given in the technical principles of etching on copper and zinc plate.

221. PROBLEMS IN ARCHITECTURAL DEVELOPMENT. 1 to 5 credits; I and II. Mr. Weigel.

Under direct supervision of some member of the departmental staff, study of historic problems in architectural development.

230. 235. OIL PAINTING I AND II. 2(0-6) each; I and II, respectively and SS. Prerequisite: Water Color I (Arch. 118) or approval by instructor. Mr. Helm.

Rudiments of painting in oil; sketching of simple objects and drapes. In course 235, painting of larger still-life groups and out-door sketching.

244. GENERAL HISTORY OF ARCHITECTURE. 3(3-0); I and II. Prerequisite: Object Drawing II (Arch. 114) or Design A (Ap. Art 106). Mr. Weigel.

The historic architectural styles of the world studied and analyzed; written papers, with sketches, required of each student.

249. CITY PLANNING. 3(0-9); II. Prerequisites: Arch. 144, Hort. 223, and Hort. 245. Mr. Weigel.

A detailed study of city planning, including transportation and street systems, parks and recreation facilities, public buildings and civic centers, subdivisions of land, restrictions and zoning.

253, 256. DESIGN V AND VI. 8(0-24) each; I and II respectively. Prerequisites: For V, Arch. 118 and 147; for VI, Arch 253. Mr. Weigel and Mr. Smith.

Continuation of Design IV; special training in interior design and decoration. Text: Harbeson, *The Study of Architectural Design*. Charge, \$1 for each course.

FOR GRADUATE CREDIT

301, 304. ADVANCED DESIGN I AND II. 3(0-9) to 10(0-30) each; I and II respectively. Mr. Weigel.

A study of the planning of important buildings and groups of buildings. Course 304, a continuation of 301, may furnish material for the master's thesis.

324. RESEARCH IN ARCHITECTURE. 1 to 10 credits; I and II.

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
Professor FURR

Associate Professor WHITE
Instructor CRAWFORD.
Instructor OAKES

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 \$19,255.

COURSES IN CIVIL ENGINEERING

FOR UNDERGRADUATE CREDIT

102, 111. SURVEYING I AND II. 2(0-6) each; I, II, and SS each. Prerequisite or parallel (for I): Plane Trigonometry (Math. 101); prerequisite (for II): Surveying I. Mr. White, Mr. Crawford, and Mr. Oakes (for I); Mr. Furr and Mr. White (for II).

Course 102, the use and care of engineer's surveying instruments; course 111, land and topographic surveying. Text: Davis, Foote and Rayner, *Surveying, Theory and Practice*. Charge, \$1 for each course.

120. MASONRY AND FOUNDATIONS. 2(2-0); I. Prerequisite: Engineering Physics II (Physics 150); prerequisite or parallel: Applied Mechanics I (Ap. Mech. 202). Mr. Frazier.

Design and construction of foundations; stresses in plain masonry structures; the method of designing such structures. Text: Jacoby and Davis, *Foundations for Bridges and Buildings*.

125. CIVIL ENGINEERING DRAWING I. 2(0-6); II. Prerequisite: Machine Drawing I (Mach. Design 111). Mr. White.

Stereotomy, shades and shadows, isometric and perspective drawing; copying working drawings of engineering structures; no text.

145. RAILWAY ENGINEERING I. 2(2-0); II. Prerequisites: Surveying IV and C. E. Drawing I (Civ. Engr. 125, 156, and 157). Mr. Frazier.

Railway engineering based on Wellington's economic theory; study of track construction and maintenance; design of yards and terminals. Text: Raymond, *Elements of Railroad Engineering*.

151, 155. SURVEYING III. 3(2-3); I. Prerequisite: Surveying II. Mr. Furr and Mr. White.

Topographic, hydrographic, city, and mine surveying. Text: Breed and Hosmer, *Surveying*, Vols. I and II.

Laboratory.—Topographic surveying and topographic mapping.

156, 157. SURVEYING IV. 3(2-3); II. Prerequisite: Surveying III; prerequisite or parallel: Calculus I (Math. 205). Mr. Furr.

Railroad curves and earthwork. Text: Allen, *Railroad Curves and Earthwork*, with tables.

161. DRAINAGE AND IRRIGATION I. 2(2-0); II and SS. Prerequisite and parallel: Hydraulics (Ap. Mech. 230, 235). Mr. Conrad and Mr. White.

Design and construction of drainage and irrigation works. Text: Pickels, *Drainage and Flood Control Engineering*, and Davis and Wilson, *Irrigation Engineering*.

170. THESIS. 1(0-3), I; and 2(0-6), II respectively. Mr. Conrad.

A report on a proposed design, an original investigation, or a library research. With approval of Mr. Conrad, thesis work may be taken in some other department, the thesis subject to be selected and approved by the department head before the October first next preceding the student's graduation. An equivalent amount of work in an elective subject approved by the dean of this division may be substituted for thesis.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. STRESSES IN FRAMED STRUCTURES. 4(4-0); I and SS. Prerequisite: Strength of Materials (Ap. Mech. 211). Mr. Conrad.

Computation of stresses in bridges and buildings.

205. CIVIL ENGINEERING DRAWING II. 2(0-6); I and SS. Prerequisite: Strength of Materials Rec. (App. Mech. 211). Mr. Conrad.

Graphic statics and design of simple roof trusses in timber and steel.

211, 216. ASTRONOMY AND GEODESY. 4(2-6); I. Prerequisites: Surveying III (Civ. Engr. 151, 155) and Calculus II (Math. 206). Mr. Frazier.

The elements of practical astronomy; precise methods of surveying and leveling. Text: Hosmer, *Geodesy*.

Laboratory.—Astronomical observations, principally for determining true meridian and latitude; base-line measurements and triangulation work.

220. WATER SUPPLY. 2(2-0); I. Prerequisite: Hydraulics (Ap. Mech. 230, 235). Mr. Frazier.

Water supply from the standpoint of consumption, collection, storage, distribution and purification.

225. SEWERAGE. 2(2-0); I. Prerequisite: Hydraulics (Ap. Mech. 230). Mr. Frazier.

Design and construction of sewer systems and disposal plants.

230. HIGHWAY ENGINEERING I RECITATION. 2(2-0); I. Prerequisite: Surveying II (Civ. Engr. 111). Mr. Furr.

Location, construction, and maintenance of roads and pavements. Text: Agg, *Construction of Roads and Pavements*. (For laboratory, see Ap. Mech. 250.)

246. DESIGN OF FRAMED STRUCTURES. 3(0-9); II and SS. Prerequisite: Stresses in Framed Structures (Civ. Engr. 201). Mr. Conrad.

The making of general drawings for a highway truss bridge, a railroad truss bridge, and a railroad deck plate girder.

250, 255. CONCRETE DESIGN. 3(2-3); II. Prerequisite: Strength of Materials (Ap. Mech. 211). Mr. Conrad.

Design of reinforced buildings, retaining walls, dams and bridges.

Laboratory.—Drawing reinforced concrete retaining walls, dams, slab bridges, and girder bridges.

256. REINFORCED CONCRETE ARCHES. 3(3-0); II. Prerequisite: Concrete Design (Civ. Engr. 250, 255). Mr. Conrad.

Various types of reinforced concrete arches adapted for use in bridges, buildings, and dams; computation of stresses; arrangement of details.

260, 265. RAILWAY ENGINEERING II. 4(2-6); II. Prerequisite: Railway Engineering I (Civ. Engr. 145). Mr. Frazier.

Railway operation and maintenance.

Laboratory.—A reconnaissance and survey of a short railroad; making the maps, profiles, and estimates from the survey. Text: Allen, *Railroad Curves and Earthwork*, with tables.

270, 275. HIGHWAY ENGINEERING II. 4(2-6); II. Prerequisite: Highway Engineering I (Civ. Engr. 230). Mr. Furr.

Highway laws, highway administration, and highway economics. Text: Agg and Brindley, *Highway Administration and Finance*.

Laboratory.—A reconnaissance and survey for a highway a few miles long; making the maps, profiles, and estimates from the survey.

276. HIGHWAY ECONOMICS. 3(3-0); I. Prerequisite: Highway Engineering II. Mr. Furr.

Highway transport and construction problems as affected by recent findings of research agencies.

280, 285. DRAINAGE AND IRRIGATION II. 4(2-6); II. Prerequisite: Drainage and Irrigation I (Civ. Engr. 161). Mr. Conrad.

Design of irrigation structures and management of irrigation projects.

Laboratory.—Making the survey for a drainage or irrigation project; making maps, estimates, and designs, using the survey as a basis.

FOR GRADUATE CREDIT

301. ADVANCED BRIDGE STRESSES. 3(3-0); I. Prerequisite: Stresses in Framed Structures (Civ. Engr. 201). Mr. Conrad.

A study of deflections; stresses in continuous, movable, cantilever, suspension, and steel arch bridges; and secondary stresses.

304. CIVIL ENGINEERING RESEARCH. 3 to 10 credits; I, II, and SS. Prerequisites depend on subject of research. Mr. Conrad, Mr. Frazier, or Mr. Furr.

Original investigation or advanced study in some field relating to the practice of civil engineering.

316. RAILROAD TRANSPORTATION. 3(3-0); II. Prerequisite: Railway Engineering I (Civ. Engr. 146). 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 KLOEFFLER
Professor BRENNEMAN
Associate Professor KERCHNER
Assistant Professor HUNT

Assistant Professor JORGENSEN
Assistant Professor BEUCHE
Instructor CORCORAN
Instructor SITZ

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, lectures and classroom instruction is accompanied by extended courses in the laboratories.

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 ranging from 1 to 15 kilowatts capacity. The instrument room in connection contains more than 140 instruments 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 operated by a modern pneumatic type of control equipment. Supplementary to this laboratory is another dynamo laboratory fitted with direct-current motor-generator sets and accessory equipment for the first-year course in electric-machine construction and operation.

An electrical measurement laboratory is equipped with standards of resistance, electromotive force, self-induction and capacity and many types of bridges and apparatus for the measurement of magnetic and electric quantities. The main electrical measurement laboratory is supplemented by a standardizing laboratory which contains all the necessary precision instruments, sine wave generating equipment and control apparatus for calibrating voltmeters, ammeters, wattmeters, watt-hour meters, and rotating standards.

There are two communication laboratories: The wire communication laboratory contains several demonstration panels and switchboards for magneto, common battery (manual) and automatic telephone systems, and oscillators, bridges, and artificial telephone lines for making measurements at the various frequencies encountered in telephone practice. The radio communication laboratory is supplied with equipment for high frequency measurements and the study of radio phenomena.

An illumination laboratory is equipped with bar, spherical and portable photometers and accessory equipment such as lamps, reflectors and luminaires.

The wiring laboratory for the freshman course contains 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 which provides students with actual practice in wiring buildings.

The equipment belonging to the department is valued at \$48,188.

COURSES IN ELECTRICAL ENGINEERING

FOR UNDERGRADUATE CREDIT

160, 165. ELECTRICAL ENGINEERING C. 3(2-2, 1); II. Prerequisite: Engineering Physics II (Physics 150). Mr. Jorgenson.

The fundamental principles of direct-current and alternating-current electricity, with emphasis upon proper installation and operation of different classes of machines. Text: Gray, *Principles and Practice of Electrical Engineering*.

Laboratory.—Practice to give a knowledge of the most important commercial tests; proper use of electrical instruments; a written report of each test. Text: Wilson, *Dynamo Laboratory Outlines*. Charge, \$1.50.

170. ELECTRICAL MACHINERY AND CONSTRUCTION. 2(0-6); I and II. Prerequisite: High School Physics. Mr. Hunt, Mr. Jorgenson and Mr. Sitz.

An introductory course in applied electricity; various modern methods of interior wiring, and installation, care, operation and repair of electrical machinery. Texts: Croft, *Wiring for Light and Power*, and Timbie, *Essentials of Electricity*. Charge, \$3.

179. PRINCIPLES OF ELECTRICAL ENGINEERING. 2(2-0); I and II. Prerequisites: Electrical Machinery and Construction (Elec. Engr. 170) and Trigonometry (Math. 101). Mr. Kloeffer.

The fundamental principles of electrical circuits; an introduction to later courses in direct and alternating-current machines. Text: Benton, *An Introductory Textbook in Electrical Engineering*.

195. THESIS. 1(0-3), I; and 2(0-6). II. Mr. Kloeffer, Mr. Brenneman, Mr. Kerchner, Mr. Bueche and Mr. Corcoran.

Subject for thesis work selected in consultation with the department head at the beginning of the senior year; every opportunity given to work out original ideas as to design and operation of electrical apparatus and machinery.

FOR GRADUATE AND UNDERGRADUATE CREDIT

203, 204. DIRECT-CURRENT MACHINES I. 4(3-2, 1); I, II, and SS. Prerequisites: Calculus I (Math. 205) and Engineering Physics II (Physics 150). Mr. Brenneman and Mr. Sitz.

A detailed study of the fundamental principles of magnetic and electric circuits and their application to the various types of direct-current machines.

Laboratory.—A series of experiments designed to show the fundamental principles and characteristics of direct-current machines. Text: Swenson and Frankenfield, *Testing of Electromagnetic Machinery*, Vol. I. Charge, \$1.50.

206, 207. DIRECT-CURRENT MACHINES II. 3(2-2, 1); I, II, and SS. Prerequisites: Direct-current Machines I. Mr. Brenneman, Mr. Hunt, Mr. Jorgenson and Mr. Sitz.

A detailed study of special types of direct-current machinery, dynamo losses, and commutation.

Laboratory.—Special attention to the different methods of determining generator and motor efficiencies and to proper tabulation and interpretation of results. Text: Same as for Course 204. Charge, \$1.50.

209, 211. ALTERNATING-CURRENT MACHINES I. 5(4-2, 1); I, II, and SS. Prerequisites: Calculus II (Math. 206) and Direct-current Machines I (Elec. Engr. 203, 204). Mr. Kerchner, Mr. Hunt, Mr. Jorgenson, and Mr. Corcoran.

A mathematical treatment of alternating-current phenomena. Text: Lawrence, *Principles of Alternating Currents*.

Laboratory.—A series of experiments illustrating the theoretical work; practice in accurate measurement of capacity and inductance, and the effect of each upon the circuit; study of polyphase circuits. Charge, \$1.50.

214, 216. ALTERNATING-CURRENT MACHINES II. 4(3-3); I, II, and SS. Prerequisite: Alternating-current Machines I. Mr. Brenneman, Mr. Kerchner, Mr. Hunt, and Mr. Corcoran.

Principles of design, construction and operation of transformers and alternating-current generators.

Laboratory.—A series of experiments involving commercial and special tests of transformers and alternators. Charge, \$1.50.

217, 218. ELECTRICAL COMMUNICATION I. 3(2-2, 1); I. Prerequisite: Alternating-current Machines I (Elec. Engr. 209, 211). Mr. Kloeffer and Mr. Bueche.

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. Text: Kloeffer, *Telephone Communication Systems*.

Laboratory.—Study of telephone apparatus and circuits on magneto, common battery, and automatic systems; measurements made on artificial telephone lines. Charge, \$1.50.

219, 223. RADIO COMMUNICATION. 3(2-3); II. Prerequisite: Alternating-current Machines I (Elec. Engr. 209, 211). Mr. Kloeffer and Mr. Bueche.

The production, measurement, and control of high-frequency alternating currents and electro-magnetic waves, and their application to radio telegraphy and telephony and carrier current transmission; principles of operation of thermionic vacuum tubes and a proper consideration of these principles in their application to the generation, modulation, amplification, and detection of continuous waves.

Laboratory.—Characteristics of vacuum tubes; high frequency measurements. Charge, \$1.50.

224, 225. ALTERNATING-CURRENT MACHINES III. 5(3-3, 3); I, II, and SS. Prerequisite: Alternating-current Machines II. Mr. Brenneman, Mr. Kerchner, Mr. Hunt, Mr. Jorgenson, and Mr. Corcoran.

Continuation of Alternating-current Machines II (E. E. 214), including synchronous motors, parallel operation of alternators, converters, induction and commutator alternating-current motors, rectifiers, alternating-current instruments, and accessory apparatus.

Laboratory.—Continuation of Alternating-current II Laboratory. (Elect. Engr. 216.) Tests on machines listed in Elect. Engr. 224. Charge, \$2.

227, 228. ELECTRICAL MEASUREMENTS. 3(2-3); I and II. Prerequisites: Calculus I (Math. 205) and Engineering Physics II (Physics 150). Mr. Kloeffer and Mr. Bueche.

Methods for electric and magnetic measurements; resistance, quantity, current, electromotive force, capacity, inductance. Text: C. M. Smith, *Electric and Magnetic Measurements*.

Laboratory.—Applications of fundamental principles studied in the class room. Charge, \$2.

230, 231. ELECTRICAL ENGINEERING M-I. 4(3-2, 1); I. Prerequisites: Calculus I and Engineering Physics II. Mr. Hunt and Mr. Sitz.

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; an introduction to alternating-current circuits. Text: Bailey, *Dynamo Electric Machinery*.

Laboratory.—A series of experiments covering the fundamental principles and characteristics of direct-current machines. Charge, \$1.50.

232, 233. ELECTRICAL COMMUNICATION II. 3(2-3); II. Prerequisite: Electrical Communication I. Mr. Kloeffer and Mr. Bueche.

Transmission problems, telephonic efficiencies, telephone repeaters, wave filters, and carrier currents. Text: Johnson, *Transmission Circuits for Telephonic Communication*.

Laboratory.—High frequency measurements as applied to wire communication. Charge, \$1.50.

235, 236. ILLUMINATING ENGINEERING. 3(2-3); I. Prerequisites: Calculus I and Engineering Physics II. Mr. Kloeffer and Mr. Hunt.

Photometry, light standards, principles of illumination and illumination design. Text: Barrows, *Light Photometry and Illuminating Engineering*.

Laboratory.—Photometric measurements of light intensity, luminous flux, brightness, and illumination; the determination of light distribution about various illuminants and luminaires. Charge, \$1.50.

238, 239. ELECTRICAL INSTRUMENTS AND METERS. 3(2-3); II. Prerequisite: Alternating-current Machines I. Mr. Kloeffer and Mr. Bueche.

The operation, construction and testing of indicating instruments, watt-hour meters, instrument transformers, and relays.

Laboratory.—Various methods of testing and calibrating electrical instruments and meters. Should accompany the class work. Charge, \$1.50.

240. ELECTRIC RAILWAYS. 2(2-0); II. Prerequisite: Alternating-current Machines II. Mr. Kerchner and Mr. Sitz.

The development of electric traction; conditions and train schedules; speed-time 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 railroads. Text: Harding, *Electric Railway Engineering*.

242, 243. ELECTRICAL ENGINEERING M-II. 4(3-2,1); II. Prerequisite: Electrical Engineering M-I (Elec. Engr. 230, 231). Mr. Brenneman and Mr. Hunt.

The important principles of alternating-current machinery. Text: Bailey, *Dynamo-Electric Machinery*.

Laboratory.—Standard tests of alternators, motors, and transformers, and methods of operating the different types of alternating-current machinery. Charge, \$1.50.

246. STORAGE BATTERY ENGINEERING. 2(2-0); I. Prerequisites: Chemistry E-I (Chem. 108) and Engineering Physics II, (Physics 150). Mr. Brenneman.

Process of manufacture, molecular and chemical theory of operation, behavior on charge and discharge, rating, life, and applications of a storage battery. Text: Vinal, *Storage Batteries*.

250. COMMERCIAL ENGINEERING. 2(2-0); II. Prerequisite: Economics (Econ. 101). Mr. Kloeffer.

The relation of the engineer to commercial life; salesmanship. Text: Russell, *Textbook of Salesmanship*.

270, 271. ELECTRICAL MACHINE DESIGN I AND II. 1(0-3) and 2(0-6), respectively; I and II. Prerequisite: Direct-current Machines I (Elec. Eng. 203). Mr. Brenneman.

In I, the principles of electrical design; each student makes calculation for electromagnets and a direct-current generator. Text: Still, *Elements of Electrical Design*. In II, study of the principles of alternating-current design; each student makes the necessary design calculation for a transformer and an alternator.

275. ADVANCED CALCULATIONS IN ALTERNATING-CURRENT CIRCUITS. 2(2-0); I. Prerequisite: Alternating-current Machines I. (Elec. Engr. 209). Mr. Kerchner.

Use of the vector methods in solving alternating-current problems; solving of single-phase, balanced or unbalanced three-phase problems in networks; computations of real and reactive power or the reverse handled by symbolic notation.

280. GENERATION, TRANSMISSION, AND DISTRIBUTION OF ELECTRICAL ENERGY. 3(3-0); II. Prerequisite: Elec. Engr. 213. Mr. Brenneman.

Transmission line design, economic and technical features; and properties of cables and insulators. Text: Still, *Electrical Power Transmission*.

284. TRANSIENT ELECTRICAL PHENOMENA. 3(3-0); II. Prerequisites: Alternating-current Machines I and II, and Differential Equations (Math. 201). Mr. Brenneman.

Two phases of electrical phenomena; (a) transients in time, and (b) transients in space. Text: Steinmeitz, *Transient Electrical Phenomena*.

286. ADVANCED ILLUMINATION. 2(2-0); II. Prerequisite: Illuminating Engineering (Elec. Engr. 235). Mr. Kloeffer and Mr. Hunt.

Continuation of the work of Illuminating Engineering I with special emphasis upon problems on the illumination of stores, offices, drafting rooms, machine shops, railway shops, hospitals, and city streets.

FOR GRADUATE CREDIT

336. ELECTRICAL ENGINEERING RESEARCH. 1 to 10 credits; I or II. Prerequisite: Alternating-current Machines II (Elec. Eng. 214). Mr. Kloeffer, Mr. Brenneman, Mr. Kerchner, and Mr. Corcoran.

An introduction to more elaborate work of special investigation; adapted to meet the needs and attainments of individual students; particular problems 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. R(1-0); entire freshman year. Dean Seaton, other members of the engineering faculty, and visiting practicing engineers.

Designed to acquaint freshmen engineers and architects with fundamental principles of their profession and to give a general survey of the field. Charge, 75 cents.

105. SEMINAR. R(1-0); sophomore, junior and senior years. Members of the engineering faculty.

Presentation by students of abstracts and reviews of articles appearing in the journals of their respective societies or in the technical press of their profession, and as far as possible is conducted by the student branches of the professional engineering societies. 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. Charge, 75 cents.

Machine Design

Professor PEARCE
Professor DURLAND
Associate Professor SMUTZ

Assistant Professor GINGRICH
Instructor OLSEN
Instructor BRANIGAN

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 par-

ticular 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 courses in flour-mill design, which deal with the layout of flow sheets and the selection and arrangement of milling machinery.

The department owns equipment valued at \$9,110.

COURSES IN DRAWING AND MACHINE DESIGN

FOR UNDERGRADUATE CREDIT

101. ENGINEERING DRAWING. 2(0-6); I, II, and SS. Mr. Smutz, Mr. Olsen, and Mr. Branigan.

The selection and use of drawing instruments, construction of geometrical figures, lettering, orthographic projections and sections, and pictorial methods of representation. Text: French, *Engineering Drawing*, chapters 1 to 7, inclusive.

106. DESCRIPTIVE GEOMETRY. 2(0-6); I, II, and SS. Prerequisites: Course 101, and Solid Geometry. Mr. Smutz, Mr. Olsen, and Mr. Branigan.

More advanced problems than in Engineering Drawing, involving the point, line, and plane; the intersection and development of the surfaces of geometric solids; practical applications of the principles involved; emphasis on developing the student's ability to visualize drawings in the third angle. Text: Cutter, *Descriptive Geometry*.

107. DESCRIPTIVE GEOMETRY A. 3(0-9); I. Mr. Gingrich.

This course is primarily for architectural students, and its problems are all related to their work. Text: Young and Baxter, *Descriptive Geometry*.

108. SHADES AND SHADOWS, AND PERSPECTIVE. 3(0-9); II. Prerequisites: Descriptive Geometry A, and Elements of Architecture I (Arch. 106A). Mr. Gingrich.

Conventional shades and shadows of common geometrical solids, solids of revolution, and simple architectural members; the theory of perspective as applied to the same simple solids and to problems from architectural practice. Texts: McGoodwin, *Architectural Shades and Shadows*, and Lubschez, *Perspective*. Charge, \$1.50.

111. MACHINE DRAWING I. 2(0-6); I, II, and SS. Prerequisite: Engineering Drawing (Mach. Design 101). Mr. Gingrich, Mr. Durland, and Mr. Branigan.

Conventional representations, working drawings, modern drafting-room systems, and the reproduction of drawings; special emphasis given to 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, *Engineering Drawing*.

116. MACHINE DRAWING II. 3(0-9); I, II, and SS. Prerequisites: Machine Drawing I (Course 111). Mechanism (Course 121) must precede or accompany this course. Mr. Pearce, Mr. Durland, and Mr. Olsen.

The making of free-hand sketches of simple machine parts and complete working drawings from these sketches without further reference to the objects; kinematic problems, including belting, cams, linkages, and gears to fulfill specified conditions. Text: French, *Engineering Drawing*, chapter 12, and Schwamb, Merrill, and James, *Elements of Mechanism*.

117. MACHINE DRAWING E-II. 2(0-6); I, II, and SS. Prerequisite: Machine Drawing I. Mr. Pearce and Mr. Olsen.

Machine sketching from parts of actual machines; complete working and

assembly drawings. Practice is given in tracing and blue printing. Text: French, *Engineering Drawing*, chapter 12.

121. MECHANISM. 3(3-0); I, II, and SS. Prerequisites: Plane Trigonometry (Math. 101) and Descriptive Geometry (Mach. Design 106). Mr. Pearce, Mr. Durland, and Mr. Olsen.

A careful study of the fundamental elements of machinery with reference to the transmission of motion and force, and to their forms and arrangements in actual machines; the solution of a large number of graphical and mathematical problems is required. Text: Schwamb, Merrill, and James, *Elements of Mechanism*.

126. THESIS. 1(0-3), I; and 2(0-6), II, respectively. Mr. Pearce.

Excellent material for thesis study furnished by projects in machine design or flour-mill design; subject of the investigation selected in consultation with the head of the department at the beginning of the senior year.

FOR GRADUATE AND UNDERGRADUATE CREDIT

204, 205. MACHINE DESIGN I. 5(3-6); I. Prerequisites: Strength of Materials (Ap. Mech. 211), Machine Drawing II (Mach. Design 116), and Steam and Gas Engineering II. Mr. Pearce and Mr. Durland.

The straining actions in machine elements; frictions and lubrication; the action of reciprocating parts in engines; problems arising in the transmission of power and in the design of high-speed machinery. Texts: Leutwiler, *Machine Design*, and Pearce, *Class Notes on the Dynamics of the Reciprocating Engine*.

Laboratory.—Parts of a steam boiler designed in strict conformity to the A. S. M. E. Boiler Code; calculations for a number of simple machines and machine parts, paralleling the recitation class assignments.

210. MACHINE DESIGN II. 2(0-6); II. Prerequisite: Courses 204, 205. Mr. Pearce.

Design of a small power shear; calculations made for all parts; a graphical analysis made of the stress in the shaft; working drawings made; and the rotative effect diagram of a steam engine.

214. FLOW SHEET DESIGN. 2(0-6); I. Prerequisites: Machine Drawing II (Mach. Design 116) and (Mill. Ind. 110). Mr. Pearce.

The construction of complete flow sheets for medium capacity flour mills.

215. FLOUR-MILL DESIGN. 2(0-6); I. Prerequisites: Strength of Materials E (Ap. Mech. 216) and Milling Practice I (Mill. Ind. 109). Mr. Pearce.

The making of a design for a medium capacity flour mill, including the construction of a complete flow sheet, and the selection and planning of the arrangement of the machinery.

225. GRAPHICS OF ENGINEERING FORMULAS. 2(2-0); II Prerequisite: Plane Analytical Geometry (Math. 110). Mr. Pearce.

Design of empirical equations according to the methods of selected points, averages, or least squares, and a consideration of general methods of plotting; the diagramming of formulas; construction of nomographic or alignment charts, in which all the variables of a formula are along any straight transversal cutting the lines of the diagram. Text: Hewes and Seward, *Design of Diagrams for Engineering Formulas*.

FOR GRADUATE CREDIT

301. ADVANCED MACHINE DESIGN. 1 to 10 credits; I or II. Mr. Pearce and Mr. Durland.

At the option of the student this course may include either the design of a machine or a study of the advanced dynamics of machinery, with special reference to inertia effects, torque characteristics, fly-wheel 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. The course may furnish material for the master's thesis.

Mechanical Engineering

Professor CALDERWOOD
Professor MACK

Assistant Professor BRAINARD
Instructor LEONARD

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 \$28,298.

COURSES IN MECHANICAL ENGINEERING

FOR UNDERGRADUATE CREDIT

101, 105. STEAM AND GAS ENGINEERING I. 5(4-3); I, II, and SS. Prerequisites: Mechanism (Mach. Design 121) and Calculus II (Math. 206). Mr. Calderwood, Mr. Mack, Mr. Brainard, and Mr. Leonard.

Heat-power engineering, including valve gears and thermodynamics, with special stress upon the thermodynamics of gases and vapors, and gas and vapor cycles. Texts: Fessenden, *Valve Gears*, and Moyer, Calderwood and Potter, *Elements of Engineering Thermodynamics*.

Laboratory.—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 DeLavel, Kerr and Terry steam turbines. Text: Carpenter and Diederch, *Experimental Engineering*, used in this and subsequent laboratory courses. Charge, \$1.50.

110, 115. STEAM AND GAS ENGINEERING II. 4(3-3); I, II, and SS. Prerequisite: Course 101. Mr. Calderwood, Mr. Mack, Mr. Brainard, and Mr. Leonard.

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, *Steam Power Plant Engineering*.

Laboratory.—Proximate analysis of coal; determination of the calorific values of solid, liquid and gaseous fuels; evaporative tests of steam boilers; tests of internal-combustion engines; test of compressed air and refrigerating machinery. Charge, \$1.50.

120, 125. STEAM AND GAS ENGINEERING C. 3(2-3); II. Prerequisites: Engineering Physics II and Calculus II. Mr. Brainard and Mr. Leonard.

Steam boilers, steam engines, steam turbines, gas and oil engines, including the various auxiliaries. Text: Allen and Bursley, *Heat Engines*.

Laboratory.—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; operation and testing of refrigerating machines. Charge, \$1.

130. ELEMENTS OF STEAM AND GAS POWER. 2(0-6); I and II. Mr. Brainard and Mr. Leonard.

An elementary study 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, *Elements of Steam and Gas Power Engineering*.

170, 175. DAIRY REFRIGERATION. 2(1-3); I. Mr. Brainard.

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.

Laboratory.—Various types of refrigeration systems and their operation; steam engine operation; tests of refrigeration machines. Charge, \$1.

195. THESIS. 1(0-3), I; and 2(0-6), II; respectively. Mr. Calderwood and Mr. Mack.

The department laboratories are well equipped with apparatus suitable for experimental and research work in the field of heat-power engineering. Subject for investigation to be selected in consultation with the department head at the beginning of the senior year.

FOR GRADUATE AND UNDERGRADUATE CREDIT

206. POWER-PLANT ENGINEERING. 3(0-9); I. Prerequisite: Mech. Eng. 110. Mr. Mack, Mr. Brainard, and Mr. Leonard.

Complete power-plant testing; special investigations of steam-engine performance; operation of gas producers; advanced laboratory work on internal-combustion engines; the designing of a complete power plant; and the solution of special problems dealing with power generation. Charge, \$1.50.

210, 215. REFRIGERATION, HEATING AND VENTILATION. 3(2-3); II. Prerequisite: Mech. Eng. 110. Mr. Mack.

Fundamental principles of refrigerating systems; the application of refrigeration to ice making, cold storage, and the cooling of air, liquids, and solids; fundamental principles of heating and ventilation. Text: Allen and Walker, *Heating and Ventilation*, and notes on refrigeration.

Laboratory.—Tests of refrigerating machinery and of the thermal conductivity of insulating materials; tests of fans and blowers, radiators and house-heating boilers; the design of heating and ventilating systems for buildings. Charge, \$1.

230. ADVANCED THERMODYNAMICS. 2(2-0); I. Prerequisite: Mech. Eng. 101. Mr. Calderwood.

The advanced phases of engineering thermodynamics, including research work along fundamental properties of gases and vapors.

235. STEAM TURBINES. 2(2-0); II. Prerequisites: Mech. Eng. 206. Mr. Calderwood.

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; the effect of factors such as superheat, vacuum, and pressure.

FOR GRADUATE CREDIT

305. ENGINEERING RESEARCH. 1 to 10 credits; I or II. 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
 Professor SELLERS
 Associate Professor GRAHAM
 Assistant Professor JONES
 Assistant Professor LYNCH
 Assistant Professor AIMAN

Assistant Professor SINK
 Instructor GRANT
 Instructor DOELZ
 Instructor LOOMIS
 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 a general knowledge of the principles underlying shop work, together with 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 35 by 42 feet, respectively. The wood machinery room is 45 by 81 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 the department is \$42,293.

COURSES IN SHOP PRACTICE

FOR UNDERGRADUATE CREDIT

101. ENGINEERING WOODWORK I. 1(0-3); I and II. Mr. Aiman and Mr. Irwin.

Importance of the use of methods, machinery, and men in connection with an industrial woodworking plant; forest conditions, wastage, the structural growth of wood, and the kiln drying of lumber. Text: Koehler, *Properties and Uses of Wood*.

117. MANUAL TRAINING FOR PRIMARY GRADES. 2(0-6); SS. Mr. Aiman.

Exercises suitable for pupils from the primary to the eighth grade; selection of suitable problems, material and equipment; special instruction in methods of teaching this work. Charge, \$2.50.

119. REED FURNITURE CONSTRUCTION. 2(0-6); I, II, and SS. Prerequisite: Shop 125. Mr. Loomis.

Exercises with reed and art fiber in constructing commercial article; special instruction in methods of teaching this work. Charge, \$2.50.

120. WOODWORKING FOR GRAMMAR GRADES. 2(0-6); I, II, and SS. Mr. Loomis.

Elementary manual training for those who are preparing to teach problems suitable for grammar grades. Charge, \$2.50.

125. WOODWORKING I FOR HIGH SCHOOLS. 2(0-6); I, II, and SS. Prerequisite: Shop 120. Mr. Loomis.

Continuation of course 120; problems suitable for high school students; special attention to the study of woods, methods of finishing, and use and care of tools. Charge, \$2.50.

130. WOODWORKING II FOR HIGH SCHOOLS. 2(0-6); I, II, and SS. Prerequisite: Shop 125. Mr. Loomis

Advanced work in cabinet construction by the use of woodworking machinery, and such bench work as is necessary; both quantity and quality is emphasized, in order that proper use be made of time; the use, care, and selection of machines for a manual training shop. Charge, \$2.50.

135. WOOD TURNING. 2(0-6); II and SS. Prerequisite: Shop 130. Mr. Irwin.

Practice in handling the lathe and turning tools. Charge, \$2.50.

140. ADVANCED WOODWORK. 2(0-6); I, II, and SS. Prerequisite: Shop 130. Mr. Loomis.

An opportunity to specialize in wood finishing, cabinet work, or some other work of special interest to the student. Charge, \$2.50.

142, 143. AUTOMOBILES I AND II. 2(2-0), I; and 3(1-6), II; respectively. Prerequisite: High School Physics. Mr. Sink.

In I, the general principles of construction and operations of the automobile; in II, a continuation of Automobiles I supplemented by laboratory practice. Charge (for II), \$5.

147. FARM CARPENTRY I. 3(1-6), I and SS. Mr. Graham.

Rafter cutting and erection, studding and siding work, making window and door frames, hanging doors, and similar operations on full-size construction work; making out bill of material; care and upkeep of tools; designed for training of teachers who must solve problems in connection with carpentry work on the farm. Charge, \$2.50.

150. FORGING I. 1(0-3); I, II, and SS. Mr. Lynch.

Practice, demonstrations and discussions covering: (a) forging of iron and steel; (b) production equipment as used in the commercial forge shop; (c) operation of gas, oil and electric furnaces, heat-treating steel and oxyacetylene and electric welding. Charge, \$2.50.

157, 158. FARM BLACKSMITHING I AND II. 1(0-3) each; I and SS, and II and SS, respectively. Mr. Lynch.

In I, preliminary work same as in Shop 150; exercises closely related to work on the farm; designed to train teachers for work in rural communities. Text: Bacon, *Forge Shop Practice*. Charge, \$2.50.

In II, more advanced instruction in the working of iron and steel, and in the annealing, hardening, and tempering of tools. Charge, \$2.50.

161. FOUNDRY PRODUCTION. 1(0-3); I, II, and SS. Mr. Grant and Mr. Sink.

(a) Bench, floor and pit molding, use of molding and core machines, operating nonferrous furnaces and the cupola; (b) study of commercial foundry equipment and the operation and control of the foundry. Charge, \$1.

165. METALLURGY. 2(2-0); I, II, and SS. Prerequisites: Chemistry E-I and E-II; or may be taken with Chemistry E-II. Mr. Sellers.

Manufacture and use of iron, steel, copper, and their alloys; proper selection and use of these in the manufacturing industries.

167. METALLOGRAPHY. 1(0-3); I and II. Prerequisites: Shop 150 and 165, or may be taken with the latter. Mr. Sellers and Mr. Greeley.

The microscopic constituents of the different grades of iron, steel, and the more common nonferrous alloys; changes in the structure and properties of the metals as produced by heat treatment, mechanical working, and composition. Charge, \$2.50.

170. MACHINE TOOL WORK I. 2(0-6); I, II, and SS. Prerequisite: Shop 161. Mr. Jones and Mr. Doelz.

Advance in chipping, filing, shaper and planer work; scraping, drilling, and turning on the lathe. Text: Smith, *Advanced Machine Work*. Charge, \$5.

175. FARM SHOP METHODS. 3(1-6); I and SS. Prerequisites: Shop 147 and 157. Mr. Graham.

Babbitting, soldering, drilling, and drill grinding, thread cutting with dies and taps, tool sharpening, belt lacing, repair of machinery, and other practical operations; designed to train teachers in farm shop work. Charge, \$2.50.

184, 185. SHOP PRACTICE TEACHING I AND II. 3(2-3) and 2(0-6), respectively; I, II, and SS. For prerequisites, consult instructor. Mr. Graham.

In I, shop organization, materials of construction, selection and care of tools and shop equipment, preparation of job sheets and lesson plans; actual shop practice, involving construction projects in wood or metal, and practice in the conduct of classes in shop work.

In II, for those who wish to specialize in teaching any phase of work offered by the Department of Shop Practice; 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 supervision.

192, 193. MACHINE TOOL WORK II AND III. 2(0-6) and 1(0-3), respectively; I, II and SS. Prerequisite: Shop 170. Mr. Jones and Mr. Doelz.

In II, progressive problems in turning, calipering, boring, reaming, taper turning, threading on the lathe, in chucking, use of forming tools, gear cutting; study of cutting edges and tool adjustments best suited to the different metals, cutting speeds and feeds. Text: Same as for course 170. Charge, \$5.

In III, work on the turret lathe, boring mill, hand and automatic screw machines, and grinder; practical work with jigs and fixtures and a study of rapid production of duplicate parts. Charge, \$2.50.

195. THESIS. 1(0-3), I; and 2(0-6), II, respectively. Mr. Carlson and Mr. Sellers.

The student works out problems of interest and value to himself under his own initiative, but subject to the supervision of his instructors. Ample facilities are available for carrying on work of a constructive or investigative nature.

FOR GRADUATE AND UNDERGRADUATE CREDIT

245A. FACTORY ENGINEERING. 2(2-0); I and II. Prerequisites: Shop 170 and Ap. Mech. 211. Mr. Carlson.

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, and the various other factors that have to do with the design and control of factories.

255. FACTORY DESIGN. 2(0-6); II. Prerequisite: Shop 245. Mr. Carlson.

Knowledge gained in shops and laboratories and in Factory Engineering (Shop 245A) is used in the design of a factory.

260. ADVANCED SHOP PRACTICE. 1 to 5 credits; I, II, and SS. Mr. Carlson and assistants.

Opportunity to specialize to a limited degree along certain lines of shop practice, such as heat treatment of steel, oxyacetylene and electric welding, jig and die work, woodworking, pattern making, foundry practice, cutting speeds and feeds, shop management, and systems. Charge varies with subject matter. All assignments must be approved by the head of the Department of Shop Practice.

270, 275. AUTOMOTIVE ENGINEERING. 2(1-3); II. Prerequisites: Ap. Mech. 211, 220 and Mach. Design 204, 205. Mr. Sink.

The design and operation of the various parts of the automobile. A course adapted to the needs of those who expect to follow some phase of automobile work or to take up employment in automobile factories. Charge, \$2.50.

FOR GRADUATE CREDIT

301. SHOP PRACTICE RESEARCH. 1 to 10 credits; I, II, and SS. Mr. Carlson and Mr. Sellers.

Investigation of some phase of shop practice of special interest to the student. All assignments must be approved by the head of the Shop Practice Department.

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 Course 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 land-grant colleges, of which this institution is one, 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 of this division thus give unity to all of the four-year curricula offered in the institution. Eleven of these are in charge of this division, and some of them, 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 curricula 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 or 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. 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. Most of these groups may be considerably extended by including other acceptable subjects.

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 instruction 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.

Four-year curricula are offered in voice, piano, and violin, and the last may be adapted to the needs of students who adopt some other major instrument. Curricula are also offered in public-school music, with specialization in either voice or instrument, and in public-school band and orchestra. Students completing one of these four-year curricula are awarded the degree of Bachelor of Music, and are eligible to receive a three-year state certificate, renewable for life.

A student completing the first two years of the curriculum in public-school music, excepting that English literature and American literature are postponed in order to take school management and methods of teaching, 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.

The curriculum in public-school band and orchestra is designed to train the student in the practical problems of amateur and semiprofessional bands and orchestras. The curriculum is comprehensive in that it provides for sixty-five hours of general college work in addition to the general courses in the theory of music, and also specific preparation in the organizing, managing and conducting of bands and orchestras. The courses in dramatic production should prepare the student to produce and direct operettas.

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. Success in this work requires vigorous health, a normal condition of the hands, feet, joints, muscles and internal organs, and eyes that do not require glasses. 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 subject which one may teach in connection with physical education in the smaller schools.

CURRICULUM IN COMMERCE

The curriculum in commerce was established chiefly because of the relationship of this College to the business activities of the state and nation that directly involve agriculture and rural affairs. 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 service. 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 commerce is designed primarily to train men and women for citizenship and business service in these communities, but the information acquired, and the general principles involved are applicable everywhere, and in all lines of business.

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.

SIX-YEAR CURRICULUM IN GENERAL SCIENCE AND VETERINARY MEDICINE

A six-year curriculum has been formulated which combines many of the advantages of a course of general scientific study with preparation for the profession of veterinary medicine. During the first four years science work of a general character is combined with subjects fundamental in veterinary medicine, and on completion of these four years the degree of Bachelor of Science is conferred. The last two years are given almost exclusively to professional veterinary subjects, and complete the requirements for the degree of Doctor of Veterinary Medicine.

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 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.

Curriculum in General Science

In effect September, 1929, for class of 1933 and later classes.

FRESHMAN

FIRST SEMESTER

College Rhetoric I, Engl. 101.....*3(3-0)
 Chemistry I, Chem. 101.....5(3-6)
 College Algebra,† Math. 104.....3(3-0)
 General Botany I, Bot. 101.....3(1-4, 2)
 Library Methods, Lib. Ec. 101.....1(1-0)
 Infantry I, Mil. Tr. 101A (men)....1(0-3)
 Phys. Ed. M, Phys. Ed. 103 (men), R(0-2)or
 Phys. Ed. W, Phys. Ed. 151A
 (women)R(0-3)

Total15 or 16

SECOND SEMESTER

College Rhetoric II, Engl. 104.....3(3-0)
 Chemistry II, Chem. 102.....5(3-6)
 Plane Trigonometry,† Math. 101.....3(3-0)
 General Botany II, Bot. 105.....3(1-4, 2)
 Current History, Hist. 126.....1(1-0)
 Infantry II, Mil. Tr. 102A (men)....1(0-3)
 Phys. Ed. M, Phys. Ed. 104 (men), R(0-2)or
 Phys. Ed. W, Phys. Ed. 152A
 (women)R(0-3)

Total15 or 16

SOPHOMORE

FIRST SEMESTER

English Literature, Engl. 172.....3(3-0)
 English History, Hist. 121.....3(3-0)
 General Physics I, Physics 135.....4(3-3)
 General Zoölogy, Zoöl. 105.....5(3-6)
 Infantry III, Mil. Tr. 103A (men)....1(0-3)
 Phys. Ed. M, Phys. Ed. 105 (men), R(0-2)or
 Phys. Ed. W, Phys. Ed. 153 (women), R(0-3)

Total15 or 16

SECOND SEMESTER

American Literature, Engl. 175.....3(3-0)
 Modern Europe II, Hist. 223.....3(3-0)
 General Physics II, Physics 140.....4(3-3)
 Psychology A, Educ. 101.....3(3-0)
 Elective†2(-)
 Infantry IV, Mil. Tr. 104A (men)....1(0-3)
 Phys. Ed. M, Phys. Ed. 106 (men), R(0-2)or
 Phys. Ed. W, Phys. Ed. 154 (women), R(0-3)

Total15 or 16

JUNIOR

FIRST SEMESTER

Hist. of Engl. Literature, Engl. 181..3(3-0)
 Amer. Govt., Hist. 151, 152 or 153...3(3-0)
 Extem. Speech I, Publ. Spk. 106....2(2-0)
 Current History, Hist. 126.....1(1-0)
 Elective‡6(-)

Total15

SECOND SEMESTER

American History I, Hist. 201.....3(3-0)
 Economics, Econ. 101.....3(3-0)
 Gen. Microbiology, Bact. 101.....3(1-6)

Electives‡6(-)

Total15

SENIOR

FIRST SEMESTER

Elective‡15(-)

SECOND SEMESTER

Elective‡15(-)

Summary.—Men: Physical education, two years, required; military science, 4 hours; other prescribed subjects, 76 hours; elective 44 hours; total 124 semester hours. Women: The same, except no military science. Total, 120 semester hours.

Adaptation, Classes of 1930, 1931 and 1932

The required subjects are the same for these classes as for the class of 1933. The elective hours are: Class of 1930, fifty-two; class of 1931, fifty; class of 1932, forty-seven.

* The number before the parenthesis indicates the number of semester hours of credit; the first number 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 each week.

† Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107. 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 Chemistry

Effective September 1, 1929, for class of 1933 and later years.

FRESHMAN

FIRST SEMESTER

College Rhetoric I, Engl. 101.....	3(3-0)
Chemistry I, Chem. 101.....	5(3-6)
College Algebra, Math. 104.....	3(3-0)
Engr. Drawing, Mach. Des. 101.....	2(0-6)
General Geology, Geol. 103.....	3(3-0)
Infantry I, Mil. Tr. 101A (men).....	1(0-3)
Phys. Ed. M, Phys. Ed. 103 (men), R(0-2) <i>or</i>	
Phys. Ed. W, Phys. Ed. 151A	
(women)	R(0-3)

Total16 or 17

SECOND SEMESTER

College Rhetoric II, Engl. 104.....	3(3-0)
Chemistry II, Chem. 102.....	5(3-6)
Plane Trigonometry, Math. 101.....	3(3-0)
Des. Geometry, Mach. Des. 106.....	2(0-6)
Machine Drawing I, Mach. Des. III..	2(0-6)
Library Methods, Lib. Econ. 101.....	1(1-0)
Infantry II, Mil. Tr. 102A (men).....	1(0-3)
Phys. Ed. M, Phys. Ed. 104 (men), R(0-2) <i>or</i>	
Phys. Ed. W, Phys. Ed. 152A	
(women)	R(0-3)

Total16 or 17

SOPHOMORE

FIRST SEMESTER

Inorg. Preparations, Chem. 202.....	2(0-6)
Plane Anal. Geometry, Math. 110....	4(4-0)
Engr. Physics I, Phys. 145.....	5(4-3)
Adv. Inorg. Chemistry, Chem 207....	3(3-0)
Commercial Law, Hist. 160.....	1(1-0)
Infantry III, Mil. Tr. 103A (men)....	1(0-3)
Phys. Ed. M, Phys. Ed. 105 (men), R(0-2) <i>or</i>	
Phys. Ed. W, Phys. Ed. 153 (women), R(0-3)	

Total15 or 16

SECOND SEMESTER

Quant. Analysis, Chem. 241.....	5(1-12)
Calculus I, Math. 205.....	5(5-0)
Engr. Physics II, Phys. 150.....	5(4-3)
Infantry IV, Mil. Tr. 104A (men)....	1(0-3)
Phys. Ed. M, Phys. Ed. 106 (men), R(0-2) <i>or</i>	
Phys. Ed. W, Phys. Ed. 154 (women), R(0-3)	

Total15 or 16

JUNIOR

FIRST SEMESTER

German I, Mod. Lang. 101.....	3(3-0)
Organic Chemistry I, Chem. 218....	4(2-6)
Physical Chemistry I, Chem. 206....	5(3-6)
Calculus II, Math. 206.....	3(3-0)
Fire Assaying, Chem. 242.....	2(0-6)

Total 17

SECOND SEMESTER

German II, Mod. Lang. 102.....	3(3-0)
Organic Chemistry II, Chem. 219....	4(2-6)
Physical Chemistry II, Chem. 272....	3(3-0)
Elect. Engr. C, Elect. Engr. 160, 165, 3(2-2, 1)	
History of Chemistry, Chem. 208....	1(1-0)
Electives†	3(-)

Total 17

SENIOR

FIRST SEMESTER

Amer. Govt., Hist. 151, 152, or 153..	3(3-0)
Indust. Chemistry I, Chem. 203.....	5(3-6)
Scientific German, Mod. Lang. 237....	4(4-0)
Electives†	5(-)

Total 17

SECOND SEMESTER

Economics, Econ. 101.....	3(3-0)
Indust. Chemistry II, Chem. 204.....	5(3-6)
Chemistry Problems, Chem. 270.....	3(0-9)
Electives†	5(-)

Total 16

Summary.—Men: Physical education, required; military science, 4 hours; chemistry, 52 hours; engineering, 9 hours; other prescribed subjects, 55 hours; elective, 13 hours. Total, 133 semester hours. Women: The same, except no military science. Total, 129 semester hours.

Adaptation, Classes of 1930, 1931 and 1932

Members of these classes should take the subjects provided for the class of 1933, arranging for them by appropriate substitutions made in the dean's office, or as 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

Effective September 1, 1929, for class of 1933 and later classes.

FRESHMAN

FIRST SEMESTER

College Rhetoric I, Engl. 101.....	3(3-0)
Chemistry I, Chem. 101.....	5(3-6)
Modern Language	3(3-0)
Current History, Hist. 126.....	1(1-0)
Option related to an industry or to applied science†.....	4(-)
Industrial Journalism Lecture.....	R
Infantry I, Mil. Tr. 101A (men).....	1(0-3)
Phys. Ed. M, Phys. Ed. 103 (men), R(0-2)or	
Phys. Ed. W, Phys. Ed. 151A	
(women)	R(0-3)

Total16 or 17

SECOND SEMESTER

College Rhetoric II, Engl. 104.....	3(3-0)
Chemistry II, Chem. 102.....	5(3-6)
Modern Language, continued.....	3(3-0)
Library Methods, Lib. Ec. 101.....	1(1-0)
Current History, Hist. 126.....	1(1-0)
Option related to an industry or to applied science†	4(-)
Industrial Journalism Lecture.....	R
Infantry II, Mil. Tr. 102A (men).....	1(0-3)
Phys. Ed. M, Phys. Ed. 104 (men), R(0-2)or	
Phys. Ed. W, Phys. Ed. 152A	
(women)	R(0-3)

Total17 or 18

SOPHOMORE

Effective September 1, 1929, for class of 1932 and later classes.

FIRST SEMESTER

English Literature, Engl. 172.....	3(3-0)
General Zoölogy, Zoöl. 105.....	5(3-6)or
General Botany I, Bot. 101.....	3(1-4, 2)
Modern Language, continued.....	3(3-0)
El. Journalism, Ind. Jour. 151.....	2(2-0)
Jour. Practice I, Ind. Jour. 154.....	2(0-6)
Option related to an industry or to applied science†	2 or 4(-)
Industrial Journalism Lecture.....	R
Infantry III, Mil. Tr. 103A (men).....	1(0-3)
Phys. Ed. M, Phys. Ed. 105 (men), R(0-2)or	
Phys. Ed. W, Phys. Ed. 153 (women), R(0-3)	

Total17 or 18

SECOND SEMESTER

American Literature, Engl. 175.....	3(3-0)
General Botany II, Bot. 105.....	3(1-4, 2)or
General Microbiology, Bact. 101....	3(1-6)if
General Botany I is chosen the first semester.	
Prin. of Typography I, Ind. Jour. 101,	3(2-3)
Industrial Writing, Ind. Jour. 161....	2(2-0)
Jour. Practice II, Ind. Jour. 155.....	2(0-6)
Option related to an industry or to applied science†.....	7 or 4(-)
Industrial Journalism Lecture.....	R
Infantry IV, Mil. Tr. 104A (men)....	1(0-3)
Phys. Ed. M, Phys. Ed. 106 (men), R(0-2)or	
Phys. Ed. W, Phys. Ed. 154 (women), R(0-3)	

Total17 or 18

JUNIOR

Effective September 1, 1929, for class of 1932 and later classes.

FIRST SEMESTER

Ind. Feature Writing I, Ind. Jour.	
167	2(2-0)
Jour. Practice III, Ind. Jour. 158.....	2(0-6)
Prin. of Typography II, Ind. Jour. 105,	1(0-3)
Prin. of Advertising, Ind. Jour. 179....	3(3-0)
Copy Reading, Ind. Jour. 254.....	2(0-6)
Options and Electives†.....	6(-)
Industrial Journalism Lecture.....	R

Total 16

SECOND SEMESTER

Ind. Feature Writing II, Ind.	
Jour. 171	2(2-0)and
Jour. Practice IV, Ind. Jour. 159....	2(0-6)or
The Rural Press, Ind. Jour. 182.....	3(3-0)or
Adv. Practice, Ind. Jour. 250.....	2(2-0)
Extempore Speech I, Pub. Spk. 106....	2(2-0)
History of English Lit., Engl. 181....	3(3-0)
Options and Electives†.....	7, 8, or 9(-)
Industrial Journalism Lecture.....	R

Total 16

SENIOR

FIRST SEMESTER

Circ. & Adv. Pro., Ind. Jour. 251A..	2(2-0)
Contem. Thought, Ind. Jour. 225....	3(3-0)
Electives and Options†.....	11(-)
Industrial Journalism Lectures.....	R

Total 16

SECOND SEMESTER

Editorial Practice, Ind. Jour. 257....	2(2-0)
Ethics of Journalism, Ind. Jour. 260..	2(2-0)
Electives and Options†.....	11(-)
Industrial Journalism Lectures.....	R

Total 15

Summary.—Men: Physical education, two years, required; military science 4 hours; industrial journalism 33-35 hours; restricted options, 33 hours; modern language, 9 hours; other prescribed subjects, 35 or 36 hours; general electives, 18 to 21 hours; total, 134 semester hours. Women: The same, excepting no military science; total, 130 semester hours.

† The options and electives are chosen with the advice and approval of the dean. The options are in two general groups: (1) eighteen semester hours in courses related to an industry or to applied science, and (2) fifteen semester hours in courses in political or social

Curriculum in Piano

FRESHMAN

FIRST SEMESTER

Piano I, Mus. 170A.....	4(1-12)
Harmony I, Mus. 101.....	2(2-0)
Ear Tr. & Sgt. Singing I, Mus. 105...	2(2-0)
Ensemble III, Mus. 190C, 193C, or 196A	R(1-0)
College Rhetoric I, Engl. 101.....	3(3-0)
Hist. & Apprec. of Mus. I, Mus. 112, 3(3-0)	
Current History, Hist. 126.....	1(1-0)
Piano Ensemble I, Mus. 176A.....	R(1-0)
Infantry I, Mil. Tr. 101A (men)....	1(0-3)
Phys. Ed. M, Phys. Ed. 103 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 151A (women)	R(0-3)

Total15 or 16

SECOND SEMESTER

Piano II, Mus. 170B.....	4(1-12)
Harmony II, Mus. 102.....	2(2-0)
Ear. Tr. & Sgt. Singing II, Mus. 106..	2(2-0)
Ensemble II, Mus. 190B, 193B, or 196B	R(1-0)
College Rhetoric II, Engl. 104.....	3(3-0)
Hist. & Apprec. of Mus. II, Mus. 113, 3(3-0)	
Current History, Hist. 126.....	1(1-0)
Library Methods, Lib. Econ. 101....	1(1-0)
Piano Ensemble II, Mus. 176B.....	R(1-0)
Infantry II, Mil. Tr. 102A (men)....	1(0-3)
Phys. Ed. M, Phys. Ed. 104 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 152A (women)	R(0-3)

Total16 or 17

SOPHOMORE

FIRST SEMESTER

Piano III, mus. 170C.....	4(1-12)
Voice A-I, Mus. 162A.....	2(1-6)
Harmony III, Mus. 103.....	2(2-0)
Ensemble III, Mus. 190C, 193C, or 196C	R(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)
Elective, nonmusic	2(-)
Infantry II, Mil. Tr. 103A (men)....	1(0-3)
Phys. Ed. M, Phys. Ed. 106 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 153 (women), R(0-3)	

Total16 or 17

SECOND SEMESTER

Piano IV, Mus. 170D.....	4(1-12)
Voice A-II, Mus. 162B.....	1(½-6)
Harmony IV, Mus. 104.....	2(2-0)
Ensemble IV, Mus. 190D, 193D, or 196D	R(1-0)
Recital II, Mus. 184B.....	R(-)
American Literature, Engl. 175.....	3(3-0)
Harmonics, Physics 222.....	2(2-0)
Piano Ensemble IV, Mus. 176D.....	R(1-0)
Elective, nonmusic	4(-)
Infantry IV, Mil. Tr. 104A (men)....	1(0-3)
Phys. Ed. M, Phys. Ed. 105 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 154 (women), R(0-3)	

Total16 or 17

JUNIOR

FIRST SEMESTER

Piano V, Mus. 170E.....	4(1-12)
Counterpoint, Mus. 108A.....	2(2-0)
Ensemble V, Mus. 190E, 193E, or 196E	R(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)
Elective, nonmusic	5(-)

Total 17

SECOND SEMESTER

Piano VI, Mus. 170F.....	4(1-12)
Musical Form and Anal., Mus. 109..	2(2-0)
Ensemble VI, Mus. 190F, 193F, or 196F	R(1-0)
Recital IV, Mus. 184D.....	2(2-0)
German II, Mod. Lang. 102.....	3(3-0)
Practice Teaching of Mus., Mus. 188, 2(2-0)	
Piano Ensemble VI, Mus. 176F.....	R(1-0)
Elective, nonmusic	3(-)

Total 16

history, government, economics or sociology. 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. 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 options and electives. These are printed immediately following the presentation of the curricula. 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, fifteen hours are to be chosen in satisfaction of the social science option.

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 of the options.

SENIOR

FIRST SEMESTER

Piano VII, Mus. 170G.....	4(1-12)
Instrumentation, Mus. 130.....	2(2-0)
Ensemble VII, Mus. 190G, 193G, or 196G	R(1-0)
Recital V, Mus. 184E.....	R(-)
Educational Psychology, Educ. 109...	3(3-0)
French I, Mod. Lang. 151.....	3(3-0)
Piano Ensemble VII, Mus. 176G.....	R(1-0)
Elective, nonmusic	5(-)

Total 17

SECOND SEMESTER

Piano VIII, Mus. 170H.....	4(1-12)
Orchestration, Mus. 133.....	2(2-0)
Ensemble VIII, Mus. 190H, 193H, or 196H	R(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, nonmusic	6(-)

Total 17

Summary.—Women: Physical education, required; music, 70 hours; education, 6 hours; other prescribed subjects, 29 hours; elective, 25 hours. Total, 130 semester hours. Men: The same, except that military science, 4 hours, is also required. Total, 134 semester credits.

Curriculum in Public-school Band and Orchestra

FRESHMAN

FIRST SEMESTER

Instrument I, Mus. 137A.....	3(1-9)
Piano A-I, Mus. 171A.....	1(½-6)
Harmony I, Mus. 101.....	2(2-0)
Ear Tr. & Sgt. Singing I, Mus. 105..	2(2-0)
Ensemble I (Band or Orchestra), Mus. 193A or 196A	R(1-0)
College Rhetoric I, Engl. 101.....	3(3-0)
Psychology B, Educ. 102.....	3(3-0)
Elective, nonmusic	1(1-0)
Infantry I, Mil. Tr. 101A (men)..	1(0-3)and
Phys. Ed. M, Phys. Ed. 103 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 151A (women)	R(0-3)

Total15 or 16

SECOND SEMESTER

Instrument II, Mus. 137B.....	3(1-9)
Piano A-II, Mus. 171B.....	2(1-6)
Harmony II, Mus. 102.....	2(2-0)
Ear Tr. & Sgt. Singing II, Mus. 106..	2(2-0)
Ensemble II (Band or Orchestra) Mus. 193B or 196B.....	R(1-0)
College Rhetoric II, Engl. 104.....	3(3-0)
Survey of Pub.-Sch. Mus., Mus. 110..	2(2-0)
Extem. Speech I, Pub. Spk. 106.....	2(2-0)
Infantry II, Mil. Tr. 102A (men)..	1(0-3)and
Phys. Ed. M, Phys. Ed. 104 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 152A (women)	R(0-3)

Total16 or 17

SOPHOMORE

FIRST SEMESTER

Instrument III, Mus. 137C.....	3(1-9)
Orch. Instruments I, Mus. 142A....	1(½-6)
Ensemble III (Band or Orchestra) Mus. 193C or 196C.....	R(1-0)
Harmony III, Mus. 103.....	2(2-0)
Ear. tr. & Sgt. Singing III, Mus. 107..	2(2-0)
Hist. & Apprec. of Music I, Mus. 112..	3(3-0)
English Literature, Engl. 172.....	3(3-0)
Conducting I, Mus. 117.....	1(1-0)
Infantry III, Mil. Tr. 103A (men), 1(0-3)and Phys. Ed. M, Phys. Ed. 105 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 153 (women), R(0-3)	

Total15 or 16

SECOND SEMESTER

Instrument IV, Mus. 137D.....	3(1-9)
Orch. Instruments II, Mus. 142B....	1(½-6)
Ensemble IV (Band or Orchestra) Mus. 193D or 196D.....	R(1-0)
Harmony IV, Mus. 104.....	2(2-0)
Ear Tr. & Sgt. Singing IV, Mus. 108..	2(2-0)
Hist. & Apprec. of Mus. II, Mus. 113..	3(3-0)
American Literature, Engl. 175.....	3(3-0)
Elective, nonmusic	2(-)
Infantry IV, Mil. Tr., 104A (men)..	1(0-3)and
Phys. Ed. M, Phys. Ed. 106 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 154 (women), R(0-3)	

Total16 or 17

JUNIOR

FIRST SEMESTER

Instrument V, Mus. 137E.....	3(1-9)
Counterpoint, Mus. 108A.....	2(2-0)
Instrumentation, Mus. 130.....	2(2-0)
Ensemble V (Orchestra), Mus. 193E..	1(1-0)
Conducting II, Mus. 128.....	1(1-0)
Dramatic Pro. I, Pub. Spk. 130.....	2(2-0)
Modern Language I (French or German), Mod. Lang. 101 or 151...	3(3-0)
Educational Adm. A, Educ. 105.....	3(3-0)

Total 17

SECOND SEMESTER

Instrument VI, Mus. 137F.....	2(1-6)
Musical Form & Anal., Mus. 109....	2(2-0)
Ensemble VI (Orchestra), Mus. 193F,	1(1-0)
Harmonics, Physics 222	2(2-0)
Dramatic Pro. II, Pub. Spk. 135....	2(2-0)
Modern Language II, Mod. Lang. 102 or 152.....	3(3-0)
Educational Psychology, Educ. 109..	3(3-0)
Elective, nonmusic	3(3-0)

Total 18

SENIOR

FIRST SEMESTER

Instrument VII, Mus. 137G.....	2(1-6)
Orchestral Repertoire I, Mus. 144A....	1(1-0)
Orchestration, Mus. 133.....	2(2-0)
Conducting III, Mus. 129.....	1(1-0)
Ensemble VII (Orchestra), Mus. 193G, 1	(1-0)
Chorus, Mus. 190.....	R(1-0)
Modern Language (continued).....	3(3-0)
Elective in Education.....	3(3-0)
Elective, nonmusic.....	3(3-0)

Total 16

SECOND SEMESTER

Instrument VIII, Mus. 137H.....	1(½-6)
Orchestral Repertoire II, Mus. 144B..	1(1-0)
Practice Conducting, Mus. 135.....	1(½-2)
Ensemble VIII (Orchestra), Mus. 193H, 1	(1-0)
Practice Teaching of Mus., Mus. 188..	2(2-0)
Modern Language (continued).....	3(3-0)
Elective in Education.....	6(6-0)
Elective, nonmusic.....	2(2-0)

Total 17

Summary.—Men: Physical education, required; military science, 4 hours; music, 69 hours; education, 18 hours; other prescribed subjects, 32 hours; nonmusic electives, 11 hours. Total, 134 semester hours. Women: The same, except that military science is not required. Total, 130 semester hours.

Curriculum in Public-school Music

Effective September 1, 1929, for class of 1933 and later years.

FRESHMAN

FIRST SEMESTER

Public-school Music I, Mus. 120....	2(2-0)
Ear Tr. & Sgt. Singing I, Mus. 105....	2(2-0)
Harmony I, Mus. 101.....	2(2-0)
Piano A-I,* Mus. 171A.....	1(½-6)
Voice A-I,* Mus. 162A.....	2(1-6)

Chorus I, Mus. 190A.....	R(1-0)
College Rhetoric I, Engl. 101.....	3(3-0)
Psychology B, Educ. 102.....	3(3-0)
Phys. Ed. W, Phys. Ed. 151A.....	
(women).....	R(0-3) or
Infantry I, Mil. Tr. 104 (men)...	1(0-3) and
Phys. Ed. M, Phys. Ed. 103 (men)...	R(0-2)

Total 15 or 16

SECOND SEMESTER

Public-school Music II, Mus. 121....	2(2-0)
Ear Tr. & Sgt. Singing II, Mus. 106, 2	(2-0)
Harmony II, Mus. 102.....	2(2-0)
Piano A-II, Mus. 171B.....	2(1-6)
Voice A-II, Mus. 162B.....	1(½-6)
Conducting I, Mus. 117.....	1(1-0)
Chorus II, Mus. 190B.....	R(1-0)
College Rhetoric II, Engl. 104.....	3(3-0)
Extm. Speech I, Pub. Spk. 106.....	2(2-0)
Phys. Ed. W, Phys. Ed. 152A.....	

(women).....	R(0-3) or
Infantry II, Mil. Tr. 102A (men), 1	(0-3) and
Phys. Ed. M, Phys. Ed. 104 (men)...	R(0-2)

Total 15 or 16

SOPHOMORE

Effective September 1, 1929, for class of 1932 and later years.

FIRST SEMESTER

Public-school Music III, Mus. 122....	2(2-0)
Ear Tr. & Sgt. Singing III, Mus. 107, 2	(2-0)
Harmony III, Mus. 103.....	2(2-0)
Piano A-III, Mus. 171C.....	1(½-6)
Voice A-III, Mus. 162C.....	2(1-6)
Orch. Instruments I, Mus. 142A....	1(½-6)
Chorus III, Mus. 190C.....	R(1-0)
English Literature, Engl. 172.....	3(3-0)
Hist. & Apprec. of Mus. I, Mus. 112, 3	(3-0)
Phys. Ed. W, Phys. Ed. 105.....	

(women).....	R(0-3) or
Infantry III, Mil. Tr. 103A (men), 1	(0-3) and
Phys. Ed. M, Phys. Ed. 105 (men)...	R(0-2)

Total 16 or 17

SECOND SEMESTER

Public-school Mus. IV, Mus. 123....	2(2-0)
Ear Tr. & Sgt. Singing IV, Mus. 108..	2(2-0)
Harmony IV, Mus. 104.....	2(2-0)
Piano A-IV, Mus. 171D.....	2(1-6)
Voice A-IV, Mus. 162D.....	1(½-6)
Orch. Instruments II, Mus. 142B...1	(½-6)
Chorus IV, Mus. 190D.....	R(1-0)
American Literature, Engl. 175.....	3(3-0)
Hist & Apprec. of Music II, Mus. 113..	3(3-0)
Phys. Ed. W, Phys. Ed. 154.....	

(women).....	R(0-3) or
Infantry IV, Mil. Tr. 104A (men), 1	(0-3) and
Phys. Ed. M, Phys. Ed. 106 (men)...	R(0-2)

Total 16 or 17

* The relative amounts of vocal and instrumental study in the several years are subject to change on recommendation of the head of the Department of Music on a request for substitution blank, the total being three semester hours each semester the first two years, and two semester hours each semester of the last two years.

JUNIOR

FIRST SEMESTER

Public-school Music V, Mus. 124....	2(2-0)
Counterpoint, Mus. 108A.....	2(2-0)
Voice or Instrument, Mus.....	2(-)
Chorus V, Mus. 190E.....	R(1-0)
A Modern Language.....	3(3-0)
Elective in English.....	3(3-0)
Elective in Education.....	3(3-0)
Elective, nonmusic.....	2(-)

Total 17

SECOND SEMESTER

Public-school Music VI, Mus. 125....	2(2-0)
Musical Form and Anal., Mus. 109..	2(2-0)
Voice or Instrument, Mus.....	2(-)
Methods of Teaching Mus., Mus. 145..	1(1-0)
Chorus VI, Mus. 190F.....	R(1-0)
Modern Language (continued).....	3(3-0)
Elective in Education.....	3(3-0)
Elective, nonmusic.....	5(-)

Total 18

SENIOR

FIRST SEMESTER

Public-school Music VII, Mus. 126....	2(2-0)
Instrumentation, Mus. 130.....	2(2-0)
Voice or Instrument, Mus.....	2(-)
Practice Teaching of Mus. Mus. 188..	2(-)
Chorus VII, Mus. 190G.....	R(1-0)
Modern Language (continued).....	3(3-0)
Elective in Education.....	3(3-0)
Elective, nonmusic.....	3(-)

Total 17

SECOND SEMESTER

Public-school Music VIII, Mus. 127..	2(2-0)
Orchestration, Mus. 133.....	2(2-0)
Voice or Instrument, Mus.....	2(-)
Chorus VIII, Mus. 190H.....	R(1-0)
Modern Language (continued).....	3(3-0)
Elective in Education.....	6(6-0)
Elective, nonmusic.....	3(-)

Total 18

Summary.—Women, Physical education, required; music, 72 hours; other prescribed subjects, 17 hours; electives in education, 15 hours; electives in one modern language, 12 hours; general electives, 16 hours; total, 132 semester hours. Men: The same, except that military science 4 hours, is also required. Total, 136 semester hours.

Adaptation for Class of 1930

SENIOR, 1929-'30

The same as for the class of 1931, excepting that American Literature, 3(3-0), replaces a three-hour elective in education. An additional nonmusic three-hour elective beyond the stated requirements should be taken if possible by those seeking a general state certificate.

Curriculum in Violin

FRESHMAN

FIRST SEMESTER

Violin I, Mus. 165A.....	4(1-12)
Harmony I, Mus. 101.....	2(2-0)
Hist. & Apprec. of Mus. I, Mus. 112..	3(3-0)
Current History, Hist. 126.....	1(1-0)
Ear. Tr. & Sgt. Singing I, Mus. 105..	2(2-0)
Ensemble I, Mus. 190A, 193A, or 196A.....	R(1-0)
College Rhetoric I, Engl. 101.....	3(3-0)
Infantry I, Mil. Tr. 101A (men)....	1(0-3)
Phys. Ed. M, Phys. Ed. 103 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 151A (women).....	R(0-3)

Total 15 or 16

SECOND SEMESTER

Violin II, Mus. 165B.....	4(1-12)
Harmony II, Mus. 102.....	2(2-0)
Hist. & Apprec. of Mus. II, Mus. 113..	3(3-0)
Current History, Hist. 126.....	1(1-0)
Library Methods, Lib. Ec. 101.....	1(1-0)
Ear Tr. & Sgt. Singing II, Mus. 106..	2(2-0)
Ensemble II, Mus. 190B, 193B, or 196B.....	R(1-0)
College Rhetoric II, Engl. 104.....	3(3-0)
Infantry II, Mil. Tr. 102A (men)....	1(0-3)
Phys. Ed. M, Phys. Ed. 104 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 152A (women).....	R(0-3)

Total 16 or 17

SOPHOMORE

FIRST SEMESTER

Violin III, Mus. 165C.....	4(1-12)
Piano A-I, Mus. 171A.....	1(½-6)
Harmony III, Mus. 103.....	2(2-0)
Ensemble III, Mus. 190C 193C, or 196C.....	R(1-0)
Recital I, Mus. 184A.....	R(-)
English Literature, Engl. 172.....	3(3-0)
Psychology B, Educ. 102.....	3(3-0)
Elective, nonmusic.....	3(-)
Infantry III, Mil. Tr. 103A (men)....	1(0-3)
Phys. Ed. M, Phys. Ed. 105 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 153 (women), R(0-3)	

Total 16 or 17

SECOND SEMESTER

Violin IV, Mus. 165D.....	4(1-12)
Piano A-II, Mus. 171B.....	2(1-6)
Harmony IV, Mus. 104.....	2(2-0)
Ensemble IV, Mus. 190D, 193D, or 196D.....	R(1-0)
Recital II, Mus. 184B.....	R(-)
Harmonics, Physics 222.....	2(2-0)
American Literature, Engl. 175.....	3(3-0)
Elective, nonmusic.....	3(-)
Infantry IV, Mil. Tr. 104A (men)....	1(0-3)
Phys. Ed. M, Phys. Ed. 106 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 154 (women), R(0-3)	

Total 16 or 17

JUNIOR

FIRST SEMESTER

Violin V, Mus. 165E.....	6(1-24)
Counterpoint, Mus. 108A.....	2(2-0)
Ensemble V, Mus. 190E, 193E, or 196E	R(1-0)
Recital III, Mus. 184C.....	R(-)
Piano A-III, Mus. 171C.....	1(½-6)
German I, Mod. Lang. 101.....	3(3-0)
Methods of Teaching Mus., Mus. 145, 1(1-0)	
Conducting I, Mus. 117.....	1(1-0)
Elective, nonmusic	3(-)

Total 17

SECOND SEMESTER

Violin VI, Mus. 165F.....	6(1-24)
Musical Form and Anal., Mus. 109.....	2(2-0)
Ensemble VI, Mus. 190F, 193F, or 196F	R(1-0)
Recital IV, Mus. 184D.....	2(2-0)
Piano A-IV, Mus. 171D.....	2(1-6)
German II, Mod. Lang. 102.....	3(3-0)
Practice Teaching of Mus., Mus. 188, 2(2-0)	
Elective, nonmusic	1(-)

Total 18

SENIOR

FIRST SEMESTER

Violin VII, Mus. 165G.....	6(1-24)
Instrumentation, Mus. 130.....	2(2-0)
Ensemble VII, Mus. 190G, 193G, or 196G	R(1-0)
Recital V, Mus. 184E.....	R(-)
French I, Mod. Lang. 151.....	3(3-0)
Educational Psychology, Educ. 109.....	3(3-0)
Elective, nonmusic	3(-)

Total 17

SECOND SEMESTER

Violin VIII, Mus. 165H.....	6(1-24)
Orchestration, Mus. 133.....	2(2-0)
Ensemble VIII, Mus. 190H, 193H, or 196H	R(1-0)
Recital VI, Mus. 184F.....	2(2-0)
French II, Mod. Lang. 152.....	3(3-0)
Elective, nonmusic	3(3-0)

Total 16

Summary.—Women: Physical education, required; music, 80 hours; education, 6 hours; other prescribed subjects, 29 hours; elective, 16 hours. Total, 131 semester hours. Men: The same, except that military science, 4 hours, is also required. Total, 135 semester hours.

Curriculum in Voice

FRESHMAN

FIRST SEMESTER

Voice I, Mus. 160A.....	4(1-12)
Hist. & Apprec. of Mus. I, Mus. 112.....	3(3-0)
Current History, Hist. 126.....	1(1-0)
Harmony I, Mus. 101.....	2(2-0)
Ear Tr. & Sgt. Singing I, Mus. 105.....	2(2-0)
Choral Ensemble I, Mus. 192A.....	R(1-0)
College Rhetoric I, Engl. 101.....	3(3-0)
Infantry I, Mil. Tr. 101A (men).....	1(0-3)
Phys. Ed. M, Phys. Ed. 103 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 151A (women)	R(0-3)

Total 15 or 16

SECOND SEMESTER

Voice II, Mus. 160B.....	4(1-12)
Hist. & Apprec. of Mus. 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 Tr. & Sgt. Singing II, Mus. 106.....	2(2-0)
Choral Ensemble II, Mus. 192B.....	R(1-0)
College Rhetoric II, Engl. 104.....	3(3-0)
Infantry II, Mil. Tr. 102A (men).....	1(0-3)
Phys. Ed. M, Phys. Ed. 104 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 152A (women)	R(0-3)

Total 16 or 17

SOPHOMORE

FIRST SEMESTER

Voice III, Mus. 160C.....	4(1-12)
Piano A-I, Mus. 171A.....	1(½-6)
Harmony III, Mus. 103.....	2(2-0)
Choral Ensemble III, Mus. 192C.....	R(1-0)
Recital I, Mus. 184A.....	R(-)
English Literature, Engl. 172.....	3(3-0)
Psychology B, Educ. 102.....	3(3-0)
Elective, nonmusic	3(-)
Infantry III, Mil. Tr. 103A (men).....	1(0-3)
Phys. Ed. M, Phys. Ed. 105 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 153 (women), R(0-3)	

Total 16 or 17

SECOND SEMESTER

Voice IV, Mus. 160.....	4(1-12)
Piano A-II, Mus. 171B.....	2(1-6)
Harmony IV, Mus. 104.....	2(2-0)
Choral Ensemble IV, Mus. 192D.....	R(1-0)
Recital II, Mus. 184B.....	R(-)
Harmonics, Physics 222	2(2-0)
American Literature, Engl. 175.....	3(3-0)
Elective, nonmusic	3(-)
Infantry IV, Mil. Tr. 104A (men).....	1(0-3)
Phys. Ed. M, Phys. Ed. 106 (men), R(0-2)or Phys. Ed. W, Phys. Ed. 153 (women), R(0-3)	

Total 16 or 17

JUNIOR

FIRST SEMESTER

Voice V, Mus. 160E.....	4(1-12)
Methods of Teaching Mus., Mus. 145..	1(1-0)
Counterpoint, Mus. 109A.....	2(2-0)
Choral Ensemble V, Mus. 192E.....	R(1-0)
Recital III, Mus. 184C.....	R(-)
Piano A-III, Mus. 171C.....	1(½-6)
German I, Mod. Lang. 101.....	3(3-0)
Conducting I, Mus. 117.....	1(1-0)
Elective, nonmusic	5(5-0)

Total 17

SECOND SEMESTER

Voice VI, Mus. 160F.....	4(1-12)
Practice Teaching of Mus., Mus. 188,	2(2-0)
Musical Form and Anal., Mus. 109...	2(2-0)
Choral Ensemble VI, Mus. 192F.....	R(1-0)
Recital IV, Mus. 184D.....	2(2-0)
Piano A-IV, Mus. 171D.....	2(2-6)
German II, Mod. Lang. 102.....	3(3-0)
Elective, nonmusic	2(-)

Total 17

SENIOR

FIRST SEMESTER

Voice VII, Mus. 160G.....	4(1-12)
Instrumentation, Mus. 130.....	2(2-0)
Choral Ensemble VII, Mus. 192G.....	R(1-0)
Recital V, Mus. 184E.....	R(-)
Educational Psychology, Educ. 109...	3(3-0)
French I, Mod. Lang. 151.....	3(3-0)
Repertoire I, Mus. 185A.....	1(1-0)
Elective, nonmusic	3(-)

Total 16

SECOND SEMESTER

Voice VIII, Mus. 160H.....	4(1-12)
Orchestration, Mus. 133.....	2(2-0)
Choral Ensemble VIII, Mus. 192H.....	R(1-0)
Recital VI, Mus. 184F.....	2(2-0)
French II, Mod. Lang. 152.....	3(3-0)
Repertoire II, Mus. 185B.....	1(1-0)
Elective, nonmusic	3(-)

Total 15

Summary.—Women: Physical education, required; music, 74 hours; education, 6 hours; other prescribed subjects, 29 hours; elective, 19 hours. Total, 128 semester hours. Men: The same, except that military science, 4 hours, is required. Total, 132 semester hours.

Curriculum in Physical Education for Men

Effective January, 1929, for the class of 1932 and later years.

FRESHMAN

FIRST SEMESTER

Gymnastics I, Phys. Ed. 115A.....	2(1-3)
Football I, Phys. Ed. 126A.....	2(1-3)
Basket Ball, Phys. Ed. 130A.....	2(1-3)
College Rhetoric I, Engl. 101.....	3(3-0)
General Chemistry, Chem. 110.....	5(3-6)
Extm. Speech I, Pub. Spk. 106.....	2(2-0)
Infantry I, Mil. Tr. 101A.....	1(0-3)
Phys. Ed. M, Phys. Ed. 103.....	R(0-2)

Total 17

SECOND SEMESTER

Gymnastics II, Phys. Ed. 117A.....	2(0-6)
Track and Field Sports, Phys. Ed. 140A	2(1-3)
General Zoölogy, Zoöl. 105.....	5(3-6)
College Rhetoric II, Engl. 104.....	3(3-0)
El. Org. Chemistry, Chem. 123.....	3(2-3)
Extm. Speech II, Pub. Spk. 108.....	2(2-0)
Infantry II, Mil. Tr. 102A.....	1(0-3)
Phys. Ed. M, Phys. Ed. 104.....	R(0-2)

Total 18

SOPHOMORE

FIRST SEMESTER

Apparatus, Phys. Ed. 109.....	1(0-3)
Football II, Phys. Ed. 127.....	2(1-3)
Swimming M-I, Phys. Ed. 121.....	1(0-3)
Human Anatomy, Zoöl. 123A.....	5(3-6)
Embryology A, Zoöl. 135.....	3(2-3)
Psychology A, Educ. 101.....	3(3-0)

Library Methods, Lib. Ec. 101.....1(1-0)

Infantry III, Mil. Tr. 103A.....1(0-3)
 Phys. Ed. M, Phys. Ed. 105.....R(0-2)

Total 17

SECOND SEMESTER

Personal Hygiene, Phys. Ed. 119.....	2(2-0)
Baseball, Phys. Ed. 135A.....	2(1-3)
Swimming M-II, Phys. Ed. 122.....	1(0-3)
Kinesiology, Phys. Ed. 141B.....	3(3-0)
Physiology A, Zoöl. 127.....	3(2-3)
History and Principles of Phys. Ed., Phys. Ed. 192.....	3(3-0)
Playground Management and Games M, Phys. Ed. 145A.....	2(2-0)
Infantry IV, Mil. Tr. 104A.....	1(0-3)
Phys. Ed. M, Phys. Ed. 106.....	R(0-2)

Total 17

JUNIOR

FIRST SEMESTER

School Hygiene, Phys. Ed. 196.....	3(3-0)
Boxing, Phys. Ed. 132.....	1(0-3)
First Aid and Mas., Phys. Ed. 113A.....	3(3-0)
Organization and Administration of Phys. Ed. M, Phys. Ed. 146B.....	2(2-0)
El. Jour., Ind. Jour. 151.....	2(2-0)
Jour. Practice I, Ind. Jour. 154.....	2(0-6)
Practice Teaching in Physical Edu- cation I, Phys. Ed. 136.....	1(0-3)
Elective†	3(-)

Total 17

SECOND SEMESTER

Gen. Microbiology, Bact. 101.....	3(1-6)
Sociology, Econ. 151.....	3(3-0)
Wrestling, Phys. Ed. 128.....	1(0-3)
Psychology of Childhood and Adolescence, Educ. 208.....	3(3-0)
Educ. Admin. A, Educ. 105.....	3(3-0)
Practice Teaching in Physical Edu- cation II, Phys. Ed. 136B.....	2(0-6)
Electives†	3(-)

Total 18

SENIOR

FIRST SEMESTER

Phys. Diag. & Presc., Phys. Ed. 124A.....	3(3-0)
Practice Teaching in Physical Edu- cation III, Phys. Ed. 136C.....	2(0-6)
Educ. Psychology, Educ. 109.....	3(3-0)
Special Histology, Path. 252.....	3(1-6)
Elective†	4(-)

Total 15

SECOND SEMESTER

Physiol. of Exercise, Phys. Ed. 123....	2(2-0)
Practice Teaching in Physical Ed- ucation IV, Phys. Ed. 136D.....	2(0-6)
Methods of Teaching B, Educ. 112....	3(3-0)
Current History, Hist. 126.....	1(1-0)
Public-school Program in Physical Education, Phys. Ed. 142A.....	2(2-0)
Elective†	5(-)

Total 15

Summary.—Military science, 4 hours; physical education, 51 hours; professional education, 15 hours; other prescribed subjects, 49 hours; general electives, 15 hours. Total, 134 semester hours.

Curriculum in Physical Education for Women

In effect September 1, 1929, for classes of 1932 and later years.

FRESHMAN

FIRST SEMESTER

College Rhetoric I, Engl. 101.....	3(3-0)
Chemistry I, Chem. 101.....	5(3-6)
Extm. Speech I, Pub. Spk. 106.....	2(2-0)
Current History, Hist. 126.....	1(1-0)
Library Methods, Lib. Econ. 101.....	1(1-0)
Hygiene, Child Welfare 101.....	2(2-0)
Phys. Ed. W, Phys. Ed. 151A.....	R(0-3)
Gen. Technic I, Phys. Ed. 156A.....	1(0-3)

Total 15

SECOND SEMESTER

College Rhetoric II, Engl. 104.....	3(3-0)
Chemistry II, Chem. 102.....	5(3-6)
Extm. Speech II, Pub. Spk. 108.....	2(2-0)
General Zoölogy, Zoöl. 105.....	5(3-6)
Phys. Ed. W, Phys. Ed. 152A.....	R(0-3)
General Technic II, Phys. Ed. 156B.....	1(0-3)

Total 16

SOPHOMORE

FIRST SEMESTER

El. Org. Chemistry, Chem. 123.....	3(2-3)
Human Anatomy, Zoöl. 123A.....	5(3-6)
English Literature, Engl. 172.....	3(3-0)
Embryology A, Zoöl. 135.....	3(2-3)
Playground Management and Games W, Phys. Ed. 182A.....	2(1-3)
Phys. Ed. W, Phys. Ed. 153.....	R(0-3)
General Technic III, Phys. Ed. 156C.....	1(0-3)

Total 17

SECOND SEMESTER

Psychology A, Educ. 101.....	3(3-0)
Kinesiology W, Phys. Ed. 189.....	3(3-0)
American Literature, Engl. 175.....	3(3-0)
Physiology A, Zoöl. 127.....	3(2-3)
History and Principles of Physical Ed- ucation, Phys. Ed. 192.....	3(3-0)
First Aid, Phys. Ed. 158.....	1(1-0)
Phys. Ed. W, Phys. Ed. 154.....	R(0-3)
General Technic IV, Phys. Ed. 156D.....	1(0-3)

Total 17

† All electives are to be chosen in accordance with the general rules governing electives and taken in departments other than that of physical education.

JUNIOR

FIRST SEMESTER

School Hygiene, Phys. Ed. 196.....3(3-0)
 Hist. of Engl. Lit., Engl. 181.....3(3-0)

Gen. Microbiology, Bact. 101.....3(1-6)
 Phys. Diagnosis W, Phys. Ed. 170...3(3-0)
 Folk Dancing I, Phys. Ed. 160.....1(0-3)
 Sports Technic I, Phys. Ed. 165A...1(1-0)
 General Technic V, Phys. Ed. 156E..1(0-3)

Elective†2(-)

Total 17

SECOND SEMESTER

Educl. Admin. A, Educ. 105.....3(3-0)
 Psychology of Childhood and Adolescence, Educ. 208.....3(3-0)

Therap. and Mas., 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(1-0)
 General Technic VI, Phys. Ed. 156F..1(0-3)

Methods of Teaching Gymnastics, Phys. Ed. 168.....1(1-0)

Elective†2(-)

Total 17

SENIOR

FIRST SEMESTER

Educl. Psychology, Educ. 109.....3(3-0)
 Supervised Teaching in Physical Education, Phys. Ed. 186.....3(3-0)

Teaching and Adaptation of Physical Education, Phys. Ed. 188.....3(3-0)
 Theory and Technic of Dancing, Phys. Ed. 163.....1(1-0)

Sports Technic III, Phys. Ed. 165C..1(1-0)

General Technic VII, Phys. Ed. 156G..1(0-3)

Elective†5(-)

Total 17

SECOND SEMESTER

Educl. Sociology A, Educ. 118.....3(3-0)
 Organization and Administration of Phys. Ed. W, Phys. Ed. 176.....2(2-0)

Applied Nutrition, Food & Nut. 120..2(2-0)

Sports Technic IV, Phys. Ed. 165D..1(1-0)

Gen. Technic VIII, Phys. Ed. 156H..1(0-3)

Elective†7(-)

Total 16

Summary.—Physical education, 40 hours; professional education, 18 hours; other prescribed subjects, 58 hours; general electives, 16 hours. Total, 132 semester hours.

Curriculum in Commerce

Effective September 1, 1929, for class of 1933.

FRESHMAN

FIRST SEMESTER

College Rhetoric I, Engl. 101.....3(3-0)

Phys. or Bio. Science*.....5(-) or 3(-)

Modern Language*3(3-0)

Current History, Hist. 126.....1(1-0)

Psychology A, Edus. 101.....3(3-0)

Extm. Speech I, Pub. Spk. 106....2(2-0)

Infantry I, Mil. Tr. 101A (men)....1(0-3)

Phys. Ed. M, Phys. Ed. 103 (men), R(0-2) or Phys. Ed. W, Phys. Ed. 151A

(women)R(0-3)

Total15 or 16

SECOND SEMESTER

College Rhetoric II, Engl. 104.....3(3-0)

Phys. or Bio. Science*.....3(-) or 5(-)

Modern Language*3(3-0)

Current History, Hist. 126.....1(1-0)

College Algebra,* Math. 104.....3(3-0)

Infantry II, Mil. Tr. 102A (men)....1(0-3)

Phys. Ed. M, Phys. Ed. 104 (men), R(0-2) or Phys. Ed. W, Phys. Ed. 152A

(women)R(0-3)

Total15 or 16

* 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, zoology 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 assigned to a five-credit course in College Algebra, Math. 107. 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.

† All electives are to be chosen in accordance with the general rules governing electives and taken in departments other than that of physical education.

SOPHOMORE

FIRST SEMESTER

Com'l Correspondence, Engl. 122.....	3(3-0)
Accounting I, Econ. 133.....	3(2-3)
Modern Language	3(3-0)
Economic Geography, Econ. 122.....	2(2-0)
American Ind. History, Hist. 105....	3(3-0)or
Hist. of Commerce & Ind., Hist. 110..	3(3-0)
Extem. Speech II, Pub. Spk. 108.....	2(2-0)
Infantry III, Mil. Tr. 103A (men)....	1(0-3)
Phys. Ed. M, Phys. Ed. 105 (men), R(0-2)or	
Phys. Ed. W, Phys. Ed. 153 (women), R(0-3)	

Total16 or 17

SECOND SEMESTER

Writ. & Oral Salesmanship, Engl. 123,	3(3-0)
Accounting II, Econ. 134.....	3(2-3)
English Literature, Engl. 172.....	3(3-0)
Economics, Econ. 101.....	3(3-0)
History Elective*	3(-)

Infantry IV, Mil. Tr. 104A (men)....	1(0-3)
Phys. Ed. M, Phys. Ed. 106 (men), R(0-2)or	
Phys. Ed. W, Phys. Ed. 154 (women), R(0-3)	

Total15 or 16

JUNIOR

FIRST SEMESTER

Elements of Statistics, Math. 126....	3(3-0)
Business Management, Econ. 126.....	2(2-0)
Money and Banking, Econ. 116.....	3(3-0)
Marketing, Econ. 245.....	2(2-0)
Special Electives,† minimum.....	2 or 3(-)
General Electives	5 or 4(-)

Total 17

SECOND SEMESTER

Math. of Investments, Math. 150....	3(3-0)
Business Finance, Econ. 217.....	3(3-0)
Amer. Govt., Hist. 151, 152, or 153..	3(3-0)
Sociology, Econ. 151.....	3(3-0)
Special Electives,† minimum.....	3 or 2(-)
General Electives	2 or 3(-)

Total 17

SENIOR

FIRST SEMESTER

Business Law I, Hist. 163.....	3(3-0)
Public Finance, Econ. 213.....	2(2-0)
Labor Problems, Econ. 233.....	2(2-0)
Special Electives,† minimum.....	2 or 3(-)
General Electives	7 or 6(-)

Total 16

SECOND SEMESTER

Business Law II, Hist. 164.....	3(3-0)
Investments, Econ. 221.....	2(2-0)
Special Electives,† minimum.....	3 or 2(-)
General Electives	8 or 9(-)

Total 16

Summary.—Men: Physical education required; military science, 4 hours; commerce courses, 48 hours; other prescribed courses, 47 hours; special and general elective, 32 hours. Total, 131 semester hours. Women: The same except military science, 4 hours, not required. Total, 127 semester hours.

Curriculum in Commerce

Adaptation, Class of 1932

Freshman year as given 1928-'29. Later years as for the class of 1933 excepting that in the sophomore year, first semester, Psychology A replaces Extempore Speech II.

Adaptation, Class of 1931

Freshman and sophomore years as provided for 1927-'28 and 1928-'29, respectively. Junior year as for the class of 1933 excepting that in the first semester English Literature replaces Business Management, and the general electives are reduced to 3 or 2 semester hours. The senior year is the same as for the class of 1933 excepting that Business Law I is replaced by two hours of general electives.

Adaptation, Class of 1930

In the senior year the class of 1930 will take the courses as provided for the class of 1933 excepting that Business Law I, Public Finance and Labor Problems will be replaced by special electives.

* See footnote, page 175.

† Special electives recommended for students in the curriculum in commerce are: Economics, 131, 229, 242, 244, 248, 251, 280, 281, 282, 283 and 284; Education, 251A and 243; English, 223; History and Government, 260; Industrial Journalism, 179.

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 at least eight or nine semester hours. For strong preparation in any field the student should take a total of twenty to forty hours in a department, or in closely related departments, a large part of this work should be in courses designed for juniors and seniors.

Any student desiring to major in a certain field should confer with the head of the department in which most of the work is given. This conference should be held in the sophomore year, or earlier, so that a decision may be made in respect to the subjects that should be taken in that and other departments, and their proper sequence. These will vary with the objective of the student which may be general culture, or preparation for teaching, research, or some other profession.

In connection with some of the groups listed below are brief statements giving the order in which the earlier courses in a field should be taken. Department heads should be consulted for additional advice.

1. English Language

Students majoring in English should elect courses 113 and 116, and twelve to twenty additional hours of English language and literature, under the guidance of the head of the department. Twelve hours of a modern foreign language is strongly recommended.

FIRST SEMESTER

Advanced Composition I, Engl. 113..2(2-0)
Com'l Correspondence, Engl. 122....3(3-0)
Oral English, Engl. 128.....3(3-0)
The Short Story I, Engl. 251.....3(3-0)
The Light Essay, Engl. 225.....2(2-0)
Engineering English, Engl. 110.....2(2-0)
Agricultural English, Engl. 137.....3(3-0)

SECOND SEMESTER

Advanced Composition II, Engl. 116..2(2-0)
Writ. & Oral Salesmanship, Engl. 123..3(3-0)
Methods of Teaching Engl., Engl. 134, 3(3-0)
The Short Story II, Engl. 252.....3(3-0)
Critical Writing, Engl. 202.....3(3-0)
Technical Writing, Engl. 207.....2(2-0)
Adv. Problems in Commercial Correspondence, Engl. 223.....3(3-0)

2. English Literature

FIRST SEMESTER

Chaucer, Engl. 260.....3(3-0)
The English Bible, Engl. 271.....3(3-0)
Shakespearean Drama I, Engl. 273...3(3-0)
The English Romantic Revival, Engl. 2783(3-0)
World Classics I, Engl. 280.....3(3-0)
Contemporary Fiction, Engl. 283....3(3-0)
The Novel I, Engl. 286.....3(3-0)
English Survey I, Engl. 288.....2(2-0)
American Literature, Engl. 175.....3(3-0)
Kansas Literature, Engl. 267.....2(2-0)

SECOND SEMESTER

Milton and the Puritan Revolt, Engl. 2623(3-0)
American Survey, Engl. 265.....2(2-0)
Shakespearean Drama II, Engl. 274..3(3-0)
English Essayists of the Eighteenth and Nineteenth Cent., Engl. 276...3(3-0)
World Classics II, Engl. 281.....3(3-0)
Contemporary Drama, Engl. 284....3(3-0)
The Novel II, Engl. 287.....3(3-0)
English Survey II, Engl. 290.....2(2-0)
Browning and Tennyson, Engl. 293..3(3-0)
Contemporary Poetry, Engl. 297.....3(3-0)

3. German.

FIRST SEMESTER

German I, Mod. Lang. 101.....3(3-0)
German Readings, Mod. Lang. 111...3(3-0)
Scientific German, Mod. Lang. 237...4(4-0)
German Classics, Mod. Lang. 226....3(3-0)
German Prose, Mod. Lang. 231.....3(3-0)

SECOND SEMESTER

German II, Mod. Lang. 102.....3(3-0)
Ger. Short Stories, Mod. Lang. 201..3(3-0)
German Comedies, Mod. Lang. 206..3(3-0)

4. French and Spanish

Students who wish to major in Romance languages should take such of the following courses as they have not already pursued: In French, courses 151, 152, 161, 251, 256, 261, and, if they expect to teach French, course 270; in Spanish, courses 176, 177, 180, 195A, 272, 275, and 280. In each group the courses should be taken approximately in the order here shown and always in conformity with requirements as to prerequisites.

FIRST SEMESTER

French I, Mod. Lang. 151.....3(3-0)
French Readings, Mod. Lang. 161....3(3-0)

Spanish I, Mod. Lang. 176.....3(3-0)
Spanish Readings, Mod. Lang. 180....3(3-0)
The Spanish Novel, Mod. Lang. 275..3(3-0)
Spanish Conv., Mod. Lang. 195A....3(3-0)

SECOND SEMESTER

French II, Mod. Lang. 152.....3(3-0)
French Sh. Stories, Mod. Lang. 251..3(3-0)
French Drama, Mod. Lang. 256.....3(3-0)
Fr. Comp. & Conv., Mod. Lang. 261, 3(3-0)
Spanish II, Mod. Lang. 177.....3(3-0)
Span. Sh. Stories, Mod. Lang. 272...3(3-0)
Spanish Drama, Mod. Lang. 280....3(3-0)

5. Mathematics

Students continuing work in mathematics beyond trigonometry are advised to take courses in the following order: Math. 110, 205, 206, 122, 201, 210, 213, and 216, and in any event strictly in accordance with the stated prerequisites.

FIRST SEMESTER

Plane Anal. Geom., Math. 110.....4(4-0)
Calculus II, Math. 206.....3(3-0)

Differential Equations, Math. 201....3(3-0)
Advanced Calculus II, Math. 213....3(3-0)

SECOND SEMESTER

Calculus I, Math. 205.....5(5-0)
Special Methods in the Teaching of
Mathematics, Math. 122.....3(3-0)
Advanced Calculus I, Math. 210....3(3-0)
Theory of Equations, Math. 216....3(3-0)

6. Inorganic and Physical Chemistry

Students desiring extensive training in Chemistry are advised to take the curriculum in industrial chemistry supplementing the required work by electives chosen with the advice of the head of the department. Those who wish to prepare for teaching chemistry in high schools, in addition to courses 101 and 102, should elect courses 121 or 218 and 219, and courses 207, 241 and 206. Math. 110, 205 and 206 are very desirable and Physics 135 and 140, or 145 and 150 are essential.

FIRST SEMESTER

Adv. Inorg. Chem., Chem. 207.....3(3-0)
Industrial Chemistry I, Chem. 203...5(3-6)
Physical Chemistry I, Chem. 206.....5(3-6)
Surface Tension and Related
Phenomena, Chem. 2092(2-0)

SECOND SEMESTER

Ind. Electrochem., Chem. 205.....2(2-0)
Industrial Chemistry II, Chem. 204...5(3-6)
Physical Chemistry II, Chem. 272....3(3-0)
Chemical Statics and Dynamics,
Chem. 2102(2-0)
Colloidal Chemistry, Chem. 213....2(2-0)
Chemical Thermodyn., Chem. 215....3(3-0)
Theoretical Electrochem., Chem 216..3(3-0)
Electrochemistry lab., Chem. 217....2(0-6)
Selected Topics in Inorganic Chem-
istry, Chem. 2712(2-0)

7. Organic and Physiological Chemistry

Preparation for work in biological chemistry or nutrition should include courses Chem. 101, 102, 121 or 118 and 119, 241, 206, 231, 237 and 239; Physics 135 and 140; Zoöl. 105 and 235, and Bact. 101, 106 or 121.

FIRST SEMESTER

Organic Chemistry I, Chem. 218....4(2-6)
Organic Chemistry HE, Chem. 121...5(3-6)
Organic Preparations, Chem. 223....5(0-15)
Physiological Chemistry, Chem. 231..5(3-6)
Physiological Chem. I, Chem. 232....5(3-6)
Pathological Chem., Chem. 235.....2(2-0)
Biochemistry Analysis, Chem. 237....2(0-6)

SECOND SEMESTER

Organic Chemistry II, Chem. 219....4(2-6)
Stereoisomeric and Tautomeric Com-
pounds, Chem. 2252(2-0)
Carbocyclic and Heterocyclic Com-
pounds, Chem. 2262(2-0)
Qual. Org. Anal., Chem. 224.....2(0-6)
Physiological Chem. II, Chem. 233..5(3-6)
Laboratory Technique and Animal
Nutrition, Chem. 2392(0-6)

8. Analytical Chemistry

After completing Chem. 241 or 250 and 251, the student may take one or more courses in several different fields of analysis, such as soils, fertilizers, gases, feeds, foods, dairy products, etc.

FIRST SEMESTER

Adv. Qual. Anal., Chem. 240.....3(1-6)
Quan. Analysis A, Chem. 250.....3(1-6)

SECOND SEMESTER

Quan. Analysis, Chem. 241.....5(1-12)
Quan. Analysis B, Chem. 251.....3(1-6)

9. Physics

Students who expect to teach physics in high schools should complete a course in college physics and at least ten hours additional as advised by the head of the department, followed by course 224. Students who wish to major in physics may, with the advice of the major instructor, choose from courses 250, 220, 230, 233, 252, 254, 256, 258 and 260, preferably in the order given. Math. 110, 205 and 206 are desirable or necessary for the more advanced courses. Physics 120, 133 and 155 are available for commerce and journalism students.

FIRST SEMESTER

Household Physics, Phys. 101.....4(3-3)
Photography, Phys. 120.....2(1-3)

Modern Physics, Phys. 250.....3(2-3)
Molecular Phys. & Heat, Phys. 220.....3(2-3)
Wireless Telephony; Phys. 130.....2(1-3)
Spectroscopy, Phys. 230.....3(1-6)
Radio Measurements, Phys. 245.....2(1-3)

Advanced Electrical Laboratory,
Phys. 2561(0-3) or 2(0-6)
Advanced Mechanics Laboratory,
Phys. 2521(0-3) or 2(0-6)
Experimental Problems in Physics,
Phys. 2601(0-3) or 2(0-6)

SECOND SEMESTER

Harmonics, Phys. 222.....2(2-0)
Special Methods in the Teaching of
Physics, Phys. 224.....3(2-3)

Meteorology, Phys. 134.....3(3-0)
Descriptive Astronomy, Phys. 155.....3(3-0)
Storage Batteries, Phys. 235.....2(1-3)
Radioactivity and Electron Theory,
Phys. 2333(3-0)
Advanced Light Laboratory,
Phys. 2581(0-3) or 2(0-6)
Advanced Heat Laboratory, Phys.
2541(0-3) or 2(0-6)
Biophysics, Phys. 264.....3(2-3)

10. Microbiology

Courses 101, 106 or 121A may be followed in order by 202, 204, 211 and 206.

FIRST SEMESTER

General Microbiology, Bact. 101....3(1-6)
Agricultural Microbiology, Bact. 106...3(1-6)
Hygienic Bacteriology, Bact. 206....4(2-6)
Pathogenic Bacteriology II, Bact. 116..4(2-6)

SECOND SEMESTER

Household Microbiology, Bact. 121A..3(1-6)
Soil Microbiology, Bact. 202.....3(3-0)
Soil Microbiology Lab., Bact. 204....2(0-6)
Pathogenic Bacteriology I, Bact. 111..4(2-6)
Dairy Bacteriology, Bact. 211.....3(1-6)
Poultry Bacteriology, Bact. 216.....3(1-6)

11. Botany

Courses 101 and 105 are prerequisites to all other courses, following which students specializing in plant diseases should take, in order, courses 205, 202, 240 and 232; those in plant physiology, courses 208, 209 and 232; those in taxonomy and ecology, courses 225, 228 or 234 and 232. For general training, all are available if the prerequisites have been taken.

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. 2253(1-4, 2)

SECOND SEMESTER

General Botany II, Bot. 105.....3(1-4, 2)
Plant Histology, Bot. 215.....2(0-6)
Phytogeography, Bot. 234.....2(2-0)
Plant Physiology II, Bot. 209.....2(0-4, 2)
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

A student who wishes to major in zoölogy should in connection with the required work in this field or after completing it elect from the courses listed below subjects varying with his special interest, such as parasitology, embryology, genetics, etc. Consult the head of the department.

FIRST SEMESTER

Adv. Human Physiology, Zoöl. 235...4(3-3)
Cytology, Zoöl. 214.....4(2-6)
Parasitology, Zoöl. 208.....3(2-3)
Comp. & Human Neur., Zoöl. 250....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)
Zoöl. Problems, Zoöl. 203.....1 or 2(-)
Genetics Seminar, Zoöl. 227.....1(1-0)
Research in Zoöl., Zoöl. 301.....1 to 5 cr.

SECOND SEMESTER

Comp. Anat. of Vertebrates, Zoöl. 245, 3(1-6)
Evol. & Heredity, Zoöl. 217..2(2-3) or 4(2-6)
Animal Ecology, Zoöl. 211..2(2-0) or 3(2-3)
Ornithology, Zoöl. 230A.....3(2-3)
Embryology B, Zoöl. 219A.....4(3-3)
Adv. Embryology, Zoöl. 220.....4(2-6)
Human Parasitology, Zoöl. 218.....3(3-0)
Zoöl. Technic, Zoöl. 206.....1 or 2(-)
Zoöl. and Ent. Seminar, Zoöl. 225...1(1-0)
Research in Zoöl., Zoöl. 301.....1 to 5 cr.

13. Geology

Comprehensive study of geology involves a knowledge of astronomy, chemistry, physics, botany and zoölogy, but some phases of the field may be studied with profit without acquaintance with all of these sciences.

FIRST SEMESTER

Engineering Geology, Geol. 102.....4(3-3)
Economic Geology, Geol. 207.....4(3-3)
Crystallography and Mineralogy,
Geol. 2094(2-6)

SECOND SEMESTER

General Geology, Geol. 103.....3(3-0)
Historical Geology, Geol. 203.....4(3-3)

14. Entomology

Students majoring in entomology, with due regard for prerequisites, should take courses: Ent. 203, 211, 212, 231, 216, 217, 218, 226, 206, 221 and 238, and preferably in this order.

FIRST SEMESTER

General Entomology, Ent. 203.....3(2-3)
Insect Morphology I, Ent. 211.....3(1-6)
Insect Morphology II, Ent. 212.....3(0-9)
Ent. & Zoöl. literature, Ent. 226.....3(2-3)
Medical Entomology, Ent. 226.....3(2-3)
Advanced Apiculture B, Ent. 228....3(2-3)

SECOND SEMESTER

Principles of Taxonomy, Ent. 216....1(1-0)
Taxonomy of Insects I, Ent. 217....2(0-6)
Taxonomy of Insects II, Ent. 218....3(0-9)
Adv. Gen. Entomology, Ent. 221....3(3-0)
Gen. Eco. Entomology, Ent. 206....3(2-3)
Entomological Prob., Ent. 238....2 to 4 cr.
Apiculture, Ent. 1113(2-3)
Insect Physiology, Ent. 234.....2(2-0)

15. History and Government

To prepare for teaching history in high school the student should have at least ten semester hours of college history following two years of history in high school, or its equivalent in college. History 232, Problems in History Instruction, may then be pursued in summer school. The advice of the head of the department should be followed in each case.

FIRST SEMESTER

Medieval Europe, Hist. 102.....3(3-0)
English History, Hist. 121.....3(3-0)
American History I, Hist. 201.....3(3-0)
American History II, Hist. 202.....3(3-0)
American Agr'l History, Hist. 204....3(3-0)
Modern Europe I, Hist. 115.....3(3-0)
History of the Far East, Hist. 229...2(2-0)
Hist. of Com. & Ind., Hist. 110.....3(3-0)
Am. Political History, Hist. 206....2(2-0)
Immigration & Inter'l Rel., Hist. 228..2(2-0)
American Government, Hist. 151.....3(3-0)
Am. Nat'l Government, Hist. 152....3(3-0)
Comparative Government, Hist. 252..2(2-0)

SECOND SEMESTER

Ancient Civilizations, Hist. 101.....3(3-0)
Current History, Hist. 126.....1(1-0)
Am. Indust. History, Hist. 105.....3(3-0)
American History III, Hist. 203....3(3-0)
Latin America, Hist. 207.....2(2-0)
Modern Europe II, Hist. 223.....3(3-0)
20th Century Europe, Hist. 224....2(2-0)
The British Empire, Hist. 226.....2(2-0)
History of the Home, Hist. 225....3(3-0)
International Law, Hist. 256.....2(2-0)
Gov't Regulations of Bus., Hist. 260..2(2-0)
Am. State Gov't, Hist. 153.....3(3-0)
History of Religions, Hist. 231.....2(2-0)

16. Law

FIRST SEMESTER

Farm Law, Hist. 175.....2(2-0)
Business Law I, Hist. 163.....3(3-0)
Land Law, Hist. 276.....2(2-0)

SECOND SEMESTER

Commercial Law, Hist. 160.....1(1-0)
Business Law II, Hist. 164.....3(3-0)
International Law, Hist. 256.....2(2-0)

17. Economics, Sociology and Accounting

Some of the subjects in this list are required in the several curricula of the institution, and the others are available as electives if any prerequisites have been satisfied. Additional work is offered in the department of agricultural economics.

FIRST SEMESTER

Economics, Econ. 101.....3(3-0)
Public Finance, Econ. 213.....2(2-0)
Labor Problems, Econ. 233.....2(2-0)
Marketing Econ. 245.....2(2-0)
Economic Geography, Econ. 122....2(2-0)
Adv. Prin. of Economics, Econ. 251..3(3-0)
Sociology, Econ. 1513(3-0)
Rural Sociology, Econ. 156.....3(3-0)
Social Problems, Econ. 257.....2(2-0)
Econ. & Social Survey, Econ. 275....(-)
Accounting I, Econ. 133.....3(2-3)
Cost Accounting, Econ. 131.....2(2-0)
Adv. Accounting I, Econ. 280.....3(3-0)
Income Tax Accounting, Econ. 282...2(2-0)
Auditing, Econ. 284.....3(2-3)

SECOND SEMESTER

Money and Banking, Econ. 116.....3(3-0)
Business Finance, Econ. 217.....3(3-0)
Transportation Problems, Econ. 229..2(2-0)
Business Management, Econ. 126....2(2-0)
Economic Problems, Econ. 248.....(-)
Community Organization, Econ. 267..3(3-0)
Advanced Sociology, Econ. 273.....3(-)
Adv. Rural Sociology, Econ. 270....3(-)
Property Insurance, Econ. 242.....2(2-0)
Life Insurance, Econ. 244.....2(2-0)
Accounting II, Econ. 134.....3(2-3)
Investments, Econ. 221.....2(2-0)
Adv. Accounting II, Econ. 281.....3(3-0)
Accounting Systems, Econ. 283.....3(3-0)
Institutional Accounting, Econ. 132...3(3-0)

18. Education and Psychology

Students desiring to qualify for the state teacher's certificate based on sixty hours of college work should take course 101 or 102 in psychology, and course 107 and 111 in education. Those qualifying for the certificate based on graduation from a four-year curriculum should, in addition to 101 or 102, take 109, and 105 or 106. If without teaching experience course 112 is recommended for this group also. Advice should be obtained from the head of the Department of Education in respect to additional courses necessary or advisable. See, also, "Education" in this catalogue for information concerning special certificates.

FIRST SEMESTER

Psychol. A, B or C, Educ. 101-103...3(3-0)
 School Management, Educ. 107.....3(3-0)
 Educational Administration A or B,
 Educ. 105 or 106.....3(3-0)
 Hist. of Education, Educ. 113.....3(3-0)
 Applied Psychology, Educ. 170.....3(3-0)
 Mental Measurements, Educ. 211....3(3-0)
 Educl. Measurements, Educ. 212....3(3-0)
 Technic of Mental Testing, Educ. 235, 3(1-6)
 Hist. of Philosophy, Educ. 150.....3(3-0)
 Statistical Methods Applied to Edu-
 cation, Educ. 2233(3-0)
 Vocational Education A, Educ. 125...3(3-0)
 Agric. Educ. B, Educ. 330.....3(3-0)
 Supervised Observation and Teaching in
 Science, Educ. 163.....3(3-0)
 Special Methods in the Teaching of Home
 Economics, Educ. 1323(3-0)
 Supervised Observation and Teaching
 in Agriculture, Educ. 161.....3(3-0)

SECOND SEMESTER

Methods of Teaching A, Educ. 111...3(3-0)
 Educl. Psychology, Educ. 109.....3(3-0)
 Methods of Teaching B, Educ. 112...3(3-0)
 Educl. Sociology, Educ. 118.....3(3-0)
 Psychology of Childhood and Ado-
 lescence, Educ. 2083(3-0)
 Abnormal Psychology, Educ. 213....3(3-0)
 Advanced Psychology, Educ. 216....3(3-0)
 Philosophy of Education, Educ. 206...3(3-0)
 Rural Life and Educ., Educ. 201....3(3-0)
 Rural Secondary Educ., Educ. 204....3(3-0)
 Vocational Education B, Educ. 226...3(3-0)
 Special Methods in Teaching of In-
 dustrial Arts, Educ. 140.....3(3-0)
 Supervised Teaching in Home Eco-
 nomics, Educ. 1603(3-0)
 Special Methods in the Teaching of
 Agriculture, Educ. 136.....3(3-0)

20. Industrial Journalism

While those who wish to give much attention to journalism will choose the curriculum in industrial journalism, many in other curricula desire some training in this field. Selection from the following list may be made in so far as the prerequisites permit.

FIRST SEMESTER

El. Journalism, Ind. Jour. 151.....2(2-0)
 Jour. Practice I, Ind. Jour. 154.....2(0-6)
 Industrial Feature Writing I, Ind.
 Jour. 1672(2-0)
 Jour. Practice III, Ind. Jour. 158....2(0-6)
 Materials of Jour., Ind. Jour. 265....2(2-0)
 History of Jour., Ind. Jour. 274....2(2-0)

SECOND SEMESTER

Industrial Writing, Ind. Jour. 161....2(2-0)
 Jour. Practice II, Ind. Jour. 155....2(0-6)
 Industrial Feature Writing II, Ind.
 Jour. 1712(2-0)
 Jour. Practice IV, Ind. Jour. 159....2(0-6)
 Magazine Features, Ind. Jour. 270....2(2-0)
 Jour. Surveys, Ind. Jour. 278.....2(0-6)

23. Music

Students in the various curricula are permitted to study theoretical or applied music, but, the acceptability for elective credit of work in voice or instrumental music is contingent upon the attainment of an effective degree of proficiency. Certification to this is made by the head of the department of music.

Voice B (Music 164A to 164H)

Two private lessons a week. Two credits per semester.

Violin A (Music 166A to 166H)

Two private lessons a week. Two credits per semester.

Piano B (Music 173A to 173H)

Two private lessons a week. Two credits per semester.

Violoncello A (Music 178A to 178H)

Two private lessons a week. Two credits per semester.

Double-bass (Music 179A to 179H)

Two private lessons a week. Two credits per semester.

Wind Instruments (182A to 182H)

Two private lessons a week. Two credits per semester.

FIRST SEMESTER

Harmony I, Music 101.....2(2-0)
 Harmony III, Music 103.....2(2-0)
 Counterpoint, Music 108A.....2(2-0)
 Hist. & Apprec. of Mus. I, Mus. 112...3(3-0)
 Public-school Music I, Music 120....2(2-0)
 Public-school Music III, Music 122...2(2-0)
 Choral Ensemble, Mus. 192A to 192H, 1(0-3)
 Orchestra, Music 193A to 193H.....1(0-3)
 Band, Music 196A to 196H.....1(0-3)

SECOND SEMESTER

Harmony II, Music 102.....2(2-0)
 Harmony IV, Music 104.....2(2-0)
 Musical Form and Anal., Mus. 109...2(2-0)
 Hist. & Apprec. of Mus. II, Mus. 113...3(3-0)
 Public-school Music II, Music 121...2(2-0)
 Public-school Music IV, Music 123...2(2-0)
 Choral Ensemble, Mus. 192A to 192 H, 1(0-3)
 Orchestra, Music 193A to 193H.....1(0-3)
 Band, Music 196A to 196H.....1(0-3)

25. Military Science and Tactics

Men who have completed the basic course in infantry may elect the advanced course if approved by the president, the dean and the head of the department of military science and tactics.

FIRST SEMESTER

Infantry V, Mil. Tr. 109.....3(2-3)
Infantry VII, Mil. Tr. 111.....3(2-3)

SECOND SEMESTER

Infantry VI, Mil. Tr. 110.....3(2-3)
Infantry VIII, Mil. Tr. 112.....3(2-3)

26. Physical Education and Athletics

In connection with the required work or after its completion, students may elect courses in physical education. For a special state certificate at least twenty-eight hours are required. The courses listed below, and others on the advice of the head of the department, are available.

FOR MEN

FIRST SEMESTER

Gymnastics I, Phys. Ed. 115A.....2(1-3)
Football I, Phys. Ed. 126A.....2(1-3)
Football II, Phys. Ed. 127.....2(1-3)
Basket Ball, Phys. Ed. 130A.....2(1-3)
Swimming M-I, Phys. Ed. 121.....1(0-3)
Boxing, Phys. Ed. 132.....1(0-3)
School Hygiene, Phys. Ed. 196.....3(3-0)
Apparatus, Phys. Ed. 109.....1(0-3)
First Aid and Mas. Phys. Ed. 113A..3(3-0)

SECOND SEMESTER

Gymnastics II, Phys. Ed. 117A.....2(0-6)
Track & Field Spts., Phys. Ed. 140A..2(1-3)
Baseball, Phys. Ed. 135A.....2(1-3)
Wrestling, Phys. Ed. 128.....1(0-3)
Swimming, M-II, Phys. Ed. 122.....1(0-3)
Playground Management and Games
M, Phys. Ed. 145A...:.....2(2-0)
Personal Hygiene, Phys. Ed. 119.....2(2-0)

FOR WOMEN

The following courses are available after completing the two years of required work:

FIRST SEMESTER

Folk Dancing I, Phys. Ed. 160.....1(0-3)
Playground Management & Games W,
Phys. Ed. 182A.....2(1-3)
General Technic III, Phys. Ed.1(0-3)
General Technic V, Phys. Ed.....1(0-3)

SECOND SEMESTER

Folk Dancing II, Phys. Ed. 161.....1(0-3)
First Aid, Phys. Ed. 153.....1(1-0)
General Technic IV, Phys. Ed.....1(0-3)
General Technic VI, Phys. Ed.....1(0-3)

27. Public Speaking

Courses covering various aspects of public speech are open for election after completing any prerequisites. The head of the department should be consulted for advice as to the individual needs.

FIRST SEMESTER

Extempore Speech I, Pub. Spk. 106..2(2-0)
Oral Interpretation, Pub. Spk. 101...2(2-0)
Parliamentary Proced., Pub. Spk. 126, 1(1-0)
Dramatic Produc. I, Pub. Spk. 130...2(2-0)
Argumentation and Debate I,
Pub. Spk. 1212(2-0)
Pageantry, Pub. Spk. 251.....3(3-0)

SECOND SEMESTER

Extempore Speech II, Pub. Spk. 108..2(2-0)
Dramatic Reading, Pub. Spk. 102....2(2-0)
Lecture Recital, Pub. Spk. 115.....2(2-0)
Dramatic Produc. II, Pub. Spk. 135...2(2-0)
Argumentation and Debate II,
Pub. Spk. 122.....2(2-0)
Pageantry, Pub. Spk. 251.....3(3-0)

30. Social Science

(Political and Social History, Government, Economics, and Sociology.)

In the curriculum in industrial journalism students are required to elect fifteen hours in a social science option. The following list includes some subjects, and many more are offered by the several departments. See, also, groups 15, 16 and 17.

FIRST SEMESTER

American History I, Hist. 201.....3(3-0)
American Government, Hist. 151...3(3-0)
Amer. Nat'l Government, Hist. 152...3(3-0)
Latin America, Hist. 207.....2(2-0)
Agric. Economics, Ag. Ec. 101.....3(3-0)
Money and Banking, Econ. 116.....3(3-0)
Business Finance, Econ. 217.....3(3-0)
Market. of Farm Prod., Ag. Ec. 202..3(3-0)
Agric. Land Prob., Ag. Ec. 218.....3(3-0)

SECOND SEMESTER

American History II or III, Hist.
202 or 203.....3(3-0)
Amer. State Govt., Hist. 153.....3(3-0)
Modern Europe I, Hist. 115.....3(3-0)
Modern Europe II, Hist. 223.....3(3-0)
English History, Hist. 121.....3(3-0)
Economics, Econ. 101.....3(3-0)
Public Finance, Econ. 213.....2(2-0)
Labor Problems, Econ. 233.....2(2-0)
Sociology, Econ. 1513(3-0)

31. Applied Science

Students in the curriculum in industrial journalism who do not wish to elect subjects directly related to a single industry are permitted to elect sciences that support industries, and subjects that involve applications of the sciences, in so far as they have satisfied requirements as to prerequisites.

FIRST SEMESTER

General Botany I, Bot. 101.....3(1-4, 2)
 Plant Pathology I, Bot. 205.....3(1-4, 2)
 Fruit Crop Diseases, Bot. 202.....2(1-2, 1)
 Farm Forestry, Hort. 114.....3(2-3)
 Seed Identification and Weed Control,
 Agron. 1052(1-3)
 General Zoölogy, Zoöl. 105.....5(3-6)
 Parasitology, Zoöl. 2083(2-3)
 Zoöl. and Embryol. (Vet.), Zoöl. 109. 5(3-6)
 Landscape Gardening I, Hort. 125....3(3-0)
 Hygienic Bacteriology, Bact. 206.....4(2-6)
 General Entomology, Ent. 203.....3(2-3)
 Hort. Entomology, Ent. 201.....2(2-0)
 El. Org. Chemistry, Chem. 123.....3(2-3)
 Dairy Chemistry, Chem. 254.....3(1-6)
 Economic Geology, Geol. 207.....4(3-3)
 Human Nutrition, Food & Nut. 112..3(3-0)

SECOND SEMESTER

General Botany II, Bot. 105.....3(1-4, 2)
 Field Crop Diseases, Bot. 240.....2(1-2, 1)
 Vegetable Diseases, Bot. 245.....2(1-2, 1)
 Plant Ecology, Bot. 228.....2(2-0)
 El. of Horticulture, Hort. 107.....3(2-3)
 Small Fruits, Hort. 110.....2(2-0)
 General Microbiology, Bact. 101....3(1-6)
 Gen. Ec. Entomology, Ent. 206.....3(2-3)
 Apiculture, Ent. 111.....3(2-3)
 Applied Nut., Food & Nut. 121.....2(2-0)
 General Geology, Geol. 103.....3(3-0)
 Historical Geology, Geol. 203.....4(3-3)
 Meteorology, Physics 133A.....3(3-0)
 Household Physics, Physics 101.....4(3-3)
 Photography, Physics 120.....2(1-3)

32. Home Economics

This group is suggestive to young women in the curriculum in industrial journalism. It states the fundamental subjects in the three lines, food, clothing and applied art. The required option related to an industry may be satisfied by eighteen hours in one or more of these lines. Additional subjects in each line are described in the department sections of the catalogue. Prerequisites count on the group requirement.

FIRST SEMESTER

Household Physics, Physics 101.....4(3-3)
 Organic Chemistry (HE), Chem. 121..5(3-6)
 Foods I, Food and Nut. 101.....3(1-6)
 Foods II, Food and Nut. 106.....5(3-6)
 Human Nut., Food and Nut. 112.....3(3-0)
 Dietetics, Food and Nut. 201.....5(3-6)
 Clothing II, Clo. and Text. 111.....3(1-6)
 Applied Design I, Ap. Art 101.....3(1-6)
 Applied Design II, Ap. Art 102.....3(1-6)

SECOND SEMESTER

Household Microbiology, Bact. 121A..3(1-6)
 Clothing I, Clo. and Text. 101.....2(1-3)
 Costume Design I, Ap. Art 130.....2(0-6)
 Textiles, Clo. and Text. 116.....3(2-3)
 House Furnishings, Ap. Art. 108....2(1-3)
 Interior Decoration and Furnishing,
 Ap. Art 114.....3(1-6)
 Principles of Art and Their Appre-
 ciation I, Ap. Art 124.....3(3-0)
 Applied Design III, Ap. Art 105....2(0-6)

35. Agriculture

This group, compiled for the use of young men who elect the agriculture option in connection with their work in industrial journalism, gives the basic subjects in some agricultural lines. Subjects for which these are prerequisite are acceptable. See the expositions of the work of the several departments in the division of agriculture.

FIRST SEMESTER

General Botany I, Bot. 101.....3(1-4, 2)
 Live-stock Judging, An. Husb. 120...3(2-4)
 El. of Dairying, Dairy Husb. 101...3(2-3)
 El. Org. Chemistry, Chem. 123.....3(2-3)
 Plant Pathology I, Bot. 205.....3(1-4, 2)
 Soils, Agron. 1304(3-3)
 Farm Poultry Production, Poultry
 Husb. 1012(1-2, 1)

SECOND SEMESTER

General Botany II, Bot. 105.....3(1-4, 2)
 El. of Horticulture, Hort. 107.....3(2-3)
 Dairy Judging, Dairy Husb. 104....1(0-3)
 Prin. of Feeding, An. Husb. 152....3(3-0)
 Field Crop Diseases, Bot. 240.....2(1-2, 1)
 Farm Crops, Agron. 1014(2-6)
 Genetics, An. Husb. 221.....3(3-0)

36. Architecture

Students in industrial journalism, with due regard for prerequisites, may elect eighteen hours from this group in order to fulfill the requirement in respect to subjects related to an industry.

FIRST SEMESTER

Engr. Drawing, Mach. Des. 101.....2(0-6)
 El. of Arch. I, Arch. 106A.....3(0-9)
 Object Drawing I, Arch 111.....2(0-6)
 Design I, Arch. 142.....3(0-9)
 Coml. Illustration I, Arch. 165.....2(0-6)
 General Hist. of Arch., Arch. 244....3(3-0)
 Pencil Rend. & Sketch, Arch. 116....2(0-6)
 Water Color II, Arch. 119.....2(0-6)

SECOND SEMESTER

Descr. Geom., Mach. Des. 106.....2(0-6)
 El. of Arch. II, Arch. 107A.....3(0-9)
 Object Drawing II, Arch. 114.....2(0-6)
 Design II, Arch. 144.....3(0-9)
 Coml. Illustration II, Arch. 170....2(0-6)
 Domestic Arch., Arch 124.....2(2-0)
 Pen and Ink Drawing, Arch. 134....2(0-6)
 Water Color I, Arch. 118.....2(0-6)

37. Manual Training

Eighteen hours may be chosen from this group by students in industrial journalism in satisfaction of the option related to an industry. Students preparing to teach manual training will require credits in at least twenty-eight semester hours in that line. Prerequisites must be observed.

FIRST SEMESTER

Engr. Drawing, Mach. Des. 101.....	2(0-6)
Descr. Geom., Mach. Des. 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)
Machine Tool Work I, Shop 170.....	2(0-6)
Machine Tool Work III, Shop 193...	1(0-3)
Gas Engine and Tractors, Ag. Engr. 130	3(2-3)
Machine Drawing I, Mach. Des. 111..	2(0-6)
Reed Furn. Constr., Shop 109.....	2(0-6)
Foundry Production, Shop 161.....	1(0-3)
Shop Practice Tchg. I, Shop. 184....	3(2-3)
Adv. Shop Practice, Shop 260.....	1 to 5 cr.

SECOND SEMESTER

Engr. Woodwork I, Shop 101.....	1(0-3)
Manual Training for Primary Grades, Shop 117	2(0-6)
Woodworking I for High Schools, Shop 125	2(0-6)
Wood Turning, Shop 135.....	2(0-6)
Farm Carpentry I, Shop 147.....	3(1-6)
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)
Farm Shop Methods, Shop 175.....	3(1-6)
Metallography, Shop 167.....	1(0-3)
Shop Practice Tchg. II, Shop 185....	2(2-6)

45. Milling Industry

Students in general science or industrial chemistry may elect work in milling industry for which they have taken the prerequisites.

FIRST SEMESTER

Milling Practice I, Mill. Ind. 109.....	3(1-6)
Wheat and Flour Testing, Mill. Ind. 205	3(0-9)
Advanced Wheat and Flour Testing, Mill. Ind. 210.....	1 to 5(-)
Farm Crops, Agron. 101.....	4(2-6)
Grain Marketing, Ag. Ec. 203.....	3(3-0)
Quantitative Analysis A, Chem. 250..	3(1-6)
El. Org. Chemistry, Chem. 123.....	3(2-3)
Milling Technology I, Mill. Ind. 201..	2(0-6)
Milling Problems, Mill. Ind. 214....	1 to 5(-)

SECOND SEMESTER

Prin. of Milling I, Mill. Ind. 104....	2(1-3)
Prin. of Milling II, Mill. Ind. 106....	1(0-3)
Milling Practice II, Mill. Ind. 111....	3(1-6)
Milling Qualities of Wheat, Mill. Ind. 212	3(3-0)
Exptl. Baking, Mill. Ind. 206.....	3(1-6)
Grain Grading and Judging, Agron. 108	2(0-6)
Quant. Analysis B, Chem. 251.....	3(1-6)
The Chemistry of Proteins, Chem. 236A	3(2-3)
Milling Technology II, Mill. Ind. 202..	2(0-6)
Colloidal Chemistry, Chem. 213.....	2(2-0)

Bacteriology

Professor BUSHNELL
Professor GAINES
Associate Professor FAY

Assistant Professor BRANDLY
Instructor SARLES
Graduate Assistant FOLTZ

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, two large general laboratories, 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 \$14,144.

COURSES IN BACTERIOLOGY

FOR UNDERGRADUATE CREDIT

101. GENERAL MICROBIOLOGY. 3(1-6); I and II.* Not open to students who have credit in Bact. 106 or 121. Prerequisite: Chemistry II. Dr. Gainey and Mr. Sarles.

Morphological and biological characters, 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. Deposit, \$10.

106. AGRICULTURAL MICROBIOLOGY. 3(1-6); I and II. Not open to students who have credit in Bact. 101 and 121. Prerequisite: Organic Chemistry (Chem. 120). Dr. Gainey and Mr. Fay.

A general course emphasizing particularly the relation of microorganisms to agriculture.

Laboratory.—Methods of cultivating and studying bacteria, yeasts, and molds; methods for quantitative and qualitative analysis of water, milk, etc.; methods of sterilization and use of germicidal agents. Deposit, \$10.

111, 116. PATHOGENIC BACTERIOLOGY I AND II. 4(2-6) each; II and I respectively. Prerequisite: Organic Chemistry (Vet.). Dr. Bushnell and Dr. Brandly.

I: Distribution and morphological and biochemical features of microorganisms; factors necessary for the development and cultivation of bacteria; fundamental principles of bacteriology as applied to veterinary medicine. II: Morphology, powers of resistance, pathogenesis, distribution, channels of infection, and means of dissemination of pathogenic bacteria; epizootic and epidemic diseases of unknown etiology; manufacture, standardization, preparation for the market and use of vaccines, antitoxins, and other biological products related to diagnosis, prevention, and treatment of specific infectious diseases; and various other topics.

Laboratory.—I: General laboratory technic; different pathogenic microorganisms studied morphologically, culturally, and biochemically; quantitative and qualitative examinations of milk, and of water. II: Microscopical and cultural characteristics of pathogenic microorganisms continued; laboratory animal inoculations, autopsy, and diagnosis; prevention and treatment of specific infectious diseases; experimental production of opsonins, antitoxins, agglutinins, precipitins, and cytolytins; etc. Deposit, \$10.

121A. HOUSEHOLD MICROBIOLOGY. 3(1-6); I and II. Not open to students who have credit in Bact. 101 or 106. Prerequisite: Organic Chemistry HE (Chem. 121). Mr. Fay and Mr. Sarles.

Classification, distribution, and relative importance of bacteria; morphological and biochemical characters of microorganisms; factors necessary for

* The number before the parenthesis indicates the number of semester hours of credit; the first number 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. I, II, and SS indicate that the course is given the first semester, second semester, and summer session respectively.

the proper development of bacteria; fundamental principles of the science as applied to household economics.

Laboratory.—Practical applications of theories discussed in the classroom, such as bacteriological study of water, milk, and foods; determination of the potability of water; microscopical study of yeasts and molds; methods of food preservation; the germicidal action of various disinfectants, etc. Deposit, \$10.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. SOIL MICROBIOLOGY. 3(3-0); II. Prerequisite: Course 101 or 106. Dr. Gainey.

The influences of depth and character of soil, temperature, moisture, chemical action, aëration, and other factors upon the activities of soil microorganisms; the influence of such phenomena as ammonification, nitrification, denitrification, symbiotic and nonsymbiotic nitrogen fixation upon crop production. Various texts recommended as reference books.

204. SOIL MICROBIOLOGY LABORATORY. 2(0-6); II. Prerequisite: Course 101 or 106. To accompany or follow course 202. Dr. Gainey.

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 nitrification, denitrification, and nitrogen fixation; plot experiments and field work illustrating the influence of various factors upon the bacterial flora and the inoculation of soil with nitrogen-fixing bacteria. Deposit, \$10.

206. HYGIENIC BACTERIOLOGY. 4(2-6); I. Prerequisite: Course 101, 106, or 121. Dr. Bushnell.

Pathogenic bacteria, especially those related to disease in man; channels of infection, and means of dissemination of pathogenic bacteria; epidemics, their cause and control; and other topics dealing with bacteria in connection with health. Various books recommended as textbooks.

Laboratory.—Microscopical and cultural study of pathogenic bacteria; technique involved in the diagnosis of *Bacterium tuberculosis* in sputum; culture of pathogenic anaërobic bacteria; the isolation and identification of pathogenic bacteria; and other practical studies of theories discussed in the classroom. Deposit, \$10.

211. DAIRY BACTERIOLOGY. 3(1-6); II. Prerequisite: Course 101, 106, or 121. Mr. Fay.

Bacterial flora of milk, butter and cheese; infectious diseases conveyed through dairy products; bacterial contaminations of milk by air, water, utensils, etc.; normal and abnormal fermentations in milk, their significance and control.

Laboratory.—Preparation of culture media necessary for dairy bacteriological work; bacteriological analysis of milk; microscopical and cultural characters of the types of microorganisms representing the flora of milk, butter, and cheese; and kindred practical bacteriological studies relating to dairy products. Deposit, \$10.

216. POULTRY BACTERIOLOGY. 3(1-6); II. Prerequisites: Course 101, course 106 or 111. Dr. Brandly.

Etiology, sources, and modes of infection of diseases of poultry; microbial content of freshly laid eggs, cold-storage eggs, and egg products; conditions tending toward increase or decrease of this microbial content.

Laboratory.—Study of microorganisms pathogenic for poultry; microbial content of eggs and egg preparations handled and produced under various conditions. Deposit, \$10.

217. POULTRY DISEASES. 2(2-0); II. Prerequisites: Courses 111 and 116, and Therapeutics (Surg. and Med. 162). Dr. Brandly.

Anatomy of the fowl; poultry sanitation and hygiene; a complete sys-

tematic study of the infectious diseases of all classes of domestic fowl; general diseases of a noninfectious nature; external and internal parasites of domestic fowl; minor surgical operations.

226. BACTERIOLOGICAL PROBLEMS. 1 to 4 credits; I, II and SS. Prerequisite: Course 101, 106, 111 or 121. Dr. Bushnell, Dr. Gainey, Mr. Fay, and Dr. Brandly.

Special problems assigned, credit depending upon amount and quality of work done. Deposit by arrangement with professor in charge.

230. BACTERIOLOGY SEMINAR. 1(1-0); I and II. For prerequisites, consult professor in charge. Dr. Bushnell.

Papers and discussion by members of the department and the more advanced students 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; others interested may visit the meetings at any time.

FOR GRADUATE CREDIT

301. RESEARCH IN BACTERIOLOGY. Credit to be arranged; I, II and SS. Prerequisites: At least two courses in this department. Dr. Bushnell, Dr. Gainey, Mr. Fay, and Dr. Brandly.

Properly qualified advanced students admitted to this course upon approval of the department head; supervision by a faculty member of the department, and subject for investigation chosen and outlined in consultation with him; opportunity to do experiment-station and advanced research work during vacation periods under faculty supervision; individual research problems for students working toward an advanced degree; upon completion, results presented in form of a thesis which, when accepted, fulfills part of the requirements for the master's degree. Amount of deposit to be arranged with the professor in charge.

Botany and Plant Pathology

Professor MELCHERS‡
Professor MILLER*
Professor HAYMAKER
Professor GATES
Associate Professor DALBEY
Assistant Professor ELMER
Instructor HORN

Instructor NEWCOMB
Assistant Pathologist FICKE
Senior Pathologist WEIMER†
Associate Pathologist FELLOWS†
Assistant Pathologist JOHNSTON†
Graduate Assistant BELSCAMPER
Graduate Assistant BARTEL

The instruction given in the Department of Botany and Plant Pathology has a threefold purpose: To give a training in botany for the general broadening of the student's knowledge; to give a training in the knowledge of plants that will serve as a foundation for the student's further college courses in agricultural subjects; and 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 \$43,771.

* Acting head of the department, 1927-'29.

† In coöperation with the United States Department of Agriculture.

‡ Absent on leave, year 1928-'29.

COURSES IN BOTANY

FOR UNDERGRADUATE CREDIT

101, 105. GENERAL BOTANY I AND II. 3(1-4, 2) each; I and SS, and II and SS., respectively. Mr. Melchers, Dr. Miller, Mr. Davis, Dr. Haymaker, Dr. Gates, Miss Dalbey, Dr. Elmer, Miss Horn, Miss Newcomb.

I: The principal life functions of plants; response of plants, such as photosynthesis, digestion, respiration, transpiration, and growth; the responses of plants to environmental conditions and physical stimuli; and the anatomy of the plant. Text: Holman and Robbins, *Textbook of General Botany*.

II: 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. Text: As above.

Laboratory.—I: A series of typical experiments followed out in the laboratory and in the greenhouse. Charge, \$3.50.

II: 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 use of an identification key. Charge, \$3.50.

126. MEDICAL BOTANY. 2(1-3); I. Prerequisite: High-school botany or its equivalent. Dr. Gates.

The principal stock-poisoning plants of the range; habitat, poisonous properties, and methods of control and elimination of native poisonous plants.

Laboratory.—A study of the native poisonous plants of the United States, but chiefly of the Western states. Charge, \$2.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. FRUIT CROP DISEASES. 2(1-2, 1); I. Prerequisite: Course 205. Offered in 1929-'30 and in alternate years thereafter. Dr. Haymaker.

Diseases affecting fruit crops of all kinds; methods and measures for controlling these diseases; preparation and practical application of standard sprays. Text: Hesler and Whetzel, *Manual of Fruit Diseases*.

Laboratory.—A detailed study of each disease affecting the major fruit crops; a detailed microscopic study of the organism causing the disease. Charge, \$2.

204. MYCOLOGY I. 4(2-4, 2); I. Prerequisite: Course 205. Offered in 1929-'30 and in alternate years thereafter. Dr. Elmer.

Classification of fungi; their relationship to one another, and their morphology; special emphasis on those fungi which cause plant disease; the physiology of fungi, infection, isolation, pure culture methods, etc.

Laboratory.—A detailed study of the genera of fungi. Charge, \$5.

205. PLANT PATHOLOGY I (or ECONOMIC PLANT DISEASES). 3(1-4, 2) or 3(2-3); I and SS. Prerequisites: Courses 101 and 105. Mr. Melchers, Dr. Haymaker and Dr. Elmer.

Causes and symptoms of plant diseases, infection phenomena, control of plant diseases, breeding for resistance, and plant quarantine.

Laboratory.—Work in the recognition of all the more common plant diseases of the farm, orchard, and garden; detailed microscopic studies of diseased tissues and identification of the fungous pathogenes which cause them. Charge, \$2.

208. PLANT PHYSIOLOGY I. 3(3-0); I. Prerequisites: Courses 101 and 105, and Chemistry I and II. Dr. Miller.

A detailed study of such subjects as the root systems of plants, absorption, wilting coefficient, resistance to drought, transpiration, water requirement, photosynthesis, respiration, digestion, and growth with special stress on the phases pertaining to agriculture.

209. PLANT PHYSIOLOGY II. 2(0-4,2); II. Prerequisite: Course 208. Offered in 1928-'29 and in alternate years thereafter. Dr. Miller.

Methods used in obtaining experimental data in regard to the more common functions of plants. Charge, \$5.

212. PROBLEMS IN BOTANICAL INSTRUCTION. 3(2-3); SS. Prerequisite: Ten credit hours in botany or in courses of botanical nature. Dr. Haymaker.

Advanced work in the morphology, anatomy, physiology, taxonomy, and diseases of plants; special methods of teaching technic in presenting botany to high-school and college students. This course may be used in fulfilling the educational requirements for the state teacher's certificate. Text: Holman and Robbins, *Textbook of General Botany*. Charge, \$2.

215. PLANT HISTOLOGY. 2(0-6); II. Prerequisite: Course 101 or 105. Offered in 1929-'30 and in alternate years thereafter. Miss Dalbey.

A thorough training in the principles and practice of microtechnical methods in botany, including the study of anatomy of the higher plants.

218. FIELD BOTANY. 3(1 $\frac{1}{4}$ -3 $\frac{3}{4}$); SS. Prerequisites: Courses 101 and 105. Dr. Haymaker.

Study and identification of the vegetation of nearby prairies, woodland, and swamps; morphological characteristics, distribution, habits of plants and their relation to different environmental conditions; poisonous or medicinal properties of native plants; and allied subjects. Text: Gray, *New Manual of Botany*. Charge, \$2.

220. BOTANICAL SEMINAR. 1(1-0); I and II. For prerequisites, consult professor in charge.

Presentation of investigational work in botany, including plant pathology, plant physiology, plant ecology, taxonomy, morphology, and genetics; fundamental papers along botanical lines reviewed and a digest presented. Graduate students taking major or minor work in the Department of Botany are expected to attend these sessions and take part in the programs.

225. TAXONOMIC BOTANY OF THE FLOWERING PLANTS. 3(1-4,2); I. Prerequisites: Courses 101 and 105. Dr. Gates.

Terms employed; development of the more important systems of classification; and consideration of families of plants.

Laboratory.—Study of selected flower types representing the principal orders and families of plants; identification of plants in field and in the laboratory. Charge, \$2.

228. PLANT ECOLOGY. 2(2-0); II. Prerequisites: Courses 101 and 105. Dr. Gates.

The structure and dynamics of vegetation.

Laboratory.—With the opening of vegetation in the spring, field trips are taken to selected places.

232. BOTANICAL PROBLEMS. 1 to 5 credits; I, II, and SS. Prerequisites: Courses 101 and 105, and approval by the head of the department. Mr. Melchers, Dr. Miller, Mr. Davis, Dr. Haymaker, Dr. Gates, Miss Dalbey, Dr. Elmer, and Miss Horn.

A student wishing to pursue a special field of work not definitely represented by one of the undergraduate elective courses may do so upon consultation with the instructor. Charge, \$2.

234. PHYTOGEOGRAPHY. 2(2-0); II. Prerequisites: Courses 101 and 105. Offered in 1929-'30 and in alternate years thereafter. Dr. Gates.

The distribution and characteristics of vegetation.

240. FIELD-CROP DISEASES. 2(1-2,1); II. Prerequisite: Course 205. Offered in 1928-'29 and in alternate years thereafter. Mr. Melchers.

The historical development of phytopathology; the various factors entering into the problem of disease resistance in plants; breeding for resistance; the most important literature on the subject.

Laboratory.—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. Charge, \$2.

245. VEGETABLE DISEASES. 2(1-2, 1); II. Prerequisite: Course 205. Offered in 1929-'30 and in alternate years thereafter. Mr. Melchers.

The problem of disease resistance in plants; breeding for disease resistance in vegetables.

Laboratory.—A detailed microscopic and symptom study of the fungous, bacterial, nonparasitic, and degenerative diseases attacking vegetables. Charge, \$2.

265. LITERATURE OF BOTANY. 1(1-0); I and II. Prerequisites: Courses 101, 105, and 205. Miss Horn.

Aims of the course: (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; (3) to learn to use the publications containing citations and abstracts of papers; and (4) to become acquainted with the work of modern botanists by reviewing the articles appearing in current periodicals, experiment station reports, etc. Graduate students majoring in botany are expected to take the course. The subject may be continued the second semester for credit.

FOR GRADUATE CREDIT

301A. PLANT PATHOLOGY III. 3(1-4, 2); I. Prerequisite: Course 205. Offered in 1928-'29 and in alternate years thereafter. Dr. Elmer.

A course in phytopathological technic; a close and extended study of the pathogenic organisms which cause plant disease; 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. Charge, \$5.

310. RESEARCH IN BOTANY. 1 to 12 credits; I, II, and SS.

Research in the various fields of botany may be outlined. A member of the department staff is chosen by the student as his major instructor in the line of work which he wishes to pursue. Upon the completion of the work it may be submitted in part or as a whole towards the master's thesis. Work is offered in the following lines:

Plant Pathology. Mr. Melchers, Dr. Haymaker, and Dr. Elmer.

Plant Physiology. Mr. Davis and Dr. Miller.

Taxonomy and Ecology. Dr. Gates and Miss Horn.

Histology, Morphology and Anatomy. Miss Dalbey.

Chemistry

Professor KING
Dean WILLARD
Professor HUGHES
Professor BRUBAKER
Professor COLVER
Associate Professor TAGUE
Associate Professor LATSHAW
Associate Professor KEITH
Associate Professor BROWN
Assistant Professor VAN WINKLE
Assistant Professor HALL
Assistant Professor PERKINS
Assistant Professor HARRISS

Assistant Professor TITUS
Assistant Professor WAMPLER
Instructor PYCHA
Instructor MARLOW
Instructor ANDREWS
Instructor McDOWELL
Instructor RYAN
Instructor GUEST
Instructor WHITTAKER
Instructor TYNER
Instructor SMITH
Instructor MARCY
Associate Food Analyst SMITS

All of the industries are becoming more and more dependent for their highest success 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 laboratories are designed to accommodate 1,363 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 \$64,752.

COURSES IN CHEMISTRY

FOR UNDERGRADUATE CREDIT

101, 102. CHEMISTRY I AND II. 5(3-6) each; I and II, and SS, each. Not open to students who have credit in Chem. 105, 107, 108 or 110. Prerequisite: for II, Chemistry I. Dr. King, Dr. Keith, Miss Harriss, Mr. Wampler, Mr. Pycha, Mr. Marlow, Mr. McDowell, Miss Whittaker, Mr. Tyner and Miss Smith.

I: The principal theoretical conceptions of chemistry, principles of nomenclature, significance of formulas, chemical equations, etc.; practical uses of the substances and processes used in metallurgy, engineering, agriculture, and other arts. Text: McPherson and Henderson, *A Course in General Chemistry* (the first 388 pages).

II: Completion of the study of general chemistry; general principles of qualitative analysis. Texts: As above, and Baskerville and Curtman, *Elementary Treatise on Qualitative Analysis*.

Laboratory.—I: Experiments touching preparation and properties of the more important substances performed independently by the student, the objects being here as in other courses to illustrate chemical phenomena, to teach care in manipulation, attentive observation, logical deduction, and discrimination and accuracy in recording results and conclusions. Deposit, \$10.

II: Ordinary methods of separation and detection of the more common metals, nonmetals, acids, bases, and salts. Deposit, \$10.

105. CHEMISTRY (VET.). 5(3-6); I and II. Not open to students who have credit in Chem. 101, 102, 107, 108 or 110. Mr. Wampler.

Fundamental laws and theories of chemistry, elements and their inorganic compounds; emphasis on the application of chemistry to the arts and industries.

Laboratory.—Training in manipulation and first-hand knowledge of the important laws of chemistry and the properties of substances studied, by use of appropriate experiments performed by the student himself. Deposit, \$10.

107, 108. CHEMISTRY E-I AND E-II. 4(3-3) each; I and II respectively. Not open to students who have credit in Chem. 101 and 102, respectively. Dr. King, Dr. Van Winkle, Mr. Pycha, Mr. Andrews, Mr. Ryan, and Mr. Marcy.

I: General chemistry; fundamental principles of chemistry which have a special bearing upon engineering and engineering material. Text: Deming, *General Chemistry*.

II: General chemistry and qualitative analysis. Text: As above.

Laboratory.—I: Experimental work on the topics considered in the classroom. Text: Van Winkle, *Combination Laboratory Manual and Notebook*. Deposit, \$7.50.

II: Qualitative analysis; a systematic study of the chemistry of the more common metals and acids; analysis of alloys, minerals, and ores. Text: Deming and Arenson, *Exercises in General Chemistry*, supplemented by mimeographed notes. Deposit, \$7.50.

110. GENERAL CHEMISTRY. 5(3-6); I. Not open to students having credit in any college course in inorganic chemistry. Dr. King, Mr. Wampler, Miss Harriss, Mr. Pycha, Mr. Marlow, Mr. McDowell, Miss Whittaker, Mr. Tyner, and Miss Smith.

A general treatment of some of the principal laws and theories of chemistry; preparation, properties, and uses of some of the important metallic and non-metallic substances.

Laboratory.—Actual preparation and study of the properties of many of the elements and compounds mentioned in the lectures; applications of some of the laws. Deposit, \$10.

121. ORGANIC CHEMISTRY (HE). 5(3-6); I and II. Not open to students who have credit in Chem. 106, 218 or 219, and for only two hours to those having credit in Chem. 123. Prerequisite: Chemistry II. Dr. Colver and Mr. Guest.

The more important classes of organic compounds, with special attention 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: *Organic Chemistry*.

Laboratory.—Preparation of one or more representative examples of most of the classes of compounds taken up in the classroom; study of their physical properties and of their chemical properties as shown by typical reactions. Deposit, \$10.

122. GENERAL ORGANIC CHEMISTRY. 5(3-6); I and II. Not open to students who have college credit in organic chemistry, except that it may be taken for two hours credit by students who have completed Chem. 123. Prerequisite: Chem. 105 or 110. Dr. Colver and Mr. Guest.

General study of some of the more important classes of organic compounds; a more detailed study of those hydrocarbons, alcohols, ethers, aldehydes, ketones, organic acids, waxes, fats, carbohydrates, and proteins which are of general interest to agricultural students. Text: Rice, *Organic Chemistry*.

Laboratory.—Preparation of a few organic compounds and the study of their physical and chemical properties. Deposit, \$10.

123. ELEMENTARY ORGANIC CHEMISTRY. 3(2-3); I and II. Not open to students who have college credit in organic chemistry. Prerequisite: Chem. 105 or 110. Dr. Colver and Mr. Guest.

An elementary outline dealing with some of the more important hydrocarbons, alcohols, aldehydes, ketones, organic acids, and various esters, waxes, fats, carbohydrates, and proteins, with special emphasis on their toxological and physiological properties. Text: Phillips, *Fundamentals of Organic and Biological Chemistry*.

Laboratory.—Preparation of a few organic compounds and the study of their physical and chemical properties. Deposit, \$7.50.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. INORGANIC PREPARATIONS. 1 credit for each 3 hrs. of laboratory; I and II. Prerequisite: Chemistry II. Dr. Brubaker.

Preparation and purification of some typical inorganic compounds, of those of more complex composition, and compounds of the rarer elements. Charge, \$10.

203, 204. INDUSTRIAL CHEMISTRY I AND II. 5(3-6) each; I and II respectively. Prerequisite or concurrent: Physical Chemistry. Dr. Brown.

The fundamenal course in industrial chemistry, dealing with the problems of the chemical industries, and placing stress upon the economic questions involved in chemical manufacturing, materials of plant construction, as well as the engineering operations involved in Chemical Engineering, and the principles underlying the applications of chemistry and engineering to a selected number of chemical industries. Text: Rogers, *Manual of Industrial Chemistry*.

Laboratory.—An introduction to industrial chemical research through assigned manufacturing problems, beginning with the general chemical industries. Deposit, \$10.

205. INDUSTRIAL ELECTROCHEMISTRY. 2(2-0); II. Offered in case of sufficient demand. Prerequisites: College courses in general chemistry and physics. Dr. Brown.

The principles of voltameters, electrochemical methods of analysis, electroplating, electrotyping, and the production of metallic objects by electroplating methods, electrolytic refining of metals, manufacture of various industrial products by electrolytic and electrothermic methods, etc. Text: Thompson, *Applied Electrochemistry*.

206. PHYSICAL CHEMISTRY I. 5(3-6); I. Prerequisites: Organic Chemistry and Quantitative Analysis; Calculus, though not a prerequisite, is recommended. Dr. King and Dr. Hall.

The modern conception of the atom and radioactive phenomena; relations with matter in the gaseous, liquid, and solid states; emphasis placed upon osmosis, solution including colloids, surface tension, adsorption, equilibria, thermochemistry, ionization, hydrolysis, electromotive force, and hydrogen ion concentration.

Laboratory.—The laboratory follows the subject matter of the lectures very closely. Deposit, \$10.

207. ADVANCED INORGANIC CHEMISTRY. 3(3-0); I. Prerequisite: Chemistry II. Dr. Keith.

A thorough study of the facts of chemistry and their theoretical interpretations according to the views of the present; special stress 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 course 202. Text: Mellor, *Modern Inorganic Chemistry*.

208. HISTORY OF CHEMISTRY. 1(1-0); II. Prerequisite: Chem 206. Dr. Willard.

History of the development of the principal laws and theories of chemistry, with special emphasis upon the failures and triumphs of the founders of chemical science.

209. SURFACE TENSION AND RELATED PHENOMENA. 2(2-0); I or II, when requested by a sufficient number. Prerequisite: Chem. 206. Dr. King.

Methods of measuring surface tension; surface energetics; relation of surface tension to absorption; and colloidal formation.

210. CHEMICAL STATICS AND DYNAMICS. 2(2-0); II, when requested by a sufficient number. Prerequisites: Approved courses in physical chemistry and calculus. Dr. King.

Chemical equilibria, velocity of chemical reactions, hydrolysis, catalysis, etc.

211. PAINT OILS AND PIGMENTS. 2(2-0); I, by appointment. Prerequisites: Satisfactory courses in organic chemistry and qualitative analysis. Dr. King.

Extraction, purification, and properties of the oils commonly used in paints; manufacture and properties of paint pigments; the products employed as protective coverings for both wood and metal.

213. COLLOIDAL CHEMISTRY. 2(2-0); II, when requested by a sufficient number. Prerequisite: Chem. 206. Dr. Tague.

Suspensions and emulsions, 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. 3(3-0); II, when requested by a sufficient number. Prerequisites: Approved courses in physical chemistry and calculus. Dr. Keith.

Those fundamental principles of thermodynamics which are particularly applicable to chemistry, such as the first and second laws of thermodynamics and their application to fusion, evaporation, phase rule, chemical equilibrium, chemical affinity, electromotive force, surface, tension, and adsorption.

216. THEORETICAL ELECTROCHEMISTRY. 3(3-0); II, when requested by a sufficient number. Prerequisites: Approved courses in physical chemistry. Dr. Keith.

The theory of electrolytic cells, the electrochemical series of metals, electrodes, potentials, polarization, overvoltage, and deposition of metals by electrolysis.

217. ELECTROCHEMISTRY LABORATORY. 2(0-6); II. Prerequisite: Physical Chemistry I or equivalent. Dr. Hall.

A laboratory course designed and recommended to accompany or follow Theoretical Electrochemistry. Selected experiments in electrometric titrations, storage battery efficiency, polarization, overvoltage, electrode potentials, and related subjects.

218, 219. ORGANIC CHEMISTRY I AND II. 4(2-6) each; I and II, respectively. Prerequisite: Chemistry II. Dr. Colver.

I: The aliphatic hydrocarbons, alcohols, ethers, aldehydes, ketones, acids, esters, amides, and related compounds considered particularly from the standpoint of structure, methods of laboratory and commercial preparation, reactions and uses; special attention to such topics as structural, geometrical, and optical isomerism, and the use of acetoacetic ester in organic synthesis. Reference: Perkin and Kipping, *Organic Chemistry*.

II: Structure, methods of laboratory and commercial preparation, reactions and uses of the aromatic compounds, orientating influence of various groups; structure and reactions of the diazonium compounds; the different classes of dyes, the alkaloids, the terpenes, and a few heterocyclic compounds.

Laboratory.—I: Preparation, purification, and reactions of one or more typical examples of most of the groups of compounds studied in the classroom. Deposit, \$10.

II: Various preparations that illustrate the reactions characteristic of aromatic compounds; determination of carbon, hydrogen, and nitrogen in pure unknown organic compounds by the combustion method. Text: Noyes, *Organic Chemistry for the Laboratory*. Deposit, \$10.

223. ORGANIC PREPARATIONS. 1(0-3) to 5(0-15); I. Prerequisite: Organic Chemistry II. Dr. Colver.

Such compounds prepared as give a thorough knowledge of the fundamental principles of synthetic organic chemistry. Deposit, \$10.

224. QUALITATIVE ORGANIC ANALYSIS. 2(0-6); II, when requested by a sufficient number. Prerequisite: Course 219. Dr. Colver.

Characteristic reactions of the various classes of organic compounds; class reactions, using known compounds; classification and identification of pure,

unknown substances and mixtures. Text: Kamm, *Qualitative Organic Analysis*. Charge, \$10.

225. STEREOISOMERIC AND TAUTOMERIC COMPOUNDS. 2(2-0); II, when requested by a sufficient number. Prerequisite: Organic Chemistry II. Dr. Colver.

Optical isomerism and methods of determining the configuration of the asymmetric carbon atoms of sugar; geometrical isomerism; and ketoenol tautomerism.

226. CARBOCYCLIC AND HETEROCYCLIC COMPOUNDS. 2(2-0); II, when requested by a sufficient number. Prerequisite: Organic Chemistry II. Dr. Colver.

Structure, orientation, methods of synthesis, and reactions of benzene, naphthalene, anthracene and derivatives; furane, pyrrol, thiophene, pyridine, quinoline, isoquinoline, purine, pyrimidine, hydantoin, and some structurally related substances.

228. SPECIAL REACTIONS OF ORGANIC COMPOUNDS. 2(2-0); when requested by a sufficient number. Prerequisite: Organic Chemistry II. Dr. Colver.

Some of the less common reactions which take place with certain aliphatic and aromatic compounds.

230. PRINCIPLES OF ANIMAL NUTRITION. 3(3-0); II. Prerequisite: Organic Chemistry. Dr. Hughes.

The relation of animals to matter and energy, and the physiological principles involved.

231. PHYSIOLOGICAL CHEMISTRY. 5(3-6); I. Not open to students who have credit in Chem. 232 or 233. Prerequisite: An acceptable course in organic chemistry. Dr. Hughes.

The synthetic and analytical chemical changes that accompany the physiological processes of animals and plants. Text: Mathews, *Physiological Chemistry*.

Laboratory.—Practical work with the compounds and processes discussed in the classroom. Text: As above. Deposit, \$10.

232, 233. PHYSIOLOGICAL CHEMISTRY I AND II. 5(3-6) each; I and II respectively. Not open for full credit to students who have credit in Chem. 231. Prerequisite: For I, Organic Chemistry; for II, course 232. Dr. Hughes.

I: Chemistry of the carbohydrates, lipins, and proteins, and the chemical changes which these undergo during the processes of digestion and metabolism.

II: Continuation of I; chemistry of the body tissues and excretions.

Laboratory.—I: Practical work with the compounds and processes discussed in the classroom. Deposit, \$10.

II. Qualitative and quantitative study of the tissue and excretions of the body. Deposit, \$10.

234. BIOCHEMICAL PREPARATIONS. 5(0-15); II. Prerequisites: Organic Chemistry II, and Physiological Chemistry I. Dr. Hughes.

The isolation, purification, and analysis of a number of compounds which are of importance in biochemistry and nutrition. Deposit, \$10.

235. PATHOLOGICAL CHEMISTRY. 2(2-0); when requested by a sufficient number. Prerequisite: An approved course in physiological chemistry. Dr. Hughes.

The chemical facts involved in the causation, progress, and results of disease discussed under the following heads: Inflammation, degeneration, infection, anæmia, tuberculosis, dyspepsia, typhoid fever, jaundice, nephritis, diabetes, gout, rheumatism, and intoxication.

236A. THE CHEMISTRY OF THE PROTEINS. 3(2-3); I, when requested by a sufficient number. Prerequisite: An approved course in organic chemistry. Dr. Tague.

The chemistry of the proteins, particularly as regards their sources, isola-

tion, purification and uses, their derivatives and degradation products. Deposit, \$7.50.

237. BIOCHEMICAL ANALYSIS. 2(0-6); I and II. By appointment. Prerequisite: Physiological Chemistry. Dr. Hughes.

Quantitative determinations of the organic and inorganic constituents of blood, urine, and other biological material. Deposit, \$10.

238. CHEMISTRY OF ENZYME ACTION. 2(2-0); I. Prerequisite: Physical Chemistry. Dr. Hughes.

A brief review of catalysis; physical and chemical properties of enzyme preparations, and the reactions catalyzed by them.

239. LABORATORY TECHNIQUE IN ANIMAL NUTRITION. 2(0-6); I and II. Prerequisite: An acceptable course in nutrition or physiological chemistry. Dr. Hughes.

Preparations of diet and the care of experimental animals used in the study of various nutritional problems. Deposit, \$10.

240. ADVANCED QUALITATIVE ANALYSIS. 3(1-6); I, when requested by a sufficient number. Prerequisite: Chemistry II. Dr. Brubaker.

A systematic study of the properties of the acid and basic elements and their compounds as shown in a detailed study of systematic analysis; the application of chemistry theory to analytical reactions. Deposit, \$10.

241. QUANTITATIVE ANALYSIS. 5(1-12); II. Prerequisite: Chemistry II or equivalent. Dr. Brubaker.

Practically the same as course 250 and 251. Deposit, \$10.

242. FIRE ASSAYING. 2(0-6); I. Prerequisite: Course 241. Dr. Brown.

The ordinary methods of fire assaying, with some attention to wet assaying. Fire assays of ores containing such metals as copper, zinc, lead, bismuth, tin, silver, and gold. Deposit, \$10.

243. GAS ANALYSIS. 1(0-3); I. Prerequisite: Quantitative Analysis. Dr. Brown.

Use of standard apparatus in analysis of gases; analysis of air, flue and furnace gases, and illuminating gas. Deposit, \$7.50.

245. MICROCHEMICAL METHODS OF ANALYSIS. 1(0-3); given when requested by a sufficient number. Prerequisites: Organic Chemistry and Quantitative Analysis I. Dr. Brubaker.

The various methods of using the microscope in chemical analysis, both qualitative and quantitative, applied to both inorganic substances and to vegetable and animal products. Deposit, \$7.50.

250, 251. QUANTITATIVE ANALYSIS A AND B. 3(1-6) each; I and II respectively. Prerequisites: For A, Chemistry II; for B, course A. Dr. Brubaker.

Course A: General procedures of gravimetric analysis; chemical theory as applied to quantitative reactions. Text: Mahin, *Quantitative Analysis*. Deposit, \$10.

Course B: General procedures in volumetric analysis; preparation of standard solutions and their uses. Text: Same as for A. Deposit, \$10.

252A. CHEMISTRY OF SOILS AND FERTILIZERS. 2(0-6); I. Prerequisite: Quantitative Analysis I, or equivalent. Dr. Perkins.

The most important chemical methods used in the analysis and investigations of soils and fertilizers. Deposit, \$10.

253A. CHEMISTRY OF CROPS. 2(0-6); II. Prerequisites: Organic Chemistry and Quantitative Analysis I, or equivalent. Dr. Perkins.

The most important chemical methods used in the analysis and investigations of substances present in plants and plant products. Deposit, \$10.

254. DAIRY CHEMISTRY. 3(1-6); I. Prerequisites: Organic Chemistry and Chem. 250. Dr. Titus.

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 most important chemical methods used in the analysis and investigation of dairy products. Deposit, \$10.

256. INSECTICIDES AND FUNGICIDES. 2(2-0); given when requested by a sufficient number. Prerequisites: Satisfactory courses in organic chemistry and quantitative analysis. Mr. Latshaw.

The manufacture of spray materials; the chemistry involved in mixing, and the theory of their toxic actions.

257. FOOD ANALYSIS. 3(0-9); II, when requested by a sufficient number. Prerequisites: Organic Chemistry and course 250. Dr. Brubaker.

The quantitative methods employed in the analysis of foodstuffs; practice in testing for the presence of adulterants, preservatives, and coloring materials. Deposit, \$10.

260. ADVANCED QUANTITATIVE ANALYSIS. 1 credit for each 3 hrs. of laboratory; I. Prerequisites: Courses 250 and 251. Dr. Brubaker.

Included here, any kind of quantitative chemical work not otherwise designated; a large opportunity for advanced work afforded by the various research and state laboratories. Deposit, \$10.

270. CHEMISTRY PROBLEMS. 1 to 5 credits; I, II, and SS.

Individual problems to fulfill the thesis requirements of students in agricultural chemistry, biochemistry, and industrial curricula.

271. SELECTED TOPICS IN INORGANIC CHEMISTRY. 2(2-0); II. Prerequisite: A course in physical chemistry. Mr. Wampler.

Material from such topics as thermal analysis, temperature measurements, atomic hydrogen, the hydrides, the halogens, corrosion of metals, and the ammonia system.

272. PHYSICAL CHEMISTRY II. 3(3-0); II. Prerequisite: A beginning course in physical chemistry. Dr. King.

A continuation of the general principles of physical chemistry, with particular attention given to the elementary principle of thermodynamics, chemical kinetics, homogeneous and heterogeneous equilibrium, electromotive force, photochemistry, electrical theory of matter, radio activity, and atomic structure.

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 discussion 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.

280. ELEMENTS OF CHEMICAL ENGINEERING. 3(2-3); I. Prerequisites: Calculus, Physical Chemistry. Physical Chemistry may be taken concurrently. Dr. Brown.

The design and use of chemical engineering equipment; chemical engineering operations such as storage, disintegration, mechanical separation, heat flow, fluid flow, filtration, crystallization, calcination drying, evaporation, distillation, conveying refrigeration, absorption, mixing and high pressure work.

281. CHEMICAL ENGINEERING PRINCIPLES. 2(2-0); II. Prerequisites: Same as for Elements of Chemical Engineering. Dr. Brown.

The principles of plant location and design; the principles of organization and control of chemical plants, utilization of fuels and energy, and chemical engineering operation costs; laboratory research and technical development.

FOR GRADUATE CREDIT

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 Agricul-

tural 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 thesis 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. Brown and Dr. Van Winkle.

Analytical Chemistry. Dr. Brubaker and Mr. Latshaw.

Organic Chemistry. Dr. Colver.

Biochemistry. Dr. Hughes, Dr. Tague, and Dr. Titus.

General and Physical Chemistry. Dr. King, Dr. Hall, and Dr. Keith.

Economics and Sociology

Professor KAMMEYER†
Professor BURR
Professor T. J. ANDERSON
Assistant Professor SPURRIER

Assistant Professor STEWART
Instructor C. J. ANDERSON*
Instructor JONES
Doctor HOLTZ

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.

The department owns equipment valued at \$840.

COURSES IN ECONOMICS

FOR UNDERGRADUATE CREDIT

101. ECONOMICS. 3(3-0); I, II, and SS. Not open to students who have credit in Agricultural Economics. Dr. Kammeyer, Mr. T. J. Anderson, Mr. C. J. Anderson and Mr. Spurrier.

An introductory study of the fundamental facts, concepts, and principles pertaining to modern economic phenomena; a foundation course for all specialized studies in economics. Text: Ely, *Outlines of Economics*.

116. MONEY AND BANKING. 3(3-0); I, II, and SS. Prerequisite: Economics. Dr. Kammeyer and Mr. C. J. Anderson.

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; banking in its historic forms; the federal reserve system, the federal farm loan system, and state banks; saving banks, trust companies, building and loan associations, and other institutional forms of credit. Text: Holdworth, *Money and Banking*.

122. ECONOMIC GEOGRAPHY. 2(2-0); I and SS. Mr. T. J. Anderson and Mr. Spurrier.

The major facts and principles relative to the origin, distribution, and development of the industries and commerce of the world. Text: Smith, *Commerce and Industry*.

126. BUSINESS MANAGEMENT. 2(2-0); I, II, and SS. Prerequisite: Economics, or may be taken concurrently. Dr. Kammeyer, Mr. C. J. Anderson and Mr. Spurrier.

* Appointed for the year 1928-'29.

† Absent on leave, year 1928-'29.

The business structure and executive functions—an analysis of management factors such as personnel, finance, accounting, production, and marketing. An elementary course covering the entire range of business endeavor. Text: White's, *Business Management*.

FOR GRADUATE AND UNDERGRADUATE CREDIT

213. PUBLIC FINANCE. 2(2-0); II. Prerequisite: Economics. Mr. T. J. Anderson.

The major facts and principles relative to public expenditures; public revenues, especially taxation; the administration of public funds; fiscal emergencies and public indebtedness; the budget and other means of control over expenditures and revenues. Text: Hunter, *Outlines of Public Finance*.

217. BUSINESS FINANCE. 3(3-0); I. Prerequisite: Money and Banking (Econ. 116). Mr. T. J. Anderson.

Business financing, with special emphasis upon the problems of financing corporations; the securing of capital, internal financial management, financial methods in case of receivership and corporate reorganization. Text: Lough, *Business Finance*.

221. INVESTMENTS. 2(2-0); II and SS. Prerequisite: Money and Banking (Econ. 116). Mr. T. J. Anderson.

Financial types of investment securities; investment risks; effect of economic trends upon investment values; functions of investment banks; investment policies suitable for various investment classes. Text: Jordan, *Investments*.

229. TRANSPORTATION PROBLEMS. 2(2-0); II. Prerequisite: Economics. Mr. T. J. Anderson.

A brief review of the development of transportation, followed by a study of the economic characteristics of the railroad industry, results of unrestrained competition in the industry, adoption of public regulation, and the legal and economic phases of regulation. Text: Jones, *Principles of Railway Transportation*.

233. LABOR PROBLEMS. 2(2-0); I and II. Prerequisite: Economics or Sociology. Dr. Holtz.

Present status and trends in industrial relations; the background in history and activities of labor organizations and employers' associations; legislation bearing upon industrial relations; new problems of personnel administration, coöperation, profit-sharing, industrial partnership, etc. Text: Atkins and Lasswell, *Labor Attitudes and Problems*.

242. PROPERTY INSURANCE. 2(2-0); II, SS. Prerequisite: Economics. Mr. Spurrier.

Fire, marine, automobile, title, and credit insurance, and corporate bonding; also other forms of property insurance, such as burglary and theft, plate glass, steam boiler, windstorm and tornado, etc. Text: Huebner, *Property Insurance*.

244. LIFE INSURANCE. 2(2-0); II, SS. Prerequisite: Economics. Mr. Spurrier.

Nature and uses of life insurance, kinds of policies, determination of premiums, reserves, surrender values, dividends, etc.; the organization and management of legal reserve companies, and important legal phases of life insurance. Text: Huebner, *Life Insurance*.

245. MARKETING. 2(2-0); II. Prerequisite: Economics. Mr. Spurrier.

Marketing functions, such as assembling and grading of products, storing, transportation, financing and risk taking, stimulation of demand, and merchandising; marketing agencies and methods by means of which products are moved from producer to consumer; basic marketing systems; retailing as carried on by department, specialty, and chain stores, and mail order houses; marketing problems of the individual business; prices and price policies, sales

planning and management, salesmanship, and advertising campaigns. Text: Converse, *Marketing Methods and Policies*.

248. ECONOMIC PROBLEMS. Credits and hours arranged by consultation with the head of the department. Prerequisites: Economics, and a two-hour course in advanced economics. Dr. Kammeyer, Mr. T. J. Anderson, and Mr. Spurrier.

251. ADVANCED PRINCIPLES OF ECONOMICS. 3(3-0); I and SS. Open only to seniors and graduates. Dr. Kammeyer and Mr. C. J. Anderson.

A critical study of fundamental economic principles and the writings of leading economists of the past and present. The course is designed for mature students in the field of economics. Text: Taylor, *Principles of Economics*.

FOR GRADUATE CREDIT

301. RESEARCH IN ECONOMICS. 1 to 10 credits; I, II, and SS. Prerequisites: Such courses as the problem undertaken may require. Dr. Kammeyer, Mr. T. J. 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 UNDERGRADUATE CREDIT

151. SOCIOLOGY. 3(3-0); I, II, and SS. Mr. Burr.

The fundamental principles of social life as related to other scientific principles; their practical application to social action and organization; normal constructive social evolution emphasized; the processes of socialization, social forces, and social control, particularly in their relation to commercial, industrial, and professional leadership. Text: Case, *Outlines of Introductory Sociology*; and Beach, *Introduction to Sociology*.

156. RURAL SOCIOLOGY. 3(3-0); I. Preferably, a course in sociology should precede this. Mr. Burr.

The fundamental principles of the science of sociology applied to rural society; social phases of agricultural and economic movements; the relation of nation, state and county to socializing projects in rural society. Text: Taylor, *Rural Sociology*.

FOR GRADUATE AND UNDERGRADUATE CREDIT

257. SOCIAL PROBLEMS. 2(2-0); I, II, and SS. Prerequisite: Sociology. Mr. Burr.

The social phases of population movements, dealing with the problems of quantity and quality; charity and reform organization and technique; professional social work. No textbook.

267. COMMUNITY ORGANIZATION. 3(3-0); II and SS. Prerequisite: Sociology. Mr. Burr.

A study on a functional basis, of organizations working in the urban and rural fields; the principles involved and the technique of organization. The student has opportunity to choose for special study an organization or institution in which he hopes to have a position of leadership for his life work. Special assistance will be given in these special studies, which may afford the capable student valuable means of approach to future employment.

270. ADVANCED RURAL SOCIOLOGY. 3 credits. Prerequisite: Rural Sociology. Mr. Burr.

A continuation of Rural Sociology; a wide field of reading in the literature of rural life; original research work and a thesis required.

273. ADVANCED SOCIOLOGY. 3 credits. Prerequisite: Course 151 (Sociology). Dr. Holtz.

A continuation of Sociology, covering a wide field of reading in this subject. Research work is carried on, and a thesis is prepared.

275. ECONOMIC AND SOCIAL SURVEYS. Credits and hours arranged in consultation with the head of the department. Prerequisite: Economics or Sociology. Mr. Burr.

Communities surveyed for the assembling of facts concerning trade, communication and transportation, church activities, school conditions, etc.

FOR GRADUATE CREDIT

351. RESEARCH IN SOCIOLOGY. 1 to 10 credits; I, II, and SS. 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.

COURSES IN ACCOUNTING

FOR UNDERGRADUATE CREDIT

131. COST ACCOUNTING. 2(2-0); I. Mr. Anderson.

A study of cost accounting principles and the principal types of cost systems now in use; methods of estimating and charging production, administrative and selling costs. Text: Castenholz, *Cost Accounting Procedure*.

132. INSTITUTIONAL ACCOUNTING. 3(3-0); II. Mr. Stewart.

A study of elementary accounting principles and their application to the home, cafeteria, lunch and tea rooms, dormitories, clubs, hospitals, and other institutions.

133, 134. ACCOUNTING I and II. 3(2-3) each; I and II. Prerequisite: For 134, course 133. Mr. Stewart and Mr. Jones.

I: A study of the principles and structure of accounts designed to give power to analyze commercial accounts and statements; problems and practice sets used as an application of principles to practice. Text: Paton, *Accounting*.

II: Partnership and corporation accounting and problems peculiar to them; valuation of balance-sheet items with special reference to depreciation, inventories, and intangibles; and several other topics. Text: Paton, *Accounting*.

FOR GRADUATE AND UNDERGRADUATE CREDIT

280, 281. ADVANCED ACCOUNTING I and II. 3(3-0) each; I and II, respectively. Prerequisite: Course 134. Mr. Stewart.

I: A study of single entry, analysis of statements, installment sales, agencies and branches, consignments, venture accounts, accounts and reports of insolvent concerns, statement of application of funds, and other special topics. Text: Finney, *Principles of Accounting*, Vol. I.

II: Theory of accounts relating to depreciation, good will, intangibles, investments, funds and reserves, estate accounting, and consolidated statements. Text: Finney, *Principles of Accounting*, Vol. II.

282. INCOME-TAX ACCOUNTING. 2(2-0); I. Prerequisite: Course 134. Mr. Stewart.

Preparation of federal income-tax returns, and a study of accounting problems arising in connection with them.

283. ACCOUNTING SYSTEMS. 3(3-0); II. Prerequisite: Course 134. Mr. Jones.

Accounting systems used in various types of business enterprises, such as building and loan associations, life and fire insurance companies, banks, stock brokerage houses, department stores, public utilities, and municipalities.

284. AUDITING. 3(3-0); I. Prerequisite: Course 134. Mr. Jones.

Auditing records of commercial enterprises; attention to balance sheet and detail audits with study of both principles and practice.

Education

Professor HOLTON
 Professor ANDREWS
 Professor WILLIAMS†
 Professor PETERSON
 Professor STRICKLAND
 Associate Professor BRAINARD
 Associate Professor DAVIDSON
 Associate Professor RUST

Instructor LANGFORD
 Instructor HALL
 Assistant BAXTER
 Assistant ZIPSE
 Assistant WILLIAMSON
 Doctor HOLTZ
 Graduate Assistant IRWIN

The courses in this department have for their controlling purpose the professional training of teachers. Two types of courses 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 \$2,953.

The State Board of Education has set up the following standards or their equivalents for the certification of teachers:

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 additional semester hours elected from the Department of Education, and approved by head of department.

- 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, six 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.

† Absent on leave, year 1928-'29.

2. Three-year Certificates Renewable for Three-year Periods.
 - a. Complete at least two years of college work, including three semester hours in Psychology, three in School Management, and three in Methods of Teaching.
 Not more than fifteen 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 two years 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 School Management, and three in 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 School Management, and three in Methods of Teaching.
 - b. Valid for three years and may be renewed for three-year periods.
5. Certificates 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 School Management, and three in 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 Vocational 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 UNDERGRADUATE CREDIT**

Psychology A, B and C are parallel courses in introductory psychology. The content of these courses is fundamentally the same, but emphasis differs according to the preparation and needs of the various groups of students as indicated below. Only one of these three courses may be taken for credit.

101. PSYCHOLOGY A. 3(3-0); I or II. Not open to juniors or seniors, or to those who have credit in courses 102 or 103. Mr. Brainard and Mr. Langford.

An introduction to the fundamental facts and principles of general psychology. 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 effective learning; individual differences as related to vocational and personal efficiency.

102. PSYCHOLOGY B. 3(3-0); I. Not open to students who have credit in courses 101 or 103. Mr. Brainard.

Based on the same facts and principles as course 101, but draws largely from musical material for illustration and application; 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. 3(3-0); I or II. Not open to freshmen or sophomores, nor to students who have credit in courses 101 or 102. Dr. Peterson and Mr. Langford.

The same general content as course 101, with some additional materials in the application of psychology; more attention given to the methods by which new facts are discovered and interpreted.

105, 106. EDUCATIONAL ADMINISTRATION A AND B. 3(3-0) each; I or II. Only one of these courses may be taken for credit. Dr. Andrews.

Course A: The organization of state, city and county school systems; organization of school systems in Kansas, both rural and city; the school laws of Kansas.

Course B: Similar to course A 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.

107. SCHOOL MANAGEMENT. 3(3-0); I or II. Limited to freshmen and sophomores. Dr. Andrews.

A survey of classroom and school administration and management of pupils in groups; problems of discipline, school sanitation and hygiene and school health, and general classroom efficiency. The student is shown how to develop an efficient classroom routine and class program.

109. EDUCATIONAL PSYCHOLOGY. 3(3-0); I or II. Prerequisite: General Psychology. Dr. Strickland.

The native equipment of human beings which serves as a basis for education, individual differences, and the psychology of learning.

111. METHODS OF TEACHING A. 3(3-0); I or II. Prerequisite: General Psychology. Open to freshmen and sophomores only. Dr. Strickland.

Problems of general method in classroom procedure in grades and junior high school. Required of candidates for three-year certificate renewable for three-year periods.

112. METHODS OF TEACHING B. 3(3-0); I or II. Prerequisite: General Psychology. Open to juniors and seniors only. Dr. Strickland.

Problems of general method in classroom procedure from the high school viewpoint.

113. HISTORY OF EDUCATION A. 3(3-0); I or II. Dr. Andrews.

An outline survey of the development of educational institutions and practice in Europe and America; emphasis upon institutional history rather than theory; the history of education as a conscious evolution of society.

118. EDUCATIONAL SOCIOLOGY A. 3(3-0); I, II, and SS. Dr. Holton.

The controlling social principles in democratic institutions; the social objectives of education; the meaning of education in a democracy.

125. VOCATIONAL EDUCATION A. 3(3-0); I or II. Prerequisite: Course 105 or 106. Dr. Williams.

A comparative study of the provisions for the different phases of vocational education in Kansas and other states and countries, and of the principles underlying such education, with emphasis upon the relation of vocational education to the community, county, state, and nation, and the part to be played by each in its development. The aim of the course is to fit the student to plan, teach, and administer or supervise vocational work, especially in high schools.

132. SPECIAL METHODS IN THE TEACHING OF HOME ECONOMICS. 3(3-0); I or II. Prerequisites: Foods I and II, Clothing I and II, and Psychology. Mrs. Rust.

The principles of teaching applied 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.

136. SPECIAL METHODS IN THE TEACHING OF AGRICULTURE. 3(3-0); II. Prerequisite: Psychology. Mr. Davidson.

Training in planning lessons, organizing materials, and conducting class, laboratory, and field instructional work in vocational agriculture is the purpose of this course. The individual and class project are studies, as well as the problem of coördinating farm mechanics work.

140. SPECIAL METHODS IN THE TEACHING OF INDUSTRIAL ARTS SUBJECTS. 3(3-0); II. Prerequisites: Mechanical Drawing II, Woodworking II, and Educational Psychology. Dr. Williams.

The various lines of work included under the head of industrial arts; a series of progressive lessons worked out in each of these lines, with emphasis upon important elements; the various materials employed and the methods of utilizing them for the needs of pupils; the arrangement of courses; the outlining and presentation of assignments; preparation of assignments; preparation of laboratory material and the conduct of laboratory exercises.

141. SPECIAL METHODS IN THE TEACHING OF PHYSICS. 3(2-3).
(See Department of Physics, course 224.)

142. SPECIAL METHODS IN THE TEACHING OF MATHEMATICS. 3(3-0).
(See Department of Mathematics, course 122.)

144. METHODS OF TEACHING ENGLISH. 3(3-0); II and SS.
(See Department of English, course 134.)

145. SPECIAL METHODS IN ARITHMETIC. 2(2-0); SS.
(See Department of Mathematics, course 123.)

146. SUPERVISED TEACHING IN PHYSICAL EDUCATION. 3(3-0): I.
(See Department of Physical Education for Women, course 186.)

150. HISTORY OF PHILOSOPHY. 3(3-0); I. Prerequisite: Junior standing or better. Dr. Andrews.

The development of philosophy, its relation to general culture, scientific theory, education, and politics; a brief outline of philosophical thought from Thales to modern times. The purpose of the course: To help the student formulate values and interpret his own experience.

160. SUPERVISED TEACHING IN HOME ECONOMICS. 3 credits; I and II. Prerequisites: Foods I and II, and Clothing I and II; prerequisite or parallel; Educ. 132. Mrs. Rust.

Supervised teaching carried on in the home economics classes of the Manhattan high school.

161. SUPERVISED OBSERVATION AND TEACHING IN AGRICULTURE. 3 credits; I and II. Prerequisites: Courses 109 and 136. Mr. Davidson.

Three weeks of observation and practice teaching in vocational agriculture classes in the Manhattan high school and other high schools by arrangement; group study of class-room problems; lesson plans and presentation criticized by the College instructor and the vocational teacher in the practice department.

163. SUPERVISED OBSERVATION AND TEACHING IN SCIENCE. 3 credits; I and II. Prerequisites: Methods of Teaching, or Educational Psychology, and at least ten hours of college credit in the science to be taught. Dr. Strickland.

Three weeks of observation and practice teaching in a science; group study of lesson plans, special methods and devices, organization of courses, etc.

170. APPLIED PSYCHOLOGY. 3(3-0); I or II. Prerequisite: Psychology. Dr. Peterson.

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.; use of psychological tests in employment, vocational guidance, etc.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. RURAL LIFE AND EDUCATION. 3(3-0); I and II. Prerequisite: Educational Administration. Mr. Davidson.

Historical and social study of rural life; institutions and organizations that have contributed to rural life development; evolution from the one-room rural school to the rural high school and consolidated schools; farmers' organizations and all forms of organized community life in the open country, in relation to the problems of public education.

202. EXTRA-CURRICULAR ACTIVITIES. 3(3-0); SS. Prerequisite: Educational Administration. Dr. Holton and visiting instructors.

A careful survey of the extra curricular activities in the junior and senior high schools; determination of the educational objectives of these activities and the most effective methods and means employed in the accomplishment of the objectives.

203. PROBLEMS IN TEACHING. 3(3-0); SS. Prerequisites: Educational Psychology, and senior or graduate standing. Visiting instructors.

What the superintendents expect of the teacher in (1) classroom instruction and standards, (2) attitudes and ideals, (3) coöperation and teamwork, and (4) professional growth.

204. RURAL SECONDARY EDUCATION. 3(3-0); I or II. Prerequisite: Educational Administration. Dr. Williams.

A brief historical study of rural secondary education with special emphasis on objectives of junior and senior high-school organization; curriculum and methods of organizing and conducting rural secondary schools; field problems in rural secondary education set up. A certain amount of field work is required.

205. THE JUNIOR COLLEGE. 3(3-0); SS. Prerequisite: Educational Administration. Dr. Andrews and the dean of a junior college.

A study of the historical development of the junior college and its place in the American public school system; its curricula and administration; the present day trends in its development and extension.

206. PHILOSOPHY OF EDUCATION. 3(3-0); II, SS. Prerequisite: Educational Sociology and Educational Psychology. Dr. Holton.

A critical study of the controlling and unifying philosophy of the American public school system and its European background.

207. PROBLEMS OF THE PRINCIPAL. 3(3-0); SS. Prerequisite: Educational Administration. Visiting city superintendents.

A careful survey of the work of the principals of junior and senior high schools.

208. THE PSYCHOLOGY OF CHILDHOOD AND ADOLESCENCE. 3(3-0); I or II. Prerequisite: Psychology A, B, or C. Mr. Brainard.

A genetic study of the developing child with applications valuable to parents and teachers. The course is conducted in two sections: Section A, with emphasis on the psychology of childhood; and section B, with emphasis on the psychology of adolescence.

211. MENTAL MEASUREMENTS. 3(3-0); I. Prerequisite: Psychology. Dr. Peterson.

The methods and devices employed and the more significant results so far obtained in the measurement of mental alertness, special aptitudes, and character traits.

212. EDUCATIONAL MEASUREMENTS. 3(3-0); I or II. Prerequisites: General Psychology and Educational Psychology. Dr. Strickland.

The scientific measurement of achievement as distinguished from intelligence testing.

213. ABNORMAL PSYCHOLOGY. 3(3-0); II. Prerequisite: Psychology A, B, or C. Dr. Peterson.

Such manifestations of faulty integration of bodily activities and mental functions as are found in hysteria, dreams, hypnotism, trances, multiple personality, etc.; certain questionable concepts of abnormal psychology in current literature; prevalent practices in dealing with mental disorders.

216. ADVANCED PSYCHOLOGY. 3(3-0); I or II. Prerequisite: Psychology. Mr. Langford.

Fundamental problems, methods, and interpretations of general psychology.

217. EXPERIMENTAL PSYCHOLOGY. 3(3-0); I or II. Prerequisite: Psychology A, B, or C. Dr. Peterson.

A few representative experiments in animal and sensorimotor learning, 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 survey of the experimental literature on the higher mental processes, with special attention to the more objective studies in the experimental analyses of the thought processes.

219. THE CURRICULUM. 3(3-0); I or II. Prerequisites: Six hours in education, and junior standing. Dr. Andrews.

The fundamental requirements of our modern life upon the schools; educational objectives in the light of these requirements; each subject in the curriculum examined for its minimum essentials both in the elementary school and in the high school.

221. EXTENSION METHODS AND PROBLEMS. 2(2-0); II. Prerequisites: Educational Administration, and Vocational Education A. Dr. Williams and members of the Division of College Extension.

Origin and development of extension work, its aim and purposes, and its relation to other general educational activities; 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.

223. STATISTICAL METHODS APPLIED TO EDUCATION. 3(3-0); I, II, and SS. Prerequisites: Six hours in education, and junior standing. Not open to students who have credit in Math. 203. Dr. Andrews.

Aims of the course: To organize material and data of educational experience and research for statistical interpretation; to develop skill and confidence in the use of statistical methods; to provide discussions and interpretations of statistical methods employed in scientific studies in education; and to give experience in the computation of statistical constants and develop the ability of graphical representation and interpretation.

225. FOUNDATIONS OF METHOD. 2(2-0). Dr. Strickland.

A critical study of the underlying principles by which current methods of teaching may be evaluated and the development of method may be gained.

226. VOCATIONAL EDUCATION B. 3(3-0); I, II, and SS. Prerequisite: Educational Administration. Dr. Williams.

The administration and supervision of the different fields of vocational education, including agriculture, home making, trade, and industrial and commercial education; curricula and curriculum building in the different vocational fields in relation to community needs.

230A. VOCATIONAL GUIDANCE. 3(3-0); I, II, and SS. Prerequisites: Educational Administration, Psychology, and Vocational Education. Dr. Williams.

The best methods and practices now used in the field of pupil guidance in study of vocations and career planning; analysis of a number of the more desirable trades, professions, and business callings. Guidance problems of the elementary, junior high school, senior high school and continuation schools considered.

235. THE TECHNIC OF MENTAL TESTING. 3(1-6); I or II. Prerequisites or parallels: Courses 211 and 223. Dr. Peterson.

Methods of giving and scoring the Stanford 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 analyzed and finally given and scored under observation; choice of tests for specific purposes; tabulation and interpretation of scores.

240. SOCIAL PSYCHOLOGY. 3(3-0); II. Prerequisites: Psychology A, B, or C. Mr. Langford.

The reactions of individuals to the behavior of their fellow beings; 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.

241. HISTORY OF MODERN PSYCHOLOGY. 3(3-0); I. Prerequisite: Psychology A, B, or C. Mr. Brainard.

A study of trends in modern psychology traced back to their origins. The various schools of thought are compared and their views are evaluated.

243. PSYCHOLOGY AND PERSONNEL MANAGEMENT. 3(3-0); I. Prerequisites: A grade above M in Psychology A, B, or C, and consent of the instructor. Dr. Peterson.

Scientific principles and procedures involved in employment; promotion, motivation of work, measurement and reward of achievement, etc.

245. THE JUNIOR HIGH SCHOOL. 3(3-0); SS. Prerequisites: Six semester hours of Psychology and Education. Dr. Andrews.

Educational and social bases of the intermediate school, its method of teaching, its administration and discipline; the curriculum of the junior high school and its articulation with the elementary school and the senior high school.

250. PROBLEMS IN SPECIAL TEACHING METHODS. 3(3-0); SS. Prerequisites: Psychology, and Special Methods of Teaching Home Economics. Mrs. Rust.

Objectives and principles involved in teaching subjects related to home economics; planning of courses of study which are based upon the problem methods of teaching. (Designed for teachers of science and art related to vocational home-making, required in the Smith-Hughes high-school courses.)

253. ADMINISTRATION AND SUPERVISION OF SECONDARY SCHOOLS. 2(2-0); 2d SS. Prerequisites: Psychology, Educational Administration, and Educational Psychology.

Problems of organization, administration, and supervision covering the complete program of an administrative head of a school system in a small city. (Designed for principals of rural high schools and superintendents of small city systems.)

255. THE PROJECT METHOD IN AGRICULTURAL EDUCATION. 2(2-0); 2d SS. Prerequisites: Education 136 and 161. Mr. Davidson.

The project as a teaching device, with intensive treatment of project values, project analysis, project accounting, project supervision, project types, project results, project records, project reports, etc. The course is conducted on the problem basis.

257. ORGANIZATION AND CONDUCT OF CLASS PROJECTS. 2 credits; 2d SS. Prerequisites: Education 106 and 125. Mr. Davidson.

Fundamentals and principles on which productive class projects should be organized. Research and field work in class project study will be undertaken.

258. ADMINISTRATION AND SUPERVISION OF VOCATIONAL EDUCATION. 2(2-0); 2d SS. Prerequisites: Educational Administration, Psychology, and Educational Psychology. Dr. Williams.

Objectives, curriculum organization and content, administrative and supervisory problems from the viewpoint of the city superintendent—leadership needs which must be met in a school system offering vocational education. The problem basis of treatment is used.

262. COMMUNITY PROBLEMS IN VOCATIONAL AGRICULTURE. 2 credits; 2d SS. Prerequisites: Dr. Williams.

Methods, organization, and conduct of club work, junior project work, class projects, and community projects in general—a course conducted on the problem basis and designed specifically for teachers, supervisors, and directors of agricultural work.

FOR GRADUATE CREDIT

301, 302. EDUCATIONAL SEMINAR I AND II. 4 credits for both (2-0); I and II, respectively. Prerequisites: Psychology, Educational Psychology, and Educational Administration. Dr. Holton and other members of the graduate faculty.

A topic for special investigation chosen by each member of the seminar early in the term; preliminary reports, and the final results of the study embodied in a carefully prepared report.

303. EDUCATIONAL SOCIOLOGY C. 3(3-0); I, II, and SS. Prerequisites: Psychology, Educational Psychology, and Educational Sociology A. Dr. Holton.

Fundamental social objectives for the curricula in high schools and colleges. Research and critical study of curricula.

306. EDUCATIONAL ADMINISTRATION C. 3(3-0). Dr. Andrews.

Fundamental problems in public school administration are assigned to each student for investigation and report.

307. HISTORY OF EDUCATION B. 3(3-0). Dr. Andrews.

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.

310A. PSYCHOLOGY OF TEACHING AND LEARNING. 3(3-0); I or II. Dr. Peterson.

An analysis of the various forms of learning and of the conditions favorable to the rapid development and effective functioning of knowledge, skills, attitudes, and purposes.

315. SUPERVISION IN HOME ECONOMICS. 2 credits; by appointment. Prerequisites: Psychology, Special Methods in Teaching Home Economics, and experience in teaching home economics. Mrs. Rust.

Problems met by a supervisor or director of home economics in the public schools; standardization of work; relation of supervisor to teacher; modernization of plant and equipment; course of study, etc.

325. RESEARCH IN EDUCATION. 1 to 10 credits; I and II. Members of Graduate Faculty.

Individual research problems in the general field of education and in the fields of psychology—mental testing, administration, and vocational education.

330. AGRICULTURAL EDUCATION B. 3(3-0); I or II. Dr. Williams.

A research survey course in the field of agricultural education 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: To train students in the method of establishing social control through the implanting and careful nurture of ideals; and to serve as a basis for preministerial or prereligious vocational training. (Not accepted as part of the requirements in education for a teacher's certificate.)

FOR UNDERGRADUATE CREDIT

180. RELIGIOUS EDUCATION A. 2(2-0); I. Dr. Holtz.

The origin of the Bible; the Bible as a social inheritance; 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. 2(2-0); II. Dr. 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.

184. RELIGIOUS EDUCATION C. 2(2-0); II. Prerequisite: Psychology. Dr. Holtz.

The recognized principles underlying modern religious education; organization of Sunday schools, the subject matter best adapted to each department of the organization, and the application of modern methods of teaching.

COURSES IN HOME ECONOMICS EDUCATION

(See Division of Home Economics)

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. PROBLEMS IN ORGANIZATION AND PRESENTATION OF HOME ECONOMICS. 1 to 5 credits; I and II. Prerequisite: Senior or graduate standing. Dean Justin and Mrs. Rust.

This course permits opportunity for study of problems of organization and administration in this field.

FOR GRADUATE CREDIT

301. RESEARCH IN ORGANIZATION AND PRESENTATION OF HOME ECONOMICS. 1 to 10 credits; I and II. Prerequisite: Graduate standing. Dean Justin and Mrs. Rust.

Individual research problems in phases of organization and administration for home economics. May be chosen as the basis for thesis for the master's degree. The nature of the problem will depend upon the student's major interest.

English

Professor DAVIS
 Professor CONOVER
 Professor ROCKEY
 Professor MATTHEWS†
 Professor RICE
 Professor FAULKNER
 Associate Professor STURMER‡
 Associate Professor ELCOCK
 Associate Professor BREEDEN

Assistant Professor GARVEY
 Assistant Professor RUSHFELDT
 Assistant Professor CALLAHAN
 Assistant Professor PARKER
 Instructor BOWER‡
 Instructor ABERLE
 Instructor BOGUE
 Assistant MYRA SCOTT

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 \$2,011.

COURSES IN ENGLISH LANGUAGE

FOR UNDERGRADUATE CREDIT

101. COLLEGE RHETORIC I. 3(3-0); I, II, and SS. Prerequisite: Three units of high-school English. Mr. Davis, Mr. Conover, Mr. Rockey, Mr. Matthews, Miss Rice, Mr. Faulkner, Mr. Breeden, Miss Sturmer, Miss Elcock, Miss Bower, Miss Garvey, Miss Rushfeldt, Miss Aberle, Miss Bogue, Mr. Callahan, Mrs. Parker and Miss Scott.

The improvement of students' written and spoken English by reviewing the principals of correct and effective diction, grammar, and sentence structure; by discussing models of good contemporary writing; by studying and practicing various types of paragraph; and by writing expository themes with guidance in selecting material, planning, writing, and revision. Texts: Thomas, Manchester, and Scott, *Composition for College Students*; Greever and Jones, *Century Collegiate Handbook*; Fulton, *Writing Craftsmanship*.

104. COLLEGE RHETORIC II. 3(3-0); I, II, and SS. Prerequisite: Course 101. Mr. Davis, Mr. Conover, Mr. Rockey, Mr. Matthews, Miss Rice, Mr. Faulkner, Mr. Breeden, Miss Sturmer, Miss Elcock, Miss Bower, Miss Garvey, Miss Rushfeldt, Miss Aberle, Miss Bogue, Mr. Callahan, Mrs. Parker, and Miss Scott.

The principles of argument, description, and narration, illustrated by standard and contemporary literature, and applied in frequent themes; correct form, structure, and diction of some common business letters; organization and writing of one extended composition. Texts: Thomas, Manchester, and Scott, *Composition for College Students*; Greever and Bachelor, *Century Collegiate Handbook*; Fulton, *Writing Craftsmanship*.

107. SPECIAL ENGLISH. 3(3-0); I and II, when need arises. Miss Rice, Miss Elcock, and Miss Aberle.

A review of English grammar, spelling, and diction with drill exercises, and individual consultations, required of students in courses 101 and 104 who

† On leave, second semester 1928-'29.

‡ On leave, year 1928-'29.

show marked inability to write clearly and accurately. Text: Greever and Bachelor, *Century Collegiate Handbook*.

110. ENGINEERING ENGLISH. 2(2-0); I and II. Prerequisites: College Rhetoric II, and junior standing. Mr. Rockey, Mr. Matthews, and Mr. Faulkner.

The general problems of engineering writing: technical descriptions, and the exposition of ideas, mechanisms, and processes; the preparation of engineering talks, business letters, technical manuscripts, and reports. A brief review of composition essentials is included. Text: Watt and McDonald, *Composition of Technical Papers*.

113. ADVANCED COMPOSITION I. 2(2-0); I. Prerequisite: College Rhetoric II. Mr. Conover and Mr. Matthews.

Special emphasis given to exposition; subjects selected from the student's particular field of work; exposition of mechanisms, processes, and general expository writing carefully studied. Text: Curl, *Expository Writing*.

116. ADVANCED COMPOSITION II. 2(2-0); II. Prerequisite: Advanced Composition I. Mr. Conover and Mr. Matthews.

Narrative writing both in its relation to the other form of composition and as an independent form; practical forms of the narrative, special attention to the short story. Text: Chase and del Plaine, *The Art of Narration*.

122. COMMERCIAL CORRESPONDENCE. 3(3-0); I, II, and SS. Prerequisite: College Rhetoric II. Mr. Davis, Mr. Faulkner, and Mr. Callahan.

A thorough review of the routine types of business correspondence; the writing of adjustment, credit, collection, and sales letters; the principles of effective writing as seen in the best writing in the commercial world. Text: Babenroth, *Modern Business English*.

123. WRITTEN AND ORAL SALESMANSHIP. 3(3-0); I and II. Prerequisite: College Rhetoric II. Mr. Faulkner and Mr. Callahan.

Special attention 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; special practice in the various forms of sales talks; arrangement made for actual sales practice with commercial concerns. Texts: Kitson, *The Mind of the Buyer*; Ferris and Collins, *Salesmanship*.

128. ORAL ENGLISH. 3(3-0); I, II, and SS. Prerequisite: College Rhetoric I. Mr. Rockey and Mr. Matthews.

The principles of oral composition as applied to conversation and informal discussion; the correction of the grammatical faults of everyday speech; the application of rhetorical principles to informal speech and discussion. Subjects selected from the fields of painting, politics, music, and literature.

134. METHODS OF TEACHING ENGLISH. 3(3-0); II and SS. Prerequisite: College Rhetoric II. Mr. Davis, Miss Rice, and Miss Elcock.

The course of study, the application of English instruction to life needs, and definite methods of motivating English instruction especially considered. (For those called upon to teach English in connection with the applied sciences.) Text: Stratton, *The Teaching of English in the High School*.

137. AGRICULTURAL ENGLISH. 3(3-0); I, Prerequisite: College Rhetoric II. Mr. Davis, Mr. Conover, Mr. Matthews, and Mr. Faulkner.

A brief review of the composition essentials, business correspondence, bulletin writing, the organization of short business talks, the principles of farm advertising; and writing the problems that confront the county agent, the high-school teacher of agriculture, and the farm manager.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. CRITICAL WRITING. 3(3-0); II. Prerequisite: College Rhetoric II. Mr. Matthews.

Representative examples of criticism from English and American literature,

from leading critics, and from standard newspapers and magazines; assignment to musical programs and art exhibits on the campus, and writing of reviews of books published by the faculty. Text: Bowman, *Contemporary American Criticism*.

207. TECHNICAL WRITING. 2(2-0); II. Prerequisite: One of the following courses: 113, 116, 122. Mr. Davis, Mr. Conover, Mr. Matthews, and Mr. Faulkner.

Fundamental principles of technical and scientific writing, with such practice as will necessitate clearness, accuracy, and effectiveness.

223. ADVANCED PROBLEMS IN COMMERCIAL CORRESPONDENCE. 3(3-0); II. Prerequisite: Commercial Correspondence. Mr. Faulkner.

Problems in special types of business letters; writing of adjustment, credit, and collection letters; specialized study and writing of sales and business promotion letters; composition of form paragraphs, circular letters, and business reports; correspondence supervision. Text: Naether, *Problems in Business Correspondence*.

225. THE LIGHT ESSAY. 2(2-0); I and SS. Prerequisite: College Rhetoric II. Mr. Davis.

Much writing practice, with light essays and sketches from current standard magazines as models; the writing of humor.

251, 252. THE SHORT STORY I AND II. 3(3-0) each; I and II respectively. Prerequisites: For I, English Literature; for II, The Short Story I. Miss Rice.

I: The world's best short stories; practice in writing sketches and short stories; special emphasis on the elements of the story—plot, setting, action, and characterization. Text: Pitkin, *How to Write Stories*.

II: Special stress on the preparation of the short story for publication; the short story in America, with special attention to types, characteristics, and tendencies; standards set by the leading magazines; market problems.

COURSES IN ENGLISH LITERATURE

FOR UNDERGRADUATE CREDIT

172. ENGLISH LITERATURE. 3(3-0); I, II, and SS. Prerequisite: College Rhetoric II. Mr. Davis, Mr. Conover, Mr. Rockey, Mr. Matthews, Miss Rice, Mr. Faulkner, Mr. Breeden, Miss Sturmer, Miss Elcock, Miss Bower, Miss Garvey, Miss Rushfeldt, Miss Aberle, Miss Bogue, Mr. Callahan, Mrs. Parker and Miss Scott.

The application of principles of literary appreciation to representative texts in narrative, lyric, and dramatic poetry, and to examples of the essay and the novel. Texts: Fulton, Bressler, and Mullin, *Questions on Readings in English Literature*; Pyre and Young, *Century Readings in English Literature*.

175. AMERICAN LITERATURE. 3(3-0); I, II, and SS. Prerequisite: English Literature. Mr. Davis, Mr. Conover, Mr. Rockey, Mr. Matthews, Miss Rice, Mr. Faulkner, Mr. Breeden, Miss Sturmer, Miss Elcock, Miss Bower, Miss Garvey, Miss Rushfeldt, Miss Aberle, Miss Bogue, Mr. Callahan, Mrs. Parker, and Miss Scott.

A study of American prose and poetry, the purpose being to acquaint the student with representative American writers by intensive study of illustrative selections, and to present the historical background and the tendencies of American literature. Texts: *A Short History of American Literature*, based upon the *Cambridge History of American Literature*; Pattee, *Century Readings in American Literature*; Hastings, *Syllabus of American Literature*.

181. HISTORY OF ENGLISH LITERATURE. 3(3-0); I and II. Prerequisite: English Literature. Mr. Davis, Mr. Conover, Mr. Rockey, Mr. Matthews, Miss Rice, Mr. Faulkner, Miss Sturmer, Miss Elcock and Miss Aberle.

A study in the history of English literature, the object being to give the student a perspective of the field of English letters, and to study the works

of authors in relation to their own periods. Texts: Moody and Lovett, *A History of English Literature*; Pyre, Dickinson, Young, *Student's Handbook in English Literature*; Cunliffe, Pyre, and Young, *Century Readings in English Literature*.

FOR GRADUATE AND UNDERGRADUATE CREDIT

260. CHAUCER. 3(3-0); I. Prerequisite: English Literature. Miss Elcock. The life, times, works, and characteristic language of Chaucer, with the emphasis upon the study of his principal works. Texts: Chaucer, *Complete Works*; Chaucer, *Selections* (Greenlaw).

262. MILTON AND THE PURITAN REVOLT. 3(3-0); II. Prerequisite: English Literature. Miss Elcock.

The life and times of Milton and his chief works; 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. 2(2-0); II. Prerequisite: Courses 172 and 175. Mr. Davis and Mr. Breeden.

An advanced study in the history of American literature beginning with colonial literature and continuing through the period of the Civil War down to the present time.

267. KANSAS LITERATURE. 2(2-0); I and SS. Prerequisite: American Literature. Mr. Callahan.

A study of the novels, short stories, essays, and poems written about the state. Especially the literature produced by Kansas authors.

271. THE ENGLISH BIBLE. 3(3-0); I, II, and SS. Prerequisite: English Literature. Mr. Conover.

The Bible as literature, with special stress on the narratives of the Old Testament, poetry, wisdom literature, and the book of Job. Text: Moulton, *The Modern Readers' Bible*.

273, 274. SHAKESPEAREAN DRAMA I AND II. 3(3-0) each; I and II, respectively. Prerequisite for each: English Literature. Mr. Davis and Miss Sturmer.

I: The life and times of Shakespeare and the background of Shakespearean tragedy; intensive study of 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*; Brooke, Cunliffe, and MacCracken, *Shakespeare's Principal Plays*.

II: An intensive study of five of Shakespeare's comedies: *The Winter's Tale*, *As You Like It*, *Twelfth Night*, *Cymbeline*, and *The Tempest*; collateral readings of earlier comedy, Shakespearean comedy, that of his contemporaries, and present-day criticism of Shakespeare. Texts: Nielson and Thorndike, *The Facts About Shakespeare*; Brooke, Cunliffe, and MacCracken, *Shakespeare's Principal Plays*.

276. ENGLISH ESSAYISTS OF THE EIGHTEENTH AND NINETEENTH CENTURIES. 3(3-0); II. Prerequisite: English Literature. Mr. Davis and Mr. Conover.

Two periods of especially notable English prose. Among the authors discussed are Swift, Addison, Steele, Johnson, Burke, Lamb, Hazlitt, DeQuincey, Wilson, Newman, Ruskin, Spencer, Huxley, Pater, and Wilde. Text: Walker, *The English Essay and Essayists*.

278. THE ENGLISH ROMANTIC REVIVAL. 3(3-0); I. Prerequisite: English Literature. Mr. Rockey.

The chief poetical works of Wordsworth, Shelley, Keats, Coleridge, and Byron, with some consideration to the period as a revival of romanticism.

Texts: Complete or selected poetical works of Wordsworth, Shelley, Keats, and Byron.

280, 281. WORLD CLASSICS I AND II. 3(3-0) each; I and II, respectively. Prerequisites for each: English Literature and American Literature. Mr. Faulkner.

I: The literary masterpieces (in translation) of early times, particular attention being paid to Greek and Latin classics. Texts: Richardson and Owen, *Literature of the World*; Showerman and Cunliffe, *Century Readings in Ancient Classical and Modern European Literature*.

II: The literary masterpieces (in translation) of Western Europe, with particular attention to the works of Italian, Spanish, French, and German writings that have attained lasting world fame. Texts: Same as for I.

283. CONTEMPORARY FICTION. 3(3-0); I. Prerequisite: American Literature. Mr. Conover.

The more important British and American fiction since Hardy. Texts: Manley and Rickert, *Contemporary British Literature* and *Contemporary American Literature*; Van Doren, *Contemporary American Novelists*.

284. CONTEMPORARY DRAMA. 3(3-0); II. Prerequisite: American Literature. Mr. Conover.

Development of the drama since Ibsen; types of modern drama; works of important English, Irish, and American dramatists. Text: Dickinson and Crawford, *Contemporary Plays*.

286, 287. THE NOVEL I AND II. 3(3-0) each; I and II respectively. Prerequisites: For I, American Literature; for II, The Novel I. Mr. Breeden.

I: The English novel, its historic development, its relation to other forms of fiction, and its place in contemporary literature; especial attention to representative works of modern English and American writers. Text: Cross, *The Development of the English Novel*.

II: Continuation of The Novel I. Review of essentials in study of the novel; readings of representative modern novels continued; class reports.

288, 290. ENGLISH SURVEY I AND II. 2(2-0) each; I and II respectively. Prerequisites: For I, History of English Literature; for II, I. Mr. Davis, Mr. Conover, and Mr. Breeden.

I: An advanced study in the history of English Literature from Anglo-Saxon times down to the close of the Elizabethan period. Basic text: *The Cambridge History of English Literature*.

II. The rise of Puritanism and its influence on English literature; the classical movement emphasized; romanticism and its development. Basic text: Same as for I.

293. BROWNING AND TENNYSON. 3(3-0); II. Prerequisite: English Literature. Mr. Rockey.

Interpretation of the most important poetic and dramatic works of Alfred Tennyson and of Robert Browning. Texts: Tennyson, *Complete Poetical Works* (Cambridge edition); Browning, *Complete Poetical Works* (Cambridge edition).

297. CONTEMPORARY POETRY. 3(3-0); II, and SS. Prerequisite: History of English Literature. Mr. Davis and Mr. Conover.

A study of representative contemporary poetry. Texts: Untermeyer, *Modern American Poetry* and *Modern British Poetry*.

298. PROBLEMS IN THE TEACHING OF ENGLISH. 3(3-0); SS. Prerequisites: 15 hours of English and 9 hours of Education. Mr. Davis and Miss Elcock.

The history of the teaching of English both in England and in 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.

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 Miss Elcock.

FOR GRADUATE CREDIT

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, 302. HISTORY OF THE ENGLISH LANGUAGE I AND II. 2(2-0) each; I and II, respectively. Prerequisite: History of English Literature. Mr. Conover.

I: The origin and development of the English language, with special stress on Old English. Texts: Wyld, *Historical Study of the Mother Tongue*; Bright, *Anglo-Saxon Reader*.

II: A continuation of course 301, with special emphasis on Middle English, and Modern English. Texts: Wyld, *Historical Study of the Mother Tongue*; Emerson, *Middle English Reader*.

304. RESEARCH IN APPLIED ENGLISH. 2(2-0); II. Prerequisite: History of English Literature. Mr. Davis.

Individual assignments in fundamental fields of research in applied English, an original investigation, and an acceptable report thereon being required.

315. RESEARCH IN THE LITERATURE OF INDUSTRY. 2(2-0); I. Prerequisite: History of English Literature. Mr. Davis and Mr. Conover.

This is an investigation and research course based on a careful study of the development of the distinctive literature of industry.

Entomology

Professor DEAN
Professor McCOLLOCH
Professor SMITH‡
Associate Professor PARKER
Assistant Professor PAINTER

Assistant Professor WILBUR ||
Instructor BRYSON
Graduate Assistant HORSFALL
Graduate Assistant MARSHALL

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),

‡ Absent on leave, year 1928-'29.

|| Temporary appointment.

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 \$27,824.

COURSES IN ENTOMOLOGY

FOR UNDERGRADUATE CREDIT

111. APICULTURE. 3(2-3); II. Prerequisite: General Entomology. Dr. Parker.

A general study of the structure, life history, general behavior, activities, and products of the honeybee; practice beekeeping and best methods used among beekeepers; bee diseases and the standard methods to be used in their eradication and control; relation of bees to agriculture and horticulture. Charge, 75 cents.

116. MILLING ENTOMOLOGY. 1(1-0); I. Mr. Dean.

Insect pests of flour mills, elevators, granaries, warehouses, and bakeries and standard methods of dealing with them; inspection trips to flour mills and warehouses.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. HORTICULTURAL ENTOMOLOGY. 2(2-0); I. Prerequisite: General Entomology. Dr. Parker.

The most important insect pests of orchard, garden, and forest, and standard methods of controlling their ravages.

203. GENERAL ENTOMOLOGY. 3(2-3); I, II. Prerequisite: General Zoölogy. Mr. Dean and Mr. Bryson.

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; the more important general facts about insects as a class; main characters of the different orders and groups; how they survive and multiply; and why measures of control differ for different groups. Charge, \$1.

206. GENERAL ECONOMIC ENTOMOLOGY. 3(2-3); II. Prerequisite: General Entomology. Mr. McColloch.

The life history of the more important economic insects of field crops, methods to be used in dealing with them, and the literature of economic entomology.

Laboratory.—Practical problems in insect surveys, control, rearing, collecting, and life histories, in the course of which the student gains a first-hand acquaintance with the more important injurious insects at home in nature. Charge, 50 cents.

211, 212. INSECT MORPHOLOGY I AND II. 3(1-6) and 3(0-9), respectively; 211, I; 212, I or II. Prerequisites: For I, General Entomology; for II, course 211. Dr. Painter.

I: The external anatomy of representative insects belonging to a number of orders, the types studied being selected 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. Charge, \$1.

II: The internal anatomy of representative insects, the dissections of which present the general plan and structure of the internal systems; one conference each week, with assigned readings in selected texts and papers. Charge, \$1.

216. PRINCIPLES OF TAXONOMY. 1(1-0); II. Prerequisites: (1) For students taking course 217, courses 203 and 211; (2) for students taking General Zoölogy. This course must be taken with course 217 or with one of the taxonomic courses in zoölogy. Dr. Painter.

Fundamental principles of zoölogical taxonomy. 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; professional ethics and modern tendencies in taxonomy.

217, 218. TAXONOMY OF INSECTS I AND II. 2(0-6) and 3(0-9), respectively; II each. Prerequisites: For I, General Entomology and Insect Morphology I. Principles of Taxonomy must be taken with this course. For II, Taxonomy of Insects I. Dr. Painter.

I: Practice in the determination of insects, at least of all the major orders to genera, sometimes species; an acquaintance with the most useful taxonomic literature in each group and the use of catalogues. Charge, \$1.

II: A group is selected, and intensive study of the insects and literature of the group is made in order to become proficient in their determination. Charge, \$1.

221. ADVANCED GENERAL ENTOMOLOGY. 3(3-0); II. Prerequisite: General Entomology. Mr. Wilbur.

A comprehensive view of the broad biological aspects of the subject and an understanding of the relation of insects to the complex of environmental factors; the various subdivisions of entomology 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.

226. MEDICAL ENTOMOLOGY. 3(2-3); I. Prerequisites: General Entomology. Mr. Wilbur.

Insects and other arthropods as parasites and disseminators of diseases of man and domestic animals; the life cycles, biology and control of insect parasites.

Laboratory.—A detailed study in order to recognize the various stages of the insect parasites of man and domestic animals; a study of the organisms of insect-borne diseases; house fumigation and observation of local sanitation problems bearing on the subject. Charge, \$1.

227. ADVANCED APICULTURE A. 3(2-3); SS. Prerequisite: Apiculture. Dr. Parker.

A continuation of apiculture. The principles of bee behavior studied under actual conditions during the active season; practical work in the manipulation of bees during the production of the honey crop, in swarm-control methods, and making increases in the colony; queen rearing. Charge, 50 cents.

228. ADVANCED APICULTURE B. 3(2-3); I. Prerequisite: Apiculture or its equivalent. Dr. Parker.

A continuation of Apiculture. The principles of bee behavior, and how these are related to practice of good beekeeping; preparation for wintering, feeding for winter, and winter protection; merits and demerits of different systems of wintering; extracting honey, preparing it for market, marketing, and other advanced subjects. Charge, 50 cents.

231. ENTOMOLOGICAL AND ZOÖLOGICAL LITERATURE. 2(2-0); I. Prerequisite: General Entomology. Dr. Painter.

The literature of entomology which is inseparably associated with that of zoölogy and hence of equal importance to students of both subjects; general

and special biographical sources; foreign and American scientific journals and serials; the construction of special bibliographies according to approved methods; a study of the biographies of leading world biologists of all ages and their publications, particularly of those in the College library. All advanced students of entomology and zoölogy are expected to take this course.

234. **INSECT PHYSIOLOGY.** 2(2-0); given when requested by two or more students. Prerequisites: Insect Morphology II, Cytology or Histology, and Physiological Chemistry. Dr. Parker.

Physiology of the cell, respiration, metabolism, reproduction, muscular activity, nervous responses, sense organs and senses, circulation, glandular system, and the metamorphosis of insects.

236. **ZOOLOGY AND ENTOMOLOGY SEMINAR.** 1(2-0); I and II. For prerequisites, consult seminar committee.

Presentation of original investigations, reviews of papers appearing in current journals, summaries of recent advances in various fields and discussion of various aspects of the fundamental problems of modern biology.

238. **ENTOMOLOGICAL PROBLEMS.** 2 to 4 cr.; I and II. For prerequisites, consult instructors. Mr. Dean, Mr. McColloch, Dr. Parker, Dr. Painter, Mr. Bryson, and Mr. Wilbur.

Students having sufficient training may, with approval of the head of the department, pursue under the direct supervision of some members of the departmental staff 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, and household insects.

FOR GRADUATE CREDIT

316. **RESEARCH IN ENTOMOLOGY.** Prerequisites: (1) For research in taxonomy and morphology, Entomology 203, 211, 217, and Cytology; (2) for research in economic entomology, Entomology 203, 206, and 217. Mr. Dean, Mr. McColloch, Dr. Parker, Dr. Painter, Mr. Bryson, and Mr. Wilbur.

With the approval of the head of the department, advanced students having sufficient fundamental training may 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, if of sufficient merit, may be used to fulfill the thesis requirement for the master's degree. If willing and capable, special students may be drawn into the research work of the Agricultural Experiment Station during the summer vacation and receive training in the investigation of economic problems.

Geology

Professor SPERRY.

The courses offered in geology are designed to meet the needs of three kinds of students: The technical student in agriculture or in civil engineering who must know something of the relationship of geology to his particular field; the general student who desires some knowledge of the world about him, and who realizes the cultural and economic value of understanding his physical environment; and finally the student who wishes to major in geology.

The equipment consists of collections of rocks, fossils, and minerals and the laboratory instruments necessary to study these materials. The country around Manhattan, in addition to splendid Permian and Late Pennsylvanian invertebrate fossils, offers considerable variety of geologic phenomena such as limestone outcrops, sand dunes, glacial drift, a small volcanic plug, and the physiographic features characteristic of the prairie-plains. To take advantage of this outdoor laboratory, field trips are given in most courses as a regular part of the laboratory work.

COURSES IN GEOLOGY

FOR UNDERGRADUATE CREDIT

102. ENGINEERING GEOLOGY. 4(3-3); I. Prerequisite: Chemistry 105, or equivalent. Mr. Sperry.

The general principles of geology and their application to engineering problems. Text: Ries and Watson, *Engineering Geology*.

Laboratory.—Observation and description of the structural and dynamic features of this locality; the study of topographic and geologic maps. Charge, \$1.50.

103. GENERAL GEOLOGY. 3(3-0); I and II. Three or four field trips are taken during the semester. Not open to students having credit in Geology 102. Prerequisite: High school or general Chemistry. Mr. Sperry.

The structural and dynamic features of the earth; the rock-forming minerals; the rocks and their decay; a short history of the earth. Text: Cleland, *Physical and Historical Geology*. Charge, \$1.50.

FOR GRADUATE AND UNDERGRADUATE CREDIT

203. HISTORICAL GEOLOGY. 4(3-3); II. Prerequisites: Course 102 or 103. Mr. Sperry.

The procession of physical and biological events through which the earth has gone, with stress on the philosophical side of earth history. Text: Pirsson and Schuchert, *Textbook of Geology*, Part II.

Laboratory.—Collection and study of local fossils, and their application in the identification of the rock measures; study of museum specimens and of paleogeographic maps. Charge, \$1.50.

207. ECONOMIC GEOLOGY. 4(3-3); I. Prerequisite: Course 103. Mr. Sperry.

The origin and mode of occurrence of nonmetalloid minerals, including coal and petroleum, and of metallic mineral deposits. Text: Emmons, *General Economic Geology*.

Laboratory.—Identification and study of the ore-forming minerals; map studies of the economic areas. Charge, \$1.50.

209. CRYSTALLOGRAPHY AND MINERALOGY. 4(2-6); I. Prerequisites: General Geology, and General Chemistry. Mr. Sperry.

The fundamentals of crystallography and mineralogy. Text: Kraus and Hunt, *Mineralogy*.

Laboratory.—The measurement of crystal angles and the determination of crystal constants; identification of minerals by physical characters and with the blowpipe. Charge, \$1.50.

210. FIELD GEOLOGY. SS. Credit to depend upon the amount of work done. Opportunity is offered students to do field work in the Rocky Mountains. Students interested should consult Mr. Sperry.

FOR GRADUATE CREDIT

301. RESEARCH IN GEOLOGY. Credit to be arranged; I and II.

Students with adequate preparation may undertake original investigations in geology.

History and Government

Professor PRICE
 Professor ILES
 Professor JAMES
 Associate Professor CORRELL

Associate Professor SHANNON
 Associate Professor WILLIAMS
 Associate Professor PARRISH
 Assistant Professor ALSOP

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 Government. 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 of 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 \$1,190 is owned by this department.

COURSES IN HISTORY

FOR UNDERGRADUATE CREDIT

101. ANCIENT CIVILIZATIONS. 3(3-0); II and SS. Mr. Parrish.

The early civilizations of the Near East and Mediterranean regions, from the beginnings to 565 A.D. Special attention is given to the life, institution, art, and literature of Greece and Rome.

102. MEDIEVAL EUROPE. 3(3-0); I and SS. Mr. Parrish.

The racial, cultural, and institutional developments in Europe, from the time of Justinian (565 A.D.) to the Reformation (1500 A.D.). A continuation of course 101. Text: Munro and Sontag, *The Middle Ages*.

103. AMERICAN HISTORY LECTURES. 0(2-0); SS. Mr. Price.

A series of lectures on American history; no recitations and no examinations; based on Price, *An American History Notebook*.

105. AMERICAN INDUSTRIAL HISTORY. 3(3-0); I, II, and SS. Not open for credit to students who have credit in course 203. Dr. Shannon.

History of American agriculture, manufactures, and commerce with related activities from their colonial beginnings to the present; 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, as a side light on American history; growth of our national industrial organization and its present-day aspects. Text: Foulkner, *American Economic History*.

110. HISTORY OF COMMERCE AND INDUSTRY. 3(3-0); I. Dr. Shannon.

The evolution of industry and commerce from primitive beginnings to present-day organization traced in broad outline, and economic survey of world history, with special stress on the modern period.

115. MODERN EUROPE I. 3(3-0); I or II. Miss Alsop.

The evolution of modern institutions from the renaissance to the opening of the nineteenth century, the principal movements being 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. I.

121. ENGLISH HISTORY. 3(3-0); I, II, and SS. Not open for credit to students who offer English history for entrance. Mr. James.

A general survey of the whole field of English history, including the outlines of political history and the essentials of English constitutional development

and stressing the development of the empire, the English background of American history, and the industrial and social development of the English people. Text: Lunt, *History of England*.

126. CURRENT HISTORY. 1(1-0); I, II, and SS. May not be taken more than four semesters for credit. Mr. Price, Mr. Iles, Mr. James, Mr. Correll, Dr. Shannon, Mr. Williams, Mr. Parrish, and Miss Alsop.

The essentials of American and foreign governments, of international relations, of international law, of biography, of industrial developments, and of the larger world issues as they appear in current news reports giving a wide outlook on the world of to-day and a better understanding of conditions and institutions in the midst of which we live. Texts: *The Review of Reviews*, supplemented by other periodicals and pertinent background material.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. AMERICAN HISTORY I. 3(3-0); I, II, and SS. Prerequisite, when taken for graduate credit: Three credits of college history. Mr. Price.

Beginning of the American nation: The origin and development of American nationality and democracy to the end of the War of 1812, with special stress on the industrial phases, but including our constitutional and political development, with the European background in each case. Text: R. R. Price, *An American History Notebook*.

202. AMERICAN HISTORY II. 3(3-0); I, II, and SS. Not open for undergraduate credit to students who have credit in course 206. Prerequisite, when taken for graduate credit: Three credits of college history. Mr. Price.

Western expansion and sectionalism: The industrial conditions, the political issues, and the leaders of the middle period of our history, from the close of the War of 1812 to the Civil War. Text: R. R. Price, *An American History Notebook*.

203. AMERICAN HISTORY III. 3(3-0); II and SS. Not open for undergraduate credit to students who have credit in course 105. Prerequisite, when taken for graduate credit: Course 105, 201, or 202.

The new industrial age: Review of the industrial conditions in America just before the Civil War; industrial effects of that war; the political and governmental activities of the last half century in the light of the industrial conditions and developments of that period. Text: R. R. Price, *An American History Notebook*.

204. AMERICAN AGRICULTURAL HISTORY. 3(3-0); I. Prerequisite, when taken for graduate credit: Three credits of college history. Dr. Shannon.

European background and Indian beginnings; agricultural development during the colonial period; 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 last quarter century with its varied industries, more intensive farming, and higher cost of living. Text: Schmidt and Ross, *Readings in the Economic History of American Agriculture*.

206. AMERICAN POLITICAL HISTORY. 2(2-0); I. Intended to supplement course 105 or 204. Prerequisite, when taken for graduate credit: Three credits of college history. Mr. Iles.

Origin, development, leaders, and function of political parties in America; issues and results of the more important presidential elections; growth of nationality and development of self-government through American history, with special reference to present tendencies. Text: Lewis, *Party Principles and Practical Politics*.

207. LATIN AMERICA. 2(2-0); I, II, and SS. Prerequisite, when taken for graduate credit: Three credits of college history. Mr. James.

History, government, and industrial and social conditions of Mexico, Central America, and the South American nations; the interrelations of each of these

and the United States; particular attention given to contemporary Latin America. Text: James and Martin, *The Republics of Latin America*.

223. MODERN EUROPE II. 3(3-0); I, II, and SS. Prerequisite, when taken for graduate credit: Course 115. Mr. Parrish.

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. Text: Hayes, *A Political and Social History of Modern Europe*, Vol. II.

224. TWENTIETH CENTURY EUROPE. 2(2-0); I, II, and SS. Prerequisite, when taken for graduate credit: Course 223. Mr. Correll.

The causes of the World War; the nations that entered it and why; the war; the making of the treaty, and its provisions; the League of Nations; and postwar reconstruction. Text: Slossen, *Twentieth Century Europe*.

225. HISTORY OF THE HOME. 3(3-0); II. Prerequisite, when taken for graduate credit: Three credits of college history. Miss Alsop.

The primitive family; the Hebrew family; family life of the Greeks and of the Romans; the home and family life during the Middle Ages, including the influence of the Christian church; the English family in the seventeenth and eighteenth centuries; the American colonial home; the industrial revolution and its effects upon family life; the family during the nineteenth century; the present situation and tendencies. Text: Goodsell, *The Family as a Social and Educational Institution*.

226. THE BRITISH EMPIRE. 2(2-0); II and SS. Prerequisite: For undergraduates, entrance credit in English history or three credits of college history; for graduate credit, the latter. Mr. James.

The English phase of the European expansion movement, with consideration to the forces and influences promoting the "swarming of the English" overseas; growth and development of the English provinces into self-governing colonies and the union of these into practically independent dominions; the drawing together of the widely scattered English people into a British Commonwealth of Nations, and the significance of this fact in the struggle for democracy.

228. IMMIGRATION AND INTERNATIONAL RELATIONS. 2(2-0); I and SS. Prerequisite, when taken for graduate credit: Three credits of college history. Mr. Price.

Causes and effects—economic, social, and political—of the coming of the foreigner to our shores, from the colonial period to the present, with special reference to the recent changes as to the character of the immigrants and as to the conditions in Europe and in America that affect the number and quality of immigrants; a clear survey of the important epochs in our diplomatic history. Texts: (1) First part based on such works as Orth, *Our Foreigners*, and Fairchild, *Immigration—A World Movement and Its American Significance*; (2) For second part, Latane, *History of American Foreign Policy*.

229. HISTORY OF THE FAR EAST. 2(2-0); I. Prerequisite, when taken for graduate credit; 3 units of college history. Mr. Parrish.

Lands and people of Asia; rise and development of cultures in India, China, Korea, Japan, Malaysia, and Indo-China; rise and decline of Asiatic expansion; the various contacts of the West with the East, and the contributions which each has made to the other; present foreign and domestic problems of the Far East peoples.

231. HISTORY OF RELIGIONS. 2(2-0); I or II, and SS. Prerequisite, when taken for graduate credit; 3 credits of college history. Mr. Parrish.

Rise and growth of historic religions which influence most of the peoples of the world to-day; relation of each religion to race, physical environment, and advance in culture; the leading personalities, religious conceptions, and historic events and movements which modify life and thought in Hinduism,

Buddhism, Confucianism, Taoism, Zoroastrianism, Mohammedanism, Judaism, and Christianity.

232. PROBLEMS IN HISTORY INSTRUCTION. 2(2-0); SS. May be taken for three graduate credits, in which case ten credits in history and nine credits in education are prerequisites, and a series of problems must be worked out from first-hand material. Mr. Iles or Dr. Shannon.

The different texts in history and civics critically compared as to points of excellence or weakness, including lectures on the content and viewpoint of each; the best available illustrative material and helps in the teaching of history and civics; evolution in the writing of history; the growing importance of history and civics in the modern school curriculum; the improving viewpoint as to content of both the history and civics courses; for the more advanced students, special attention 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 history. Text: Tryon, *The Teaching of History in Junior and Senior High Schools*.

250. SEMINAR IN HISTORY AND GOVERNMENT. 2 to 5 credits; I, II, and SS. Prerequisite: Six credits of college history of a type that will serve as a proper background for the subject to be studied. Mr. Price, Mr. Iles, Mr. James, Mr. Correll, Dr. Shannon, and Mr. Parrish.

Preference to special fields connected with the history of agriculture, of industry, or of commerce, though other fields may be studied at the discretion of the department.

FOR GRADUATE CREDIT

301. RESEARCH IN HISTORY. 1 to 6 credits; I, II, and SS. For prerequisites, consult instructor. Mr. Price, Mr. Iles, Mr. James, Mr. Correll, Dr. Shannon, and Mr. Parrish.

Individual research problems in European or American history, including international relations. Conclusions will generally take the form of a thesis.

COURSES IN GOVERNMENT

FOR UNDERGRADUATE CREDIT

151. AMERICAN GOVERNMENT. 3(3-0); I, II, and SS. Not open to students having credit in History and Government 152 or 153. Mr. Iles.

A definite review of the fundamental principles and operations of our state and national governments, including the principles of constitutional law, but giving special emphasis to present-day conditions and movements in our governmental and political life. Texts: Ogg and Ray, *Introduction to American Government*, supplemented by such texts illustrative of American government as those of Mott or Pollock.

152. AMERICAN NATIONAL GOVERNMENT. 3(3-0); I. No credit for students having credit in course 151. Mr. Iles.

The mechanism, functions, and control of the government of the United States, with considerable attention to principles and problems. With course 153, this course affords a comprehensive study of American national, state, and local government.

153. AMERICAN STATE GOVERNMENT. 3(3-0); II. No credit for students having credit in course 151. Mr. Iles.

State and local government, with special attention to functions and problems.

155. OUR NATIONAL AND STATE CONSTITUTIONS. 2(2-0); SS. Mr. Iles and Mr. Williams.

The state texts, supplemented by an abundance of illustrative material intended to be specifically useful in presenting the subject to pupils. For teachers required by law to teach the constitution of the United States; of value also to those preparing for a course in law.

160. COMMERCIAL LAW. 1(1-0); I. Mr. Williams.

The elementary principles of contracts, agency, sales, and negotiable instruments. Business Law A may be substituted for Commercial Law, where the requirements of the curricula permit, and the extra credit used as an elective. Text: Bays, *Business Law*.

161, 162. BUSINESS LAW A and B. 2(2-0) each; I and II for A, II for B. Prerequisite, for B: course A. Mr. Williams.

A: Contracts, agency, and sales.

B: Negotiable instruments, partnership, and corporations.

The case method of study is used. Casebook: Britton and Bauer, *Cases on Business Law*.

163, 164. BUSINESS LAW I AND II. 3(3-0) each; I and II each. Prerequisite for II: Course I. Mr. Williams.

Similar in character to courses 161 and 162 but a more detailed treatment of the subject.

175. FARM LAW. 2(2-0); I. Offered 1929-'30 and alternate years thereafter. Not open to students having credit in Business Law I or II. Mr. Williams.

A study of the particular rules in various branches of the law, such as property (including deeds, mortgages, the relation of landlord and tenant) contracts, negotiable instruments, sales, agency, insurance, and police regulation, a knowledge of which is most useful to the conduct of the business of a farmer. Text: Green, *Law for the American Farmer*, supplemented by a study of Kansas statutes and court decisions.

FOR GRADUATE AND UNDERGRADUATE CREDIT

252. COMPARATIVE GOVERNMENT. 2(2-0); I or II, and SS. Mr. Iles.

The leading features, especially with regard to administration, of certain European governments such as England, France, and Germany, and a comparison of essential feature with government in the United States. (A supplement to the course in American Government.) Text: Munro, *Governments of Europe*.

256. INTERNATIONAL LAW. 2(2-0); II. Mr. James.

Fundamental principles of international law and international relations; public and private rights and obligations in time of peace and in time of war, especially in the light of recent developments, such as the Hague conference. Text: Fenwick, *International Law*.

260. GOVERNMENT REGULATION OF BUSINESS. 2(2-0); II. Prerequisite, when taken for graduate credit: Course 151, 161, or 163. Mr. Williams.

Government powers; trade regulations; labor unions; protection of debtors; business affected with a public interest; conservation of natural resources; vested rights; confiscatory legislation; and certain positive governmental activities.

276. LAND LAW. 2(2-0); I or II. Planned to supplement Agricultural Land Problems (Ag. Ec. 218). Mr. Williams.

The estates, interests, and rights in land, including relation of landlord and tenant, future interests, joint estates, easements, equitable interests, and mortgages; acquisition of land, including conveyances, descent, devise, adverse possession; notice of rights of power owner or incumbrancer, including notice by recording, notice by possession, etc.

FOR GRADUATE CREDIT

351. RESEARCH IN GOVERNMENT. 1 to 6 credits; I, II, and SS. For prerequisites in each case, consult instructor. Mr. Price, Mr. Iles, Mr. James, Dr. Shannon, and Mr. Williams.

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 ROGERS
Professor KEITH
Assistant Professor AMOS

Assistant Professor CHARLES
Assistant Professor NEISWANGER
Instructor THACKREY

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 1873—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 \$16,017.

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 UNDERGRADUATE CREDIT

101, 105. PRINCIPLES OF TYPOGRAPHY I AND II. 3(2-3) and 1(0-3), respectively; I and II, each. Mr. Amos.

I: The case, the point system, and the measurement of type and stock; the history of printing; development of the various typographic styles; practice in setting straight matter, with emphasis on accuracy.

II: Type faces and the typography of advertisements and head display; principles of effective make-up.

108, 111, 112. AD COMPOSITION, I, II AND III. 2(0-6) each; I and II each. Prerequisites: For I, course 105; for II, course 108; for III, course 111. Mr. Amos.

I: Principles of display and design as applied to newspaper and magazine advertisements; practical work in setting ads. for magazines.

II and III: Course 108 continued; more complicated work studied.

114, 118, 120. JOB COMPOSITION I, II AND III. 2(0-6) each; I and II each. Prerequisites: For I, course 105; for II, course 114; and for III, course 118. Mr. Amos.

I: Emphasis on differences in requirements for job composition and ad. composition; proper selection of type faces, borders, and ornaments; setting jobs and locking them up for the pressroom.

II and III: Color work, tabular forms, and other complicated kinds of job work.

122, 126. PLATEN PRESS WORK I AND II. 2(0-6) each; I and II each. Prerequisites: For I, course 108 or 114; for II, course 122. Mr. Amos.

I: Practical platen presswork under ordinary printing-office conditions; feeding of the press and preparation of the jobs by the student; selection of inks and care of printing rollers.

II: I continued, with more advanced work in mixing inks and in color work.

131, 136. CYLINDER PRESS WORK I AND II. 2(0-6) each; I and II each. Prerequisites: For I, course 126; for II, course 131. Mr. Amos.

I: The fundamentals for work on all kinds of cylinder presses; how to make the work ready and how to feed; the general care and handling of cylinder presses.

II: A continuation of Cylinder Presswork I.

COURSES IN INDUSTRIAL JOURNALISM

FOR UNDERGRADUATE CREDIT

151. ELEMENTARY JOURNALISM. 2(2-0); I and SS. Mrs. Neiswanger and Mr. Thackrey.

Methods of obtaining news of various types, the writing of the lead, and the general styles of the news story.

154, 155, 158, 159. JOURNALISM PRACTICE I, II, III AND IV. (2(0-6) each; I and III are given I and SS; II and IV, II. Prerequisites for each: All preceding journalism practice courses. Mr. Rogers, Mrs. Neiswanger, and Mr. Thackrey.

Laboratory practice in gathering news and writing and editing newspaper and magazine copy.

161. INDUSTRIAL WRITING. 2(2-0); I and II. Mrs. Neiswanger and Mr. Thackrey.

Application of the principles of journalism to the treatment of industrial subjects, such as are found in agriculture, engineering, home economics, and more general scientific research.

167, 171. INDUSTRIAL FEATURE WRITING I AND II. 2(2-0) each; I, II, and SS respectively. Prerequisite: Industrial Writing. Mr. Rogers.

I: The feature article; its underlying principles applied to writing on agricultural and other industrial subjects; demands of newspapers, farm journals, and general magazines for writing of this character.

II: Agricultural journals, trade journals, and other publications of highly specialized character; actual writing for publications of these types and submission of material to editors; specialized work suited to women.

179. PRINCIPLES OF ADVERTISING. 3(3-0); I and II. Prerequisite: For industrial journalism students, course 161; for commerce students, Written and Oral Salesmanship. Mr. Keith.

Study of the goods to be advertised, analysis of the market, psychology of advertising, preparation of advertising copy, and other important matters; application of the principles involved.

182. THE RURAL PRESS. 3(3-0); I and II. Prerequisite: Course 151. Mr. Charles.

Nature and needs of the community newspaper, with emphasis on its presentation of the agriculture and rural life in its field; actual writing of news stories and items gathered on the campus for publication in Kansas community newspapers.

183. NEWS BUREAU METHODS. 2(2-0); I. Mr. Charles.

A study of publicity methods, accepted and condemned practices, the psychology of the press agent's copy, its effect on the editor and the reader. Lecture and recitation supplemented with practice writing for the College news bureau.

185. SUPERVISED OBSERVATION AND TEACHING IN INDUSTRIAL JOURNALISM. 2(2-0); II and SS. Mrs. Neiswanger.

The principles of newswriting, with practice; and intensive study of high-school newspapers and yearbooks, financing the high-school newspaper and yearbook; staff organization.

FOR GRADUATE AND UNDERGRADUATE CREDIT

250. ADVERTISING PRACTICE. 2(2-0); II. Prerequisite: Course 179. Mr. Keith.

Practice in advertising writing, with special attention to copy and display problems; practical problems in the advertising of student activities and of local merchants; actual commercial work.

251A. CIRCULATION AND ADVERTISING PROMOTION. 2(2-0); I. Prerequisite: Course 171 or equivalent. Mr. Keith.

Building up of circulation of periodical publications; soliciting of advertising; premiums and other plans for increasing circulation; the advertising agency, circulation analysis, and the fixing of advertising rates.

254. COPY READING. 2(0-6); I. Prerequisite: Course 171 or equivalent. Mr. Charles, Mrs. Neiswanger, and Mr. Thackrey.

Practice in the work required of a copy reader, whether on a newspaper, an agricultural journal, or some other publication.

255. CONTEMPORARY THOUGHT. 3(3-0); I. Prerequisite: Course 171 or equivalent. Mr. Rogers.

Correlation and unification of various subjects previously pursued in college; unbiased presentation of contemporary development and contemporary figures in science, the arts, and philosophy.

257. EDITORIAL PRACTICE. 2(2-0); II. Prerequisite: Copy reading. Mrs. Neiswanger.

The writing of editorials suitable for farm papers, trade papers, and newspapers; the shaping of editorial policies.

260. ETHICS OF JOURNALISM. 2(2-0); II. Prerequisite: Course 255. Mr. Rogers.

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; federal and state laws relating to periodical publications, to advertising, to libel, and to author's rights.

265. MATERIALS OF JOURNALISM. 2(2-0); I. Mr. Charles.

The principal newspapers and magazines; accuracy and adequacy of news reports and other published matter; materials handled by the publications; methods of treatment; character of editorial comment.

270. MAGAZINE FEATURES. 2(2-0); I, II, and SS. Prerequisite: Permission of the instructor. Mr. Rogers and Mrs. Neiswanger.

The matter of the course 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. 2(2-0); I. Prerequisite: One semester of college American History. Mrs. Neiswanger.

The history of journalism from its beginning and the history of printing as far as this is concerned with periodical publications.

278. JOURNALISM SURVEYS. 2(0-6); II. Mr. Rogers and Mrs. Neiswanger.

Careful investigation of the periodical reading matter of communities; tabulation of information obtained; relation of the reading matter to the industrial, economic, social and moral life of the communities.

282. COLUMN CONDUCTING. 2(2-0); II, when requested by a sufficient number. Mr. Davis, of the Department of English.

The conducting of the so-called column, humorous or semiserious; writing paragraphs, light verse, and similar material, with stress on practice in writing humor.

287. CURRENT PERIODICALS. 3(3-0); II. Mrs. Neiswanger.

The material contained by current periodicals of various types, and the nature of its appeal to the reader.

FOR GRADUATE CREDIT

351. RESEARCH IN INDUSTRIAL JOURNALISM. 2 to 5 credits: I and II. Mr. Rogers.

Several courses embodying creative literary work or detailed research in specialized journalism are arranged to meet the specific needs and desires of the individual graduate students.

Library Economics

Librarian SMITH
Associate Librarian DERBY
Acting Reference Librarian SWENSON
Loan Librarian CAMP

Reference Assistant BAKER
General Assistant HOFF
Loan Assistant CULLIPHER

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 \$271,895; other equipment has a value of \$55,813.

COURSES IN LIBRARY ECONOMICS

FOR UNDERGRADUATE CREDIT

101. LIBRARY METHODS. 1(1-0); I and II. Miss Derby, Miss Hoff, Miss Baker, Miss Camp, Miss Swenson, and Miss Cullipher.

Classification and arrangement of books in the Library; card catalogues; the principal works of reference, such as dictionaries, encyclopedias, atlases, and standard work in history, literature, economics, quotations, statistics, etc.; public documents and their indexes; indexes to periodicals, etc.; methods of indexing current reading for purposes of future reference.

Mathematics

Professor REMICK
 Professor WHITE
 Professor STRATTON
 Associate Professor HYDE
 Associate Professor LEWIS
 Associate Professor LYONS

Assistant Professor JANES
 Assistant Professor MOSSMAN
 Instructor HOLROYD‡
 Instructor ELDRIDGE
 Instructor PORTER
 Instructor COOK

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 \$810.

COURSES IN MATHEMATICS

FOR UNDERGRADUATE CREDIT

101. PLANE TRIGONOMETRY. 3(3-0); I and II. Prerequisites: Plane geometry and one and one-half years of high-school algebra. Mr. Stratton, Miss Hyde, Mr. Lewis, Mr. Lyons, Miss Holroyd, Mr. Janes, Miss Mossman, Mr. Porter, and Miss Eldridge.

Functions of acute right triangles, goniometry, oblique triangles, practical problems. Text: Palmer and Leigh, *Plane and Spherical Trigonometry*.

102. SOLID GEOMETRY. 2(2-0); I and II. Prerequisites: Plane geometry and one year of high-school algebra. Mr. Lewis, Mr. Janes, Miss Holroyd, Mr. Porter, and Miss Eldridge.

Principal theorems, numerical exercises, and mensurational problems. Text: Smith, *Essentials of Plane and Solid Geometry*.

104. COLLEGE ALGEBRA. 3(3-0); I and II. Duplicates latter part of Math. 107. Prerequisites: Plane geometry and one and one-half years of high-school algebra. Mr. Stratton, Miss Hyde, Mr. Lewis, Mr. Lyons, Miss Holroyd, Mr. Janes, Miss Mossman, Mr. Porter and Miss Eldridge.

Elementary topics, functions and their graphs, and quadratic equations rapidly reviewed; complex numbers, theory of equations, permutations and combinations, partial fractions, logarithms, and determinants. Text: Hart, *College Algebra*.

107. COLLEGE ALGEBRA A. 5(5-0); II. Includes Math. 105. Prerequisite: Plane geometry and one year of high-school algebra. Mr. Stratton, Miss Hyde, Mr. Lewis, Mr. Lyons, Miss Holroyd, Mr. Janes, Miss Mossman, Mr. Porter and Miss Eldridge.

Brief review of elementary subjects; a thorough treatment of quadratics, ratio, proportion, progressions, and the binomial theorem for positive exponents; the chief content of course 104. Text: Hart, *College Algebra*.

110. PLANE ANALYTICAL GEOMETRY. 4(4-0); I. Prerequisites: Plane Trigonometry and College Algebra. Mr. White, Mr. Stratton, Miss Hyde, Mr. Lyons, Mr. Lewis, Mr. Janes, and Miss Mossman.

Coördinate systems, projections, loci, straight line, conics, parametric and

‡ Absent on leave, year 1928-'29.

empirical equations, with a discussion of the general equation of the second degree. Text: Roberts and Colpitts, *Analytical Geometry*.

119. CALCULUS. 3(3-0); I. Not open to students who have credit in Math. 205. Prerequisite: Plane Analytical Geometry. Mr. Remick, Mr. Stratton, and Mr. Lyons.

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; the idea of the definite integral and a few of the more important applications.

122. SPECIAL METHODS IN THE TEACHING OF MATHEMATICS. 3(3-0); II. Miss Hyde.

Best methods of teaching arithmetic, algebra, and geometry; the reports of prominent mathematical organizations, especially those of the international commission; comparison of the curricula of different schools; an examination of books and articles on the teaching of mathematics; emphasis on pedagogical questions, with some reference to the historical development of elementary mathematics.

123. SPECIAL METHODS IN ARITHMETIC. 2(2-0); SS. Miss Holroyd.

Best methods of presenting the various topics; use of standardized and practice tests; supplementary work; best method of adapting the state test to the minds of the pupils, etc. Text: Thorndyke, *The New Methods in Arithmetic*.

126. ELEMENTS OF STATISTICS. 3(3-0); I. Not open to students having credit in Educ. 223. Mr. White.

The parts of algebra most needed as a basis for statistical work; development of the elementary principles used in analysis of statistical data.

129. SURVEY COURSE IN MATHEMATICS. 3(3-0); II. Prerequisites: Trigonometry and College Algebra. Mr. Stratton.

A general culture course designed to give an insight into the nature and function of mathematics beyond the elementary field. Essential ideas of analytical geometry and calculus with applications.

150. MATHEMATICS OF INVESTMENT. 3(3-0); II. Prerequisite: Course 143A. Mr. Stewart.

Calculation of compound interest, annuities, methods of measuring depreciation and determination of the price at which bonds should be bought to yield a market rate of interest; amortization of premiums and accumulation of discount on bonds; life insurance actuarial problems. Texts: Lovitt and Holtzclaw, *Mathematics of Business*; Glover, *Tables of Applied Mathematics*, Parts I and IV.

FOR GRADUATE AND UNDERGRADUATE CREDIT

The following courses are available on request by a sufficient number of students. Numbers 201, 203, 205, 206, 210, 213, and 216 are offered each year.

201. DIFFERENTIAL EQUATIONS. 3(3-0) I. Prerequisite: Calculus II. Mr. Remick.

The various standard types of differential equations, with the usual applications. Text: Cohen, *Differential Equations*.

203. THEORY OF STATISTICS. 3(3-0); II. Prerequisite: Elements of Statistics, or equivalent. Mr. White.

The theory of probability applied to statistical problems; statistical curves, correlation theory, curve fitting, and problems of random sampling; actual practice with data from biology, agronomy, physics, etc.

204. METHOD OF LEAST SQUARES AND THEORY OF MEASUREMENT. 2(2-0); II. Prerequisite: Calculus II. Mr. Remick and Mr. White.

The law of errors based on the theory of probability and the probability curve; adjustment of observations by the method of least squares, develop-

ment of precision measures; distribution of errors; and Gauss' method of substitution in the solution of normal equation.

205. CALCULUS I. 5(5-0); II. Open for only two hours credit to students who have credit in Math. 119. Prerequisite: Plane Analytical Geometry. Mr. Remick, Mr. White, Mr. Stratton, Mr. Lyons, Mr. Lewis, Mr. Janes, and Miss Hyde.

The usual topics of differential calculus, with integration of standard forms, definite integrals, rational fractions, and integration by parts. Text: Love, *Differential and Integral Calculus*.

206. CALCULUS II. 3(-0); I. Prerequisite: Calculus I. Mr. Remick, Mr. White, Mr. Stratton, Mr. Lyons, Mr. Lewis, and Miss Hyde.

Problems involving areas, lengths, surfaces, and volumes treated by processes of single integration; idea of successive and partial integration applied to areas, moments, centers of gravity, surfaces, volumes, etc.; types of differential equations most frequently met subsequently by the student of engineering. Text: Love, *Differential and Integral Calculus*.

207. SOLID ANALYTICAL GEOMETRY. 3(3-0); II. Prerequisites: Courses 110 and 206. Mr. White.

Coördinates of points in space and their transformation involving discussion of lines and planes; standard types of quadratic surfaces, their classification and principal properties. Text: Snyder and Sisam, *Analytical Geometry of Space*.

210. ADVANCED CALCULUS I. 3(3-0); I. Prerequisite: Calculus II. Mr. White and Mr. Lyons.

Special topics in integral calculus, including various methods of integrating elementary forms, definite integrals with attention to gamma and beta functions, and applications to lengths and areas. Text: Osgood, *Advanced Calculus*.

213. ADVANCED CALCULUS II. 3(3-0); II. Prerequisite: Course 210. Mr. White and Mr. Lyons.

Continuation of course 210, including further application to geometry and mechanics, a treatment of line, surface, and space integrals, and a discussion of elliptic integrals. Text: Osgood, *Advanced Calculus*.

216. THEORY OF EQUATIONS. 3(3-0); I. Prerequisite: Calculus II. Mr. Remick.

The elements of the classical theory including the general cubic and quartic equation and the complete solution of numerical equations; discussion of symmetric functions, resultants, and discriminants. Text: Dickson, *First Course in the Theory of Equations*.

FOR GRADUATE CREDIT

The following courses are available by appointment:

301. THEORY OF FUNCTIONS OF A COMPLEX VARIABLE. 3(3-0); II. Prerequisites: Advanced Calculus II and Differential Equations. Mr. Remick.

An introductory course with the usual line of topics.

306. THEORETICAL MECHANICS. 3(3-0); I. Prerequisite: Calculus II. Mr. Stratton.

Mechanics in its relation to mathematical analysis.

311. PROJECTIVE GEOMETRY. 3(3-0); II. Prerequisite: Course 110. Mr. White.

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. 3(3-0); I. Prerequisite: Course 201. Mr. Remick.

Treatment of special topics, such as the equations of Legendre, Bessel, and Ricatti, with applications.

321. LIE THEORY OF DIFFERENTIAL EQUATIONS. 3(3-0); II. Prerequisite: Course 201. Mr. Remick.

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 VARIATIONS. 3(3-0); I. Prerequisite: Course 201. Mr. Remick.

Some of the standard problems of maxima and minima wherein a definite integral affords the fundamental form of expression.

331. MATHEMATICAL RESEARCH. Credit and hours of work arranged in consultation with the head of the department; I and II. Required of all candidates for the master's degree whose major work is in the Department of Mathematics.

Military Science and Tactics

Professor PETTY, Col. Inf., U. S. A.
Associate Professor PEIRCE, Maj. C. A. C., U. S. A.
Associate Professor BOWEN, Capt. Inf., U. S. A.
Assistant Professor WERTZ, Capt. C. A. C., U. S. A.
Assistant Professor STEWART, Capt. C. A. C., U. S. A.
Assistant Professor FITZGERALD, Capt. V. C., U. S. A.
Assistant Professor ROSE, Capt. Inf., U. S. A.
Assistant Professor SIMS, First Lieut. Inf., U. S. A.
Assistant Professor MADISON, First Lieut. C. A. C., U. S. A.
Assistant Professor MARSHALL, First Lieut. Inf., U. S. A.
Military Property Custodian CLAEREN, Major, O. R. C.
Instructor COFFEE, First Sergeant, C. A. C., U. S. A.
Instructor CONNOLLY, Staff Sergeant, Cav., U. S. A.
Instructor PUGH, Sergeant, Inf., U. S. A.
Instructor WILSON, Sergeant, 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 male students, not physically disqualified, are required to take military training three hours a week for two years. Students entering with 25 hours of advanced credit are excused from one year of military training; those entering with 59 hours of advanced credit are excused from all military requirements.

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 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 curricula (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 for any reason are assigned to an equivalent amount of some other College work instead. Students permitted to postpone military science are not thereby excused, but must take it up later.

The act of congress of June 3, 1916, known as the national defense act, pro-

vides 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 or upon withdrawal from the R. O. T. C. Shoes are not furnished. Each student will 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 sophomores and specially qualified freshmen.

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 allowance.

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 to continue in the course during the remainder of his time in College, and to take the course in camp training during such period as 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 per month.)

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 normally 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 \$3,106. In addition, the department is the custodian of federal government equipment valued at \$300,000.

COURSES IN MILITARY SCIENCE AND TACTICS

FOR UNDERGRADUATE CREDIT

Senior Division R. O. T. C.

BASIC COURSE, INFANTRY

101A. INFANTRY I. 1(0-3); I. Lieut. Marshall.

(a) *Practical*. Physical Drills, infantry drills (close and extended order),

(b) *Theoretical*. Military courtesy and discipline, national defense policy, infantry drills.

102A. INFANTRY II. 1(0-3); II. Prerequisite, Course 101. Lieut. Marshall.

(a) *Practical*. Infantry drills (close and extended order), rifle marksmanship.

(b) *Theoretical*. Rifle marksmanship, military courtesy and customs, military hygiene and first aid, scouting and patrolling.

103A. INFANTRY III. 1(0-3); I. Prerequisite: Course 102. Lieut. Sims.

(a) *Practical*. Acting as instructors of freshmen in infantry drills.

(b) *Theoretical*. Infantry drills (close and extended order), ceremonies.

104A. INFANTRY IV. 1(0-3); II. Prerequisite: Course 103. Lieut. Sims.

(a) *Practical*. Automatic rifle firing, musketry problems, scouting and patrolling. Acting as instructors of freshmen in infantry drills.

(b) *Theoretical*. Automatic rifle, scouting and patrolling, musketry.

ADVANCED COURSE, INFANTRY

109. INFANTRY V. 3(2-3); I. Prerequisite: Infantry IV. Captain Rose.

(a) *Practical*. Instructors of freshmen and sophomores in all basic course subjects, map reading and sketching.

(b) *Theoretical*. Infantry drill. Machine gun, map reading and sketching.

110. INFANTRY VI. 3(2-3); II. Prerequisite: Infantry V. Captain Rose.

(a) *Practical*. Firing of 37-mm. and trench mortar, combat principles of the rifle section and platoon, instructors in all basic course subjects.

(b) *Theoretical*. 37-mm. gun and trench mortar, combat principles of the rifle platoon and section.

111. INFANTRY VII. 3(2-3); I. Prerequisite: Infantry VI. Captain Bowen.

(a) *Practical*. Instructors in all basic course subjects and first year advanced course subjects, infantry drills and ceremonies.

(b) *Theoretical*. Review of infantry drill, company administration, military law and reserve corps regulations.

112. INFANTRY VIII. 3(2-3); II. Prerequisite: Infantry VII. Captain Bowen.

(a) *Practical*. Instructors in all infantry subjects, field engineering, combat principles of the rifle, machine gun and howitzer companies.

(b) *Theoretical*. Military history and policy, field engineering, combat principles of the rifle, machine gun and howitzer companies.

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 Leavenworth, Kan.

BASIC COURSE, COAST ARTILLERY

(For students of the Division of Engineering only.)

113A. ARTILLERY I. 1(0-3); I. Lieut. Madison.

(a) *Practical*. Physical drill, infantry drill.

(b) *Theoretical*. Close-order infantry drill, to include the company, military courtesy and customs of the service. Discipline, National Defense Act, military hygiene and first aid.

114A. ARTILLERY II. 1(0-3); II. Prerequisite: Artillery I or Infantry I. Lieut. Madison.

(a) *Practical*. Close-order infantry drill, parades, rifle marksmanship. and preliminary artillery instruction.

(b) *Theoretical*. Rifle marksmanship, cordage, and coast artillery instruction covering telephones.

115A. ARTILLERY III. 1(0-3); I. Prerequisite: Artillery II. Captain Wertz.

(a) *Practical*. Close-order infantry drill and ceremonies; harbor defense, heavy, and antiaircraft artillery.

(b) *Theoretical*. Fire control instruments, range finding and range section duties for harbor defense, heavy, and antiaircraft artillery.

116A. ARTILLERY IV. 1(0-3); II. Prerequisite: Artillery III. Captain Wertz.

(a) *Practical*. Section (a) of course 115 continued.

(b) *Theoretical*. Continuation of section (b), course 115; aiming and laying of guns; target characteristics.

ADVANCED COURSE, COAST ARTILLERY

(For students of the Division of Engineering only.)

117. ARTILLERY V. 3(2-3); I. Prerequisite: Artillery IV and Plane Trigonometry. Capt. Stewart.

(a) *Practical*. Duties as cadet officers and noncommissioned officers in connection with course 113 to 116, artillery materiel, orientation.

(b) *Theoretical*. Topography, and orientation.

118. ARTILLERY VI. 3(2-3); II. Prerequisites: Artillery V and Plane Trigonometry. Capt. Stewart.

(a) *Practical*. Section (a) of course 117 continued.

(b) *Theoretical*. Gunnery for heavy and antiaircraft artillery.

119. ARTILLERY VII. 3(2-3); I. Prerequisite: Artillery VI. Major Peirce.

(a) *Practical*. Duties as cadet officers and noncommissioned officers, artillery materiel, motor transportation, command and leadership.

(b) *Theoretical*. Military law, motor transportation, military history and policy.

120. ARTILLERY VIII. 3(2-3); II. Prerequisite: Artillery VII. Major Peirce.

(a) *Practical*. Section (a) of course 119; gunnery.

(b) *Theoretical*. Tactical employment of artillery, field engineering, and administration.

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 Camp Knox, Ky.

BASIC COURSES, VETERINARY CORPS

(For students in the Division of Veterinary Medicine only.)

121A. MILITARY SCIENCE (VET.) I. 1(0-3); I. Capt. FitzGerald.

(a) *Practical*. Same as course 101 (Infantry I).

(b) *Theoretical*. Organization and policies of the U. S. Army, military art.

122A. MILITARY SCIENCE (VET.) II 1(0-3); II. Prerequisite: Course 121. Capt. FitzGerald.

(a) *Practical*. Same as course 102 (Infantry II).

(b) *Theoretical*. Organization and administration, sanitation, logistics, first aid.

123A. MILITARY SCIENCE (VET.) III. 1(0-3); I. Prerequisite: Course 122. Capt. FitzGerald.

(a) *Practical*. Same as section (a) of course 102; duties of privates and noncommissioned officers of the veterinary corps demonstrated.

(b) *Theoretical*. Tactics, logistics.

124A. MILITARY SCIENCE (VET.) IV. 1(0-3); II. Prerequisite: Course 123. Capt. FitzGerald.

(a) *Practical*. Same as courses 102 (Infantry) 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.)

129A. MILITARY SCIENCE (VET.) V. 1(1-0); I. Prerequisite: Course 124. Capt. FitzGerald.

(a) *Practical*. Duties of junior officers demonstrated.

(b) *Theoretical*. Organization and administration, sanitation, and animal management.

130A. MILITARY SCIENCE (VET.) VI. 1(1-0); II. Prerequisite: Course 129. Capt. FitzGerald.

(a) *Practical*. Continuation of section (a), course 129.

(b) *Theoretical*. Sanitation, including inspection of meat and food products.

131A. MILITARY SCIENCE (VET.) VII. (1-0); I. Prerequisite: Course 130. Capt. FitzGerald.

(a) *Practical*. Continuation of section (a), course 129.

(b) *Theoretical*. Hospitals, hospitalization, and sanitation.

132A. MILITARY SCIENCE (VET.) VIII. 1(1-0); II. Prerequisite: Course 131. Capt. FitzGerald.

(a) *Practical*. Continuation of (a), section 129.

(b) *Theoretical*. Communicable diseases, foreign 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
 Professor LIMPER
 Assistant Professor CRITTENDEN.

Assistant Professor PETTIS
 Instructor BURNS

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 \$604.

COURSES IN GERMAN

FOR UNDERGRADUATE CREDIT

101, 102. GERMAN I AND II. 3(3-0) each; I and II respectively. Prerequisite: For II, I or equivalent. Dr. Cortelyou and Mr. Limper.

Introductory courses; grammar completed. Text: Fraser and Van der Smissen, *German Grammar*.

111. GERMAN READINGS. 3(3-0); I. Prerequisite: German II or equivalent. Dr. Cortelyou and Mr. Limper.

Readings of fairly easy, idiomatic selections from modern authors; grammatical drill; German conversation based on the text read. Text: Bierwirth and Herrick, *Aehrenlese*.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. GERMAN SHORT STORIES. 3(3-0); II, when requested by a sufficient number. Dr. Cortelyou and Mr. Limper.

Interesting short stories by modern authors. Bender, *German Short Stories*.

206. GERMAN COMEDIES. 3(3-0); II. Prerequisite: German Readings. Dr. Cortelyou and Mr. Limper.

Recent one-act comedies of literary merit and of a realistic, lively, and cleanly humorous nature; conversation and composition based on the text. Text: Manley and Allen, *Four German Comedies*.

226. GERMAN CLASSICS. 3(3-0); I, when requested by a sufficient number. Dr. Cortelyou.

An introduction to the German classics. Texts: Lessing, *Minna von Barnhelm*, ed. by von Minckwitz and Wilder; and Goethe, *Herman und Dorothea*, ed. by Allen.

231. GERMAN PROSE. 3(3-0); I, when requested by a sufficient number. Prerequisite: Course 201 or 206. Dr. Cortelyou.

Designed to give facility in rapid translation of fairly easy prose; prepared translations and sight translations. Text: Allen and Batt, *Easy German Stories*, Vols. I and II.

237. SCIENTIFIC GERMAN. 4(4-0); I. Prerequisite: German II. Dr. Cor-telyou.

An introduction to the vast field of scientific publications appearing in German; miscellaneous scientific articles, especially those dealing with chemistry and physics. Text: Wright, *German Science Reader*.

COURSES IN FRENCH

FOR UNDERGRADUATE CREDIT

151, 152. FRENCH I AND II. 3(3-0) each; I, II, and SS, each. Prerequisites: For II, I or one year of high-school French. Mr. Limper and Miss Pettis.

The fundamentals of French grammar; reading and conversation. Text: Fraser and Squair, *Complete French Grammar*.

161. FRENCH READINGS. 3(3-0); I and SS. Prerequisite: French II or equivalent. Mr. Limper and Miss Pettis.

Primarily a reading course; grammar reviewed; conversation. Texts: Labiche et Martin, *Le Voyage de Monsieur Perrichon*; Hugo, *Les Misérables*; and Sands, *La Mare au Diable*.

FOR GRADUATE AND UNDERGRADUATE CREDIT

251. FRENCH SHORT STORIES. 3(3-0); I and II. Prerequisite: French Readings or two years of high-school French. Mr. Limper and Miss Pettis.

Modern short stories by such writers as Daudet, Maupassant, and Zola. Text: Buffum, *French Short Stories*.

256. THE FRENCH DRAMA. 3(3-0); II. Prerequisite: 12 hours of college French or equivalent. Mr. Limper.

Some outstanding plays of Molière, Corneille, Beaumarchais, Labiche et Martin, and Hervieu; their place in French drama.

261. FRENCH COMPOSITION AND CONVERSATION. 3(3-0); II, when requested by a sufficient number. Prerequisite: 12 hours college French, or equivalent. Mr. Limper.

Class period devoted to practice in speaking French; written themes required as preparation for each recitation.

270. TEACHERS' COURSE IN FRENCH. 3(3-0); when requested by a sufficient number. For prerequisites, consult instructor. Mr. Limper.

Anatomical basis for production of sounds peculiar to French; methods of presenting grammar; thorough grammar review; careful examination of the French reading texts used in Kansas; methods of conducting a *cercle français*, and material to be used in it.

COURSES IN SPANISH

FOR UNDERGRADUATE CREDIT

176, 177. SPANISH I AND II. 3(3-0) each; I, II, and SS, each. Prerequisite: For II, I or one year of high-school Spanish. Miss Crittenden and Miss Burns.

The fundamentals of Spanish grammar, stress on training to understand spoken Spanish. Texts: Hills and Ford, *First Spanish Course* (for I and II); Weems, *Un verano en España* (for II).

180. SPANISH READINGS. 3(3-0); I, II, and SS. Prerequisite: Spanish II, or equivalent. Miss Crittenden and Miss Burns.

One or two of the best modern Spanish books. Texts: Alarcón, *El final de Norma*; Padre Isla, *Lesage, Gil Blas*; and Martinez Sierra, *Sueño de una noche de agosto*.

195A. SPANISH CONVERSATION. 3(3-0); I. Prerequisite: Spanish Readings or equivalent. Miss Crittenden and Miss Burns.

Purpose, to develop an ability to speak Spanish and to understand the spoken language. Texts: Various books, magazines and papers.

FOR GRADUATE AND UNDERGRADUATE CREDIT

272. SPANISH SHORT STORIES. 3(3-0); II. Prerequisite: Spanish Readings. Miss Crittenden and Miss Burns.

Stories from the most eminent of modern Spanish authors, such as Béquér, Trueba, Alarcón, Valdés, and Ibañez. Text: Hills and Reinhardt, *Spanish Short Stories*.

275. THE SPANISH NOVEL. 3(3-0); I. Prerequisite: Course 272 or equivalent. Miss Crittenden and Miss Burns.

A panoramic view of the Spanish novel in the several periods of Spanish literary production.

280. THE SPANISH DRAMA. 3(3-0); II. Prerequisite: Course 272 or equivalent. Miss Crittenden and Miss Burns.

A general view of the drama produced in Spain's best literary periods.

Music

Professor LINDQUIST
Associate Professor SMITH
Assistant Professor HARTMAN
Assistant Professor PAINTER
Assistant Professor SAYRE
Assistant Professor JEFFERSON
Assistant Professor DOWNEY
Instructor FARRAR

Instructor GROSSMANN
Instructor STRATTON
Instructor STEEL
Instructor HILL
Instructor PELTON
Instructor RUSSELL
Instructor TALMADGE

To be a vital factor in the life of every student is the aim of the Department of Music. It strives to create and foster a love for and an appreciation of the best in music, and to give to students that broader culture and more complete education which is gained through academic, professional and vocational training combined with musical and artistic study. Believing that this can be accomplished to a much greater degree by having a teaching staff of musicians who are not only capable instructors but also artistic performers, courses are offered which will prepare the student not only for the teaching profession, but for an artistic career as well. 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 valued at \$22,127.

METHODS OF INSTRUCTION

Instruction in vocal 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 substitutes 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 History and Appreciation of Music, three hours each semester; for Harmony, two hours each semester; for Counterpoint, two hours each semester; for Musical Form

and Analysis, two hours each semester; for 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 who 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 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 construction.

FOR UNDERGRADUATE CREDIT

101, 102. HARMONY I AND II. 2(2-0) each; I and II, respectively. Prerequisite: Music Fundamentals or equivalent. Mr. Sayre and Mr. Stratton.

I: Review of the major and minor scales, intervals, construction and progression of the primary triads and their inversions; the dominant seventh and its progressions and inversions, harmonizing melodies and basses; original work and elementary instrumentation.

II: Subordinate triads and their sevenths in progressions and inversions; the beginnings of modulation; writing of original exercises.

103, 104. HARMONY III AND IV. 2(2-0) each; I and II, respectively. Prerequisite: Harmony II. Mr. Stratton.

I: Modulation completed; altered and mixed chords; embellishments.

II: Works of the masters; writing of original exercises and small compositions.

105, 106, 107, 108. EAR TRAINING AND SIGHT SINGING I, II, III AND IV. 2(2-0) each, but no credit outside the music curricula; I, II, I and II, respectively. Prerequisite: Music Fundamentals or equivalent. Miss Hartman.

The reading and hearing of intervals, chords, and rhythmical forms.

108A. COUNTERPOINT. 2(2-0); I and II. Prerequisite: Harmony IV. Miss Jefferson.

A study of melody writing, the association of melodies in simple counterpoint, leading to the writing of original two- and three-part inventions.

109. MUSICAL FORM AND ANALYSIS. 2(2-0); I and II. Prerequisites: Harmony IV and Counterpoint. Mr. Downey.

The various forms used in composition; the music of Bach, Haydn, Beethoven, Schumann, Chopin and others.

110. SURVEY OF PUBLIC-SCHOOL MUSIC. 2(2-0); II. Miss Hartman.

A general résumé of the work in public-school music methods and materials, designed to give the student such data as will enable him to understand the relationship of his specialized work to the public-school music system.

112, 113. HISTORY AND APPRECIATION OF MUSIC I AND II. 3(3-0) each; I and II, respectively. Mr. Downey.

Aim of this course: To give definite knowledge of each of the musical periods, the style of music peculiar to each and contact with the great personalities in music.

114. HISTORY AND APPRECIATION OF MUSIC. 3(3-0); SS.

A condensation of courses 112 and 113.

117. CONDUCTING I. 1(1-0); I and II. Mr. Downey.

Practical training in essentials of good conducting, including 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.

118. VOCAL COMPOSITION. 2(1-0), six hours of preparation; II. Prerequisites: Harmony I to IV. Mr. Downey.

Comprehensive study of rhythm and tone color in poetry; writing of original musical settings for the different poetic forms; composition of vocal solos, duets, trios, and quartets, both with and without piano accompaniment.

119. INSTRUMENTAL COMPOSITION. 2(1-0), six hours of preparation; II. Prerequisites: Harmony I to IV, and Counterpoint. Mr. Downey.

Advanced study in composition; writing of music for all instruments, both in solo and ensemble.

120, 121. PUBLIC-SCHOOL MUSIC I AND II. 2(2-0); I and II, respectively. Prerequisite: Understanding of musical notation and the piano keyboard. Miss Hartman.

Given for the training of teachers of music in the public schools. These courses cover work for primary and intermediate grades and meet requirements of the state of Kansas for such training.

122 to 127. PUBLIC-SCHOOL MUSIC III to VIII. 2(2-0) each; I, II, I, II, I and II, respectively. Miss Hartman.

Courses 120 and 121 continued. III and IV cover work for the upper grammar grades and junior high school. V consists of a comparison of methods for all grades. VI consists of discussion and practice in teaching materials suitable for junior high school. VII and VIII consist of methods and practice of teaching in senior high school.

Students in the above courses are expected to do one semester of practice teaching of music in the grade schools of Manhattan under the supervision of Miss Hartman, and to observe such additional music work in the high schools as may be possible.

128. CONDUCTING II. 1(1-0); I and II; given only when requested by a sufficient number. Prerequisites: Harmony I to IV, and Conducting I. Mr. Downey.

A continuation of Conducting I, course 117.

129. CONDUCTING III. 1(1-0); I, by appointment. Prerequisite: Conducting II. Mr. Downey.

This course is a continuation of course 128.

130. INSTRUMENTATION. 2(2-0); I. Prerequisite: Harmony II. Mr. Downey and Mr. Russell.

All band and orchestra instruments studied with relation to their character, range, and function; simple and familiar compositions scored for string trio, quartet, and quintet, and for wind quartet and sextet.

133. ORCHESTRATION. 2(2-0); II. Prerequisites: Harmony I to IV, and Counterpoint. Mr. Downey and Mr. Russell.

Writing of music for orchestra and band studied; analytic and synthetic study of music scores.

135. PRACTICE CONDUCTING. 1(½-2); II. Prerequisite: Conducting III. Mr. Downey.

A special ensemble group is trained by the student in some work he has prepared in the course in orchestration. This problem is then presented in public.

140. NORMAL PIANO METHODS. 2(2-0); I. Miss Smith.

Discussion of principles and processes involved in various phases of piano study as a means of music education; study of teaching material for the piano; observation of lessons given in the preliminary piano classes.

142A, 142B. ORCHESTRAL INSTRUMENTS I AND II. 1(½-6) each; I and II, respectively. Mr. Downey, Mr. Hill, Mr. Russell, and assistants.

A course designed to acquaint the student with the methods of tone production and fingering of the most important instruments in the orchestra. Each instrument is studied for a period of from four to six weeks.

144A, 144B. ORCHESTRAL REPERTOIRE I AND II. 1(1-0) each; I and II, respectively. Mr. Downey.

I: Classification and study of the materials to be used in grade-school and high-school orchestras and bands.

II: At least one symphony, one standard overture, and one concert suite are analyzed and memorized.

145. METHODS OF TEACHING MUSIC. 1(1-0); I. Mr. Lindquist, Miss Smith, Mr. Downey, Mr. Hill, and Mr. Russell.

Methods of teaching fundamental technic, selection of teaching materials, and the outlining of courses of study. (Designed for public-school music students majoring in some instrument and preparing to teach it in high school; taught in separate divisions for voice, violin, piano, etc.)

PRACTICAL COURSES IN MUSIC*

137A to 137H. INSTRUMENT I TO VIII. 3(1-9) each for courses I to V, 2 1-6 each for VI and VII, and 1(½-6) for VIII; I (courses I, III, V, and VII) and II (courses II, IV, VI, and VIII). Mr. Downey, Mr. Hill, Mr. Russell, and assistants.

These courses are offered exclusively to students taking the curriculum in public-school band and orchestra, and these general designations cover assignments to any of the band or orchestral instruments, one of which is chosen by the student as his major instrument and studied through the four years.

155. MUSIC FUNDAMENTALS. 1(2-0); I and II. Mr. Sayre.

* In cases in which a course in music which requires two private lessons a week is desired by a student who can take only one lesson per week, the course shall be designated in the correct form followed by the notation, "a," or, if one-half of the course has already been taken the notation shall be "b." A student may be assigned to the second half of one course and the first half of another by this procedure. The requirements of a series of courses may thus be satisfied semester hour by semester hour.

Class singing, 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. 4(1-12) each; I (courses A, C, E, G) and II (B, D, F, H). For the Curriculum in Voice. Prerequisite: An entrance examination. (Prospective students should write the head of the Department of Music for a list of material required.) Mr. Lindquist, Mr. Sayre, Miss Grossmann, Mr. Farrar, and Miss Talmadge.

Since 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. This series of courses is intended for students having special talent, and its purpose is to give sound technical training in the use of the vocal mechanism. The object is, to develop capable teachers and good performers.

162A to 162H. VOICE A-I TO A-VIII. 2(1-6) each for courses I, III, V, VI, VII and VIII; and 1($\frac{1}{2}$ -6) each for courses II and IV; I (courses A, C, E, G) and II (courses B, D, F, H). For the Curriculum in Public-school Music. Courses V to VIII are optional under Voice or Instrument. Mr. Lindquist, Mr. Sayre, Miss Grossmann, Mr. Farrar and Miss Talmadge.

Instruction similar to that given in courses 160A to 160H.

164A to 164H. VOICE B-I TO B-VIII. 2(1-6) each; I (courses A, C, E, G) and II (courses B, D, F, H). For the Curriculum in Piano, and elective in other curricula. Mr. Lindquist, Mr. Sayre, Miss Grossmann, Mr. Farrar, and Miss Talmadge.

Instruction similar to that given in courses 160A to 160H.

165A to 165H. VIOLIN I TO VIII. 4(1-12) for courses A to D; 6(1-24) for courses E to H; I (courses A, C, E, G) and II (courses B, D, F, H). For the Curriculum in Violin. Prerequisite: An entrance examination. (Prospective students should write the head of the Department of Music for a list of material required.) Mr. Hill.

Reserved for students showing an especial talent for the violin and entering college technically equipped to begin study of the standard works of violin literature; no special method advocated; a graceful and natural style insisted upon; outline of study so planned that an equilibrated technic and sound musicianship are developed.

166A to 166H. VIOLIN A-I TO A-VIII. 2(1-6) each semester. For students who take Violin as an elective. No prerequisites. Mr. Hill and assistants.

Instruction begins with the fundamentals of violin technic and extends over the more difficult literature written for this instrument.

169A to 169H. VIOLIN ENSEMBLE I TO VIII. 1(0-3) each; I (courses A, C, E, G) and II (courses B, D, F, H). Elective for students of superior talent. Prerequisites: Four semesters of violin, viola, or violoncello, or the equivalent. Mr. Downey.

A practical course in the playing of string duets, trios, and quartets.

170A to 170H. PIANO I TO VIII. 4(1-12) each; I (courses A, C, E, G) and II (courses B, D, F, H). For the Curriculum in Piano. Prerequisite: An entrance examination. (Prospective students should write the head of the Department of Music for a list of material required.) Miss Smith, Miss Painter, Miss Jefferson, Miss Steel, and Mr. Stratton.

Intended for students having special talent. Its purpose is to give a sound technical foundation; to cultivate a thinking musicianship; to acquaint students with a generous 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. Instruction 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 students 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.

171A to 171H. PIANO A-I TO A-VIII. 1($\frac{1}{2}$ -6) each for courses I and III; 2(1-6) each for courses II, IV, V, VI, VII, and VIII; I (courses A, C, E, G) and II (courses B, D, F, H). For the Curriculum in Public-school Music. Courses V to VIII are optional under Voice or Instrument. Prerequisite: An entrance examination. Miss Smith, Miss Painter, Miss Jefferson, Miss Steel, and Mr. Stratton.

Attention 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.

173A to 173H. PIANO B-I TO B-VIII. 2(1-6) each; I (courses A, C, E, G) and II (courses B, D, F, H). For the curricula in Voice, Violin, and Public-school Band and Orchestra, also for students who take Piano as an elective. No prerequisites. Miss Smith, Miss Painter, Miss Jefferson, Miss Steel, and Mr. Stratton.

Instruction follows same plan as for courses 171A to 171H.

175A to 175D. PIANO C-I TO C-IV. No credit (1-6). Designed for students who cannot meet entrance requirements for courses 170A and 171A. May require one semester or longer, according to ability and previous training of student.

176A to 176H. PIANO ENSEMBLE I TO VIII. R(1-0); I (courses A, C, E, G) and II (courses B, D, F, H). Miss Painter.

During the first two years this work is in classes of four, for practice in sight reading and ensemble playing, the chief material used being orchestral music arranged for eight hands. During the last two years the work is done partly in classes of four, but develops into two-piano work and training for accompaniment and ensemble with various groups of orchestral instruments.

178A to 178H. VIOLONCELLO A-I TO A-VIII. 2(1-6) each. For students who take Violoncello as an elective. No prerequisites. Mr. Downey.

Instruction begins with the fundamentals of violoncello technic and extends over the more difficult literature written for this instrument.

179A to 179H. DOUBLE-BASS I to VIII. 2(1-6) each. For students who take Double-bass as an elective. No prerequisites. Mr. Downey.

Instruction begins with the fundamentals of double-bass technic and extends over the more difficult literature written for this instrument.

180A to 180H. ENSEMBLE I TO VIII. I (courses A, C, E, G) and II (courses B, D, F, H). Required or optional without credit in semester hours in the Curriculum in Piano and in the Curriculum in Violin. In the Curriculum in Public-school Band and Orchestra, ensemble work is required or optional without credit in the freshman and sophomore years, but in the junior and senior years gives one hour of credit per semester. Mr. Lindquist, Mr. Downey, and Mr. Russell.

Required ensemble work may be taken in Chorus (courses 190A to 190H), Orchestra (193A to 193H), or Band (196A to 196H).

182A to 182H. WIND INSTRUMENTS I TO VIII. 2(1-6) each. For students who take Wind Instruments as elective. No prerequisites. Mr. Russell and assistants.

Opportunity for study of any wind instrument. Instruction begins with elementary scale and technical study and extends over the more difficult literature written for wind instruments.

184A to 184 F. RECITAL I TO VI. No credit for courses A, B, C, and E; 2 credits each for courses D and F; I (courses A, C, and E) and II (courses B, D, and F).

An entire solo recital in courses IV and VI.

185A, 185B. REPERTOIRE I AND II. 1(1-0) each; I and II, respectively. Mr. Lindquist.

An exhaustive study of vocal literature of all periods; songs prepared out of class and presented in class for criticism. (Classes limited to eight members.)

188. PRACTICE TEACHING OF MUSIC. 2(2-0); I and II. Mr. Lindquist, Miss Smith, Mr. Downey, Mr. Hill, and Mr. Russell.

Practice teaching in private classes for students in the piano, violin, voice, public-school music, and public-school band and orchestra curricula.

MUSICAL ORGANIZATIONS

The existence of an organization of individuals is justified by the service such a body renders. The musical organizations at 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 good service to the College and community as well as to themselves in the presentation of public programs.

190A to 190H. CHORUS I TO VIII. (Weekly rehearsals, all special rehearsals, and public performances); I (courses A, C, E, G) and II (courses B, D, F, H). Prerequisite: Ability to read musical notation and to sing in tune. Written approval of the head of the department of music must be obtained. Mr. Lindquist.

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 forty 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. Mr. Sayre.

192A to 192H. CHORAL ENSEMBLE I TO VIII. Required without credit in the Curriculum in Voice; as elective in other curricula gives one hour of credit per semester. Weekly rehearsals, all special rehearsals, and public performances; I (courses A, C, E, G) and II (courses B, D, F, H). Prerequisites: A voice of good quality, a knowledge of musical notation, ability to sing in time and in tune, and an entrance examination. Mr. Lindquist and Mr. Sayre.

Membership in both the College Chorus and the Men's Glee Club or the College Chorus and the Women's Glee Club.

193A to 193H. ORCHESTRA I TO VIII. Required or optional without credit in semester hours in curricula in music; as elective in other curricula gives one hour of credit per semester. Weekly rehearsals, all special rehearsals, and public performances; I (courses A, C, E, G) and II (courses B, D, F, H). Mr. Downey.

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 College Chorus 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. Required or optional without credit in semester hours in curricula in music; as elective in other curricula gives one hour of credit per semester. Regular rehearsals, all special rehearsals, and public performances; I (courses A, C, E, G) and II (courses B, D, F, H). Mr. Russell.

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 the early fall and in the spring. The band plays the musical settings for the annual May Fete.

FEES IN MUSIC

COURSE	GRADATION OF TEACHERS							
	1	2	3	4	5	6	7	8
Two lessons each week for a semester:								
Piano		\$40	\$38	\$36	\$34	\$34*	\$28*	\$26†
Voice	\$46	40	38	36	34*	...	28*	26†
Violin		40	...	...	34*	32	28*	26†
Other orchestral instruments		40	...	...	34*	...	28*	26†
One lesson each week for a semester:								
Piano		\$22	\$21	\$20	\$19	\$19*	\$16*	\$15†
Voice	\$25	22	21	20	19*	...	16*	15†
Violin		22	...	...	19*	18	16*	15†
Other orchestral instruments		22	...	...	19*	...	16*	15†
Piano ensemble—\$5 a semester.								
Orchestral Instruments I and II—\$5 a semester.								

Physical Education and Athletics

Professor AHEARN
 Professor McMILLIN
 Associate Professor WASHBURN
 Associate Professor SAUM
 Assistant Professor CORSAUT
 Assistant Professor ROOT

Instructor GEYER
 Instructor SAPPINGTON
 Assistant TRANT
 Assistant MYERS
 Assistant HAYLETT
 Assistant PIPER

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 a profitable physical preparation for life.

All young men and all young women of the College are entitled to the privileges of the gymnasium, which is large and well equipped with all sorts of apparatus for physical training, with lockers, plunge baths, shower baths, and other accommodations. The gymnasium equipment is valued at \$9,161.

In courses requiring a change of clothing, lockers may be obtained by making a locker deposit of \$3. Upon return of lock, key and towels a refund of \$1 is made in each case. Only one locker fee is required of a student in any one semester.

Equipment is furnished to acceptable candidates for varsity and freshman athletic teams. It is checked out to individual candidates and they are held 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 is required of all freshmen and sophomores unless excused for disability on recommendation of the college physician.

The work of the department is based largely upon a physical examination given each student when he enters upon the work of the department. All students, whether taking work in the department or not, are entitled to receive a physical examination and advice as to their physical condition.

A diagnosis is made of the vital organs to ascertain their functional condition, and a complete inspection of the whole body is made to detect any weak-

* Fees for children.

† Student assistants' fees.

ness or deformity that may exist. Based upon the information thus obtained, advice is given and work assigned to students in accordance with their physical needs, tastes, and capabilities. All candidates for athletic teams are expected to pass a thorough physical examination.

Members of varsity and freshman athletic team squads may substitute such athletic work for the regular class work and will receive full semester credit for the work, provided they report regularly and for the full season of such sport.

COURSES IN PHYSICAL EDUCATION

FOR UNDERGRADUATE CREDIT—MEN

103, 104, 105, 106. **PHYSICAL EDUCATION M. R(0-2)** each semester of freshman and sophomore years. Mr. Washburn, Mr. Corsaut, Mr. Root, and Mr. Piper.

Personal hygiene and social problems; marching, calisthenics, apparatus and games, selected with the object of obtaining the best hygienic, educational and recreative results for the student.

The following activities may be elected by students in place of the gymnasium work: (a) **Swimming**: Beginning, advanced, and Red Cross life-saving. (Beginning swimming is a prerequisite for advanced swimming and for Red Cross life-saving. Students must pass a preliminary test before entering the Red Cross life-saving class unless they have passed the tests given in the advanced swimming class.) (b) **Boxing**, (c) **Wrestling**, and (d) **Corrective Gymnastics**. Deposit, \$3 each semester.

109. **APPARATUS. 1(0-3); I.** Prerequisite: **Gymnastics I and II.** Mr. Piper.

Carefully selected and graded exercises on the various pieces of apparatus, fundamental apparatus stunts, mat exercises and tumbling. Deposit, \$3.

113A. **FIRST AID AND MASSAGE. 3(3-0); I.** Prerequisite: **Human Anatomy.** Mr. Piper.

Different forms of injuries and their temporary protection, including dressing, bandaging, transportation of the injured, etc., aid in case of accident, preparation of solutions, bandages, splints, etc., the methods of massage.

115A, 117A. **GYMNASTICS I AND II. 2(1-3) and 2(0-6), respectively; I and II, respectively.** Mr. Washburn and Mr. Piper.

I: Theory and practice of marching and calisthenics; principles of the gymnastic lesson; nomenclature and arrangement of exercises; light apparatus; games. Deposit, \$3.

II: Continuation of course 115A, with the addition of gymnastic dancing, the composition and teaching of model lessons, fundamental exercises on the apparatus and mat work. Deposit, \$3.

119. **PERSONAL HYGIENE. 2(2-0); II.** Mr. Washburn.

This course deals with health from the standpoint of the individual; care of the body, its organs, and vital processes.

121, 122. **SWIMMING M-I AND M-II. 1(0-3) each; I and II, respectively.** Swimming I is a prerequisite for Swimming II. Mr. Patterson.

I: Instruction and practice of breast, back and crawl strokes, of diving, treading water, and floating, land exercises and methods of breathing. Deposit, \$3.

II: Continuation of Swimming M-I. Advanced swimming and diving, water games and stunts, Red Cross life-saving methods. Methods of teaching and conduct of swimming meets and programs are discussed. Deposit, \$3.

123. **PHYSIOLOGY OF EXERCISE. 2(2-0); II.** Prerequisites: **Human Anatomy and Physiology.** Mr. Washburn.

The effect of exercise on the tissues, systems, and organs of the body.

124A. **PHYSICAL DIAGNOSIS AND PRESCRIPTION. 3(3-0); I.** Prerequisites: **Gymnastics I and II, and Kinesiology.** Mr. Washburn.

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, 127. FOOTBALL I AND II. 2(1-3) each. Mr. McMillin.

I: Study of the rules, theory, and the practice of fundamentals, equipment, care and treatment of injuries, and the use of mechanical devices. Deposit, \$2.

II: Various positions on a football team, generalship and field tactics, and the various systems of offensive and defensive football. Deposit, \$3.

128. WRESTLING. 1(0-3); II. Mr. Patterson.

Rules, and the method of attack and defense in catch-as-catch-can wrestling; theories of wrestling, and wrestling psychology. Deposit, \$3.

130A. BASKET BALL. 2(1-3); I. 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. Deposit, \$3.

132. BOXING. 1(0-3); I. Mr. Patterson.

Instruction in various modes of attack and defense; discussion of training, wrestling and boxing tournaments, and related topics. Deposit, \$3.

135A. BASEBALL. 2(1-3); II. Mr. Corsaut.

Theory and technic, each position being studied separately; rules, schedules, equipment, strategy, signals, team organization, plays, and players. Deposit, \$3.

136, 136B. PRACTICE TEACHING IN PHYSICAL EDUCATION I AND II. 1(0-3) and 2(0-6), respectively; I and II, respectively. Prerequisite: Junior standing. Mr. Washburn.

Under immediate supervision of the teachers and coaches, students assist in the physical education classes, athletic squads, intramural teams, and officiate in intramural games. The theory of teaching and officiating is also discussed. Deposit, \$3 for each course.

136C, 136D. PRACTICE TEACHING IN PHYSICAL EDUCATION III AND IV. 2(0-6) each; I and II, respectively. Mr. Washburn.

Continuation of courses 136 and 136B. Deposit, \$3 for each course.

140A. TRACK AND FIELD SPORTS. 2(1-3); II. Mr. Haylett.

Rules and theory of track and field events; organization, conduct, officiating of meets, construction of all track equipment, training, dieting, equipment, and selection of material. Fundamentals of track and field sports. Deposit, \$3.

141B. KINESIOLOGY M. 3(3-0); II. Prerequisite: Human Anatomy. Mr. Washburn.

The mechanics of movements; elemental body movements analyzed, and principles involved applied to teaching of physical education. Text: Bowen and McKenzie, *Applied Anatomy and Kinesiology*.

142. PUBLIC-SCHOOL PROGRAM IN PHYSICAL EDUCATION. 2(2-0); II. Prerequisite: Senior standing. Mr. Washburn.

The objectives of physical education; the educational, health and recreative significance, content of the school program, types of activity to be emphasized in grades, high school and college.

145A. PLAYGROUND MANAGEMENT AND GAMES M. 2(2-0); II. Mr. Washburn.

Management and activities of the playground; equipment of playgrounds, arrangement of apparatus and places for games, track work, wading pools, etc.; municipal and industrial recreation centers, mass athletics, and intramural sports.

146B. ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION M. 2(2-0); I. Prerequisite: Junior standing. Mr. Washburn.

Organization and administration of the physical education department in various types of institutions; intercollegiate, interscholastic and intramural athletics.

FOR UNDERGRADUATE CREDIT—WOMEN

151A, 152A, 153, 154. PHYSICAL EDUCATION W. R(0-3) each; I of freshman year to II of sophomore year. Miss Saum, Miss Geyer, Miss Sappington, and Miss Trant.

Dancing, swimming, and corrective gymnastics offered throughout the year: hockey, basket ball, baseball, volley ball, archery, tennis, track and field sports given in season. Deposit, \$3 each semester.

156A to 156H. GENERAL TECHNIC I to VIII. 1(0-3) each; I (A, C, E, G) and II (B, D, F, H). Courses III to VIII open as electives to juniors and seniors who have completed courses 151A to 154. Miss Saum, Miss Geyer, Miss Sappington.

Practical work in sports, dancing, apparatus work, and activities for elementary and high schools. Deposit, \$3 for each semester.

158. FIRST AID. 1(1-0); II. Miss Sappington.

The prevention of accidents, and the treatment of injuries in an emergency. Text: *Red Cross Text Book on First Aid*.

160, 161. FOLK DANCING I and II. 1(0-3) each; I and II, respectively. Prerequisites: For I, courses 151A to 154; for II, course 160.

I: An elementary course in folk and national dancing and singing games.

II: Advanced course in the study of folk dances and national dances. Deposit, \$3 for each course.

163. THEORY AND TECHNIC OF DANCING. 1(1-0); I. Prerequisites: Folk Dancing II and at least one semester of advanced dancing. Miss Sappington.

Place of dancing in education, value of dancing as an art and as a means of expression; dancing correlated with music, literature, painting, and sculpture. Text: H'Doubler, *The Dance and Its Place in Education*.

165A. SPORTS TECHNIC I. 1(1-0); I. Prerequisites: One season of advanced hockey and advanced basket ball. Miss Saum and Miss Geyer.

Rules and principles of coaching hockey and basket ball; practice given in assisting with coaching of college sports. Text: *Official Rule Books*.

165B. SPORTS TECHNIC II. 1(1-0); II. Prerequisites: One season of advanced baseball and archery. Miss Saum and Miss Geyer.

Rules and principles of coaching baseball, archery, and tennis. Students assist with college sports. Text: *Official Rule Books*.

165C. SPORTS TECHNIC III. 1(1-0) I. Prerequisites: One season of advanced soccer and volley ball. Miss Saum and Miss Geyer.

Rules and principles of coaching soccer and volley ball. Students assist with college sports. Text: *Official Rule Books*.

165D. SPORTS TECHNIC IV. 1(1-0); II. Prerequisites: One season of advanced swimming and field and track. Miss Saum and Miss Geyer.

Rules and principles of coaching swimming and field and track. Students assist with college sports. Text: *Official Rule Books*.

168. METHODS OF TEACHING GYMNASTICS. 1(1-0); II. Prerequisites: courses 156A to 156C. Miss Geyer.

Selection, classification, arrangement, and progression of gymnastic exercises; practice teaching within the class. Text: Crombie and McKenzie, *Gymnastics in Education*.

170. PHYSICAL DIAGNOSIS W. 3(3-0); I. Prerequisites: Anatomy, and Embryology and Physiology. Miss Sappington.

Causes and symptoms of common diseases, deformities, and other abnormal conditions; methods of giving physical examinations.

172. THERAPEUTICS AND MASSAGE. 2(1-3); II. Prerequisites: Anatomy, Kinesiology, and Physical Diagnosis. Miss Sappington.

Postural defects studied and exercises given for correction of each; general and local massage practiced for cases which can be treated by the Department of Physical Education. Deposit, \$3.

176. ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION W. 2(2-0); II. Prerequisites: Courses 161, 165A, 165B, 165C, 168 and 182. Miss Saum.

Aims of physical education and the organization and administration of a department to meet those aims; the relation and responsibility to other departments. Text: Williams, *Organization and Administration of Physical Education*.

178. FOLK DANCING. 1 credit; SS. Miss Sappington.

Lectures on origin and values of folk dancing, principles of teaching folk dances, use of folk dances in festivals; practical work consisting of graded folk dances and some practice teaching; a notebook required. This course may be substituted for 160, Folk Dancing I. Deposit, \$3.

182A. PLAYGROUND MANAGEMENT AND GAMES W. 2(1-3). Prerequisites: Courses 151A and 152A.

Organization and administration of playground activities and equipment; history of the playground movement and the various theories of play. Types of games suitable for different age periods, methods of coaching and managing group contests. Texts: Nash, *The Organization and Administration of Playgrounds and Recreation*; Bancroft, *Games for the Playgrounds, Home, School, and Gymnasium*. Deposit, \$3.

183. PHYSICAL EDUCATION FOR ELEMENTARY SCHOOLS. 1(0-3); SS.

Principles of selection, methods of teaching and organization of work in elementary schools; practice of the activities used, and some practice teaching. Deposit, \$3.

184. INTERPRETATIVE DANCING. No credit; SS.

Dancing, not dances, taught through logical, conscious control of body movements, motivated by music which has been studied and is understood; simple, common rhythms which are easily adapted to many uses. This course may be substituted for one semester of the physical education requirements. Deposit, \$3.

186. SUPERVISED TEACHING OF PHYSICAL EDUCATION. 3(3-0); I. Prerequisite: Senior standing. Miss Saum.

Supervised teaching carried on in the physical education classes of the Manhattan grade and high schools.

187. TECHNIC OF BASKET BALL, BASEBALL, AND HOCKEY. 1 credit; SS. Methods of coaching high-school students. Deposit, \$3.

188. TEACHING AND ADAPTATION OF PHYSICAL EDUCATION. 3(3-0); I. Prerequisites: Courses 161, 156A, 156B, 165C, 168, and 182. Miss Saum.

Problems of physical education and general principles of leadership; adaptation of material to meet needs of various groups and to meet aims and ideals of physical education. Text: Hetherington, *School Program in Physical Education*.

189. KINESIOLOGY W. 3(3-0); I. Prerequisite: Human Anatomy (Zoöl. 123). Miss Geyer.

The mechanics of movement; elemental body movements analyzed and principles involved applied to the teaching of physical education. Text: Bowen and McKensie, *Applied Anatomy and Kinesiology*.

190. SWIMMING W. No credit; SS. Open to all women students. Beginning section for those who do not know how to swim; intermediate section for those who can swim length of pool, side stroke. This course may be substituted for one semester of the physical education requirement. Deposit, \$3.

FOR UNDERGRADUATE CREDIT—MEN AND WOMEN

192. HISTORY AND PRINCIPLES OF PHYSICAL EDUCATION. 3(3-0); II. Prerequisite: Sophomore standing. Miss Saum.

A survey of the field of physical education from ancient to modern times; aims and ideals of physical education and its relation to general education. Text: Rice, *A Brief History of Physical Education*.

196. SCHOOL HYGIENE. 3(3-0); I. Prerequisites: Personal Hygiene, Human Anatomy, and Physiology. Mr. Washburn.

Hygiene of the building and of the teacher; principles, content, and methods of health education.

Physics

Professor HAMILTON
 Professor RABURN
 Professor FLOYD
 Associate Professor BRACKETT
 Associate Professor LYON

Assistant Professor HARTEL
 Assistant Professor CHAPIN
 Assistant Professor MAXWELL
 Assistant Professor AVERY
 Assistant Professor FEROE

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.

The equipment owned by this department has a value of \$30,292.

COURSES IN PHYSICS

FOR UNDERGRADUATE CREDIT

101. HOUSEHOLD PHYSICS. 4(3-3); I and II. Includes parts of Physics 135, 140, 145, and 150. Mr. Hamilton, Mr. Floyd, and Miss Avery.

Lectures and demonstrations, in which the laws relating to principles involved in appliances of the household are explained and illustrated. Deposit, \$2.50.

120. PHOTOGRAPHY. 2(1-3); I and II. Mr. Hamilton.

Chemical and physical principles involved in photography; practice in making good negatives and prints. Deposit, \$2.50.

130. WIRELESS TELEPHONY. 2(1-3); I. Mr. Lyon.

The most efficient types of receiving and transmission sets, fundamental principles of electric waves, the most important factors in the erection of a good plant.

Laboratory.—Various radio circuits assembled by the student from standard parts and tried out for their transmitting and receiving properties. Charge, \$2.50.

133A. METEOROLOGY. 3(3-0); II. Mr. Hamilton and Mr. Raburn.

Weather phenomena and the underlying principles of weather forecasting; 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. Text: Milham, *Meteorology*.

134. AGRICULTURAL PHYSICS. 3(3-0); I. Mr. Brackett.

Fundamental principles of physics as related to agriculture. (For students in agriculture who enter without high-school physics.) Text: Millikan, *College Physics*.

135, 140. GENERAL PHYSICS I AND II. 4(3-3); I and II, respectively. Not open for full credit to students who have credit in Physics 101, nor to students who have credit in Physics 145 and 150. Prerequisite: Plane Trigonometry. Mr. Floyd, Mr. Brackett, Mr. Hartel, Mr. Lyon, and Mr. Chapin.

I: A thorough treatment of the general principles involved in mechanics, sound and heat. Text: Weld and Palmer, *Modern Physics*.

II: Theory of electricity and light with special emphasis on 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: As above.

Laboratory.—Exercises based on laws and principles discussed in the classroom and giving a practical illustration of the facts learned. Charge, \$2.50 for each course.

145, 150. ENGINEERING PHYSICS I AND II. 5(4-3) each; I and II each. Prerequisites: For I, Plane Trigonometry; for II, I. Not open for full credit for students who have credit in Physics 101, 135, and 140. Mr. Hamilton, Mr. Raburn, Mr. Brackett, Mr. Lyon, Mr. Maxwell, and Mr. Feroe.

I: A course in mechanics, sound, and heat; intended to give a thorough working knowledge of fundamental units and laws involved in force, work, power, and energy.

II: Units employed and fundamental laws of electricity; methods of producing a current, its uses, and the system by which electrical energy is measured; the principal phenomena of light and the laws that may have direct bearing upon light as a standard and method of measurement. Text: Anderson, *Physics*.

Laboratory.—I: 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. Charge, \$2.50.

II: Measurements of electrical resistances, study of primary cells and transformation from mechanical into electrical energy; laws of reflection and refraction of light, measurements of wave length by means of the spectrometer, use of the interferometer, and photometry. Charge, \$2.50.

155. DESCRIPTIVE ASTRONOMY. 3(3-0); I. Mr. Hartel.

An introductory course in astronomy largely descriptive in character. Text: Moulton, *Introduction to Astronomy*, and a pocket star guide.

FOR GRADUATE AND UNDERGRADUATE CREDIT

203. LABORATORY TECHNIC. 2(0-6); I. Mr. Floyd and Mr. Brackett.

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. In certain cases, special problems may be undertaken at a cost covering the raw materials. Deposit, \$2.50.

213. ACOUSTICS. 1(1-0); I. Prerequisite: Engineering Physics II. Mr. Floyd and Mr. Brackett.

Acoustic properties of building; architectural defects which give rise to poor acoustics; special methods to avoid such troubles in construction of buildings or to correct them in constructed buildings.

220. MOLECULAR PHYSICS AND HEAT. 3(2-3); I. Prerequisite: One year of college physics. Mr. Floyd and Mr. Raburn.

Molecular physics presented and utilized as a basis of an explanation of such phenomena as depend on the interaction of molecules and such as are fundamental in the presentation of the molecular theory of heat. Text: Edser, *Heat*.

222. HARMONICS. 2(2-0); II. Prerequisites: One year of music. Mr. Hamilton and Mr. Floyd.

Lectures, library work and demonstrations dealing with pitch, loudness, quality and dissonance, scales and chords.

224. SPECIAL METHODS IN THE TEACHING OF PHYSICS. 3(2-3); II. Prerequisites: Educational Psychology and College Physics. For credit toward state teacher's certificate, must be taken in senior year. Mr. Floyd and Mr. Brackett.

An analysis of the present status of physics and of physics instruction in our high schools based on a critical study of the state text as well as other modern texts that may be used for reference.

Laboratory.—Formation and adaptation of courses suitable for high school.

230. SPECTROSCOPY. 3(1-6); I. Prerequisites: College Physics and College Chemistry. Mr. Raburn and Mr. Floyd.

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.—Calibration of prisms and gratings for ready use in chemical laboratories; ample training in measuring wave lengths and in identifying the spectra of many substances.

231. OPTICS. 3(2-3); II. Prerequisite: One year of college physics. Mr. Hamilton and Mr. Floyd.

An advanced course in light, dealing with reflection, refraction, interference, diffraction, and polarization. Text: Wood, *Physical Optics*.

233. RADIOACTIVITY AND THE ELECTRON THEORY. 3(3-0); II. Prerequisites: College Physics and College Chemistry. Mr. Hamilton and Mr. Raburn.

Nature of the electron and its behavior in electric and magnetic fields; temperature effects and behavior of the electron in cathode tubes using a hot cathode; historical development of methods for determining mass and velocity of electrons; nature and effects of the various rays. Text: Crowther, *Ions, Electrons, and Ionizing Radiations*.

235. STORAGE BATTERIES. 2(1-3); II. Prerequisites: Physics and Chemistry. Mr. Hamilton, Mr. Floyd, and Mr. Maxwell.

History and development of the storage cell, lead and other types of cells; characteristics and behavior of cells on charge and discharge, care and operation of storage batteries, and renewal of sulphated cells. Text: Lyndon, *Storage Batteries*.

Laboratory.—Testing of batteries for efficiency, rebuilding of broken down cells, rejuvenation of sulphate cells.

237. TEACHERS' COURSE IN ADVANCED ELECTRICITY. 2 credits; SS. Prerequisite: Physics. Mr. Lyon.

Laboratory exercises following or intermixed with lectures; experiments and demonstrations, use of models, properties of alternating current circuits, rectifiers, transformers, transmitting and receiving radio circuits, radio sets suitable for use in high school; construction of these appliances by members of the class under direction of the instructor.

245. RADIO MEASUREMENTS. 2(1-3); I and II. Prerequisite: College Physics, and an elementary course in radio or equivalent. Mr. Lyon.

Standard radio measurements, such as 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, etc. The student may arrange to carry on an investigation of some special problem of radio.

250. MODERN PHYSICS. 3(2-3); I. Prerequisites: College Physics (1 yr.) and Chemistry (1 yr.). Mr. Brackett and Mr. Lyon.

Theories involved in recent advances in physics reviewed critically from the historical standpoint and the evidence for and against them discussed; each member of the class assigned to read several texts and articles on modern physics and to report and discuss his findings before the class.

252. ADVANCED MECHANICS LABORATORY. 1(0-3) or 2(0-6); I. Prerequisite: One year of college physics. Mr. Hamilton and Mr. Hartel.

A second course in mechanics experiments selected according to the needs and interests of each student from topics such as: Surface tension, viscosity, simple harmonic motion, torsion, pendulum, flexure, moment of inertia, rigidity, etc.

254. ADVANCED HEAT LABORATORY. 1(0-3) or 2(0-6); II. Prerequisite: One year of college physics. Mr. Floyd and Mr. Chapin.

A second course in heat experiments selected according to the needs and interests of each student from topics such as: Differential thermometers, vaporization, ratio of specific heats, vapor density and humidity, thermal conductivity, the mechanical equivalent, isotherms, etc.

256. ADVANCED ELECTRICAL LABORATORY. 1(0-3) or 2(0-6); I. Prerequisite: One year of college physics. Mr. Brackett and Mr. Lyon.

A second course in electrical experiments selected according to the needs and interests of each student from topics such as: The magnetometer, hysteresis, types and characteristics of galvanometers, effect of temperature on cells, thermoelectricity, ratio of e/m , quadrant electrometers, potentiometer, power factor, rectifiers, vacuum tubes, etc.

258. ADVANCED LIGHT LABORATORY. 1(0-3) or 2(0-6); II. Prerequisite: One year of college physics. Mr. Raburn and Mr. Maxwell.

A second course in light experiments selected according to the needs and interests of each student from topics such as: Laws of lenses, laws of mirrors, the sextant, interferometer, polarimeter, gratings, total reflection, Brownian movements, Zeeman effect, photometry, calorimetry, etc.

260. EXPERIMENTAL PROBLEMS IN PHYSICS. 1(0-3) or 2(0-6); I, II, and SS, by appointment. Prerequisite: College Physics or equivalent. Mr. Hamilton and Mr. Brackett.

Selected problems involving physical phenomena or work preliminary to such investigations. This may count as part of the major requirement for the master's thesis provided the problem selected has the approval of the head of the department in which the major work is taken.

263. MATHEMATICAL PROBLEMS IN PHYSICS. 2(2-0). Prerequisites: Physics 135 and 140, or 145 and 150. Mr. Raburn and Mr. Lyon.

Solution of practical mathematical problems based on fundamental principles of physics.

264. BIOPHYSICS. 3(2-3); II. Prerequisites: One year each of college physics or household physics, organic chemistry, and zoölogy or botany, or their equivalents. Mr. Floyd.

Some of the more important physical manifestations as related to living matter from the point of view of the organism as a whole and from that of the cell. For students of biology, nutrition, and medicine; lectures, library readings, and quiz; seminar reports on the literature.

FOR GRADUATE CREDIT

301. RESEARCH IN PHYSICS. 1 to 10 credits; I, II, and SS. Prerequisite: College Physics.

Problems in original investigations; new and important fields investigated.

Public Speaking

Professor HILL
Professor SHINN*
Associate Professor SUMMERS

Assistant Professor HEBERER
Assistant Professor 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 inter-collegiate debating teams. Students are urged to ally themselves with the organizations representing those various activities.

The equipment of this department has a value of \$590.

COURSES IN PUBLIC SPEAKING

FOR UNDERGRADUATE CREDIT

101. ORAL INTERPRETATION. 2(2-0); I and II. Dr. Hill and Dr. Shinn.

Purpose, to enable the student to attain some proficiency in the art of oral interpretation; training to develop a natural style; points of theory and routine drill necessary for the development and use of the voice and for proper platform deportment.

102. DRAMATIC READING. 2(2-0); I and II. Prerequisite: Course 101, or by arrangement with head of department. Dr. Hill, Dr. Shinn, and Miss Burr.

A continuation of course 101, involving more advanced study of the principles of oral interpretation and their application to platform reading.

106, 108. EXTEMPORE SPEECH I AND II. 2(2-0) each; I and II each. Prerequisite: For II, I. Dr. Hill, Dr. Shinn, Mr. Summers, Mr. Heberer, and Miss Burr.

I: Preparation and delivery of short addresses based on prepared outlines.

II: Course 106 continued, with special attention to specific application of the principles of that course to particular occasions.

115. LECTURE RECITAL. 2 credits; I and II. Prerequisites: Courses 101 and 102, or by special arrangement with the head of the department. Dr. Hill.

Preparation and delivery by the student of one extended lecture recital, lecture, or preparation and delivery of short recitals; a study of types.

121, 122. ARGUMENTATION AND DEBATE I AND II. 2(2-0) each; II, and by appointment, respectively. Prerequisite: For I, course 106; for II, course 121; or, for both, by arrangement by head of the department. Mr. Summers.

I: Fundamentals of argumentation as applied in debate, with special work on the making of debate outlines, collection and organization of material, structure and style of the debate speech, and methods of refutation; opportunity given to participate in a number of classroom debates for criticism.

II: The more technical phases of contest debating, with special attention to the outstanding problems of debate coaching, debate strategy and generalship, persuasion as used in debate, methods of increasing rebuttal effectiveness, and management of debates; participation in classroom debates; opportunity to gain experience in debate coaching or judging.

* On leave, second semester 1928-'29.

126. PARLIAMENTARY PROCEDURE. 1(1-0); I. Mr. Summers.

How to organize and conduct meetings and take part in deliberative assemblies, with stress on three phases: How to conduct a meeting as chairman; how to take part from the floor; and how to organize and work in committee. Text: Hall and Sturgis, *A Textbook on Parliamentary Law*.

130, 135. DRAMATIC PRODUCTION I AND II. 2(2-0) each; I and II each. Prerequisites for II: I or consent of the instructor. Mr. Heberer.

I: The elementary principles of acting, diction, and make-up.

II: The theory and technique of stage craft with particular reference to producing plays in high schools; practical experience in scene design, lighting, and direction. Several one-act plays are presented during the semester in the workshop theater.

150, 152. DEVELOPMENT OF THE THEATER I AND II. 2(2-0) each; I and II, respectively. Mr. Heberer.

I: The theater from its beginning down to the end of the nineteenth century; types of plays, theaters, acting and production, and their relations to the time.

II: The modern theater, its problems, plays, actors, artists, and producers—a study of the American theater principally, and a survey of the contemporary stage.

FOR GRADUATE AND UNDERGRADUATE CREDIT

251. PAGEANTRY. 3(3-0); I and II. Prerequisites: English Literature and Extempore Speech I. Miss Burr.

History of community drama and pageantry; finding and arranging materials; organization of pageant groups; methods of financing; the adaptation of costuming, dancing, music, and setting to pageant production. Students during the course write a complete pageant manuscript, and produce a pageant in reality or in miniature under laboratory conditions.

Zoölogy

Professor NABOURS
 Professor ACKERT
 Professor HARMAN‡
 Associate Professor JOHNSON
 Assistant Professor JEWELL
 Assistant Professor WIMMER
 Instructor GUNNS

Instructor GLOYD
 Instructor DOWD
 Assistant LARSON
 Graduate Assistant ALEXANDER
 Graduate Assistant MORRIS
 Graduate Assistant SAMCO

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 B (219A), Physiology (127), Cytology (214), Neurology (250), Advanced Embryology (220), Parasitology (208), Human Parasitology (218), Evolution and Heredity (217), Heredity and Eugenics (216), Advanced Human Physiology (235), and Historical Geology (Geol. 203) 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,

‡ Absent on leave, year 1928-'29.

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 \$35,474.

COURSES IN ZOÖLOGY

FOR UNDERGRADUATE CREDIT

105. GENERAL ZOÖLOGY. 5(3-6); I, II, and SS. Dr. Nabours, Dr. Ackert, Dr. Harman, Dr. Johnson, Dr. Jewell, Mr. Gloyd, and Miss Dowd.

Structures, functions, relations and evolution of types of both invertebrates and vertebrates in the class, laboratory and in nature. Charge, \$3.

109. ZOÖLOGY AND EMBRYOLOGY (VET.). 5(3-6); I. Dr. Johnson.

A study of the principles and types of animal life, and of the development of vertebrate embryos. Charge, \$3.

123A. HUMAN ANATOMY. 5(3-6); I. Prerequisite: General Zoölogy or equivalent. Dr. Wimmer.

Special attention to the human skeleton and organs; study of dissectible models, skeletons, charts, and living models. Charge, \$3.

127. PHYSIOLOGY A. 3(2-3); II and SS. Prerequisites: Zoöl. 105 and General Chemistry or equivalent. Dr. Wimmer.

Functions of the organs and systems of the human body, with special emphasis on the muscular system. Charge, \$2.

130. PHYSIOLOGY B. 4(3-3); I, II, and SS. Prerequisites: Zoöl. 105. Dr. Wimmer.

A general study of the functions of the human body. Charge, \$3.

135. EMBRYOLOGY A. 3(2-3); I and SS. Prerequisites: Zoöl. 105 or equivalent. Dr. Harman.

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 of mammals. The chick and pig are used principally as laboratory materials. Charge, \$2.

137. SPECIAL METHODS IN TEACHING ZOÖLOGY. 3(3-0); I, II and SS. For selected assistants in zoölogy. Prerequisites: Psychology and ten hours in zoölogy. Dr. Harman, Dr. Jewell, and Dr. Wimmer.

The functions of courses in general zoölogy, embryology and physiology, and their places in curricula; reviews of the subjects with special reference to their presentation in high school and junior college; care of live animals and the use of the local field; utilization of charts, models, specimens, apparatus and general technic in the teaching of the subjects.

FOR GRADUATE AND UNDERGRADUATE CREDIT

203. ZOÖLOGICAL PROBLEMS. 1 or 2 credits; I, II, and SS. Dr. Nabours, Dr. Ackert, Dr. Harman, Dr. Johnson, Dr. Jewell, and Dr. Wimmer.

Individual problems in heredity, parasitology, physiology, cytology, embryology, and ecology assigned by the instructors in charge.

205. FIELD ZOÖLOGY. 3(1-6); I. Prerequisite: Zoöl. 105. Dr. Jewell.

A general survey of the animal kingdom with collection, preservation, and identification of local forms; notes on their life histories, distribution, and relationships. Charge, \$3.

206. ZOÖLOGICAL TECHNIC. 1(0-3) or (2(0-6)); II. Prerequisite: General Zoölogy, or equivalent. Dr. Nabours and Mr. Gunns.

Methods of killing, fixing, imbedding, using microtome, staining, dehydrating, and other processes in preparation of microscopical slides, principles of photomicrography, museum mounting and labeling, and introduction to taxidermy. Charge, \$3.

208. PARASITOLOGY. 3(2-3); I. Prerequisite: Zoöl. 105, or 109. Dr. Ackert.

A study of the biology, pathology, and prophylaxis of the principal external and internal parasites of the domestic animals. Charge, \$2.

211. ANIMAL ECOLOGY. 3(2-3) or 2(2-0); II. Prerequisite: Zoöl. 105, or equivalent. Dr. Jewell.

Relation of animals to the complete environment, with special attention to the dynamic factors of the environment and their effect on the present status and future changes of the animal community. Charge, \$2.

214. CYTOLOGY. 4(2-6); I. Prerequisite: Zoöl. 201, or equivalent. Dr. Harman.

Methods of preparing material for microscopical study, development of the germ cells and theories of structures and functions of the different parts of the cell. Charge, \$3.

216. HEREDITY AND EUGENICS. 2(2-0); I. Prerequisite: Zoöl. 105, or equivalent. Dr. Nabours.

Human inheritance and the interactions of nurture and heredity.

217. EVOLUTION AND HEREDITY. 3(2-3) or 4(2-6); II. Prerequisites: Zoöl. 105 and Genetics (An. Husb. 221), or equivalent. Dr. Nabours.

Development of the idea of evolution; evidence and principal theories of the causes of evolution; problems of variation, heredity, and experimental evolution.

218. HUMAN PARASITOLOGY. 3(3-0); II. Prerequisite: Zoöl. 105, or equivalent. Dr. Ackert.

Biological, pathological and prophylactic phases of the principle parasitic maladies of man.

219A. EMBRYOLOGY B. 4(3-3); I, II, and SS. Prerequisite: Zoöl. 105 or equivalent. Dr. Harman.

The physiology of reproduction, developmental anatomy and physiology of mammals, with special reference to man. Charge, \$3.

220. ADVANCED EMBRYOLOGY. 4(2-6); I. Prerequisites: Zoöl. 105 and 201 or 109, or equivalent. Dr. Harman.

Further study of the main facts of embryology, with special reference to their bearings upon biological theories, and a comparative study of the physiology of reproduction in mammals, including man. Charge, \$3.

225. ZOÖLOGY AND ENTOMOLOGY SEMINAR. 1 credit; I and II. Prerequisite: Zoöl. 105, or equivalent.

Presentation of original investigations, reviews of papers appearing in current journals, summaries of recent advances in various fields, and discussion of various aspects of the fundamental problems of modern biology.

227. GENETICS SEMINAR. 1 credit; the year. Prerequisite: Zoöl. 105, or equivalent. Dr. Nabours, Dr. Warren, Dr. Parker, and Dr. Ibsen.

Study and criticism of genetic experiments in plants and animals, biological and mathematical methods employed, validity of conclusions drawn.

230A. ORNITHOLOGY. 3(2-3); II and SS. Prerequisite: Zoöl. 105. Mr. Gloyd.

Study of birds with reference to classification, habits, habitats, adaptations, migrations, and economic importance. Charge, \$2.

235. ADVANCED HUMAN PHYSIOLOGY. 4(3-3); I. Prerequisites: Zoöl. 105 and Organic Chemistry. Dr. Wimmer.

The fundamental principles and theories of the functions of muscles, nerve, circulation, digestion, respiration, secretion and excretion. Charge, \$3.

240. TAXONOMY OF PARASITES. 2(1-3); II. Prerequisite: Zoöl. 105 or 109. Dr. Ackert.

Structure of animal parasites; relation of certain animal groups; principles of classification; identification of parasites of man and of domestic animals.

245. COMPARATIVE ANATOMY OF VERTEBRATES. 3(1-6); II. Prerequisite: Zoöl. 105, or equivalent. Dr. Johnson.

A comparative consideration of the skeletal, muscular, nervous, digestive, respiratory, circulatory, and urogenital systems and the sensory organs of vertebrates. Charge, \$3.

250. COMPARATIVE AND HUMAN NEUROLOGY. 3(2-3); I. Prerequisite: Zoöl. 105. Dr. Johnson.

Structure, functions and evolution of the nervous system. Charge, \$2.

FOR GRADUATE CREDIT

301. RESEARCH IN ZOÖLOGY. 1 to 5 credits; I, II, and SS. Prerequisite: Zoöl. 105. Dr. Nabours, Dr. Ackert, Dr. Harman, Dr. Johnson, Dr. Jewell, and Dr. Wimmer.

Individual research problems are assigned in the fields of heredity and experimental evolution, parasitology, cytology, embryology, ecology, physiology, neurology, and endocrinology.

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 students 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.

That 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 four-year curriculum leading to the degree of Bachelor of Science with special training in art.

A five-year curriculum leading to the degree of Bachelor of Science and a diploma in nursing.

Graduate work leading to the degree of Master of Science, majoring in home economics.

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 in the Division of Home Economics. 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 professional fields in which home economics may be applied.

The four-year curriculum offering special training in art is designed to meet the need of students especially interested in this field.

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

FRESHMAN

FIRST SEMESTER.	SECOND SEMESTER.
Coll. Rhetoric I, Engl. 101.....*3(3-0)	Coll. Rhetoric II, Engl. 104.....3(3-0)
Chemistry I, Chem. 101.....5(3-6)	Chemistry II, Chem. 102.....5(3-6)
Applied Design I, Ap. Art 101.....3(1-6)	Household Physics, Physics 101.....4(3-3)
Foods I, Food and Nut. 101.....3(1-6)	Clothing I, Clo. and Text. 101.....2(1-3)
Hygiene, Child Welf. 101.....2(2-0)	Costume Design I, Ap. Art 130.....2(0-6)
Seminar, Gen. H. E. 101.....R(1-0)	
Phys. Ed. W, Phys. Ed. 151A.....R(0-3)	Phys. Ed. W. Phys. Ed. 152A.....R(0-3)
Total 16	Total 16

* The number before the parenthesis indicates the number of semester hours of credit; the first number 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 each week.

SOPHOMORE

FIRST SEMESTER.

Organic Chemistry (HE), Chem. 121.....	5(3-6)
English Lit., Engl. 172.....	3(3-0)
General Zoölogy, Zoöl. 105.....	5(3-6)
Psychology A, Educ. 101.....	3(3-0)

Phys. Ed. W, Phys. Ed. 153.....R(0-3)

Total 16

SECOND SEMESTER.

Foods II, Food and Nut. 106.....	5(3-6)
American Lit., Engl. 176.....	3(3-0)
Embryology B, Zoöl. 219A.....	4(3-3)or
Physiology B, Zoöl. 130.....	4(3-3)
Current History, Hist. 126.....	1(1-0)
Clothing II, Clo. and Text. 111.....	3(1-6)
Phys. Ed. W, Phys. Ed. 154.....	R(0-3)

Total 16

JUNIOR

FIRST SEMESTER.

German I, Mod. Lang. 101.....	3(3-0)or
French I, Mod. Lang. 151.....	3(3-0)
Human Nut., Food and Nut. 112.....	3(3-0)
Household Microbi., Bact. 121A.....	3(1-6)
Economics, Econ. 101.....	3(3-0)
Art Elements, Ap. Art 118.....	1(1-0)
Elective	3(-)

Total 16

SECOND SEMESTER.

German II, Mod. Lang. 102.....	3(3-0)or
French II,† Mod. Lang. 152.....	3(3-0)
Hshld. Man., Hshld. Econ. 107.....	3(2-3)
Textiles, Clo. and Text. 116.....	3(2-3)

Elective7(-)

Total 16

SENIOR

FIRST SEMESTER.

German Reading, Mod. Lang. 11, 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	5(-)

Total 16

SECOND SEMESTER.

Amer. Gov., Hist. 151, 152, or 153....	3(3-0)
Family Health, Child Welf. 211.....	3(3-0)
Seminar, Gen. Home Econ. 151.....	R(1-0)

Elective10(-)

Total 16

Total requirement for degree of Bachelor of Science in Home Economics, 128 hours.

Curriculum Leading to the Degree of Bachelor of Science in Home Economics With Special Training in Applied Art

FRESHMAN

FIRST SEMESTER.

Coll. Rhetoric I, Engl. 101.....	3(3-0)
Gen. Chemistry, Chem. 110.....	5(3-6)
Applied Design I, Ap. Art 101.....	3(1-6)
Hygiene, Child Welf. 101.....	2(2-0)
Foods I, Food and Nut. 101.....	3(1-6)

Phys. Ed. W, Phys. Ed. 151A.....R(0-3)

Total 16

SECOND SEMESTER.

Coll. Rhetoric II, Engl. 104.....	3(3-0)
Gen. Organic Chem., Chem. 122.....	5(3-6)
Applied Design II, Ap. Art 102.....	3(1-6)
Clothing I, Clo. and Text. 101.....	2(1-3)
Costume Design I, Ap. Art 130.....	2(0-6)
Current History, Hist. 126.....	1(1-0)
Phys. Ed. W, Phys. Ed. 152A.....	R(0-3)

Total 16

SOPHOMORE

FIRST SEMESTER.

English Literature, Engl. 172.....	3(3-0)
Psychology A, Educ. 101.....	3(3-0)
General Zoölogy, Zoöl. 105.....	5(3-6)
Art Elements, Ap. Art 118.....	1(1-0)
Sketching, Ap. Art 120.....	2(0-6)
Extm. Speech I, Pub. Spk. 106.....	2(2-0)
Phys. Ed. W, Phys. Ed. 153.....	R(0-3)

Total 16

SECOND SEMESTER.

American Literature, Engl. 175.....	3(3-0)
Foods II, Food and Nut. 106.....	5(3-6)
Ancient Civilization, Hist. 101.....	3(3-0)
Applied Design III, Ap. Art 105.....	2(0-6)
Clothing II, Clo. and Text. 111.....	3(1-6)

Phys. Ed. W, Phys. Ed. 154.....R(0-3)

Total 16

† 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.

JUNIOR

FIRST SEMESTER.

German I, Mod. Lang. 101.....	3(3-0)or
French I, Mod. Lang. 151.....	3(3-0)
Human Nut., Food and Nut. 112....	3(3-0)
Costume Design II, Ap. Art. 134....	2(0-6)
Medieval Europe, Hist. 102.....	3(3-0)
Elective	5(-)

Total 16

SECOND SEMESTER.

German II, Mod. Lang. 102.....	3(3-0)or
French II, Mod. Lang. 152.....	3(3-0)
Hist. and App. of Music, Music 114,	3(3-0)
Costume Design III, Ap. Art 138....	2(0-6)
Elective	8(-)

Total 16

SENIOR

FIRST SEMESTER.

German Readings, Mod. Lang. 111,	3(3-0)or
French Readings, Mod. Lang. 161....	3(3-0)
Principles of Art and Their Appli-	
cation I, Ap. Art 124.....	3(3-0)
Child Welf. I, Child Welf. 201.....	3(1-6)
Elective	7(-)

Total 16

SECOND SEMESTER.

American History I, Hist. 201.....	3(3-0)
Int. Dec. & Furn., Ap. Art. 114.....	3(1-6)
Principles of Art and Their Ap-	
plication II, Ap. Art 126.....	3(3-0)
Hist. of Cost., Clo. and Text. 265....	1(1-0)
Elective	6(-)

Total 16

Total requirement for degree of Bachelor of Science in Home Economics with special training in art, 128 hours.

Curriculum in Home Economics and Nursing

FRESHMAN

FIRST SEMESTER.

Coll. Rhetoric I, Engl. 101.....	3(3-0)
General Chem., Chem. 110.....	5(3-6)
Library Methods, Lib. Ec. 101.....	1(1-0)
German I, Mod. Lang. 101.....	3(3-0)
Psychology A, Educ. 101.....	3(3-0)
Current History, Hist. 126.....	1(1-0)
Phys. Ed. W, Phys. Ed. 151A.....	R(0-3)

Total 16

SECOND SEMESTER.

Coll. Rhetoric II, Engl. 104.....	3(3-0)
Gen. Organic Chem., Chem. 122....	5(3-6)
General Zoölogy, Zoöl. 105.....	5(3-6)
German II, Mod. Lang. 102.....	3(3-0)

Phys. Ed. W, Phys. Ed. 152A.....R(0-3)

Total 16

SOPHOMORE

FIRST SEMESTER.

Foods II, Food and Nut. 106.....	5(3-6)
General Microbi., Bact. 101.....	3(1-6)
Embryology A, Zoöl. 135.....	3(2-3)
American Hist. I, Hist. 201.....	3(3-0)
English Lit., Engl. 172.....	3(3-0)
Phys. Ed. W, Phys. Ed. 153.....	R(0-3)

Total 16

SECOND SEMESTER.

Physiol. Chem., Chem. 231.....	5(3-6)
Physiology A, Zoöl. 127.....	3(2-3)
Am. Gov., Hist. 151, 152, or 153....	3(3-0)
American Lit., Engl. 175.....	3(3-0)
Human Nut., Food and Nut. 112....	3(3-0)

Total 17

JUNIOR

(Replaced by two years at Charlotte Swift Hospital.)

Theoretical and practical work during the time includes:

FIRST YEAR

History and Ethics of Nursing
Hospital Economics
Nursing Methods
Medical Nursing
Communicable Diseases
Special Therapeutics and Massage

SECOND YEAR

Surgery and Surgical Nursing and Bandaging
Obstetrics and Gynecology
Pediatrics
Diseases of Eye, Ear, Nose and Throat
Nervous and Mental Diseases.
Materia Medica
Problems in Nursing

Equivalent to 32 college hours.

SENIOR

FIRST SEMESTER.

(Specialized work in affiliated hospitals.)
Equivalent to 16 college hours

SECOND SEMESTER.

Sociology, Econ. 151.....	3(3-0)
Dietetics, Food and Nut. 201.....	5(3-6)
Elective	8(-)

Total 16

Total requirement for degree B. S. in Home Economics and Nursing, 129 hours.

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, Salesmanship, and Writing

FIRST SEMESTER.

Applied Design II, Ap. Art 102.....3(1-6)
Com. Corres., Engl. 122.....3(3-0)
Oral English, Engl. 128.....3(3-0)
Industrial Feature Writing I and II,
Ind. Jour. 167 and 171.....2(2-0)
Technical Writing, Engl. 207.....2(2-0)

SECOND SEMESTER.

Prin. of Adv., Ind. Jour. 179.....3(3-0)
Writ. & Oral Salesshp., Engl. 123....3(3-0)
Applied Psychology, Educ. 170.....3(3-0)
Accounting Practice I, Math. 140A...3(2-3)
Business Management, Econ. 126....2(2-0)
Magazine Features, Ind. Jour. 270...2(2-0)
Industrial Writing, Ind. Jour. 161....2(2-0)

Certificate Requirements for Vocational Home Economics Teaching

EDUCATIONAL SUBJECTS REQUIRED.

FIRST SEMESTER.

Educ. Ad. A or B, Educ. 105 or 106..3(3-0)
Special Methods in Teaching of
Home Economics, Educ. 132....3(3-0)
Vocational Educ. A, Educ. 125.....3(3-0)

SECOND SEMESTER.

Educ. Psychology, Educ. 109.....3(3-0)
Supervised Teaching in Home
Economics, Educ. 1603(3-0)

ADDITIONAL TECHNICAL SUBJECTS REQUIRED.

FIRST SEMESTER.

Child Welf. I, Child Welf. 201.....3(1-6)
Applied Design II, Ap. Art 102....3(1-6)*or*
Int. Dec. and Furn., Ap. Art 114..3(1-6)*or*
House Furnishings, Ap. Art 108.....2(1-3)

SECOND SEMESTER.

Prac. Course in Household Man-
agement, Hshld. Econ.....3(-)
Home Nursing, Child Welf. 106.....1(1-0)
Clothing III, Clo. and Text. 126....3(1-6)

Clothing and Textiles

FIRST SEMESTER.

Ec. of the Hshld., Hshld. Econ. 265, 2(2-0)
American History III, Hist. 203.....3(3-0)
Hist. of Cost., Clo and Text. 265....1(1-0)
Sociology, Econ. 151.....3(3-0)
Lab. in Clothing and Textiles
Industries, Clo. and Text. 260...1(1-0)
General Physics I, Physics 135.....4(3-3)
General Physics II, Physics 140.....4(3-3)

SECOND SEMESTER.

Principles of Art and Their Ap-
plication I, Ap. Art 124.....3(3-0)
Costume Design II, Ap. Art 134....2(0-6)
Clothing III, Clo. and Text. 126....3(1-6)
Elem. Journalism, Ind. Jour. 151....2(2-0)
Problems in Clothing and Tex-
tiles, Clo. and Text. 256.....1 *or* 2
Stat. Meth. Ap. to Educ., Educ. 223, 3(3-0)
Plane Trigonometry, Math. 101.....3(3-0)
Prin. of Adv., Ind. Jour. 179.....3(3-0)
Magazine Features, Ind. Jour. 270...2(2-0)

Designing and Decorating

FIRST SEMESTER.

Object Drawing I, Arch. 111.....2(0-6)
Hist. of Arch. I, Arch. 154A.....2(2-0)
Hist. of Arch. III, Arch. 158A.....2(2-0)
Rural Architecture, Arch. 153.....2(0-6)
Chaucer, Engl. 2603(3-0)
Shakespearean Drama I, Engl. 273..3(3-0)
The Engl. Rom. Rev., Engl. 278....3(3-0)
World Classics I, Engl. 280.....3(3-0)

SECOND SEMESTER.

Object Drawing II, Arch. 114.....2(0-6)
Hist. of Arch. II, Arch. 157A.....2(2-0)
Hist. of Arch. IV, Arch. 160A.....2(2-0)
Hist. of Engl. Lit., Engl. 181.....3(3-0)
Shakespearean Drama II, Engl. 274..3(3-0)
Int. Dec. & Furn., Ap. Art 114.....3(1-6)

Food and Nutrition**FIRST SEMESTER.**

Physical Chem. I, Chem. 206.....	5(3-6)
Biochem. Meth. of Anal., Chem. 245, 1(0-3)	
Adv. Human Physiology, Zoöl. 235..	4(3-3)
Hygienic Bacteriology, Bact. 206.....	4(2-6)
Problems in Food Econ. and Nut.	
I, Food and Nut. 248.....	2 to 5
Food Econ. and Nut. Seminar I,	
Food and Nut. 251	2(2-0)
Fld. Wk. in Nut., Food and Nut. 215, 3(2-3)	
Bact. Problems, Bact. 226.....	1 to 4
College Algebra, Math. 104.....	3(3-0)
Plane Trigonometry, Math. 101.....	3(3-0)
Nut. of Dev., Food and Nut. 210.....	2(2-0)

SECOND SEMESTER.

Physiological Chem., Chem. 231.....	5(3-6)
Biochem. Prep., Chem. 234	5(0-15)
Quantitative Anal., Chem. 241.....	5(1-12)
Food Analysis, Chem. 257.....	3(0-9)
Histology I, Path. 102.....	2(1-3)
Food Econ. and Nut. Seminar II,	
Food and Nut. 252.....	2(2-0)
Meth. of Invest. in Foods and	
Nut., Food and Nut. 265.....	2(1-3)
Human Parasitology, Zoöl. 218.....	3(3-0)
Stat. Meth. as Applied to Educ.,	
Educ. 223	3(3-0)

Dietetics**FIRST SEMESTER.**

Inst. Econ. I, Inst. Econ. 201.....	3(1-6)
Physiological Chem., Chem. 231.....	5(3-6)
Fld. Work in Nut., Food & Nut. 215, 3(2-3)	
Food Economics and Nutrition Sem-	
inar I. Food and Nut. 251.....	2(2-0)
Child Welf. I, Child Welf. 201.....	3(1-6)

SECOND SEMESTER.

Inst. Econ. II, Inst. Econ. 205.....	3(3-0)
Dietetics for Abnormal Conditions,	
Food and Nut. 205	2(1-3)
Meats (HE), An. Husb. 176.....	1(0-3)
Inst. Marketing, Inst. Econ. 215.....	2(2-0)
Meth. of Invest. in Foods and Nut.,	
Food and Nut. 265.....	2(1-3)
The Nut. of Dev., Food & Nut. 210, 2(2-0)	

Home Making**FIRST SEMESTER.**

Child Welf. I, Child Welf. 201.....	3(1-6)
The Mod. Family, Child Welf. 216..	2(2-0)
Sociology, Econ. 151.....	3(3-0)
Community Organization, Econ. 267..	3(3-0)
Prob. in Foods I, Food and Nut. 243, 1 to 3	
Practice Course in Household	
Man., Hshld. Econ. 116.....	3(-)
World Classics I, Engl. 280.....	3(3-0)
The Nut. of Dev., Food & Nut. 210, 2(2-0)	

SECOND SEMESTER.

Child Welf. II, Child Welf. 206.....	3(3-0)
Principles of Art and Their Ap-	
plication I, Ap Art 124.....	3(3-0)
Econ. of Hshld, Hshld. Econ. 265....	2(2-0)
Clothing III, Clo. and Text. 126.....	3(1-6)
Meats (HE), An. Husb. 176.....	1(0-3)
Hist. of Engl. Lit., Engl. 181.....	3(3-0)
Psychology of Childhood and Ado-	
lescence, Educ. 208.....	3(3-0)

Child Care and Training**FIRST SEMESTER.**

Sociology, Econ. 151.....	3(3-0)
Social Problems, Econ. 257	2(2-0)
The Mod. Family, Child Welf. 216..	2(2-0)
Fld. Work in Nut., Food & Nut. 215, 3(2-3)	
Here. and Eugenics, Zoöl. 216.....	2(2-0)
Child Welf. I, Child Welf. 201.....	3(1-6)
Seminar in Child Welfare and Eu-	
thenics, Child Welf. 226.....	1 or 2

SECOND SEMESTER.

Hist. of the Home, Hist. 225.....	3(3-0)
Psychology of Childhood and Ado-	
lescence, Educ. 208	3(3-0)
Child Welf. II, Child Welf. 206.....	3(3-0)
Pos. Child Health, Child Welf. 111, 2(2-0)	
Prob. in Chd. Welf., Child Welf. 221, 1 to 5	

Institutional Economics**FIRST SEMESTER.**

Inst. Econ. I, Inst. Econ. 201.....	3(1-6)
Com. Correspondence, Engl. 122.....	3(3-0)
Prob. in Inst. Ad., Inst. Econ 210....	1 to 5
Inst. Econ. II, Inst. Econ. 205.....	3(3-0)
Prob. in Fds., Food & Nut. 243, 244, 1 to 3	
Fld. Work in Nut., Food & Nut. 215, 3(2-3)	

SECOND SEMESTER.

Meats (HE), An. Husb. 176.....	1(0-3)
Inst. Marketing, Inst. Econ. 215.....	2(2-0)
Inst. Furnishings, Ap. Art 116.....	3(1-6)
Inst. Accounting, Econ. 131.....	3(3-0)
Tea Room Man., Inst. Econ. 225....	3(0-9)
Physiological Chem., Chem. 231.....	5(3-6)

Lecturing and Demonstrating**FIRST SEMESTER.**

Oral English, Engl. 128.....	3(3-0)
Oral Interp., Pub. Spk. 101.....	2(2-0)
Extm. Speech I, Pub. Spk. 106.....	2(2-0)
Sociology, Econ. 151.....	3(3-0)
Technical Writing, Engl. 207.....	2(2-0)
Prac. in Fd. Dem., Food & Nut. 117, 1(0-3)	
Meats (HE), An. Husb. 176.....	1(0-3)
Ind. Feat. Writing I, Ind. Jour. 167..	2(2-0)

SECOND SEMESTER.

Dramatic Read., Pub. Spk. 102.....	2(2-0)
Extm. Speech II, Pub. Spk. 108....	2(2-0)
Applied Psychology, Educ. 170.....	3(3-0)
Rural Sociology, Econ. 156.....	3(3-0)
Com. Organization, Econ. 267.....	3(3-0)
Ind. Writing, Ind. Jour. 161.....	2(2-0)
Methods for Extension Workers in	
Foods, Food and Nut. 260.....	2(1-3)
Ind. Feat. Writing II, Ind. Jour. 171, 2(2-0)	

Sanitary Science: Food and Market Inspection**FIRST SEMESTER.**

Hygienic Bact., Bact. 206.....4(2-6)
 Quant. Anal. A, Chem. 250.....3(1-6)

SECOND SEMESTER.

Dairy Chemistry, Chem. 254.....3(1-6)
 Food Analysis, Chem. 257.....3(0-9)
 Pathogenic Bact. I, Bact. 111.....4(2-6)
 Meat Inspection, Path. 216.....2(2-0)

Social Welfare Work**FIRST SEMESTER.**

Child Welf. I, Child Welf. 201.....3(1-6)
 The Mod. Family, Child Welf. 216..2(2-0)
 Econ. of the Hshld, Hshld Econ. 265, 2(2-0)
 Sociology, Econ. 1513(3-0)
 Latin America, Hist. 207.....2(2-0)
 Community Organization, Econ. 267..3(3-0)
 Fld. Work in Nut., Food & Nut. 215, 3(2-3)

SECOND SEMESTER.

Child Welf. II, Child Welf. 206.....3(3-0)
 Labor Problems, Econ. 233.....2(2-0)
 Rural Sociology, Econ. 156.....3(3-0)
 Social Problems, Econ. 257.....2(2-0)
 Modern Europe II, Hist. 223.....3(3-0)
 Immi. & Int. Rela., Hist. 228.....2(2-0)
 Prob. in Chd. Welf., Child Welf. 221, 1 to 5

Applied Art

Professor HOLMAN
 Associate Professor ARNOLD
 Assistant Professor EVERHARDY

Instructor MORRIS
 Instructor HARRIS

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.

Students pursuing the curriculum offering special training in art are urged to confer with the department head in regard to their special interests in the field.

This department owns equipment valued at \$8,600.

COURSES IN APPLIED ART**FOR UNDERGRADUATE CREDIT**

101. APPLIED DESIGN I. 3(1-6); I.* Miss Holman, Miss Everhardy, and Miss Arnold.

Principles which control the use of color and form and the selection and arrangement of elements in the production of objects themselves and in their uses as parts of a whole; clothing and home furnishings scored as to design; a natural motif adapted to material, function, and form. Text: Batchelder, *Design in Theory and Practice*. Deposit, 75 cents.

102. APPLIED DESIGN II. 3(1-6); I. Prerequisites: Course 101. Miss Holman and Miss Everhardy.

A further study of harmonies, adaptation of natural motifs, and design as applied to fabrics and other materials; art masterpieces and articles of common use studied according to principles of color and form. Text: Crane, *The Basis of Design*. Deposit, 75 cents.

* The number before the parenthesis indicates the number of semester hours of credit; 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. I, II, and SS indicate that the course is given the first semester, second semester, and summer session respectively.

105. APPLIED DESIGN III. 2(0-6); II. Prerequisite: Course 102. Miss Everhardy and Miss Arnold.

A continuation of course 102, with emphasis on art structure. Deposit, 75 cents.

108. HOUSE FURNISHINGS. 2(1-3); II. Prerequisites: Course 101. Miss Holman and Miss Harris.

The decorative phase of design studied in the solving of problems which occur in the furnishings of the house. Deposit, 25 cents.

110, 111. PUBLIC-SCHOOL ART A AND B. 2(1-3) each; SS.

A: Fundamentals of all art expressions; problems, including representation, design, construction work and picture study for all grades. Deposit, 25 cents.

B: Problems for graded work as an aid to the student in adapting art work to the need of his community. Deposit, 25 cents.

114. INTERIOR DECORATION AND FURNISHING. 3(1-6); II. Prerequisite: Applied Design II. Miss Holman and Miss Harris.

A study of color, form, and arrangement of house furnishings. Deposit, 75 cents.

116. INSTITUTIONAL FURNISHINGS. 3(1-6); II. Prerequisites: Applied Design II. Miss Morris.

A study of fundamental principles of design; these principles applied to problems involving selection and use of wall, floors, furniture, finishes, covering, linen, china, and silver. Deposit, 25 cents.

118. ART ELEMENTS. 1(1-0); I and II. Prerequisite: Course 101. Miss Holman and Miss Arnold.

Line and form, tone and color, and their arrangement as found in the fine arts, industrial arts, and the arts of every day.

120. SKETCHING. 2(0-6); II. Prerequisite: Applied Design I. Miss Arnold and Miss Harris.

Objects sketched singly and in groups in the studio and out of doors, the media employed being pencil, charcoal, and brush.

124. PRINCIPLES OF ART AND THEIR APPLICATION I. 3(3-0); II. Prerequisite: Applied Design I. Miss Holman and Miss Arnold.

A general survey of art periods as an index to what art quality is; an examination of the religious, political, and social aspects of art expression; architecture, furniture, textiles, sculpture, pictures, and lesser art objects compared as to their art quality; survey of the modern fields of landscape, architecture, furnishings, clothing, etc.; application of principles controlling art expression to these fields. Texts: Neuhaus, *The Appreciation of Art*; and Mullen, *The Approach to Art*.

126. PRINCIPLES OF ART AND THEIR APPLICATION II. 3(3-0); I. Prerequisite: Course 124. Miss Holman and Miss Arnold.

Continuation of Principles of Art and Their Application I.

130, 134, 138. COSTUME DESIGN I, II, AND III. 2(0-6) each. Prerequisites: For I, course 101; for II, course 130; for III, course 134. Miss Arnold and Miss Morris.

I: Color, line form, and texture in modern dress; consideration of individual requirements; brief survey of historic costume; this course a design basis for garment selection and construction. Deposit, 75 cents.

II: Review of 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; the Hambidge Theory of Dynamic Symmetry; stress on color in modern and historic costume for the stage. Deposit, 75 cents.

III: A continuation of course 134, particularly in relation to historic costume. Deposit, 75 cents.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201, 202. PROBLEMS IN APPLIED DESIGN I AND II. 3(1-6) each; SS. Prerequisites: For I, courses 102 and 134; for II, course 201. Miss Everhardy.

I: Special phases of decorative design considered with reference to the student's experience and development of projects through research and invention.

II: The aim, to develop appreciation for art in everyday surroundings and as far as time permits to develop skill in expression; problems adapted to the needs of the student.

206. PROBLEMS IN TEACHING ART. 3(1-6); SS. Prerequisites: Applied Design I and Special Methods Teaching Home Economics or its equivalent. Miss Holman.

For the high school teacher who is correlating art with home economics subject, particularly for the teacher of art subjects connected with vocational training; training given through lectures and class discussions of methods, consideration of suitable laboratory equipment, use of illustrative material, and preparation of courses of study. Text: Woodbury, *The Art of Seeing*.

211. PROBLEMS IN ADAPTATION OF PERIOD COSTUMES. 2(0-6); I. Prerequisites: 9 credits in Applied Design; consult instructors. Miss Arnold and Miss Morris.

Problems to develop taste in selection and use of historic material for dress, plays and pageants. The aim is to increase appreciation and improve technique. Notes and sketches are required. Deposit, 75 cents.

FOR GRADUATE CREDIT

301. ART RESEARCH. 2 to 10 credits, by appointment. For prerequisites, consult head of department.

A problem in art selected from some of the following fields: (a) Historic research; (b) organization of curriculum; (c) methods of teaching; (d) theoretical aspects of art education.

Child Welfare and Euthenics

Professor FORD
Associate Professor DORBS
Instructor COCKRELL

Instructor KELL
Graduate Assistant _____
Graduate Assistant _____

Home economics must always be chiefly concerned with the individuals in the homes, and the various phases of home economics gain in importance only as they contribute something of value to the lives of individuals. If homes are to prepare their members to help in the progress of society and to receive the highest satisfactions from life, they must insure three things.

They must first of all insure a childhood safeguarded by the wise application of the latest principles of science. The environment must be such as to foster the fullest development of desirable qualities and to suppress the development of undesirable qualities. In the second place, through right family relationships and family living based on sound principles and high ideals, the home must insure such help and sense of security to the individual as can come in no other way. In the third place, the home must lay a sure foundation for both the physical and mental health of its members. We realize now that health is much more than the absence of disease. It is positive, buoyant, joyous health that homes must strive to give individuals to-day.

To help educate in right living, from the standpoint both of individual and family well-being, and to further whatever is of benefit to children are the aims of the courses offered in this department.

COURSES IN CHILD WELFARE AND EUTHENICS

FOR UNDERGRADUATE CREDIT

101. **HYGIENE.** 2(2-0); I and II. Miss Dobbs.

Personal hygiene as a means of maintaining and improving health.

111. **POSITIVE CHILD HEALTH.** 2(2-0); I and II. For prerequisites, consult instructor. Miss Dobbs.

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.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. **CHILD WELFARE I.** 3(1-6); I and II. Prerequisites: Embryology and Physiology, Psychology, and Human Nutrition. Dr. Ford.

Development, care, and training of the infant and preschool child.

Laboratory.—Directed observations and assisting in the nursery school. Charge, \$1.

206. **CHILD WELFARE II.** 3(3-0); II. For prerequisites, consult the instructor. Dr. Ford.

The development, care, and training of older children; community problems of child welfare.

211. **FAMILY HEALTH.** 3(3-0); I and II. Prerequisites: Household Physics, Embryology and Physiology, and Household Microbiology. Miss Dobbs.

General aspects of health in community, industry and family life; the importance of preventive medicine; the object of health development in educational systems and the teaching of health by practical demonstration and the project method; the household as a factor in health conservation; the interrelation of home and community health; simple nursing procedures.

216. **THE MODERN FAMILY.** 2(2-0); I and II. Prerequisite: Senior or graduate standing. Consult instructor. Dr. Ford.

Functions of the family and the various problems which confront it to-day.

221. **PROBLEMS IN CHILD WELFARE AND EUTHENICS.** 1 to 5 credits; I and II. Prerequisite: Child Welfare I. Consult instructor. Dr. Ford.

Individual investigation of a special problem in some phase of child welfare; conferences, and reports at appointed hours.

226. **SEMINAR IN CHILD WELFARE AND EUTHENICS.** 1 or 2(2-0); I and II. Prerequisite: Child Welfare I. Dr. Ford.

Discussions and reports dealing with important publications and activities in the field of Child Welfare and Euthenics.

FOR GRADUATE CREDIT

301. **RESEARCH IN CHILD WELFARE AND EUTHENICS.** 1 to 10 credits; I and II. Prerequisites: Consult instructors. Dr. Ford and Miss Dobbs.

Opportunity for original research in the field of child welfare and euthenics which may form the basis of work for a master's thesis.

Clothing and Textiles

Professor BAKER
Associate Professor COWLES
Assistant Professor BRUNER
Assistant Professor HESS

Instructor QUINLAN
Graduate Assistant COBB
Research Assistant BACKSTROM
Fellow SHOCKEY

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 to prepare for vocational, professional, and business positions such as college teachers; research workers; textile chemists; clothing consultants; purchasing agents for institutions; department stores, and millinery establishments and extension workers as well as other professions.

The equipment belonging to this department is valued at \$7,205.

COURSES IN CLOTHING AND TEXTILES

FOR UNDERGRADUATE CREDIT

101. CLOTHING I. 2(1-3); I and II. Miss Baker, Miss Backstrom, and Miss Cobb.

Adaptation and use of commercial patterns; kinds, qualities, and quantities of materials; elementary facts which underlie the successful selection of textile fabrics.

Laboratory.—The planning and construction of garments from wash materials, demonstrations and simple fabric identification and construction. Charge, \$1; deposit, 25 cents.

111. CLOTHING II. 3(1-6); I and II. Prerequisites: Clothing I and Costume Design I. Miss Cowles and others.

Consideration of bases for the selection of clothing; clothing budgets in relation to the rest of the income; comparison of home- and factory-made clothing garments; clothing standards in their relation to the economic, social and æsthetic life of the community; principles of hygiene and sanitation as applied to clothing.

Laboratory.—The planning of clothing budgets of individuals and of family groups; planning and construction of garments for children, men and women with emphasis on rapidity of construction, labor-saving methods, and relative costs. Charge, \$1; deposit, 25 cents.

116. TEXTILES. 3(2-3); I and II. Prerequisites: Organic Chemistry and Clothing II (Clothing II may parallel). Mrs. Hess and Miss Bruner.

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 to develop a clear and sound judgment in the selection of textile fabrics for household and personal use and become familiar with best methods of determining quality.

Laboratory.—Manual for laboratory work furnished by department. Chemical, physical, microscopic tests on textile fibers, yarns, and fabrics. Charge, \$2; deposit, 25 cents.

126. CLOTHING III. 3(1-6); I and II. Prerequisites: Courses 101, 111, 116, and Costume Design I. Open to juniors and seniors.

Æsthetic and modish adaptation of materials to the individual; self-

expression through dress; emphasis on problems of the high school teacher and designs for clothing based on natural objects.

Laboratory.—Self-fitting and problems in silk fabrics, renovation and practice in demonstration work. Charge, \$1.50; deposit, 25 cents.

FOR GRADUATE AND UNDERGRADUATE CREDIT

237. CLOTHING ECONOMICS. 3(3-0); I. Prerequisites: Economics, Textiles, Clothing I, II, and III; Sociology, or permission of instructor. Miss Baker.

A study of the organization of the textile industries and markets, of wages and standards of efficiency in workmanship, of standardization of fabrics, and legislation concerning textiles. Topics are assigned for reading and investigation in addition to classroom work.

246. ADVANCED TEXTILES. 3(1-6); I. Prerequisites: Textiles, Clothing I, II, and III, and Costume Design I and II. Mrs. Hess, and Miss Bruner.

Special work in the analysis of fabrics, study of scientific equipment used in colleges and commercial plants as well as assigned problems in textiles, dyeing, and deterioration in fabrics and fibers.

Laboratory.—Charge, \$3; deposit, 25 cents.

251. HYGIENE OF CLOTHING. 3(3-0); II. Prerequisites: Textiles, Embryology or Human Physiology, Microbiology, Psychology, and Clothing I, II, and III. Miss Baker.

A study of the body as it may be affected by clothing and a summary of the factors in textile fibers and fabrics that affect the health of the body. Students are assigned special problems for investigation based on Clothing in relation to health and its effect upon anatomical form, muscular development, and physiological functions.

256. PROBLEMS IN CLOTHING AND TEXTILES. 1 to 3 credits; I and II. By appointment. For prerequisites consult Miss Baker.

An assigned problem in some phase of clothing or textiles. Charge, \$2 and up, depending on the nature of the work.

260. LABOR IN THE CLOTHING AND TEXTILE INDUSTRIES. 1(1-0); II. For prerequisites consult instructors. Miss Cowles and Miss Quinlan.

Ancient and modern methods of textile production; problems arising from the conditions of labor, especially as affecting the mental, moral, and physical health of the workers; methods used in bettering these conditions, in addition to a local survey of labor related to textiles.

265. HISTORY OF COSTUME. 1(1-0); I. Prerequisites: Costume Design I and II, Textiles, or approval of instructor. Miss Quinlan.

Ancient and modern costumes with their various phases of development; comparison of classes and the relative cost of living in the various ages.

270. CLOTHING IV. 3(1-6); II. For prerequisites, consult Miss Baker and Miss Quinlan.

Sociological, historical, and philosophical aspects of costume; the relation of dress to civilization, architecture, religion, occupation, amusement, and the like; a summary of clothing and textile subject matter and its place in the high school and college curricula.

Laboratory.—Fundamentals in tailoring and essentials in millinery. Charge, \$2; deposit, 25 cents.

FOR GRADUATE CREDIT

301. RESEARCH IN CLOTHING AND TEXTILES. 2 to 10 credits; by appointment, I and II. For prerequisites, consult instructors. Miss Baker, Mrs. Hess, and Miss Bruner.

A research problem considering the hygienic or economic aspects of textiles or an investigation of clothing as it is related to art, psychology or bacteriology may be chosen as the problem, depending on the courses elected. Text:

Schluter, *How To Do Research Work*. Charge, \$5 and up, according to the nature of the work.

312. EXPERIMENTAL TEXTILES. 3 credits; by appointment. Prerequisites: Advanced Textiles. Mrs. Hess and Miss Bruner.

The work covered in this course consists primarily of experimental work on and with textiles. Written reports of all work done will be required before a student will receive credit for the course. Charge, \$5; deposit, 25 cents.

Food Economics and Nutrition

Professor PITTMAN
Professor KRAMER
Professor CHANEY
Associate Professor AHLBORN
Instructor TUCKER

Instructor VAIL
Assistant POTTER
Graduate Assistant CANAVAN
Graduate Assistant BRENNER
Graduate Assistant GILLUM

Food is an important factor in the health of the individual and the family. Selection of wholesome and economical food requires the application of chemistry, physiology, sanitary science, and economics. 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 nutrition of the body and applies these to planning of food for the individual and the group.

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 \$20,841.

COURSES IN FOOD ECONOMICS AND NUTRITION

FOR UNDERGRADUATE CREDIT

101. FOODS I. 3(1-6); I and II. Prerequisite: Entrance physics; parallel: Chemistry I. Miss Ahlborn, Miss Tucker, Miss Vail, and Miss Canavan.

History and development of fire, cookery, and cooking utensils; principles involved in different methods of cooking and in preservation of foods.

Laboratory.—Practical cookery, illustrating the various methods of preparing foods; study of stoves, fuels, food preservation, and simple meal planning. Charge, \$4; deposit, 25 cents.

106. FOODS II. 5(3-6); I and II. Prerequisites: Organic Chemistry, and Foods I or equivalent. Miss Pittman, Miss Ahlborn, and Miss Tucker.

Classification, composition, occurrence, and general properties of foods; food values in relation to cost; legal and sanitary aspects of food products handled in commerce; place of various foods in diet.

Laboratory.—Foods are tested to show chemical composition, solubility in various reagents and similar qualities. Food preparation is from the experimental standpoint. Recipes are compiled and food products are scored. Charge, \$4.25; deposit, 25 cents.

112. HUMAN NUTRITION. 3(3-0); I and II. Prerequisites: Organic Chemistry, Embryology and Physiology, and Foods II*. Dr. Kramer.

The chemistry of food and nutrition, with emphasis upon the food nutrients, digestion, and metabolism.

117. PRACTICE IN FOOD DEMONSTRATIONS. 1(0-3); II. Prerequisite: Foods II. Miss Pittman and others.

Instruction in the technic of food demonstrations; each student allowed opportunity for practice in various types of demonstrations. Charge, \$3; deposit, 25 cents.

* 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.

121. APPLIED NUTRITION. 2(2-0); I. Prerequisite: Organic Chemistry. Dr. Chaney.

Practical nutrition for the college student, including food requirements, food selection, and food habits. A course designed for men and women students not majoring in home economics.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. DIETETICS. 5(3-6); I and II. Prerequisites: Human Nutrition, and Foods II. Dr. Chaney, Miss Ahlborn, and Miss Tucker.

Food requirements in health 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 preparation of standard portions and combinations of foods; practice in marketing and serving; and other practical applications of classroom theories. (For graduate students, an assigned problem instead of marketing and serving.) Charge, \$6; deposit, 25 cents.

205. DIETETICS FOR ABNORMAL CONDITIONS. 2(1-3); II. Prerequisite: Dietetics. Dr. Kramer, Dr. Chaney, and Miss Ascham.

Varying dietetic requirements in different pathological conditions, such as diabetes, nephritis, gout, gastric ulcer, etc. (For students who expect to qualify as professional dietitians.)

Laboratory.—Demonstration of special foods used in such conditions, and computation of dietaries. Deposit, \$3.25.

210. THE NUTRITION OF DEVELOPMENT. 2(2-0); II. Prerequisites: Human Nutrition and Dietetics. Dr. Chaney.

Food requirements in pregnancy, fetal life and lactation. Infant feeding, food for the preschool child, the school child, and the adolescent.

215. FIELD WORK IN NUTRITION. 3(2-3); I and II. Prerequisites: Human Nutrition, and Dietetics. Dr. Chaney and ———.

Survey work along nutritional lines and corrective work with malnourished individuals, either separately or in groups. Laboratory charge to be arranged with instructor.

243, 244. PROBLEMS IN FOODS I AND II. 1 to 3 credits each; I and II respectively. Prerequisites: Foods II, and Human Nutrition. Miss Pittman, Miss Ahlborn, and Miss Vail.

I: Problems in food assigned for individual study. Charge, \$2 per credit; deposit, 25 cents.

II: A continuation of I or may be elected independently. Charge, \$2 per credit; deposit, 25 cents.

248, 249. PROBLEMS IN FOOD ECONOMICS AND NUTRITION I AND II. 2 to 5 credits each; (conferences, laboratory work, and reports); I and II respectively. Prerequisite: Senior or graduate standing. Dr. Kramer and Dr. Chaney.

I: Problems in the nutritive value of foods; feeding experiments; dietary studies, or practice in the methods commonly used in the simpler experiments in nutrition, are assigned for individual study. Charge, depends on problem chosen.

II: Continuation of course 248 or may be elected independently. Charge depends on problem chosen.

251, 252. FOOD ECONOMICS AND NUTRITION SEMINAR I AND II. 1 or 2(2-0) each; I and II respectively. Prerequisite: Human Nutrition. Dr. Kramer.

I: Assigned reading and discussion of topics in the field of food economics and nutrition, with special attention to recent literature bearing on problems

in dietetics in both normal and pathological conditions, on growth, and on normal and subnormal nutrition in infancy and childhood.

II: Continuation of I or may be elected independently.

260. METHODS FOR EXTENSION WORKERS IN FOODS. 2 credits; II. Prerequisite: Dietetics. Miss Pittman.

Origin and development of the extension field in home economics; food problems of the extension worker and methods suggested for handling them; federal, state, and county organizations considered. Some field work required.

265. METHODS OF INVESTIGATION IN FOODS AND NUTRITION. 2(1-3); I and II, by appointment. Prerequisite: Dietetics. Dr. Kramer and Miss Ascham.

Current methods in investigation of foods and of problems in nutrition.

Laboratory.—Laboratory procedures in simple food analyses, digestion and metabolism experiments, and animal feeding technic. Charge, \$3; deposit, 25 cents.

FOR GRADUATE CREDIT

305. RESEARCH IN FOOD ECONOMICS AND NUTRITION. 1 to 10 credits; I and II. For prerequisites, consult instructors. Miss Pittman, Dr. Kramer, and Dr. Chaney.

Individual research problems, which may form the basis for the thesis submitted for the master's degree. Charge, \$5 and up, depending on the problem chosen.

General Home Economics

Dean JUSTIN
Associate Professor RUST*

101. HOME ECONOMICS FRESHMAN SEMINAR. R(1-0); I. Dean Justin, department heads of division, and Professor C. V. Williams.*

The purpose of the seminar is: (1) The orientation of the student to her college environment. (2) The development of the ability to study. (3) Guidance in choice of one of the several fields of home economics for her profession.

151. HOME ECONOMICS SENIOR SEMINAR. R(1-0); II. Dean Justin.

The opportunities and responsibilities of the home economist are presented, and means for professional growth and personal advancement of the trained woman are stressed.

There are investigations that touch the various fields of home economics which are primarily approached from the standpoint of organization and presentation of home economics, taking subject matter from the departments and correlating it into a general program. Such investigations may be carried on in conjunction with the Department of Education or with the Department of Home Economics in Extension.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. PROBLEMS IN ORGANIZATION AND PRESENTATION OF HOME ECONOMICS. 1 to 5 credits; I and II. Prerequisite: Senior or graduate standing. Dean Justin and Mrs. Rust.*

This course permits opportunity for study of problems of organization and administration in this field.

FOR GRADUATE CREDIT

301. RESEARCH IN ORGANIZATION AND PRESENTATION OF HOME ECONOMICS. 1 to 10 credits; I and II. Prerequisite: Graduate standing. Dean Justin and Mrs. Rust.*

* Of the Department of Education.

Individual research problems in phases of organization and administration for home economics. May be chosen as the basis for thesis for the master's degree. The nature of the problem will depend upon the student's major interest.

Household Economics

Dean JUSTIN
Assistant Professor GUNSELMAN

Assistant Professor TAYLOR
Graduate Assistant ENGLUND

The successful administration of the home 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 home and its relation to the community. Through the courses in this department, training is given in household equipment, problems of household administration and standards of living.

Those preparing to become directors of residence, specialists in household management, teachers, or research workers in this field find suitable courses in this department.

The department owns equipment valued at \$4,892.

COURSES IN HOUSEHOLD ECONOMICS

107. HOUSEHOLD MANAGEMENT. 3(2-3); I and II. Prerequisites: Household Physics, Foods II, and Clothing II. Miss Gunselman and Miss Taylor.

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.

Laboratory.—Comparative studies of mechanical household appliances; placing and grouping of equipment; economy and efficiency tests of cooking utensils, floor and wall finishes, and cleaning agents; time studies of household tasks. Charge, \$1.

116. PRACTICE COURSE IN HOUSEHOLD MANAGEMENT. 3 credits; I and II. Prerequisites. Household Physics, and Foods II. Prerequisite, or parallel: Household Management. Consult instructor. Miss Gunselman and Miss Englund.

Opportunity is given in the practice house for the practical application of principles of science and art to the home. The aim is to develop good judgment in planning expenditures of time, money and effort, and in evaluating the factors that determine standards of living.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. HOUSEHOLD EQUIPMENT. 2(0-6); I and II. Prerequisites: Physics 101 and Hshld. Ec. 107. Miss Taylor.

Studies and tests of household equipment from the physical standpoint. Charge, \$2.50.

243. PROBLEMS IN HOUSEHOLD ECONOMICS. 1 to 5 credits; I and II. Prerequisite: Household Management. Consult instructor. Dr. Justin, Miss Gunselman, and Miss Taylor.

Special problems 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.

265. ECONOMICS OF THE HOUSEHOLD. 2(2-0); II. Prerequisites: Foods II and Economics. Miss Gunselman.

Problems of income, housing, standards of living, budgets and accounts.

FOR GRADUATE CREDIT

301. RESEARCH IN HOUSEHOLD ECONOMICS I. 1 to 10 credits; I. Prerequisites: Consult instructors. Dr. Justin, and Miss Gunselman.

An individual research problem in the field of household administration. This may form part or all of the basis for a master's thesis.

Institutional Economics

Professor WEST
Assistant Professor WOOD

Instructor MORRIS
Graduate Assistant HARRIS

The successful administration of the institution involves the wise expenditure of time, energy, and money, in order that the requirements of food and shelter may be satisfactorily furnished to large groups. Courses in this department provide training for cafeteria, tea-room, lunch-room managers, dietitians, and directors of residence halls.

The equipment of this department is valued at \$11,868.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. INSTITUTIONAL ECONOMICS I. 3(1-6); I and II. Prerequisite: Foods II; prerequisite or parallel: Human Nutrition. Miss Wood and Miss Morris.

Food problems of institutions, including preparation and serving of food, arrangement of menus and cost of service.

Laboratory.—Carried on in College cafeteria and Girls' Residence Hall, where food is prepared in large quantities for serving. Charge, \$2.50.

205. INSTITUTIONAL ECONOMICS II. 3(3-0); I and II. Prerequisite: Institutional Economics I. Graduate students may parallel Institutional Economics I and II. Miss Wood.

A study of institutions, their organization and management problems. Includes floor plans, equipment, qualifications and duties of the manager, personnel work and office management.

210. PROBLEMS IN INSTITUTIONAL ADMINISTRATION. 1 to 5 credits; I and II. Prerequisite: Institutional Economics I; prerequisite or parallel: Institutional Economics II. Consult instructors. Mrs. West and Miss Wood.

Individual investigation of problems in the field of Institutional Economics. Conferences are held and reports made at appointed hours.

215. INSTITUTIONAL MARKETING. 2(2-0); I. Prerequisite: Foods II. Mrs. West.

Study of producing areas, storage, local and general marketing of fresh, canned and dehydrated vegetables; meats; and fresh, canned, and dried fruits.

225. TEA-ROOM MANAGEMENT. 3(0-9); I and II. Prerequisites: Institutional Economics I. Prerequisite or parallel: Institutional Economics II and Institutional Marketing. Miss Wood.

Practical experience in the planning, preparation and serving of food to the public. Afternoon tea, dinner, and catering for small parties is included. The College Tea Room serves as a laboratory for this course. Miss Wood.

FOR GRADUATE CREDIT

301. RESEARCH IN INSTITUTIONAL ECONOMICS. 2 to 10 credits; I and II. For prerequisites, consult instructor. Mrs. West.

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 numerous courses in this subject in the Summer School. These courses apply directly on the curriculum in home economics, or on graduate credit.

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.

The Division of Veterinary Medicine

RALPH R. 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 culture 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 es-

tablished 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 Commissions, 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.

This curriculum is prepared especially for students who intend to become managers of live-stock farms or to enter special lines of veterinary practice.

THE CURRICULUM IN GENERAL SCIENCE AND
VETERINARY MEDICINE

The combined curriculum in general science and veterinary medicine has been so arranged 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. The curriculum is intended especially for students who intend to pursue teaching or research work in agricultural experiment stations.

Curriculum in Veterinary Medicine

FRESHMAN

FIRST SEMESTER.		SECOND SEMESTER.	
Anatomy I, Anat. 103.....	*3(2-3)	Anatomy II, Anat. 108.....	8(4-12)
Histology I, Path. 102.....	2(1-3)	Histology II, Path. 107	4(1-9)
Chemistry (Vet.), Chem. 105.....	5(3-6)	El. Org. Chemistry, Chem. 123.....	3(2-3)
Zoöl. and Embr. (Vet.), Zoöl. 109....	5(3-6)		
Mil. Science (Vet.) I, Mil. Tr. 121A..	1(0-3)	Mil. Science (Vet.) II, Mil. Tr. 122A..	1(0-3)
Phys. Ed. M, Phys. Ed. 103.....	R(0-2)	Phys. Ed. M, Phys. Ed. 104.....	R(0-2)
Total	16	Total	16

SOPHOMORE

FIRST SEMESTER.		SECOND SEMESTER.	
Anatomy III, Anat. 112.....	4(1-9)	Anatomy IV, Anat. 116.....	3(1-6)
Comp. Physiology I, Anat. 221.....	5(4-3)	Comp. Physiology II, Anat. 226.....	3(2-3)
Medical Botany, Bot. 126.....	2(1-3)	Path. Bact. I, Bact. 111.....	4(2-6)
College Rhetoric I, Engl. 101.....	3(3-0)	Pathology I, Path. 202.....	3(2-3)
Live Stock Judging, An. Husb. 120..	3(2-4)	Prin. of Feeding, An. Husb. 152....	3(3-0)
		Dairy Judging, Dairy Husb. 104.....	1(0-3)
Mil. Sci. (Vet.) III, Mil. Tr. 123A..	1(0-3)	Mil. Sci. (Vet.) IV, Mil. Tr. 124A..	1(0-3)
Phys. Ed. M. Phys. Ed. 105.....	R(0-2)	Phys. Ed. M, Phys. Ed. 106.....	R(0-2)
Total	18	Total	18

* The number before the parenthesis indicates the number of semester hours of credit; the first number 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 each week.

JUNIOR

FIRST SEMESTER.

Surgery I, Surg. and Med. 101.....	3(3-0)
Diagnosis, Surg. and Med. 170.....	2(2-0)
Materia Medica, Surg. and Med. 157, 4(4-0)	
Pharmacy, Surg. and Med. 166.....	1(0-3)
Pathology II, Path. 207.....	3(2-3)
Patho. Bact. II, Bact. 116.....	4(2-6)
Clinics I, Surg. and Med. 137.....	1(0-6)

Total 18

SECOND SEMESTER.

Surgery II, Surg. and Med. 106.....	3(3-0)
Dis. of Lg. Ani. I, Surg. & Med. 174, 4(4-0)	
Farm Poultr. Pro., Poultr. Husb. 101, 2(1-2,1)	
Therapeutics, Surg. and Med. 163.....	3(3-0)
Pathology III, Path. 212	5(4-3)
Clinics II, Surg. and Med. 140.....	1(0-10)

Total 18

SENIOR

FIRST SEMESTER.

Surgery III, Surg. and Med. 111....	3(3-0)
Dis. of Lg. Ani. II, Surg. & Med. 177, 5(5-0)	
Jurisprudence, Anat. 161.....	1(1-0)
Pathology IV, Path. 214.....	3(2-3)
Meat Inspection, Path. 216.....	2(2-0)
Parasitology, Zoöl. 208	3(2-3)
Clinics III, Surg. and Med. 143.....	1(0-12)

Total 18

SECOND SEMESTER.

Surgery IV, Surg. and Med. 116.....	3(3-0)
Inf. Dis. of Large Animals, Surg. and Med. 181.....	5(5-0)
Dis. of Small Ani., Surg. & Med. 186, 2(2-0)	
Poultry Diseases, Bact. 217.....	2(2-0)
Op. Surgery, Surg. and Med. 121....	1(0-3)
Obstetrics, Surg. and Med. 131.....	3(3-0)
Dairy Insp. II, Dairy Husb. 118.....	1(0-3)
Clinics IV, Surg. and Med. 146....	1(0-12)

Total 18

Number of semester hours required for graduation, 140.

ELECTIVES

FIRST SEMESTER.

Vaccine Manu. I, Path. 227.....	2(1-3)
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SECOND SEMESTER.

Special Histology, Path. 252.....	3(1-6)
Vaccine Manu. II, 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.....	1 to 10(-)
Special Anatomy, Anat. 202.....	2 to 4(-)
Applied Anatomy, Anat. 206.....	1(0-3)
Problems in Physiology, Anat. 215.....	3 to 5(-)

Curriculum in Animal Husbandry and Veterinary Medicine¹

FRESHMAN

Freshman year of the Curriculum in Agriculture.

SOPHOMORE

FIRST SEMESTER.

General Zoölogy, Zoöl. 105.....	5(3-6)
Anatomy I, Anat. 103.....	3(2-3)
Soils, Agron. 130	4(3-3)
Elements of Horticulture, Hort. 107. 3(2-3)	
Infantry III, Mil. Tr. 103A.....	1(0-3)
Phys. Ed. M, Phys. Ed. 105.....	R(0-2)
Agric. Seminar, Gen. Agric. 103.....	R

Total 16

SECOND SEMESTER.

Patho. Bact. I, Bact. 111.....	4(2-6)
Anatomy II, Anat. 108.....	8(4-12)
College Rhetoric II, Engl. 104.....	3(3-0)
Infantry IV, Mil. Tr. 104A.....	1(0-3)
Phys. Ed. M, Phys. Ed. 106.....	R(0-2)
Agric. Seminar, Gen. Agric. 103.....	R

Total 16

JUNIOR

FIRST SEMESTER.

Embryology A, Zoöl. 135.....	3(2-3)
Anatomy III, Anat. 112	4(1-9)
Histology I, Path. 102.....	2(1-3)
Genetics, An. Husb. 221.....	3(3-0)
Electives ²	4(-)
Agric. Seminar, Gen. Agric. 103.....	R

Total 16

SECOND SEMESTER.

Prin. of Feeding, An. Husb. 152....	3(3-0)
Anatomy IV, Anat. 116.....	3(1-6)
Histology II, Path. 107.....	4(1-9)
El. Journalism, Ind. Jour. 151.....	2(2-0)
Jour. Prac. I, Ind. Jour. 154.....	2(0-6)
Farm Crops, Agron. 101.....	4(2-6)
Agric. Seminar, Gen. Agric. 103.....	R

Total 18

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.

SENIOR

FIRST SEMESTER.

Gen. Entomology, Ent. 203.....	3(2-3)
Agric. Economics, Ag. Ec. 101.....	3(3-0)
Comp. Physiology I, Anat. 221.....	5(4-3)
Electives ²	5(-)
Agric. Seminar, Gen. Agric. 103.....	R

Total 16

SECOND SEMESTER.

Agric. Rela., Gen. Agric. 105B.....	R(1-0)
Farm Org., Ag. Ec. 106.....	3(2-3)
Comp. Physiology II, Anat. 226.....	3(2-3)
Pathology I, Path. 202.....	3(2-3)
Electives ²	7(-)
Agric. Seminar, Gen. Agric. 103.....	R

Total 16

FIFTH YEAR

Junior year of the Curriculum in Veterinary Medicine.

SIXTH YEAR

Senior year of the Curriculum in Veterinary Medicine.
Number of semester hours required for graduation, 202.

Six-year Curriculum in General Science and Veterinary Medicine

FRESHMAN

FIRST SEMESTER.

Anatomy I, Anat. 103.....	3(2-3)
College Rhetoric I, Engl. 101.....	3(3-0)
Chemistry I, Chem. 101.....	5(3-6)
College Algebra,* Math. 104.....	3(3-0)
Mil. Science (Vet.) I, Mil. Tr. 121A..	1(0-3)
Phys. Ed. M, Phys. Ed. 103.....	R(0-2)

Total15 or 17

SECOND SEMESTER.

Anatomy II, Anat. 108.....	8(4-12)
College Rhetoric II, Engl. 104.....	3(3-0)
Chemistry II, Chem. 102.....	5(3-6)
Mil. Science (Vet.) II, Mil. Tr. 122A..	1(0-3)
Phys. Ed. M, Phys. Ed. 104.....	R(0-2)

Total 17

SOPHOMORE

FIRST SEMESTER.

Histology I, Path. 102.....	2(1-3)
German I or French I, Mod Lang. 101 or 151	3(3-0)
General Zoölogy, Zoöl. 105.....	5(3-6)
Library Methods, Lib. Econ. 101.....	1(1-0)
Organic Chem. I, Chem. 218.....	4(2-6)
Mil. Sci. (Vet.) III, Mil. Tr. 123A..	1(0-3)
Phys. Ed. M, Phys. Ed. 105.....	R(0-2)

Total 16

SECOND SEMESTER.

Histology II, Path. 107.....	4(1-9)
German II or French II Mod. Lang. 102 or 152.....	3(3-0)
Plane Trigonometry, Math. 101.....	3(3-0)
Prin. of Feeding, An. Husb. 152.....	3(3-0)
Organic Chem. II, Chem. 219.....	4(2-6)
Mil. Sci. (Vet.) IV, Mil. Tr. 124A..	1(0-3)
Phys. Ed. M, Phys. Ed. 106.....	R(0-2)

Total 18

JUNIOR

FIRST SEMESTER.

Anatomy III, Anat. 112.....	4(1-9)
General Botany I, Bot. 101.....	3(1-4, 2)
General Physics I, Physics 135.....	4(3-3)
Live-stock Judging, An. Husb. 120...	3(2-4)
Modern Europe II, Hist. 223.....	3(3-0)

Total 17

SECOND SEMESTER.

Anatomy IV, Anat. 116.....	3(1-6)
General Botany II, Bot. 105.....	3(1-4, 2)
General Physics II, Physics 140.....	4(3-3)
Pathogenic Bact. I, Bact. 111.....	4(2-6)
Amer. Ind. Hist., Hist. 105.....	3(3-0)
Dairy Judging, Dairy Husb. 104.....	1(0-3)

Total 18

SENIOR

FIRST SEMESTER.

Comp. Physiology I, Anat. 221.....	5(4-3)
Patho. Bact. II, Bact. 116.....	4(2-6)
Parasitology, Zoöl. 208	3(2-3)
El. of Statistics, Math. 126.....	3(3-0)
Advanced German or French, Mod. Lang.	4(4-0) or 3(3-0)

Total19 or 18

SECOND SEMESTER.

Comp. Physiology II, Anat. 226.....	3(2-3)
Dairy Bacteriology, Bact. 211.....	3(1-6)
Embryology A, Zoöl. 135.....	3(2-3)
Dairy Insp. II, Dairy Husb. 118.....	1(0-3)
American Government, Hist. 151.....	3(3-0)
Pathology I, Path. 202	3(2-3)

Total 16

Summary for the first four years.—Physical education, required; military science, 4 hours; sciences, 54 hours; veterinary subjects, 35 hours; other prescribed subjects, 42 to 45 hours. Total 135 to 138 semester hours.

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.

* Students who offer but one unit of algebra for admission take a five-credit course in College Algebra, Math. 107, making a total of $17\frac{1}{2}$ credits for the semester.

FIFTH YEAR

The same as the junior year in the curriculum in veterinary medicine, except that four semester hours of elective replace Pathogenic Bacteriology II, which has been taken in the junior year.

SIXTH YEAR

The same as the senior year in the curriculum in veterinary medicine, except that four hours of elective replace Parasitology, 3 hours, and Dairy Inspection II, 1 hour, these having been taken in the senior year.

Summary.—Physical education, required; military science, 4 hours; sciences, 56 hours; veterinary subjects, 99 hours; other prescribed subjects, 47 to 50 hours, elective, 7 hours. Total, 213-216 semester hours.

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 \$8,759.

COURSES IN ANATOMY

FOR UNDERGRADUATE CREDIT

103. ANATOMY I. 3(2-3); I*. Dr. McLeod.

A detailed study of the bones of the horse, and a comparative study of the bones of other domestic animals, and of man. Deposit, \$3.

108. ANATOMY II. 8(4-12); II. Prerequisite: Anatomy I. Drs. Burt and McLeod.

Myology, arthology, and splanchnology, or a study of muscles, joints, and viscera. Deposit, \$5.

112, 116. ANATOMY III AND IV. 4(1-9) and 3(1-6) respectively; I and II respectively. Prerequisites: For III, Anatomy II; for IV, III. Dr. Burt.

Distribution, location, and relation of the blood vessels and nerves; all parts not previously dissected; two-thirds of the subject covered in Anatomy III, one-third in Anatomy IV; in Anatomy IV also a comparative study of the

* The number before the parenthesis indicates the number of semester hours of credit; 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 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. I, II, and SS indicate that the course is given the first semester, second semester, and summer session respectively.

principal structural differences of the various domestic animals, not studied concurrently with the previous courses. Deposit, \$5 for each course.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. SPECIAL ANATOMY. 2 to 4 credits; II. Prerequisite: Any course in Anatomy and Physiology (102, 107, 111, 116, or 131), or equivalent. Dr. Burt.

Study of any part of the horse, as the digestive system, the genital system, etc., or of similar parts of the ox, sheep, pig, etc., or of poultry anatomy; this course being adaptable to the requirements of the line of work in which the student is specializing.

206. APPLIED ANATOMY. 1(0-3); I. Prerequisite: Anatomy IV. Dr. Burt.

Dissection of certain areas embraced in performing the various surgical operations, and study of all the structures in each area and their relation to one another as they would present themselves during an operation.

COURSES IN ANATOMY AND PHYSIOLOGY

FOR UNDERGRADUATE CREDIT

131. ANATOMY AND PHYSIOLOGY. 3(2-3); I. Drs. Burt and McLeod.

Physiology of the domestic animals with special emphasis on digestion, absorption, metabolism and excretion; sufficient anatomy to give a thorough understanding of the correlation between the two subjects and of the physiologic relations existing among the various organs of the body. Text: Smith, *Manual of Veterinary Physiology*. Charge, \$1.

COURSES IN JURISPRUDENCE

FOR UNDERGRADUATE CREDIT

161. JURISPRUDENCE. 1(1-0); I. Dr. Burt.

The veterinarian's legal responsibilities; national and state live-stock laws; quarantine regulations, etc. Text: Hemenway, *Veterinary Law*, also state and federal rules and regulations.

COURSES IN PHYSIOLOGY

FOR GRADUATE AND UNDERGRADUATE CREDIT

215. PROBLEMS IN PHYSIOLOGY. 3 to 5 credits; I and II. Prerequisites: Any course in Anatomy and Physiology (131, 221, or 226), or their equivalent. Drs. Burt and McLeod.

Individual investigational problems in the physiology of digestion, reproduction, endocrin glands, etc.

221. COMPARATIVE PHYSIOLOGY I. 5(4-3); I. Prerequisites: For veterinary students, Anatomy I and II and Organic Chemistry (Vet.); for others, an approved course in organic chemistry. Drs. Burt and McLeod.

Physiology of domestic animals and man, beginning with the study of the blood, heart, blood vessels, and continuing with the ductless glands and internal secretions, respirations, digestion, and absorption. Text: *A Manual of Veterinary Physiology*, by Fred Smith, or *Essentials of Veterinary Physiology*, by Paton and Orr, or any standard textbook on Physiology.

Laboratory.—A practical application of the knowledge derived in the classroom. Laboratory directions furnished the student. References: Pembry, *Practical Physiology*; Halliburton, *Essentials of Chemical Physiology*; Stewart, *Manual of Physiology*; Fish, *Urine of the Horse and Man*; Hawk, *Practical Physiological Chemistry*; and other standard texts on physiology. Deposit, \$3.

226. COMPARATIVE PHYSIOLOGY II. 3(2-3) II. Prerequisites: Same as for course 221. Drs. Burt and McLeod.

The urine and urinary system, nutrition, animal heat, muscular and nervous systems, locomotion, generation and development, growth and decay. Text: Same as for course 221. Deposit, \$3.

Pathology

Professor LIENHARDT
Associate Professor SCOTT‡

Associate Professor KITSELMAN
Assistant Professor 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 machines, 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 \$14,298.

COURSES IN HISTOLOGY

FOR UNDERGRADUATE CREDIT

102. HISTOLOGY I. 2(1-3); I. Dr. Leasure.

Care and manipulation of the microscope; microscopical examination of the various tissues previously sectioned and mounted; blood-forming organs, the digestive tract, etc., studied with a microscope and drawn by the student; preparations are teased and many sections in paraffin and celloidin. Text: Stohr, *Histology*, or Bailey, *Histology*. Deposit, \$3.

107. HISTOLOGY II. 4(1-9); II. Prerequisite: Histology I. Dr. Leasure.

Study of the stomachs of the dog, the horse and the ox; the intestines, the liver, pancreas, respiratory tract, the urinary organs, genital organs, the skin and appendages, suprarenal gland, the brain, the eye and the ear; these tissues studied with the microscope, and drawn by the student. Text: Same as course 102. Deposit, \$3.

FOR GRADUATE AND UNDERGRADUATE CREDIT

252. SPECIAL HISTOLOGY. 3(1-6); II. Prerequisite: Anat. 131 or its equivalent. Dr. Lienhardt.

A course dealing with special organs, as those concerned with digestion, respiration, etc.; tissues, fixed, dehydrated, imbedded, sectioned, stained, mounted and studied. Charge, \$3.

‡ Absent on leave, year 1928-'29.

COURSES IN PATHOLOGY

FOR GRADUATE AND UNDERGRADUATE CREDIT

202, 207. PATHOLOGY I AND II. 3(2-3) each; II and I respectively. Prerequisites: For I, History II, and Chem. 107; for II, Path. 107 and 202, Anatomy 226, and Bact. 111, I. Dr. Lienhardt and Leasure.

General pathology, treating of the history of pathology, predisposition, immunity, congenital and inherited disease, cause of disease, course and termination of disease. Text: Delafield and Prudden, *Textbook of Pathology*. Deposit, \$3 for each course.

212. PATHOLOGY III. 5(4-3); II. Prerequisites: Path. 207, Anat. 116, and Bact. 116. Drs. Lienhardt and Leasure.

Special pathology and pathological technic; collecting, fixing, hardening, embedding in celloidin and paraffin sections of fresh, frozen and embedded tissues; and study of the method of preserving gross specimens. Texts: Delafield and Prudden, *Pathology*; Kitt, *Pathologische Anatomie*; and Adami and Nichols, *Pathology*, Vol. II. Deposit, \$3.

214. PATHOLOGY IV. 3(2-3); I. Prerequisite: Path. 212. Drs. Lienhardt and Leasure.

Pathology of the infectious diseases and laboratory diagnosis. Text: Moore, *Pathology of Infectious Disease*. Deposit, \$2.50.

216. MEAT INSPECTION. 2(2-0); I. Prerequisite: Path. 212. Dr. Kitselman.

Kinds and classes of stock, traffic and transportation of animals, inspection before and after slaughter, disposition of the condemned from economic, hygienic, and sanitary standpoints, and study of different preparations and methods of preservation, adulterations, sanitary laws and regulations, and other points bearing on the question of healthful meat production. Text: Edelmann, *Meat Hygiene*, translated by Mohler and Eichorn.

220, 221. PATHOLOGICAL TECHNIC AND DIAGNOSIS I AND II. 2(0-6) and 4(0-12) respectively; I and II each. Prerequisites: I, Path. 207; II, Path. 212 and 220. Drs. Lienhardt and Leasure.

Practice in post-mortem and laboratory diagnosis. Deposit, \$3 for each course.

227, 230. VACCINE MANUFACTURE I AND II. 2(1-3) each; I and II each. Prerequisite: Bact. 116. Dr. Scott.

I: Theory and practice of immunization as applied to blackleg and hog cholera.

Laboratory.—Isolation and identification of the blackleg organism and of related anaërobes, and practical production of blackleg biological products and anti-hog-cholera serum and virus. Deposit, \$3.

II: Preparation and standardization of various veterinary biological products, such as tuberculin, bacterial vaccines, and bacterins.

Laboratory.—Production of some of the products mentioned and special work on blackleg biological products and anti-hog-cholera serum and virus. Deposit, \$3.

FOR GRADUATE CREDIT

302. RESEARCH IN PATHOLOGY. 1 to 10 credits; I and II. Prerequisites: Pathology 214 and 221, Bact. 116 and Chem. 235, or their equivalent. Drs. Lienhardt and Scott.

Individual research problems in pathology of the nervous system, eye, and ear; investigational work on disease, caused by a filterable virus. This work may form the basis for a master's thesis. Deposit, \$3.

Surgery and Medicine

Professor DYKSTRA
Professor FRICK

Associate Professor McLEOD
Assistant Professor 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 \$4,206.

COURSES IN SURGERY

FOR UNDERGRADUATE CREDIT

101, 106. SURGERY I AND II. 3(3-0) each; I and II respectively. Dr. Dykstra.

I: Methods of restraint; asepsis and antisepsis; anæsthesia, both local and general, inoculation, bandaging, controlling hemorrhage; division of tissues and uniting of wounds; injections of medicines into the subcutaneous tissues, blood streams, trachea, spinal canal; thorough study of animal dentistry.

II: Surgical diseases of the head, neck, thorax, abdomen, stomach and bowels, urinary organs and organs of generation.

111, 116. SURGERY III AND IV. 3(3-0) each; I and II respectively. Dr. Dykstra.

I: Causes, symptoms, and treatment of lameness; fractures and their reduction; diseases of joints, tendons and sheaths, muscles and fascia; surgical diseases of the foot; horseshoeing.

II: Special operations, such as neurectomies, autoplasties, desmotomies, actual cauterization; tenotomies, myotomies, enterotomy and enteroanastomosis, and surgery of the eye. References: Dollar, *Regional Veterinary Surgery*; Merillat, *Veterinary Surgery*, Vols. I, II and III; Williams, *Surgical Operations*; Fleming, *Operative Veterinary Surgery*, Parts I and II; and White, *Restraint of Domestic Animals*.

121. OPERATIVE SURGERY. 1(0-3); II. Drs. Dykstra and Frank.

More than 100 operations are performed on old horses which have been placed on the operating table and anæsthetized. The student is required to observe a careful technic, such as antisepsis, and, in fact, performs the operation as thoroughly and completely as possible. Charge, \$5.

COURSES IN OBSTETRICS

FOR UNDERGRADUATE CREDIT

131. OBSTETRICS. 3(3-0); II. Prerequisites: Anatomy IV and Zoölogy and Embryology (Vet.); or Anatomy and Physiology, and Embryology. Dr. McLeod.

Physiology of pregnancy, principles of breeding, anatomy of the generative organs, care and hygiene of the pregnant animals, sterility, diseases incidental to pregnancy, diseases of new-born animals, care of new-born animals, abnormal presentation during parturition, surgery of obstetrics, etc. References:

Williams, *Veterinary Obstetrics*; Williams, *Surgical and Obstetrical Operations*; DeBruin, *Bovine Obstetrics*; Fleming, *Veterinary Obstetrics*; and Williams, *Diseases of the Genital Organs of the Domestic Animals*.

COURSES IN CLINICS

FOR UNDERGRADUATE CREDIT

137, 140. CLINICS I AND II. 1(0-6) and 1(0-10) respectively; I and II respectively. Drs. Dykstra, Frick, and Frank.

A free clinic is conducted, at which all species of domesticated animals are presented for treatment. In clinics I and II junior students assist in these treatments, become proficient, by practical experience, in the restraint of animals, in bandaging, etc., and have charge of compounding prescriptions, preparation of antiseptics and other medicinal agents. Deposit, \$5 for each course.

143, 146. CLINICS III AND IV. 1(0-12) each; I and II respectively. Prerequisite: Junior or senior veterinary assignment. Drs. Dykstra, Frick and Frank.

Diagnosis and treatment of hospital patients, including the keeping of clinic sheets, the administering of all medicines, changing of dressings or surgical wounds, etc.; assisting clinicians in out-clinic work. Deposit, \$5 for each course.

COURSES IN MATERIA MEDICA

FOR UNDERGRADUATE CREDIT

157. MATERIA MEDICA. 4(4-0); I. Dr. Frank.

Modes of action of drugs in general, their method and rapidity of absorption and elimination, physiological and chemical incompatibilities, etc.; origin, physical properties, active constituents, and official preparations of medicinal agents.

163. THERAPEUTICS. 3(3-0); II. Prerequisite: Materia Medica. Dr. Frank.

Physiological and therapeutic action of the various drugs both on the healthy and on the diseased animals; symptoms and treatment of poisons frequently encountered in veterinary practice; the proper dose of the crude drug and its preparation for horses, cows, dogs, cats, and swine.

166. PHARMACY. 1(0-3); I. Dr. Frank.

Meanings of the various pharmaceutical terms; various systems of weights and measures; prescription writing; principles of filtration, percolation, hot-water and sand baths, etc.; preparation of at least one of each of the following: 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; a thorough course in the compounding of prescriptions. Reference work: *U. S. Pharmacopœia*; Maltbie, *Practical Pharmacy*; Remington, *Practice of Pharmacy*; Fish, *Exercises in Materia Medica and Pharmacy*. Deposit, \$3.

COURSES IN MEDICINE

FOR UNDERGRADUATE CREDIT

170. DIAGNOSIS. 2(2-0); I. Prerequisites: Anat. and Physiol. 116 and 226. Dr. Frick.

Different diagnostic methods employed for the detection of diseases, including auscultation, percussion, palpation, and inspection; normal and abnormal abdominal and thoracic sounds, including diagnostic inoculations, as an aid to the detection of disease.

174, 177. DISEASES OF LARGE ANIMALS I AND II. 4(4-0) and 5(5-0) respectively; II and I respectively. Prerequisite: Diagnosis. Dr. Frick.

I: Noninfectious diseases of the digestive, circulatory, and respiratory organs of the larger animals.

II: Noninfectious diseases of the urinary 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. 5(5-0); II. Dr. Frick.

The distinctly infectious and contagious diseases of the larger domestic animals.

186. DISEASES OF SMALL ANIMALS. 2(2-0); II. Prerequisite: Diagnosis. Dr. Frick.

Infectious and noninfectious canine and feline diseases; breeds of dogs, cats, and fur-bearing animals, erection of kennels, the breeding and care of puppies, care and feeding of dogs in general, and the hygienic measures pertaining thereto.

190. FARM ANIMALS IN HEALTH AND IN DISEASE. 3(2-3); II and SS. Prerequisite: Anatomy and Physiology. Dr. Frank.

First-aid treatment of diseases of domestic animals; special emphasis on cause and prevention of disease in farm animals; domestic animals studied in relation to their surroundings. Text: Craig, *Common Diseases of Farm Animals*.

FOR GRADUATE CREDIT

301. RESEARCH IN SURGERY. 1 to 10 credits; I and II. Prerequisites: Surgery I to IV, Anatomy I to IV, and Therapeutics. Dr. Dykstra.

The purpose of this course is to attempt to solve many of the surgical problems confronting the average veterinary practitioner. Offered especially for graduates in veterinary medicine.

The Division of College Extension

HARRY UMBERGER, *Dean and Director*
L. L. LONGSDORF, *Extension Editor*

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 Farmer's Institutes was formally organized.

The interest in extension work throughout the state then developed rapidly. Beginning with 1907, appropriations by the Kansas legislature for extension work in the state have been as follows:

<i>For biennium.</i>	<i>Amount.</i>	<i>For biennium.</i>	<i>Amount.</i>
1907-'09.....	\$10,500	1919-'21.....	\$138,277
1909-'11.....	52,500	1921-'23.....	174,289
1911-'13.....	75,000	1923-'25.....	165,000
1913-'15.....	95,000	1925-'27.....	165,000
1915-'17.....	41,262	1927-'29.....	203,683
1917-'19.....	89,762		

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 home makers 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 supplementary 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 1915 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 each of the years 1924 to 1929, inclusive, \$91,842. These sums were duplicated by an equal appropriation by the legislature of Kansas for the years named with the exception of 1924, 1925, 1926 and 1927, for each of which the legislature appropriated \$82,500, and for each of the years 1928 and 1929, \$101,841. 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. In addition to the federal appropriations named, the seventieth congress enacted the Capper-Ketcham bill. The appropriation resulting from this act is supplemental to those heretofore named in furtherance of extension work. Through this legislation there is appropriated to the state of Kansas \$20,000 for the year 1928-'29; and \$31,165 for the year 1929-'30. The total sum for extension work under the Smith-Lever act and from state funds for the year ending June 30, 1929, was as follows: From the federal government through the Smith-Lever act, \$101,841; from the federal government through the supplementary Smith-Lever appropriations, \$29,120; from the general state appropriations made to the College, \$28,000; from the state legislature by direct appropriation for Smith-Lever work, \$101,841; from the Capper-Ketcham appropriation, \$20,000; from county appropriations duplicating the supplementary Smith-Lever appropriation, \$29,120, and \$20,000 duplicating the Capper-Ketcham appropriation; total for the year, \$329,922.

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 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 are also 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
 W. R. MARTIN, Horticulture
 C. G. ELLING, Animal Husbandry
 J. J. MOXLEY, Animal Husbandry
 J. W. LUMB, Veterinary Medicine
 E. G. KELLY, Entomology
 G. T. KLEIN, Poultry Husbandry
 M. A. SEATON, Poultry Husbandry
 A. E. OMAN, Rodent Control
 ROY MOORE, Rodent Control
 JAS. W. LINN, Dairy Husbandry

J. C. NISBET, Dairy Husbandry
 E. B. WELLS, Soils
 A. L. CLAPP, Crops
 L. E. WILLOUGHBY, Crops
 E. A. STOKDYK,† Marketing
 I. N. CHAPMAN, Farm Management
 C. E. GRAVES, Plant Pathology
 GEO. MONTGOMERY,|| Marketing
 E. H. LEKER,|| Marketing
 E. H. TEAGARDEN,|| Crops
 H. J. HOLLISTER,|| Farm Management

The Department of Institutes and Extension Schools has direct supervision over farm and home institute organizations, and extension schools in agriculture and home economics, and the work of the agricultural extension special-

† Absent on leave, year 1928-'29.

|| Temporary appointment.

ists. The department has charge of the program and arrangement for Farm and Home Week, and annual state-wide farmers' meetings, and the scheduling of judges for 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, for 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. Well-planned, comprehensive courses are given at these schools 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 animal diseases, dairying, poultry, orcharding, road making, crop production, animal husbandry, tractors and farm machinery, and building 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 that 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 as possible, unless the schools are held as a regular part of the definite project work being carried on in each county, in which case the specialist in charge outlines the necessary requirements.

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 department 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 of 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 the calls 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, 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 crop specialists devote from one to two months in judging the live stock and agricultural products at county and local fairs. This furnishes 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 farmers' 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 Agricultural Experiment Station, the Extension Service, the United States Department of Agriculture, agricultural specialists and leading farmers bring to those in attendance the latest results in 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, library, museum, dairy, experimental plots, orchards, and gardens.

County Agent Work*

H. UMBERGER, Dean and Director
 F. O. BLECHA, District Agent
 C. R. JACCARD, District Agent
 _____, District Agent
 A. F. TURNER, Field Agent

ROY F. GWIN, Allen
 J. A. HENDRIKS, Anderson.
 JOE M. GOODWIN, Atchison
 H. L. LOBENSTEIN, Atchison
 (Assistant County Agent)
 R. E. WILLIAMS, Barton
 T. F. YOST, Bourbon
 W. H. ATZENWEILER, Brown
 CHAS. E. CASSEL, Butler
 E. A. STEPHENSON, Jr., Chase
 R. T. PATTERSON, Cherokee
 M. C. KIRKWOOD, Cheyenne
 LYLE MAYFIELD, Clark
 R. L. GRAVES, Clay
 L. F. NEFF, Cloud
 E. A. CLEAVINGER, Coffey
 FRED J. SYKES, Comanche
 E. H. AICHER, Cowley
 W. L. TAYLOE, Crawford
 A. E. JONES, Dickinson
 CHAS. E. LYNES, Doniphan
 A. I. GILKISON, Douglas
 GEO. W. SIDWELL, Edwards
 O. R. CALDWELL, Finney
 HARRY C. BAIRD, Ford
 H. A. BISKIE, Franklin
 PAUL GWIN, Geary
 J. H. COOLIDGE, Gray
 J. W. FARMER, Greenwood
 VANCE RUCKER, Harper
 R. R. MCFADDEN, Harvey
 GEO. S. ATWOOD, Hodgeman
 H. F. TAGGE, Jackson
 DUKE D. BROWN, Jefferson
 R. P. RAMSEY, Jewell

C. A. JONES, Johnson
 W. S. SPEER, Kingman
 L. B. HARDIN, Labette
 SHERMAN HOAR, Leavenworth
 R. L. STOVER, Lincoln
 W. J. DALY, Linn
 CARL HOWARD, Lyon
 M. L. ROBINSON, McPherson
 J. D. MONTAGUE, Marion
 W. O'CONNELL, Marshall
 JOHN H. SHIRKEY, Meade
 J. T. WHETZEL, Miami
 A. W. KNOTT, Montgomery
 D. Z. MCCORMICK, Morris
 G. M. REED, Nemaha
 LESTER SHEPARD, Neosho
 H. R. POLLOCK, Ness
 E. L. MCINTOSH, Osage
 ROBT. E. CURTIS, Ottawa
 CHAS. H. STINSON, Pawnee
 F. L. TIMMONS, Pratt
 E. F. CARR, Rawlins
 C. M. CARLSON, Reno
 W. H. VON TREBRA, Rice
 S. D. CAPPER, Riley
 D. E. HULL, Saline
 H. L. HILDWEIN, Sedgwick
 W. H. ROBINSON, Shawnee
 NEIL L. RUCKER, Sherman
 A. B. KIMBALL, Smith
 L. M. KNIGHT, Sumner
 JOHN V. HEPLER, Washington
 C. E. AGNEW, Wilson
 R. L. VON TREBRA, Wyandotte

* 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 the farm bureaus, furnish a part of the salary and all expenses.

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 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, October 1, 1928, there are sixty-seven active farm bureaus in Kansas, as follows:

Allen	Dickinson	Kingman	Ottawa
Anderson	Doniphan	Labette	Pawnee
Atchison	Douglas	Leavenworth	Pratt
Barton	Edwards	Lincoln	Rawlins
Bourbon	Finney	Linn	Reno
Brown	Ford	Lyon	Rice
Butler	Franklin	McPherson	Riley
Chase	Geary	Marion	Saline
Cherokee	Gray	Marshall	Sedgwick
Cheyenne	Greenwood	Meade	Shawnee
Clark	Harper	Miami	Sherman
Clay	Harvey	Montgomery	Smith
Cloud	Hodgeman	Morris	Sumner
Coffey	Jackson	Nemaha	Washington
Comanche	Jefferson	Neosho	Wilson
Cowley	Jewell	Ness	Wyandotte
Crawford	Johnson	Osage	

The county agents are active in conducting demonstrations in the best methods of production and marketing, in assisting farms 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 testing relative value of varieties already grown, and methods of cultivation and harvesting. Proper methods of the feeding, care and management of live stock, and 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, 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 LORETTA McELMURRY, Clothing
MISS MARY WORCESTER, Clothing
MISS MAUDE DEELY, Millinery
MISS W. PEARL MARTIN, Home Health
and Sanitation

MISS MARGUERITE HARPER,|| Household
Management
MISS CONIE FOOTE, Foods and Nutrition
MISS GEORGIANA H. SMURTHWAITE, Foods
and Nutrition
MISS ALPHA LATZKE,|| Household
Management

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
MISS MAY MILES,|| Assistant State Leader

MRS. FLORENCE D. SYVERUD, Allen County
MISS GRACE HERR, Bourbon County
MISS MARGARET KOENIG, Butler County
MISS MARY BORDER, Cherokee County
MISS NELLIE BARE, Clay County
MISS ELIZABETH RANDLE, Douglas County
MISS ELIZABETH McCALL, Ford County
MISS ELLA MEYER, Franklin County
MISS GLYDE ANDERSON, Greenwood County
MISS ALBERTA WENKHEIMER, Harper
County
MISS LUCRETIA SCHOLER, Harvey County
MISS CHARLOTTE BIESTER, Johnson County
MISS LEONA PETERSON, Kingman County
MISS CHRISTIE HEPLER, Labette County

MISS WINIFRED EDWARDS, Leavenworth
County
MISS VERNETTA FAIRBAIRN, Montgomery
County
MISS SARA JANE PATTON, Neosho County
MRS. MARY D. ZIEGLER, Pratt County
MISS ESTHER MAE HUYCK, Rawlins
County
MISS MABEL McCOMB, Reno County
MISS JESSIE CAMPBELL, Rice County
MISS GRACE HENDERSON, Riley County
MRS. LAURA I. WINTER, Sedgwick County
MISS LOIS HOLDERBAUM, Shawnee County
MISS RUTH PECK, 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 advantage-

|| Temporary appointment.

‡ Absent on leave, year 1928-'29.

ous 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 development of farm activities, home activities, and community activities. There are twenty-six 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. Secure a total county appropriation of not less than \$2,400 to the county farm bureau for the salary and expenses of the county agricultural agent and the home demonstration agent.

There are certain conditions which must be met before project work in home economics is scheduled in those counties having county agricultural agents but not having home demonstration agents. These requirements are as follows:

1. In each of those counties east of the west line of Sedgwick county and the east line of Rice county, there must be at least one hundred paid-up women members of the farm bureau. This membership must be organized into not less than ten farm bureau units which have for their specific purpose the adoption of home economics projects to be conducted in the county.

2. In each of those counties west of the west line of Sedgwick county and the east line of Rice county, there must be at least seventy paid-up members of the farm bureau. This membership must be organized into not less than seven farm bureau units which have for their specific purpose the adoption of home economics projects to be conducted in the county.

3. The membership dues required shall not be less than \$1 per annum for each member and may be such amount above this as may be decided by the membership of the farm bureau at an annual meeting. Such action pertaining to women's dues must be made a part of a regular constitutional provision by the farm bureau and must be approved by the director of extension as required by law.

Boys' and Girls' 4-H Club Work

M. H. COE, State Club Leader
EDNA BENDER, Assistant State Club Leader
A. J. SCHOTH, Assistant State Club Leader
J. HAROLD JOHNSON, County Club Agent, Sedgwick County
R. N. LINDBURG, County Club Agent, Butler County

Boys' and girls' 4-H club work is one of the very important phases of Agricultural College extension service. Clubs are organized and conducted in co-operation with farm bureaus, farmers' institutes, business men's organizations, and other interested groups or individuals. 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 4-H club work. Boys and girls receive frequent visits from the county extension agents and written material is prepared by the College specialists, and sent out by the state club leader, giving the members definite information regarding farm and home practices recommended by the College.

The project which each club member selects is a fundamental characteristic of 4-H club work. This project is a substantial piece of work designed to show some better practices on the farm or in the home. The club member keeps a careful record of results, follows instructions that are given to him, and explains the work to others. At the end of the year he makes a final report upon the entire year's project and all points related to the same. Fifteen projects are offered to 4-H club members in Kansas as follows: beef, swine, sheep, dairy, poultry, colt, sorghum, corn, garden, potato, clothing, food preparation, baking, canning, food preservation, supper and room improvement. New projects are being added as fast as interests warrant the same.

In interesting boys and girls in 4-H club work, projects are selected which meet, to some extent, at least, the farm and home problems within a community. For example, in communities badly infested with round worms in hogs, the boys are urged to join a 4-H club, select the sow and litter project, and raise worm-free litters. This serves as a demonstration to the community in the importance of better swine management and the club member thus feels that he is doing a worthwhile and needed piece of work and that his efforts are of importance.

Four-H club work is available to all boys and girls between the ages of 10 and 20 years, inclusive. The members are organized into clubs varying in size from five or less to fifty or more. In rare instances some clubs reach a membership of over a hundred, though perhaps the average size of the clubs is somewhere between ten and twenty members. These clubs elect their own officers, which consist of a president, vice president, secretary-treasurer, and club reporter, together with any other officers they may desire. Each club has at least one adult leader. In clubs that are especially large it is possible that each project represented may have a leader. The clubs meet from time to time, conduct their meetings along parliamentary lines, have a program in which the project of their respective lines of work is presented and discussed, give demonstrations, sing songs, play games, practice yells, and carry on like matters of interest to young people.

All of the boys and girls of one community interested in club work are organized into one club organization, even though they may vary in the selection of their projects; thus a community club may contain a certain number of members enrolled in baby-beef work, others in swine work, and the girls may be enrolled in poultry, clothing, or other lines of home-economics work. It is preferable that the members of a club unite on the selection of a few projects rather than to have too wide a variation of projects within a club; however, all of the fifteen projects previously mentioned are available for either boys or girls, there being no line drawn between boys' and girls' work.

The very essence of club work is its voluntary nature. Certain minimum requirements are specified which include age of club members, the keeping of records, the conducting of a project, and the attendance at club meetings. Aside from these requirements the work is purely voluntary, and no systematic course of instruction is attempted. Each member is given suggestions as to best methods of handling his project, but whether or not he adopts these methods is left to his own volition. Ownership is an essential characteristic of club work which centers around living things like growing of plants or animals, or concerned with the active processes of home making, or other matters relating directly to the daily life of the farm and the farm home. As previously indicated, the study of books is incidental and supplemental to the actual work of the project. Club work is learning by doing.

Leadership is another very essential characteristic of 4-H club work. This is of two types; the first being the adult leaders who supervise the club activities and the projects selected by the members. These leaders are usually experienced men or women or older club members who are trained by the extension agents and who know how the thing ought to be done and can tell the members something of the reason why. The other type of leadership, which is assuming greater importance as time goes on, is that which is developed in club members as a result of their club experience. This is one of the splendid products of club work. Boys and girls who several years ago were members of 4-H clubs are now taking their place as young men and young women who are known as leaders for the best things in agriculture and in the home, and in life in general.

Not only is it essential that 4-H club members learn to do by doing, but they are expected to pass on this knowledge and information to others. Therefore, many club members are trained to put on demonstrations and explain their work to the public. They are expected to exhibit at least some of their products which they have grown or made at the local, county, and state fairs. Those who have attended these fairs in Kansas during the last few years will recall that club members have made remarkable exhibits, not only as regards quantity, but quality as well.

The records which the club members have kept throughout the year in regard to time spent, materials used, and costs, form a part of these exhibits. Any prizes which are awarded come as a result of the record which has been kept as well as the excellence of the product itself. Members are trained how to judge quality of such exhibits, and at the time of fairs judging contests are held to determine who has become the best judge. In a similar way demonstration team contests are held to determine what club members have become most proficient in telling others of the things they have learned. Thus, it can be seen that 4-H club work is an educational process, dealing not so much with books as with the things out of which books are made.

Interspersed with all of these essentials of club work are the so-called club activities, which include club tours, club contests, field meetings, festivals, annual club round-up at Manhattan, 4-H club camps during the summer, and similar club functions, which lend color to the work for the young people and bring them in contact with their leaders and the leaders of other clubs. These activities put them in rivalry and contests not only among themselves but with the members from the rest of their county and from the entire state. This "rubbing of elbows" brings them a wholesome contact which helps to develop and broaden their ideals and ambitions. All of these various contacts with men and problems and the affairs of life serve to awaken youth and stimulate the desire to do and accomplish. Thus, by means of these splendid plans and activities and through the recognition of worthwhile and lasting achievements which 4-H club boys and girls are making in the common and ordinary business of the farm and the home, real progressive, sane agricultural leadership is being developed which may be translated in terms of a progressive, intelligent, and happy citizenship for the future.

Rural Engineering

WALTER G. WARD, Extension Architect, in Charge
JOHN S. GLASS, Extension Agricultural Engineer

Kansas farms present numerous problems in engineering. The construction and maintenance of 160,000 sets of farm buildings, valued at more than \$350,000,000, offers a big field for the development of more efficient, more durable, more attractive, and better arranged improvements. Standardized plans are furnished each year for hundreds of farm buildings throughout the state. One-day builders schools held out in the counties furnish information direct to those interested in the planning and construction of farm buildings.

Modern conveniences in the farm home require an understanding of engineering principles for satisfactory operation and maintenance. Water supply systems, sewage disposal, lighting, and heating bring numerous questions to the Department of Rural Engineering.

More than 40,000 tractors and about one-half that number of combines comprise a part of the more than \$225,000,000 worth of mechanical equipment on Kansas farms. The selection, adjustment, operation, and repair of this equipment is an important factor in the agriculture of Kansas. Through two-day and three-day extension schools conducted out in the counties, information is disseminated on gas engines and tractors and the adjustment and repair of farm machinery.

Assistance is rendered the farmers of Kansas with their problems in land drainage, irrigation, and the control of soil erosion. This work is handled by establishing demonstrations on suitable farms to illustrate the recommended practice to the farmers of that community. The control of soil erosion by means of terracing is just beginning to be recognized as an important problem and is applicable in all sections of the state.

In addition to the information furnished through meetings held out in the counties, several thousand mail inquiries, of an engineering nature, are answered each year by the engineers of this department. The work in the counties is conducted principally in coöperation with the county farm bureaus.

Home-Study Service

CORRESPONDENCE STUDY

GEORGE GEMMELL, Head of Department
GEORGE MONTGOMERY,‡ Animal Husbandry
P. L. DEPUY,|| Animal Husbandry
B. H. FLEENOR, Education
FLOYD PATTISON, Industrial Subjects
GLEN RUCKER,|| Industrial Subjects

ADA BILLINGS,‡ History and Civics
MARCIA HALL, English
EARL LITWILLER, Horticulture
ETHEL MARSHALL, History and Civics

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.

THE PURPOSE OF THE HOME-STUDY SERVICE

There are many people in Kansas and elsewhere who for many reasons cannot attend classes on the college campus, or are past the time when this would be advisable, but who can use the facilities of the college to great advantage. The Home-study Service is a part of the Extension Division of the Kansas State Agricultural College, designed to make the state its campus—to enable the College to come to those who cannot come to it.

‡ Absent on leave, year 1928-'29.

|| Temporary appointment.

Once it was thought that educational problems could be solved only in the classroom, where subject matter was chosen from a textbook. To-day it is realized that the home, the farm, and the shop are calling continually for the solution of problems upon which the future of the people of the state depends. A barren soil, an unprofitable herd, an insanitary home, and kitchen wastes are but petty examples of the innumerable difficulties to be overcome. Years of experience and observation have enabled many to solve their problems with some degree of success, but the lack of scientific knowledge is responsible for many individuals experimenting extravagantly and often uselessly. A combination of experience and training in scientific methods is best.

One way of meeting these situations is through correspondence courses. They are no longer an experiment but are a demonstrated success. With them odd hours of spare time may be made to count. The gross time required to complete correspondence courses is practically the same as would be necessary for the same courses in school. Correspondence courses may be started at any time. They wait when one is busy. They are instantly ready when one has time. In fact, they are "made to order" for the busy person.

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 following groups in particular should profit by the courses offered:

1. Those who have completed a common school course but who for any reason are unable to attend high school.
2. High school graduates temporarily or permanently unable to attend college.
3. Students who for any reason have fallen behind in their work and wish to use their spare time catching up.
4. Students whose attendance at high school or college has been interrupted.
5. The strong, aggressive student who does not wish to halt his progress for vacation 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, industrial or avocational.
9. Clubs and other organizations that wish to make systematic studies.
10. Men and women who wish effective help in meeting the demands of their vocations for technical and scientific knowledge and training.

HOW THE WORK IS CONDUCTED

In correspondence courses, the assignment usually takes the form of assigned readings, studies, and investigations, together with a list of questions and directions for a written report. To save postage and trouble in mailing numerous lessons, the correspondence lesson is usually much longer than the common lesson in resident class work. When necessary, the lessons may be accompanied by a lecture prepared by the instructor containing helpful outlines and explanations, additional subject matter, and such special directions as seem desirable. The lessons are modified from time to time as suggested by experience and as new information becomes available.

As soon as an enrollment card and fee are received at the Department of Home-study Service, the first assignments are immediately sent out. As reports are received additional assignments are mailed. This plan keeps work always at hand for the student and at the same time makes it possible for the instructor to keep in close touch with the student's progress and to offer from time to time such suggestions as seem desirable to guide the student in his work. As a rule, the student should make careful study of the corrections,

comments, and suggestions upon receiving a returned paper before going further with succeeding lessons.

The progress made by the student depends entirely upon his ability, preparedness, and application. As a general suggestion, it might be stated that an hour a day spent in systematic study should enable the average student to complete an assignment a week. Students may work more rapidly if their opportunities permit. Lessons will be received as rapidly as is consistent with good work, providing not more than eight assignments are sent in one week. Under no circumstances will hastily prepared manuscripts showing superficial knowledge be accepted.

The questions accompanying each assignment are intended to help the student to a better understanding of the subject. After careful study of the assignment, the student should write his manuscript, answering the questions carefully and concisely. This manuscript should be mailed at once to the Department of Home-study Service, where all lesson papers are read carefully, criticized, marked, and returned to the student with such comments, suggestions, advice, and additional references as may be deemed necessary. This plan is continued throughout the course, and each student should feel free to ask questions, relate his personal experience, and in every way possible get into close contact with his instructors. No effort is spared by the department to bring about the nearest possible approach to personal acquaintance-ship between each instructor and his students.

EXAMINATION

At the close of each course, before a grade is issued, a final examination is necessary. This final examination may be taken in the office of the Department of Home-study Service at the College, or other arrangements may be made by the student to take it locally under the city or county superintendent of schools or the principal of the local high school. In the latter case, the examination questions and instructions for conducting the examination are mailed from the department to the examiner, and the students' paper is sent in by him.

FEES

The enrollment fee for credit courses is \$12.50 a year. This rate applies to all residents of Kansas. (The fee required of nonresidents of the state is \$17.50 a year.) Those who may be only temporarily employed outside of the state may enroll for the regular \$12.50 fee provided they still claim their citizenship in Kansas. Enrollment cannot be transferred from one student to another.

If a student's work is interrupted by protracted illness or other good reason, he may by special arrangements secure an extension of his enrollment period without payment of further dues. All such cases must be handled individually.

Each student is expected to pay the postage on lessons, manuscripts, and communications sent in to the department. This office will furnish postage for the return of all such papers to the student.

This enrollment entitles the student to as much work as can be satisfactorily completed in one year, not to exceed eight semester hours of college work or three semester credits of high school work, unless work is of a very high character, in which event special arrangements may be made for a limited amount of additional work.

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 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.

7. No correspondence student shall be permitted to complete a three-hour course in less than three weeks; a two-hour course in less than two weeks; a one-hour course in less than one week.

8. A student enrolled for resident work in College, who enrolls in a subject by correspondence, shall be required to take an examination after each eighth lesson before proceeding with the course; *i. e.*, after the eighth, the sixteenth, and the twenty-fourth lessons, respectively.

9. Where there is evidence of any correspondence student copying any part of the lessons from the papers of another student who has previously taken the course, such student is to be automatically and permanently dropped from the course and a failing grade is to be sent to the registrar's office with notation of cause.

HIGH-SCHOOL COURSES

(College Entrance Credit Work)

In offering the following work for high-school credit, there is no intention of competing with high schools of the state. It is not the purpose of those who have planned the work to present a full four-year high-school course. Students who have opportunity to attend local high school should by all means take advantage of the opportunity, for in such attendance they will have the benefits to be derived from association with fellow students as well as many other advantages which will be helpful to immature students of high school age.

These courses are offered as an aid to those who may by necessity be temporarily out of high school, who may not find the work which they desire offered locally, or who wish to carry work for high-school credit during vacation periods. It is not to be expected that a student can progress as rapidly by correspondence-study methods as he can by devoting his full time to his work when attending high school. Any student who completes a half year of high school work in a year by correspondence may feel that he has done exceedingly well.

The high-school courses will be especially advantageous to prospective college students who have entrance deficiencies and to public school teachers who may not have had the opportunity to do this type of work. No effort has been spared to make the work as nearly as possible parallel with the courses offered by the accredited high schools of the state. The same textbooks have been used wherever feasible, and the credits issued by this department are recognized by the colleges and State Board of Education.

List of High-school Courses

Course No.	AGRICULTURE	Number of assignments	Unit H. S. credit
PCA 1.	Elementary Agriculture I	20	$\frac{1}{2}$
PCA 2.	Elementary Agriculture II	20	$\frac{1}{2}$
DRAWING			
PCD 3.	Shop Mechanical Drawing I.....	20	$\frac{1}{2}$
PCD 4.	Shop Mechanical Drawing II.....	20	$\frac{1}{2}$
ENGLISH			
PCE 1C.	Grammar and Composition (first year).....	20	$\frac{1}{2}$
PCE 2L.	Literature (first year)	20	$\frac{1}{2}$
PCE 3C.	Composition (second year)	20	$\frac{1}{2}$
PCE 4L.	Literature (second year)	20	$\frac{1}{2}$
PCE 5C.	Composition (third year)	20	$\frac{1}{2}$
PCE 6L.	Literature (third year)	20	$\frac{1}{2}$

Course No.	HISTORY AND CIVICS.	Number of assignments	Unit H. S. credit
PCH 1.	Ancient History I	20	1/2
PCH 2.	Ancient History II	20	1/2
PCH 3.	Modern History I	20	1/2
PCH 4.	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 8A.	Civics	20	1/2
PCH 8.	Constitution of United States	20	1/2
PCH 9.	World History I	20	1/2
PCH 10.	World History II	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
PCC 1.	Commercial Geography	20	1/2
PCC 2.	Elementary Economics	20	1/2

College Credit Courses

DIVISION OF AGRICULTURE

	AGRONOMY	Semester credits	Assignments
CA 3.	Farm Crops	3	24
ANIMAL HUSBANDRY			
CL 2.	History of Breeds	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

	MACHINE DESIGN		
CE 2.	Engineering Drawing	2	16
CE 6.	Machine Drawing I	2	16
CE 4.	Mechanism	3	24
CE 11.	Descriptive Geometry	2	20
CIVIL ENGINEERING			
CE 1.	Highway Engineering I	2	16
SHOP PRACTICE			
CE 7.	Metallurgy	2	16
AGRICULTURAL ENGINEERING			
CE 3.	Gas Engines and Tractors	2	16
MECHANICAL ENGINEERING			
CE 9.	Steam Turbines	3	24
CE 10.	Essentials of Steam and Gas Power Engineering.....	2	16

DIVISION OF HOME ECONOMICS			Semester credits	Assign- ments
Course No.	CLOTHING AND TEXTILES			
CHE 1.	Textiles	2	16	
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	
EDUCATION (PROFESSIONAL)				
CP 2.	Educational Psychology	3	24	
CP 3.	Educational Sociology	3	24	
CP 4.	History of Education	3	24	
CP 5.	School of Management	3	24	
CP 6G.	Methods of Teaching in Elementary Graded Schools and Rural Schools	3	24	
CP 6H.	Methods of Teaching in the High School.....	3	24	
CP 7.	Educational Administration	3	24	
CP 8.	Psychology	3	24	
CP 12.	Home Economics Education	3	24	
CP 14.	Vocational Education	3	24	
ENGLISH				
CCE 1.	College Rhetoric I	3	24	
CCE 2.	College Rhetoric II	3	24	
CCE 3.	Commercial Correspondence	3	24	
CCE 4.	The Short Story	3	24	
CCE 6.	English Literature I	3	24	
CCE 7.	American Literature	3	24	
JOURNALISM				
CCJ 1.	Agricultural Journalism	3	24	
GEOLOGY				
CG 1.	Geology	3	24	
HISTORY AND CIVICS				
CHC 1.	Community Civics	2	16	
CHC 2.	Modern Europe I	3	24	
CHC 4.	English History	3	24	
CHC 5.	Medieval History	3	24	
MATHEMATICS				
CM 7.	Plane Trigonometry	3	25	
CM 8.	College Algebra	3	25	

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 appropriation 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 step 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 José 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 Agricultural 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 semiarid 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: Quality of concrete used in Kansas highway construction; 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; study of automobile headlights; road material resources of Kansas; *pisé de terre* construction; a small furnace for melting brass and aluminum; durability of concrete in alkali water; short-time strength tests for concrete sands; study of tension and compression tests of cement and mortars; relation of electricity to poultry production; relation of electricity to processing and handling of grain and forage; temperature investigations of floors for dairy barns; operation, care and repair of storage batteries; study of electric fireless cookers; the rural schoolhouse; the Kansas farm home; deterioration of concrete in silos; harvesting and storage of grain crops; volume changes in sand concrete; reclamation of crank-case oils; economic study of rural-line electrification; refrigeration in the home; harvesting and baling hay; and chaffing hay.

The testing laboratories of this Station have been designated 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. Twenty such bulletins have been published and are now available. 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 department in whose fields the particular matters lie.

* Sec. 5, ch. 64, Laws of 1917.

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 economics, human nutrition, dietetics, and public health.

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 by children of calcium and phosphorous from canned, dried, fresh, and other forms of milk.

- *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.

A study of the coefficient of protection of clothing fabrics.

- *The screening action of fabrics against sunlight.

A study of costs of sickness to farm families.

The development of motor abilities of preschool children.

The effect of certain factors of nursery school environment upon the modification and development of definite personality traits.

The effect of cod-liver oil on the erythrocyte count and the gastric activity of anemic college girls.

Age factor in the resumption of growth by stunted children.

Factors affecting seasonal variation of the growth of children.

* 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 1930 the session will begin Monday, January 6, and close Saturday, March 1. 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	4(3-2)
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)
Gas Engines and Tractors	5(2-6)
Blacksmithing	2(0-4)
Carpentry	2(0-4)
Automobiles	5(2-6)

SECOND YEAR

REQUIRED

Forage Crops	4(3-2)
Live-stock Production II	5(3-4)
Farm Buildings and Equipment	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.

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.

EXPENSES. There is no charge for tuition, but each student is required to pay, on enrollment, an incidental fee of \$5, also student-health 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. In "Gas Engines and Tractors" and "Automobiles" the laboratory charges must necessarily be higher, being \$3 and \$2.50, respectively.

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.) 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.) A study of the principles and practices of feeding and management of live stock. The laboratory time is devoted to judging market live stock.

DAIRYING I. (Dairy Husb. 1.) 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. Deposit, \$1.

GRAIN CROPS. (Agron. 1.) A practical study of grain-crop production. Laboratory exercises are given for the identification of different kinds of threshed grain and the determination of damage and market classes and grades. Charge, 50 cents.

SPECIAL LECTURES. One credit is given each year for attending these lectures. Among the speakers provided are members of the College Faculty, including the president of the College, and some outside, well-known agricultural leaders.

FORAGE CROPS. (Agron. 2.) A study of the distribution and production of important forage crops, especially for Kansas conditions. Practical exercises in identification are given in the laboratory. Charge, 50 cents.

LIVE-STOCK PRODUCTION II. (An. Husb. 8.) 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, breeding live stock and butchering and handling meats.

FARM BUILDINGS AND EQUIPMENT. (Ag. Engr. 2.) A study of 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.

FARM HORTICULTURE. (Hort. 1.) A study of the possibilities of the art of horticulture in creating better living conditions and better homes. 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.) The elements of practical beekeeping. 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. Practical demonstrations are given. 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 practical phases of poultry management, including feeding, breeding, housing, incubation, and brooding.

FRUIT GROWING. (Hort. 2.) The principles that underlie the success of fruit growing. 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.) A study of 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 diseases 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. (A. 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. Charge, 50 cents.

FARM MARKETING. (Ag. Ec. 2.) A study of marketing functions and services and 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.) Records which the farmer should keep, methods of keeping these records, and ways of utilizing the information given by the records. Laboratory exercises deal 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. Accounting forms and supplies for laboratory use are furnished the student. Charge, 50 cents.

INJURIOUS 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.) 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; coöperative 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.

GAS ENGINES AND TRACTORS. (Ag. Engr. 3.) 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. Charge, \$3.

BLACKSMITHING. A series of graded exercises or problems in blacksmithing closely related to farm work is given. Charge, \$1.50.

CARPENTRY. The work begins with a few preliminary problems especially adapted to teaching the proper use of woodworking tools. This is followed by actual experience in the various phases of building construction. Charge, 75 cents.

AUTOMOBILES. This subject consists of lectures, discussions, and laboratory practice in the operation and care of automobiles from the standpoint of the owner. Instruction and practice are provided in adjusting bearings and ignition points, timing valves and spark, grinding valves, cleaning carbon, etc. Charge, \$2.50.

Dairy Manufacturing Short Courses

Four dairy manufacturing short courses, each lasting two weeks, will be offered January 6 to March 1, 1930. The first course (January 6 to 18, inclusive) will be a general one devoted principally to the testing of milk, cream, and other dairy products. The course for the second two weeks (January 20 to February 1, inclusive) will be devoted to a study of market milk and cheese making. The third period (February 3 to 15, inclusive) will consist of intensive study and practice in butter making. The fourth and last two-week course (February 17 to March 1, inclusive) will be one in ice-cream making.

The work is so arranged that students can take one or more of the four courses, the full eight weeks of work making an intensive and practical commercial creamery short course. While, as a rule, it will be recommended that students take the entire course, the plan makes it possible for students in certain cases to take just the work that interests them most.

ADMISSION. Any one not less than 17 years of age may enroll in any of these courses.

EXPENSES. An incidental fee of \$5, a student-health fee of \$1.50, and a laboratory fee of \$2 will be charged all students enrolling for the eight weeks of work. For students enrolling for less than the entire course, an incidental fee of \$3 will be charged and an additional laboratory fee of \$2 for each two-week course taken.

CERTIFICATES. Students who complete the entire eight weeks of required work as here outlined, and who show satisfactory evidence that they have had six months successful creamery experience will be granted certificates.

OUTLINES OF THE COURSES

General Course in Milk and Cream Testing

JANUARY 6 to 18, 1930

LECTURES

Scope of Dairy Industry
 Testing Milk
 Milk Secretion, Composition, and Properties
 Factors Affecting Composition
 Sampling Milk and Cream
 Cream Testing
 Cream Separation and Farm Separators
 Standardization of Milk and Cream
 Testing Milk for Solids—the Lactometer and Its Uses
 Bacteriology of Milk
 Counting Bacteria in Milk
 Keeping Milk and Butter-fat Records
 The Butter Industry
 Application of Babcock Test to Other Products
 Acidity and Its Relation to Dairy Products
 Kansas Dairy Laws
 Clean Milk Production
 Dairy Breeds
 The Ice-cream Industry
 Food Value of Milk and Its Products
 The Market Milk Industry
 Cheese and Condensed-milk Industry
 Examinations

LABORATORY WORK

Milk Testing—the Babcock Test
 Testing Milk of Different Breeds
 Testing Skim Milk, Buttermilk, and Whey
 Testing Frozen, Sour, and Churned Milk
 Testing Cream
 Study of Farm Separators
 Standardization of Milk and Cream
 Testing Milk for Solids and Adulterations
 Separation of Milk
 Plating Milk for Bacterial Counts
 Farm Butter Making and Creamery Butter-making Demonstration
 Testing Butter and Cheese for Fat
 Testing Powdered Milk, Ice Cream, and Condensed Milk for Fat
 Dairy Arithmetic
 Testing Milk and Cream for Acidity
 Dairy Farm and Plant Inspection
 Demonstration in Freezing Ice Cream
 Demonstration in Market Milk Handling
 Demonstration in Cheese Making and Milk Condensing

A Course in Market Milk and Cheese Making

JANUARY 20 to FEBRUARY, 1, 1930

LECTURES

History and Development of Market Milk Industry
 Milk as a Food
 Grades of Milk
 Bacteriology as Applied to Market Milk
 How to Produce Low-count Milk
 Pasteurization of Milk
 Cream Line Studies
 Cultured Buttermilk
 Chocolate Milk
 Cottage Cheese and Soft Cheese
 Milk Plant Equipment
 Cheddar Cheese
 Milk Ordinances
 Condensed Milk and Milk Powders
 Milk By-products
 Types of Milk Plants
 Milk Distribution
 Adulteration in Milk
 Cost of Milk Production
 Examinations

LABORATORY WORK

Standardization of Milk and Cream
 Receiving, Clarification, Pasteurization
 Bottling Milk
 Determination of Food Value by Fat and Solids Test
 Determination of Cleanliness and Keeping Quality by Acid and Sediment Test
 Plating Milk for Bacteria
 Methylene Blue Test
 Cream Line Studies
 Making Starters and Cultured Buttermilk
 Making Chocolate Syrup and Chocolate Milk
 Making Cottage Cheese
 Making Cheddar Cheese
 Detection of Adulterations
 Designing Milk Ordinances
 Making Condensed Milk

A Two-week Course in Butter Making

FEBRUARY 3 to 15, 1930

LECTURES

History of the Butter Industry
 Neutralization of Cream
 Pasteurization of Cream
 Churning Cream
 Composition of Butter
 Overrun in Butter
 Cream Procurement
 Cream Grading
 Starter Making
 Cream Ripening
 Cream Station Operation
 Market Grades of Butter
 Butter Defects
 Cream Separation
 Bacteria and Their Relation to Butter Making
 Yeast and Mold in Butter
 Sweet-cream Butter
 Factory Losses
 Food Value of Butter
 Marketing Butter
 Examinations

LABORATORY WORK

Pasteurization of Cream
 Analysis of Butter
 Cream Grading and Testing
 Preparation of Starters
 Printing Butter
 Churning
 Cream Station Inspection
 Judging Butter
 Yeast, Mold, and Bacteria Counts
 Receiving, Weighing, and Sampling Cream
 Condensing Buttermilk
 Flash Pasteurization
 Sweet-cream Butter

A Two-week Course in Ice-cream Making

FEBRUARY 17 to MARCH 1, 1930

LECTURES

History and Development
 Composition and Properties of Milk
 Testing Milk and Cream
 Testing Ice-cream Mix
 Standardization of Milk and Cream
 Acid Test
 Ingredients Used in Ice Cream
 Composition of Ice Cream
 Calculation of the Mix and Standardization
 Processing the Mix
 Freezing the Mix
 Bacteria and Their Relation to Ice Cream
 Ices and Sherbets
 Fruit and Fancy Ice Cream
 Refrigeration
 Storage of Ice Cream
 Gelatin and Egg in Ice Cream
 Flavoring Materials
 Food Value of Ice Cream
 Defects of Ice Cream
 Examinations

LABORATORY WORK

Standardization of Milk and Cream
 Preparation of Simple Mix
 Testing Mix for Fat
 Freezing Simple Mix
 Preparation and Freezing of Mixes with Varying Per Cent of Fat
 Preparation and Freezing of Mixes with Varying Per Cent of Serum Solids
 Preparation and Freezing of Mixes with Varying Per Cent of Sugar
 Preparation and Freezing of Mixes with Varying Per Cent of Gelatin and Egg Yolk
 Use of Improvers
 Preparation and Freezing of Ices and Sherbets
 Mojonnier Testing
 Preparation of Mixes in Vacuum Pan
 Bricks and Fancy Molds
 Preparation of Mixes from Butter and Powder
 Judging Ice Cream
 Study of Refrigeration Machinery

One- and Two-Year Courses in Trades Related to Engineering

The purpose of these one- and two-year courses is to give a practical working knowledge of one of the trades, and in addition to give 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 all 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 and end on the same date as the regular College work as given in the College calendar on page 7.

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 be at least eighteen years old and 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 laboratory, respectively.

FIRST YEAR

FIRST SEMESTER

Shop Calculations I, Shop 1.....3(3-0)
 Shop Drawing I, Shop 3.....2(0-4)
 Sold. and Babbitt., Shop 20.....2(0-4)
 Blacksmithing I, Shop 21.....2(0-4)
 Oxy. and Elect. Welding, Shop 24....2(0-4)
 Foundry I, Shop 402(0-4)
 Machine Shop I, Shop 10.....6(0-12)

SECOND SEMESTER

Shop Calculations II, Shop 2.....3(3-0)
 Shop Drawing II, Shop 4.....2(0-4)
 Machine Shop II, Shop 11.....16(0-32)

SUMMER SCHOOL

Machine Shop III, Shop 12.....10(0-40)

SECOND YEAR

FIRST SEMESTER

Shop Drawing III, Shop 5.....2(0-4)
 Machine Shop IV, Shop 13.....18(0-36)

SECOND SEMESTER

Shop Management, Shop 7.....3(3-0)
 Jig and Fixt. Design, 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

Shop Calculations I, Shop 1.....3(3-0)
 Shop Drawing I, Shop 3.....2(0-4)
 Sold. and Babbitt., Shop 20.....2(0-4)
 Blacksmithing I, Shop 21.....2(0-4)
 Oxa. and Elect. Welding, Shop 24....2(0-4)
 Foundry I, Shop 402(0-4)
 Machine Shop I, Shop 10.....6(0-12)

SECOND SEMESTER

Shop Calculations II, Shop 2.....3(3-0)
 Shop Drawing II, Shop 4.....2(0-4)
 Shop Management, Shop 7.....3(3-0)
 Automechanics I, Shop 30.....13(0-26)

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

Shop Calculations I, Shop 1.....3(3-0)
 Shop Drawing I, Shop 3.....2(0-4)
 Sold. and Babbitt., Shop 20.....2(0-4)
 Blacksmithing I, Shop 21.....2(0-4)
 Oxa. and Elect. Welding, Shop 24....2(0-4)
 Foundry I, Shop 402(0-4)
 Machine Shop I, Shop 10.....6(0-12)

SECOND SEMESTER

Shop Calculations II, Shop 2.....3(3-0)
 Shop Drawing II, Shop 4.....2(0-4)
 Shop Management, Shop 7.....3(3-0)
 Blacksmithing II, Shop 22.....13(0-26)

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

Shop Calculations I, Shop 1.....3(3-0)
 Shop Drawing I, Shop 3.....2(0-4)
 Sold. and Babbitt., Shop 20.....2(0-4)
 Blacksmithing I, Shop 21.....2(0-4)
 Oxa. and Elect. Welding, Shop 24....2(0-4)
 Foundry I, Shop 40.....2(0-4)
 Machine Shop I, Shop 10.....(6-0-12)

SECOND SEMESTER

Shop Calculations II, Shop 2.....3(3-0)
 Shop Drawing II, Shop 4.....2(0-4)
 Shop Management, Shop 7.....3(3-0)
 Foundry II, Shop 41.....13(0-26)

SUMMER SCHOOL

Foundry III, Shop 42.....10(0-40)

BRIEF DESCRIPTION OF COURSES

Shop Practice Department

1. SHOP CALCULATIONS I. 3(3-0). Mr. Sink.

Practice and use of the principles of arithmetic in the solution of shop problems, including information on various matters to which shop mathematics is applied.

2. SHOP CALCULATIONS II. 3(3-0). Prerequisite: Shop I. Mr. Sink.

Continuation of Shop Calculations I, including problems and applications.

3. SHOP DRAWING I. 2(0-4). Mr. Sink.

Free-hand lettering, use of drawing board, T-square, and drawing instruments; the construction of geometrical figures, making orthographic projections and sections of simple objects.

4. SHOP DRAWING II. 2(0-4). Prerequisite: Shop 3. Mr. Sink.

Continuation of Shop Drawing I. Practice in the construction of orthographic and isometric projections, and sheet-metal drafting.

5. SHOP DRAWING III. 2(0-4). Prerequisite: Shop 4. Mr. Sink.

Working drawings from plates, free-hand sketches of machine parts and working drawings from these sketches.

6. JIG AND FIXTURE DESIGN. 2(0-4). Prerequisite: Shop 5. Mr. Sink.

Design of jigs and fixtures for machining interchangeable machine parts, empirical methods used to acquaint the student with the use of standard hand-books.

7. SHOP MANAGEMENT. 3(3-0). Mr. Sink.

Problems of the shop foreman or owner, study of the selection, installation, and arrangement of equipment.

10, 11, 12, 13, 14, 15. MACHINE SHOP I, II, III, IV, V, AND VI. 6(0-12), 16(0-32), 10(0-20), 18(0-36), 15(0-30), and 10(0-20), respectively. Mr. Jones, Mr. Dølz.

Exercises to bring into use the various machines and practical work in the building of wood lathes; in making repairs on machinery, babbitting and fitting of bearings; aligning shafting and pulleys; lacing and fitting belts. More advanced work includes instruction on milling machines, universal grinders, and screw machines. Special work is given in tool making when the skill and accuracy for this class of work is acquired. Charge, \$1.50 per credit.

20. SOLDERING AND BABBITTING. 2(0-4). Mr. Sink.

Instruction and practice in forming and soldering the common metals; the use of the different fluxes; proper pouring and fitting of babbitt bearings. Charge, \$1.50 per credit.

21, 22, 23. BLACKSMITHING I, II, AND III. 2(0-4), 13(0-26), 10(0-20), respectively. Mr. Lynch.

Practice in forging operations; exercise in drawing, upsetting, welding, bending; instruction in the use and care of the fire and tools, drills, hammers, and other tools used in the trade. Charge, \$1.50 per credit.

24. OXYACETYLENE AND ELECTRIC WELDING. 2(0-4). Mr. Lynch.

Instruction and practice in making different types of welds. Charge, \$7 for 2 credits.

30, 31. AUTOMECHANICS I AND II. 13(0-26), 10(0-20), respectively. Mr. Sink.

A study of the mechanism, adjustments, materials of automotive construction; carburetion; cooling systems, and lubrication. The most important fundamental principles of electricity and magnetism are included in electrical work. Advanced work includes systematic trouble shooting. During the latter part of the course the students are allowed, when conditions warrant, to specialize in the work they expect to follow. Charge, \$1.50 per credit.

40, 41, 42. FOUNDRY I, II, AND III. 2(0-4), 13(0-26), 10(0-20), respectively. Mr. Grant.

Bench, floor, and machine molding, using a great variety of patterns; use of different kinds of sands and facings; open sand work, sweep molding, core making, and all important foundry operations. Repairing and operating of cupola and brass furnace, and practical work, such as found in a commercial foundry.

Selection of equipment and general foundry layout are considered. Charge, \$0.75 per credit.

Degrees and Certificates Conferred

In the Year 1928

SPRING COMMENCEMENT,

May 31

DEGREES CONFERRED

HONORARY DEGREES

DOCTOR OF SCIENCE

Silas Cheever Mason, B. S., Kansas State Agricultural College, 1890, and M. S., Kansas State Agricultural College, 1893, Indio, Cal.

GRADUATE COURSES

MASTER OF SCIENCE

Le Roy Alt, B. S., Kansas State Agricultural College, 1916, Norborne, Mo.
Albert Le Roy Berry, B. S., Kansas State Agricultural College, 1912, Merriam
Marguerite Bignall, A. B., Baker University, 1924, Wamego
Wesley Gordon Bruce, B. S., Kansas State Agricultural College, 1922, Manhattan
Abbie Clair Dennen, B. S., Kansas State Agricultural College, 1921, Manhattan
Clara Kathryn Dugan, B. S., Montana State College, 1927, Manhattan.
Geneva Fern Faley, B. S., Kansas State Agricultural College, 1926, Manhattan
Wilber Dean French, A. B., New Mexico State Teachers College, 1922, Silver City,
New Mexico.
Truman Olvard Garinger, B. S., Kansas State Agricultural College, 1922, Manhattan
Chester Eugene Graves, B. S., Kansas State Agricultural College, 1921, Manhattan
William Francis Hearst, A. B., Kansas State Teachers College, Emporia, 1914, B. S.,
Kansas State Agricultural College, 1923, Alma
Homer Jay Henney, B. S., Kansas State Agricultural College, 1921, Manhattan
Alma Louise Hochuli, B. S., Kansas State Agricultural College, 1927, Holton
Harold Irving Hollister, B. S., Kansas State Agricultural College, 1927, Manhattan
Edith Antonette Holmberg, B. S., Kansas State Agricultural College, 1908,
Manhattan
Anna May Johnson, B. S., Kansas State Agricultural College, 1923, Manhattan
Elma Sage Jones, B. S., Kansas State Agricultural College, 1913, Abilene
Chester Bonds Keck, B. S., Kansas State Agricultural College, 1927, Auburn
Leone Bower Kell, B. S., Kansas State Agricultural College, 1923, Manhattan
Lester Kilpatrick, B. S., Oklahoma A. and M. College, 1927, Manhattan
Alpha Corinne Latzke, B. S., Kansas State Agricultural College, 1919, Manhattan
Esther Naomi Latzke, B. S., Kansas State Agricultural College, 1919, Manhattan
Pearl Marie Maus, B. S., Kansas State Teachers College, Emporia, 1924, Auburn
Charles Marvin Miller, B. S., Kansas State Teachers College, Pittsburg, 1920, Topeka
Ralph Dale Nichols, B. S., Kansas State Agricultural College, 1920, Manhattan
Lester Boyd Pollom, B. S., Kansas State Agricultural College, 1913, Topeka
Richard Lawrence Pycha, B. S., Kansas State Agricultural College, 1925, Manhattan
Harry Ernest Reed, B. S., University of Missouri, 1914, Manhattan
Oliver B. Reed, B. S., Kansas State Agricultural College, 1922, Manhattan
James H. Robbins, B. S., Kansas Wesleyan University, 1925, Culver
Jacques Pierre Francois Sellschop, B. S., Kansas State Agricultural College, 1927,
Pretoria, South Africa.
Florence Margaret Stebbins, B. S., Kansas State Agricultural College, 1923, Ellis.
Towner Hardy Stevens, B. S., Kansas State Teachers College, Pittsburg, 1926,
Manhattan
Frank Arvid Swanson, B. S., Kansas State Agricultural College, 1923, Manhattan
Robert Lee Welton, B. S., Kansas State Agricultural College, 1923, Cherokee
Katharyn Phoebe Zipse, B. S., Kansas State Agricultural College, 1913, Jewell City

PROFESSIONAL DEGREES IN ENGINEERING

ARCHITECT

Miller Fulton Whittaker, B. S., Kansas State Agricultural College, 1913, Orangeburg, S. C.

ELECTRICAL ENGINEER

Charles Boddie Downer, B. S., Kansas State Agricultural College, 1920, Pittsburgh, Pa.

MECHANICAL ENGINEER

Charles Meyers Haines, B. S., Kansas State Agricultural College, 1909, Little Rock, Ark.

Carroll Mendenhall Leonard, B. S., Kansas State Agricultural College, 1924, Manhattan

UNDERGRADUATE CURRICULA

Division of Agriculture

BACHELOR OF SCIENCE IN AGRICULTURE

Irvin Milburn Atkins, Manhattan
Milburne Clinton Axelton, Manhattan
Kay Haines Beach, Edwardsville
Arthur Wallace Benson, Clay Center
Frank Brokesh, Munden
Laurence Bickhart Brooks, Garrison
Hale H. Brown, Edmond
Orville Ray Caldwell, Emporia
Oren Emery Campbell, Cimarron
Laurence Mervin Clausen, Alton
Clarence Edward Crews, Elk Falls
Cecil Orland Fisher, Fellsburg
Clarence Kieth Fisher, Fellsburg
Lester Raymond Frey, Manhattan
Forrest Hills Hagenbuch, Troy
Eldon Thomas Harden, Centralia
Howard William Higbee, Climax
Sherman Stanley Hoar, Willis
Elmer Fairbanks Hubbard, Linwood
Philip John Isaak, East Orange, N. J.
Clarence Oliver Jacobson, Sedgwick
Melvin Clair Kirkwood, Natoma
Ragnar Nathaniel Lindburg, Osage City
Austin Dee Lovett, Larned

Verl Ephriam McAdams, Clyde
Paul Melvin McMains, Dexter, N. Mex.
Vernor Ives Masters, Natoma
Lyle Mayfield, Alton
Le Roy Emerson Melia, Ford
Harold Lewis Murphey, Protection
Harold Edwin Myers, Bancroft
Kiril Pop Nickoloff, Razgrad, Bulgaria
Albert Horace Ottaway, Oswego
Horace Malvern Randels, Anthony
Vance Mather Rucker, Burdett
Paul Wilfred Russell, Mankato
Edward Schneberger, Cuba
Lonnie Joseph Simmons, Manhattan
Edward Albert Stephenson, Alton
Harvey J. Stewart, Americus
Donald Noel Taylor, Topeka
Francis Leonard Timmons, Geneseo
Robert Wickard Tulloss, Ottawa
Loren Francis Ungeheuer, Centerville
Howard Victor Vernon, Oberlin
Albert Miles Watson, Osage City
Francis Dale Wilson, Jennings

BACHELOR OF SCIENCE IN AGRICULTURAL ADMINISTRATION

Drew Edward Bellairs, Cherryvale

James Ralph Wells, Manhattan

Division of Engineering

BACHELOR OF SCIENCE IN AGRICULTURAL ENGINEERING

Thayer Cleaver, Iola
Glenn Irvin Johnson, Greeley

John Bush McCormick, Oatville
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* Awarded high honors.

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PART II LISTS OF STUDENTS

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Lists of Students

Students Pursuing Graduate Work

June 1, 1928, to May 29, 1929

GRADUATE STUDENTS

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Anna Tessie Agan; St. Edward, Neb.
Alfred Evan Aldous; Manhattan
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 St. John, Canada
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 H. Arlo Stewart; Topeka
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 Coit Alfred Suneson; Missoula, Mont.
 Mabel Manghild Swanson; Manhattan

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Harry Aleid Swim; Manhattan	Eugene Albertice Waters; Wellsville
Mildred Berry Swingle; Manhattan	Katherine Welker; Coffeyville
Harry Patrick Taylor; St. Louis, Mo.	Bertha Evelyn Wentworth; Furley
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Bess Marie Viemont; Lafayette, Ind.	Carol Oscar Youngstrom; Culver, Ore.
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Herkle Lester Wampler; McPherson	James Walter Zahnley; Manhattan
Walter Gilling Ward; Manhattan	Edwin Ziegler; Berne, Switzerland
Theodore Roosevelt Warren; Manhattan	

GRADUATE STUDENTS PURSUING WORK IN ABSENTIA

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SENIORS PURSUING GRADUATE WORK

Henry Chaffee Abell; Riley	Walter Gordon McMoran; Coldwater
Malcolm Llewellyn Alsop; Wakefield	Jay Clayton Marshall; Manhattan
Bertha Jane Boyd; Spearville	Albert William Miller; Mahattan
Carrie Brandesky; Severy	Marjorie Blanche Mirick; Halstead
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Robert Earl McCormick; Oatville	Ruth Williams; Broughton
James Dan McGregor; Columbus	

Undergraduate Students

The following lists include seniors, juniors, sophomores, freshmen and special students in College. For students in the Summer School and in special courses see lists following these.

Abbreviations here used denote curricula as follows: AA, agricultural administration; Ag, agriculture; AE, agricultural engineering; AH&V, animal husbandry and veterinary medicine; ApA, applied arts; Ar, architecture; ArE, architectural engineering; CE, civil engineering; ChE, chemical engineering; EE, electrical engineering; FME, flour-mill engineering; GS, general science; GS&VM, general science and veterinary medicine; HE, home economics; HE&N, home economics and nursing; IC, industrial chemistry; IJ, industrial journalism; LA, landscape architecture; LG, landscape gardening; M, music; ME, mechanical engineering; PE, physical education; PSM, public school music; PSB&O, public school band and orchestra; RC, rural commerce; VM, veterinary medicine.

SENIORS

†Henry Chaffee Abell (Ag); Riley
Carroll Alexander (VM); Manhattan
Dorothy Lee Allen (PSM); Manhattan
Lillian Colleen Alley (PE); Manhattan
†Malcolm Llewellyn Alsop (GS); Wakefield
Forrest Bennett Aslpach (Ag); Wilsey
Verne R. Aslpach (GS); Wilsey
Carl Boyd Anderson (RC); Richland
Helen Rose Anderson (GS); Thayer
Inez Pearl Anderson (GS); Richland
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Earl Bowater Ankenman (EE); Dellvale
Marie Arbuthnot (HE); Bennington
Francisco Albano Asis (CE); Lawrence
Garland Martin Atkins (RC); Fort Scott
Agnes Bane (HE); Manhattan
Alta Elizabeth Barger (GS); Manhattan
Edgar Lee Barger (AE); Topeka
Joseph Monroe Barger (RC); Manhattan
Thomas Ralph Barner (CE); Belle Plaine
Robert Anderson Barr (RC); Manhattan
Johanna Helen Barre (HE); Tampa
Laurence Edwin Baty (EE); Manhattan
Scott Roe Bellamy (Ag); Meade
Lottie Nevella Benedick (HE); Manhattan
Silas Solomon Bergsma (AA); Lucas
Thomas Glen Betts (AA); Detroit
Loyle William Bishop (ME); Manhattan
James Lyle Blackledge (Ag); Manhattan
Mary Elizabeth Blakslee (GS); Manhattan
Hobart Pattison Blasdel (Ag); Sylvia
Floyd Albert Blauer (Ag); Stockton
Roy Elmer Bonar (AA); Washington
*Frederick Bruce Bosley (GS); Manhattan
†Bertha Jane Boyd (HE); Spearville
†Kenneth Arthur Boyd (GS); Irving
†Carrie Brandesky (GS); Severy
Robert Fenton Brannan (Ag); Meade
Jacob Hoffman Brant (GS); Manhattan
Alfred Merle Breneman (EE); Parsons
Thomas Richard Brennan (EE);
Bonner Springs
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James Byron Brooks (Ag); Garrison
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Leonard Hathaway Brubaker (EE);
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Francis Edward Carpenter (Ag); Wakefield
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Edward Crawford (Ag); Stafford
W. Garnet Carihfield (HE); Geneseo
Leslie Criswell (EE); Manhattan

* Matriculated 1928-'29.

† Also pursuing graduate study.

SENIORS—Continued.

- Walter McConnell Crossen (Ag); Turner
 Louise Crowder (HE); Manhattan
 James Milton Cullum (RC); Beverly
 Dorothy Maude Cummings (GS);
 Manhattan
 Louise Johanna Cunningham (HE);
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 Charles Raymond Curtis (AA); St. John
 Frances Rebekah Curtis (HE); Kansas City
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 Hope Dawley (PE); Manhattan
 Flora Marie Deal (HE); Great Bend
 Homer Thomas Deal (CE) Hoisington
 Charles L. Dean (IJ); Manhattan
 Daniel DeCamp (VM); Manhattan
 Linnea Carlson Dennett (HE); Lindsay
 Vianna Ruth Dizmang (HE); Manhattan
 †Verl Harvey Dobbins (EE); Pratt
 Grace Annetta Dougherty (HE); Republic
 Opal Dougherty (HE); Manhattan
 Emerson George Downie (EE);
 Hutchinson
 Raymond Rodney Drake (AE); Nekoma
 Arthur Elmer Dring (CE); Pawnee Rock
 Gabriel Ernest Drollinger (ME); Manhattan
 †Rebecca Lilian Dubbs (GS-1; Grad.-2);
 Ransom
 Florence Estelle Dudley (PSM); Clay Center
 Norton Taylor Dunlap (EE); Berryton
 Clarence Mitchell Dunn (Ag); Oskaloosa
 Glenn Albert Durland (RC); Irving
 Lillys Molly Duvall (HE); Arkansas City
 John Clayton Dwelly (RC); Manhattan
 Meredith E. Dwelly (IJ); Manhattan
 Edwin Osborne Earl (EE); Nickerson
 Martin Keller Eby (CE); Wellington
 Rosamond Aleda Eddy (HE); Havensville
 Albert Rowland Edwards (PE); Fort Scott
 Philip Joseph Edwards (EE); Athol
 Edward V. Ellifrit (EE); Kansas City
 Helen Rachel Elling (PE); Manhattan
 Irene Elliott (GS); Topeka
 Kyle Engler (EE); Burrton
 Anna Marie Erickson (HE); Clyde
 Karl Wheeler Ernst (EE); Topeka
 Clifford Charles Eustace (Ag); Wakefield
 Elizabeth Fairbank (HE); Topeka
 Virgil Monroe Fairchild (GS); Wichita
 Everett Emerson Fear (RC); Bala
 Frank Leroy Fear (AE); Bala
 Marion Kerr Fergus (Ag); Garnett
 Arthur Oran Flinger (ME); Manhattan
 William Boswell Floyd (GS); Manhattan
 Glen Robert Focke (IJ); Le Roy
 Ernest R. Foltz (GS); Belle Plaine
 Mildred Mae Fox (HE); Wichita
 Ralph Wilson Frank (CE); Manhattan
 Maurice Benjamin Franklin (EE); Topeka
 Theodore Russell Freeman (Ag);
 West Plains, Mo.
 Mattie French (HE); Kinsley
 Orval French (AE); Geneseo
 Ruth Isabel Frost (PE); Blue Rapids
 †Francis Glenn Fry (EE); Waldo
 Florence Mable Funk (HE); Iola
 Hilliard Lafayette Gamble (AE); Halstead
 El Dred La Monte Gann (GS); Burden
 Perry Lester Gardner (CE); Louisburg
 Chester Alexander Garrison (EE); St. Paul
 †Harold David Garver (AA); Manhattan
 Lester Charles Gates (EE); Seward
 Orvel Leonard Gathers (CE); Miltonvale
 Cora Mae Geiger (GS); Salina
 Harvey Stafford German (CE); Little River
 Frances Eloise Gibson (HE);
 Muskogee, Okla.
 Malaeska Milton Ginter (EE); Manhattan
 Clarence J. Goering (RC); Moundridge
 William Wade Gosney (AA); Goddard
 Ogden Worley Greene (Ag); Paradise
 William Ellsworth Gregory (Ag); Walnut
 Mary Gertrude Grider (HE); Rolla
 Eunice Grierson (HE); Medicine Lodge
 Roderic Grubb (GS); Kanopolis
 Harman Edward Guisinger (Ar); Manhattan
 Fred Theodore Gunselman (GS); Holton
 Iola Marguerite Gunselman (GS); Holton
 Theodore Fowler Guthrie, Jr. (Ag);
 Saffordville
 Olive Grace Haeger (HE); Manhattan
 Ben Henry Hageman (GS); White Cloud
 Kenneth D. Hall (EE); Wichita
 Velma Ruth Halleck (HE); Topeka
 Velma Genevieve Hallock (GS); Ada
 Gertrude Claire Hamilton (HE); Wichita
 Cecil Edgar Hammett (EE); Manhattan
 Lee Elmer Hammond (PE); Osborne
 William Fred Hardman (EE); Frankfort
 Ruth Meryle Harlow (GS); Lucas
 Eugene Francis Harmison (ME);
 Great Bend
 Viola Grace Hart (HE); Topeka
 Elizabeth Hartley (PE); Manhattan
 Harvey Rockburn Harwood (Ar);
 Manhattan
 Virgil Himes Harwood (CE); Wichita
 Lilian Elvera Haugsted (IJ); Lyndon
 Virginia Deane Hawkins (RC);
 Monte Vista, Colo.
 Helen Leone Hawley (GS); Manhattan
 Garcel Kelly Hays (EE); Manhattan
 Lillian Lorrain Hazlett (GS); Whitewater
 Fredrick Hedstrom (Ag); Manhattan
 Irene Burnema Heer (GS); Manhattan
 Carl Heinrich (AA); Durham
 Helen Charlotte Heise (GS); Topeka
 Roe Heller (CE); Detroit
 Walter Rudolph Helm (ChE); Chanute
 Arthur Henry Hemker (EE); Great Bend
 Margaret Lorraine Hemphill (HE);
 Chanute
 †Beulah Mae Henderson (HE); Solomon
 Earl William Henderson (GS); Beloit
 Finis Ewing Henderson (VM); Manhattan
 Grace Virginia Henley (HE); Eureka
 †Wesley McKinley Herren (EE); Manhattan
 Byron William Herrington (IJ); Silver Lake
 Thomas Marion Heter (Ar); Sterling
 Arlie William Higgins (GS); Manhattan
 Emmet Leonard Hill (LA); Jennings
 Laurence Charles Hill (ME); Emporia
 Willetta Jane Hill (GS); Belleville
 Clifford Nelson Hinkle (AE); Lucerne
 Harold Chester Hoffman (GS); Haddam
 Thomas Burl Hofman (EE); Silver Lake
 Gordon Sheffield Hohn (IJ); Marysville
 Iva Luella Holladay (HE); Dodge City
 Erwin Dean Hollingsworth (ArE); Salina
 Stanley John Holmberg (GS); Manhattan
 Verna Doris Holmstrom (GS); Randolph
 William Milton Holt (GS); Augusta

* Matriculated 1928-'29.

† Also pursuing graduate study.

SENIORS—Continued.

- Norma Lucile Hook (HE); Silver Lake
 John Arwin Hoop (AE); Fowler
 Bert Lewis Hostinsky (M); Manhattan
 Hazel Juanita Hotchkiss (RC); Manhattan
 Mildred Huddleston (PE); Manhattan
 Fred Lincoln Huff (Ag); Chapman
 †Charles Harold Hughes (RC); Manhattan
 Elizabeth Ruby Hullinger (GS);
 Garden City
 Glade W. Hurst (EE); Manhattan
 David Paul Hutchison (EE);
 Council Bluffs, Iowa
 Emma Lou Huxmann (HE); Arnold
 Joe Hyer (ChE); Coffeyville
 Frances William ImMasche (AA);
 Saffordville
 James Eugene Irwin (CE); Le Roy
 Anna Alice Jacobs (GS); McCune
 William Nebeker Jardine (RC);
 Washington, D. C.
 Wilma Jennings (PE); Little River
 Dorothy Alice Johnson (HE); Lyons
 Elston Leslie Johnson (GS); Randolph
 Francis Eugene Johnson (EE); Burlington
 George Allan Johnson (CE); Simpson
 Miriam Elsie Johnson (HE); Argentine
 Sara Virginia Jolley (IJ); Manhattan
 G. Claire Jordan (GS); Jewell City
 Justin Joe Joy (ME); Osborne
 †Mary Ellen Karns (HE); Bucklin
 Samuel Greenberry Kelly (Ag); Manhattan
 Dorothy Alice Kendall (GS); Manhattan
 Harry Kibler (CE); Sedan
 Helen Kimball (GS); Manhattan
 Albert Best King (Ag); Centralia
 William Masenos King (EE); Labette
 Mary Louise Kinkead (HE); Troy
 Aaron Kipp (EE); Ellsworth
 Vivian Iliene Kirkwood (GS); Manhattan
 †Terrell Weaver Kirtan (Ag); Manhattan
 Margaret Knight (GS); Medicine Lodge
 Norma Louise Knoch (HE); Lincoln
 Frank Wendell Knopf (EE); Holton
 Leonard William Koehler (Ag); Manhattan
 Henry Adolph Koenig (Ar); Chanute
 Josephine Elizabeth Koenig (HE);
 Kansas City, Mo.
 Glenn Koger (EE); Herington
 Lorie Konantz (HE); Olathe
 Edwin Henry Kroeker (IC); Hutchinson
 Walter Fred Kuiken (GS); Glen Elder
 †Emil E. Larson (CE); Agenda
 Ralph Richard Lashbrook (IJ); Almena
 Orrill Latzke (IC); Manhattan
 George William Lawrence (EE); Ottawa
 Don Cutler Lee (EE); Harper
 Waldo Haymond Lee (Ag); Keats
 Mildred Hazel Lemert (GS); Cedarvale
 Florence Marie Leonard (GS); Manhattan
 Virgil Hudson Leonard (GS); Richland
 Agatha Meta Leuthauser (HE);
 Beemer, Neb.
 Una Minnette Le Vitt (GS); Wilson
 Ralph Oscar Lewis (Ag); Parsons
 Joe Limes (GS); La Harpe
 Harold Carl Lindberg (EE); Courtland
 John Paul Lortscher (AA); Fairview
 William Robert Love (IC); Bronson
 Relend Estella Lunbeck (IJ); Manhattan
 Curtis Joe Lund (GS); Lasita
 Renness Irene Lundry (GS); Arlington
 Charles Ellis Luthy (RC); Carbondale
 Lawrence Niles Lydick (EE); Winfield
 George Cardinal Lyon (PE); Manhattan
 Edward Cleland McBurney (CE); Newton
 Wayne McCaslin (GS); Osborne
 Hugh Edwin McClung (VM); Manhattan
 Mabel Mae McClung (HE); Manhattan
 Lenore McCormick (IJ); Cedarvale
 †Robert Earl McCormick (FME); Oatville
 Paul Joseph McCroskey (GS); Netawaka
 †James Dan McGregor (ME); Columbus
 Esther Beatrice McGuire (HE); Manhattan
 Hazel Alberta McGuire (PSM); Manhattan
 Harry Lyons McIntire (RC); El Dorado
 Agnes Vivian McKibben (HE); Manhattan
 †Walter Gordon McMoran (GS); Coldwater
 Philip Bard McMullen (Ag); Stella, Neb.
 Thelma Faye Mall (HE); Manhattan
 Harold Parker Mannen (GS); Lincoln
 Marceline Markle (HE); Chase
 †Jay Clayton Marshall (ME); Manhattan
 Donald James Martin (Ag); Fellsburg
 Paul Erastas Massey (EE); Yates Center
 Arnold Alcorn Mast (Ag); Abilene
 James Asel Matson (GS); Miltonvale
 Mary Edith May (HE); Wichita
 Walter Seamon Mayden (ME); Manhattan
 Charles Hubert Mehaffey (ME);
 Farmington
 Albert Houston Meroney (IJ); Garden City
 †Albert William Miller (Ag); Manhattan
 Merle B. Miller (Ag); Takoma Park, D. C.
 Paul Alvin Miller (EE); Parsons
 Ralph LeRue Miller (EE); Norton
 Silas Milbern Miller (GS); McPherson
 Vern Denton Mills (EE); Manhattan
 †Marjorie Blanche Mirick (PE); Halstead
 Lester Melvin Mishler (ChE); Sabetha
 Orville Dodd Mitchell (EE); McPherson
 John Henry Moehlman (EE); Manhattan
 Minnie Louise Moehlman (GS); Manhattan
 Maurice Charles Moggie (GS); Manhattan
 Ralph William Mohri (VM); Manhattan
 Ferne Hilda Moore (HE); Blue Rapids
 Needham Branch Moore, Jr. (VM);
 Manhattan
 Reginald Moore (GS); Robinson
 Thelma Jane Moore (GS); Humboldt
 Mattie Louise Morehead (HE); Norton
 Austin Morgan (EE); Lebo
 Eula Frances Morris (HE); Yates Center
 Stanley Eaton Morse (Ar); Manhattan
 Lawrence Orville Mott (VM); Manhattan
 †Fred Roy Mouck (ME); Manhattan
 Helen Augusta Mundell (GS); Nickerson
 Merlin Mundell (GS); Nickerson
 Merle Glenn Mundhenke (Ag); Lewis
 Walter Harold Murray (CE); Manhattan
 Pearl Frances Musgrave (HE); Hillsdale
 Blanche Lucille Myers (RC); Americus
 Raymond Soper Myers (RC); Manhattan
 Robert William Myers (RC); Manhattan
 Winifred Ann Nachtreib (HE); Atchison
 Tetie E. Nafziger (Ag); Cimarron
 Floyd Sereign Naugle (EE); Highland
 Howard Milton Nester (Ag); Scranton
 †Anna Mae Nettletrouer (GS); Manhattan
 Fred Irwin Nevius (RC); Paola
 Karl Polk Neiderlander (ME); Manhattan
 Karl William Neimann (VM); Manhattan
 Mary Arminta Norman (HE); Fowler
 Elsie Sonya Nuss (GS); Hoisington
 Ethel Evelyn Oatman (HE); Lawrence
 Charles Belgrove Olds (EE); Delphos
 Velma Luella Oliphant (HE); Kinsley
 Loren William Olmstead (CE); Manhattan
 Charles Robert Omer (VM); Mankato
 Arthur Ehrenhardt Owen (EE); Wichita
 Merton Elias Paddleford (EE); Randolph
 Elizabeth May Painter (GS); Manhattan
 Victor Palenske (CE); Alma
 Howard Benton Palmer (CE); Aulne
 Edythe LaVerne Parrott (HE); Manhattan
 Frank Nellis Parshall (RC); Manhattan
 Carrie Alma Paulsen (HE); Stafford

† Also pursuing graduate study.

SENIORS—Continued.

- †Mabel Grace Paulson (GS); Whitewater
 Clara Margaret Paustian (GS); Manhattan
 Lillian Susanna Paustian (GS); Manhattan
 †Helen Elizabeth Paynter (HE); Manhattan
 M. Bertrand Pearson (PE); Manhattan
 Kenneth Orval Peters (EE); Utica
 Vernon Stanley Peterson (AE); Gypsum
 Craig Evan Pickett (EE); Glen Elder
 William Harold Polhamus (Ag); Parker
 Everett Francis Potter (ME); Manhattan
 Walter Preston Powers (AA); Netawaka
 Marjorie Prickett (GS); Wamego
 Dwight Kimball Putnam (RC); Salina
 Galen Stephen Quantie (AA); Riley
 Margaret Elizabeth Rankin (IJ); Wakefield
 Robert Louis Rawlins (Ag); Whiting
 Elwood Effenger Reber (EE); Wetmore
 Kenneth Edward Rector (CE); Scott City
 Lawrence V. Rector (RC); Manhattan
 Charles Edward Reeder (ArE); Troy
 Jeanice Reel (PSM); Detroit
 Benjamin Luce Remick (EE); Manhattan
 Ray Lewis Remsberg (Ag); La Harpe
 John Sword Rhodes (EE); Tampa
 †Carl Clark Rice (EE); Manhattan
 Lois Thomas Richards (ME); Parsons
 Marguerite Leona Richards (HE);
 Manhattan
 Ruth Roberta Richardson (HE);
 Manhattan
 Hugh Kenneth Richwine (AA); Holcomb
 Mary Eileen Roberts (GS); Manhattan
 Chester Merle Roehman (AE); White City
 Frederick Earl Roehman (EE); White City
 Lucile Kathryn Rogers (HE); Abilene
 Owen Gayle Rogers (EE); Bronson
 Irene Josephine Rogler (HE);
 Matfield Green
 Mary Magdalene Rolfe (GS); Fairview
 Hazel Romer (GS); Holly, Colo.
 Mae Marguerite Roomey (HE); Haddam
 Marshall Berry Ross (GS); Manhattan
 John Wesley Roussin (Ag); Brewster
 Dorothy Harriet Rucker (HE); Burdett
 Charles Edward Russell (CE); Manhattan
 Elmer Charles Russell (Ag); Manhattan
 Lois Russell (HE); Manhattan
 Marion Lynn Russell (Ag); Garden City
 *Alton Hoyt Ryon (EE); Galveston, Tex.
 Liliias Maria Samuel (PSM); Manhattan
 Martha Mary Sandeen (HE);
 Stillwater, Minn.
 Wilmar Walton Sanders (IJ); Clay Center
 Walter Dale Sandford (GS); Kansas City
 Charles Fredrick Sardou (ME); Topeka
 Paul Griffith Sayre (Ag); Manhattan
 †Robert Theodore Schafer (Ag); Jewell
 Harry Edward Schaulis (VM); Wakefield
 Dale Alvord Scheel (Ag); Emporia
 Letha Mildred Schoeni (GS); Athol
 Emma Schreiner (GS); Ramona
 Galen Emil Schwandt (ChE); Manhattan
 James William Schwanke (EE); Alma
 Florence Caroline Sederlin (HE); Scandia
 Walter Elsworth Selby (AE); Manhattan
 Harold Alfred Senior (EE); Independence
 Joe Joshua Shenk (EE); Manhattan
 John Henry Shenk (IC); Manhattan
 Bernice Elizabeth Shoenbrook (GS); Horton
 Mabel Ida Shrontz (HE); Wilsey
 Mildred Mabel Sinclair (ApA);
 Macksville
 *Sister Mary Domitilla Arnoldy (GS);
 Manhattan
 Sister Nicholas Arnoldy (GS); Manhattan
 Edward John Skradski (EE); Kansas City
 Claude Wilber Sloan (EE); Dalhart, Tex.
 Earl Leroy Sloan (CE); Boise City, Okla.
 John Frederick Smerchek (Ag); Cleburne
 Florence Verlene Smith (HE); Tarkio, Mo.
 †Martha Agnes Smith (PE); Durham
 Myrna Frances Smith (GS); Manhattan
 Robert Kenneth Smith (Ar); Wichita
 *Edward Paul Smoot (EE); Eureka
 *Katherine Bingman Snair (GS); Manhattan
 Ida Elizabeth Snyder (GS); Effingham
 Kathryn Socolofsky (HE); Tampa
 Donald Alvin Springer (GS); Manhattan
 Ruth Elizabeth Stener (PSM); Courtland
 Helen Steuart (GS); Winchester
 George Doster Stewart (RC); Abilene
 James Arlie Stewart (AA); Abilene
 Jessie Sarah Stewart (HE); Maplehill
 Elma Mae Stoops (GS); Bellaire
 Harold Earl Stover (AE); Colwich
 †Carol Lusetta Stratton (GS); Manhattan
 Reva Mae Stump (HE); Blue Rapids
 Gladys Estelle Suiter (IJ); Macksville
 James Harold Sutton (Ag); Ensign
 Gladys Alice Swartz (M); Atchison
 William Jay Sweet (ArE); Wichita
 Wesley Ellwood Swenson (RC);
 Manhattan
 Charles Henderson Synnamon (IC);
 Wichita
 Francisco Rioja Taberner (VM);
 Dolores, P. I.
 Donald McCrea Telford (GS); Manhattan
 Ernest Raymond Thomas (Ar);
 Kansas City
 Esther Cora Thomas (HE); Narka
 Orville W. Thurow (RC); Macksville
 Ralph Victor Thurow (RC); Macksville
 Raymond Jennison Tillotson (AE); Shields
 Ivan Kieth Tompkins (Ag); Byers
 Evelyn Lucile Torrence (PSM);
 Independence
 Helen Grace Trembley (HE); Hutchinson
 John W. Truax (GS); Peabody
 James Frederick True Jr., (Ag); Perry
 Scott Lester Turnbull (RC); Allen
 Azel Oscar Turner (Ag); Lawrence
 Ruth Lillian Turner (PSM); Manhattan
 Arthur William Vance (EE); Garden City
 Martin Van Der Maaten (VM);
 Orange City, Iowa
 Virginia Van Hook (HE); Topeka
 Gerald Dean Van Pelt (EE); Beloit
 Ruth Varney (GS); Manhattan
 Theodore Roosevelt Varney (GS);
 Manhattan
 Donald Wade (IC); Concordia
 Mary Frances Wagner (HE); Manhattan
 Violet Lovina Walker (ApA); Manhattan
 †Grace Elsie Walrod (HE); Bradshaw, Neb.
 Hazel Maude Walter (HE); Riley
 Kirk Monroe Ward (PE); Elmdale
 Beatrice Shirley Warner (HE); Goodland
 Vera C. Warnock (HE); Hutchinson
 Edgerton Lynn Watson (AH&VM);
 Manhattan
 Joseph Ardrey Watson (AA); Sedan
 Arthur Rahder Weckel (EE); Piqua
 Esther Weisser (GS); Paxico
 Bernice Lucile Wentz (HE); Ames
 Lulu Parken Wertman (HE); Morrowville
 Rex Edward Wheeler (EE); Manhattan
 Hugh Erwin White (AE); Kingsdown
 Rexford Everett White (EE); Jewell
 Stanley Archie White (EE); Manhattan
 Royden Keith Whitford (EE); Hamlin
 †Nana Frances Whitman (HE); Kansas City

* Matriculated 1928-'29.

† Also pursuing graduate study.

SENIORS—*Concluded.*

- Francis Eugene Wiebrecht (EE);
 Strong City
 Mary Christine Wiggins (HE); Eureka
 Lyle Alexander Will (Ag); Denison
 Helen Willcuts (HE); Burr Oak
 Chris S. Williams (RC); Manhattan
 Lila Williams (GS); Broughton
 †Ruth Williams (HE); Broughton
 Helen Mildred Wilmore (HE); Halstead
 Hal Spring Wilson (RC); Valencia
 Temple Faye Winburn (Ag); Manhattan
 Charles Walter Withey (GS); Home
 Lillian Geneva Witter (HE); Plains
- Leslie Melvin Wolfe (Ag); Johnson
 Beatrice Wilhelmina Wood (PE);
 Great Bend
 Harold Germain Wood (CE); Topeka
 Ralph Rogler Wood (Ag);
 Cottonwood Falls
 Ned H. Woodman (LA); Manhattan
 Ernest Burton Woodward (ArE);
 Medicine Lodge
 John Howard Worley (GS); Randall
 Edward Everett Wyman (RC); Clifton
 George Zavesky (ME); Ellsworth

JUNIORS

- Vivian Dial Abell (HE); Riley
 Hugh Richard Abernathey (CE);
 Manhattan
 *Frank Milton Adair (ME); Frontenac
 Roland Edgar Adams (ArE);
 Wauwatosa, Wis.
 James Jay Adriance (IJ); Manhattan
 Raymond Hilton Alexander (VM);
 Manhattan
 George Mitchell Allen (CE); Manhattan
 Merle Allen (ME); Burlington
 Milton Francis Allison (IJ); Great Bend
 Henry Everett Anderson (RC); Richland
 Kenneth Charles Anderson (ChE); Eskridge
 *Lois Ida Anderson (HE); Byers
 Ross Harris Anderson (GS); Richland
 Virginia Anderson (HE); Lincoln
 Phil V. Andrews (Ar); Ottawa
 Elna Ruth Andrik (PSM); Wheaton
 Anna Annan (PE); Beloit
 *Clifford Armstrong (EE); Pittsburg
 *Isabel Ashford (PE); Iola
 *Leslie Linnaeus Aspelin (ME); Dwight
 Hazel Bernadine Atkins (PSM); Manhattan
 Byron Edson Atwood (EE); La Cygne
 Ruth Hilda Avery (HE); Riley
 Harry Fisk Axtell (Ag); Dimmitt, Tex.
 Cleo Orland Baker (CE); Marysville
 Howard William Baker (Ar); Lyndon
 Mildred Marita Baker (HE); Gove
 *Baha E. Bakri (Ag); Damascus, Syria
 Donald C. Baldwin (Ar); Manhattan
 *Oran Lee Ballinger (AA); Manhattan
 Ted Huron Barber (AE); Alton
 Mary Elvina Barkley (GS); Manhattan
 Claude Lawrence Barnett (Ar); Manhattan
 Fern Doris Barr (GS); Manhattan
 Henry John Barre (AE); Tampa
 Rufus Hodges Barrett (EE-1; GS-2);
 Emporia
 Etnah Beaty (HE); Lakin
 Vernon Augustus Beck (ME); Topeka
 Segrid Evangeline Beckstrom (HE);
 Wichita
 Lyle Holmes Beebe (VM); Manhattan
 *George Edward Bell (ArE); Yates Center
 Raymond Andrew Bell (PE); Beverly
 *Bernice Eleanor Bender (IJ); Holton
 Kenneth Dean Benne (GS); Washington
 Ernest Wilson Bennett (EE); Great Bend
 Helen Lee Bentley (HE); Manhattan
 John Thomas Bertotti (ME); Osage City
 Wesley Watson Bertz (VM); Manhattan
 Henry John Besler (EE); Manhattan
 George Gorrell Biles (RC); Chanute
 John Terrence Bird (IJ); Hays
 *Olive Elizabeth Bland (HE); Garden City
 Harvey Gerald Bobst (CE); Alma
 *Jesse Benjamin Bochner (IC); Downs
 Bill Boggess (EE); Scandia
- William Herman Bokenkroger (PE);
 Sabetha
 Harold Clifford Boley (EE); Topeka
 James Patrick Bonfield (RC); Elmo
 Forrest Walter Boone (IC); Coffeyville
 Fletcher Gist Booth (RC); Olathe
 Tony Borecky (GS); Holyrood
 Richard Earl Bowman (GS); Pawnee Rock
 *Mable Ruth Boyce (PSB&O); Manhattan
 Ruth Mary Boyles (HE); Manhattan
 *John Frank Bozick (EE); Frontenac
 Howard Raley Bradley (AA); Kidder, Mo.
 Charles Lewis Brainard (Ar); Manhattan
 Elmer James Branham (EE); Altamont
 William Jacob Braun (Ag); Council Grove
 Elmer Henry Bredehoff (EE); Manhattan
 Chester Arthur Brodie (EE); Manhattan
 Gertrude Elizabeth Brookens (GS);
 Westmoreland
 Paul Edwin Brookover (ME); Scott City
 Raymond Usher Brooks (ArE); Hutchinson
 Edwin Lewis Brower (VM); Junction City
 Claude Harold Brown (AE); Winfield
 Maxine Brown (M); Manhattan
 Orpha Brown (HE); Edmond
 Ralph Miller Brown (EE); Kansas City
 Jasper Leland Brubaker (EE); Manhattan
 *Hugh Herschel Bruner (RC); Concordia
 Ralph Ernest Brunk (EE); Kansas City
 Lillian Josephine Brychta (HE);
 Blue Rapids
 Hazel Eirene Buck (HE); Derby
 Dorothy Helen Burnet (HE);
 Manchester, Okla.
 Vada Burson (PE); Manhattan
 Henry Alonza Burt (AA); Manhattan
 Norvall Odell Butler (EE); Manhattan
 *Beulah Louise Callis (GS); Chase
 *Gladys Calvert (IJ); Burlington
 Lewis Marvin Campbell (ArE); Kirwin
 Richard Joseph Campbell (ME);
 Herington
 Margaret Canham (ArE); Kansas City, Mo.
 *Clifford Beamer Carlson (ME); Utica
 Dave Anthony Carlson (Ag); Manhattan
 John Edward Carnal (RC); Saline
 *Robert Brockenridge Castle (EE); Troy
 Raymond D. Caughron (GS); Manhattan
 Wilbur Chamberlin (EE); Newton
 *Marian Chapman (HE); Lee's Summit, Mo.
 William Chapman (Ag); Wichita
 Paul R. Chilen (AA); Miltonvale
 Ruth Rosalie Claeren (IJ); Manhattan
 Joseph Eugene Clair (VM); Manhattan
 Curtis Forgy Clayton (CE); El Dorado
 Floyd Alfred Clayton (IJ); El Dorado
 Lawrence Victor Clem (GS); Chanute
 Owen L. Cochrane (PE); Manhattan
 Dave Miles Colby (VM); Long Island

* Matriculated 1928-'29.

† Also pursuing graduate study.

JUNIORS—Continued.

- *Harley Edward Cole (ME);
Cambridge, Neb.
Howard Allen Coleman (CE); Denison
- *Frances Rebecca Conard (HE); Ottawa
Paul Waldo Condry (IC); Beloit
Kenneth E. Converse (EE); Manhattan
Robert James Copeland, Jr. (ChE);
Canon City, Colo.
Wilber Abram Copenhafer (LG);
Manhattan
Harold Richard Corle (CE); Caney
Luis Alfredo Cortes (Ar); Bogota,
Colombia, S. A.
Donald Wherry Cowan (EE); Valley Falls
Herman Charles Cowdery (CE); Lyons
Melvin Leroy Cowen (RC); Junction City
Manford Lester Cox (Ag); Goodrich
Harold Samuel Crawford (LG);
Bonner Springs
Vera Lucille Crawford (IJ); Lincoln
Earl Edward Crocker (RC); Manhattan
George Richard Crossen (ME); Turner
Chester Arthur Culham (ME);
Junction City
- *Katherine Kelly Culver (RC); Leavenworth
George Joseph Cunningham (Ag);
Manhattan
John Jay Curtis (Ag); Toronto
Marjorie Hazel Curtis (HE); Manhattan
Bernice Veneta Davidson (HE); Manhattan
Daisy Davis (HE); Glen Elder
Paul W. Davis (EE); McPherson
- *Saloma Elizabeth Davis (RC); Manhattan
George Thomas Dean (CE); Manhattan
Bernice Louise Decker (HE); Holton
Walter Raymond Denman (EE); Sedan
Irene Jeanette Decker (HE); Robinson
Robert Irving Denny (AE); Harper
John William Decker (Ag); Holton
Theodore M. DeVries (VM); Manhattan
Darcy Dayton Dial (FME); El Dorado
Mary Lucile Dietz (HE); Cawker City
Herbert A. Dimmitt (EE); Manhattan
Iva Fern Dix (HE); Manhattan
Harry Stillman Dole (IJ); Almena
Dorothea Downer (PSM); Syracuse
Mary Lou Dronenburg (HE);
Kansas City, Mo.
Donna Gayle Duckwall (Ar); Abilene
Leda Anna Dunton (GS); Lebanon
- *Neil Durham (Ag); Randall
Edna Frances Ehrlich (HE); Manhattan
Walter Newton Epler (ChE); Scott City
Alfred Harlan Epperson (AA); Riley
Everett Noel Evans (EE); Wilsey
Thomas Marion Evans (PE); Gove
Galen Lee Farnsworth (IC); Wichita
John Virgil Foulconer (CE); El Dorado
Elwin E. Feather (GS); Bird City
Edward Joseph Fisher (ChE); Leavenworth
Janice Irene Fisher (PSM); Beverly
Josephine Louella Fisk (GS); Manhattan
Max Charles Fleming (EE); Paola
Geraldine Genevieve Foley (GS); Oronoque
John Lowell Foley (AE); Oronoque
Rex Leroy Fossnight (CE); Ottawa
Harold Earl Frank (AA); Manhattan
Kathleen Grace Fraser (GS); Talmage
Harry Orwin Frazier (GS); Idana
Alva Henry Freeman (PE); Manhattan
Ralph William Freeman (FME); Kirwin
Amelia Marie Frohn (HE); White City
- †Otto E. Funk (Ag); Marion
Roy Jacob Furbeck (CE); Larned
Ruth A. Dible Gamble (GS); Rexford
Kenneth Manning Gapen (AA); Manhattan
- Orville Howard Gates (ME); Seward
Charles Richard Gerardy (ChE);
Clay Center
Clarence Emmett Ghormley (AgE);
Hutchinson
Henry Wilbur Gilbert (LG); Manhattan
T. Henry Gile (Ag); Scandia
Florence Ann Glenn (GS); Manhattan
Louise Charlotte Glick (HE); Garden City
Lavone Goheen (GS); Oak Hill
- *Myrtle Genevieve Gohlke (HE); Holton
William Isaac Gorrell (ArE); Onaga
Edward Lawrence Grafel (ME); Herndon
George Mather Grafel (RC); Herndon
Joseph Howard Greene (AA); Beverly
Margaret Hamilton Greep (HE); Longford
Roy Orval Greep (GS); Longford
Rudolph Trechsel Greep (IC); Longford
Andrew P. Grimes (AA); Greenwood, Mo.
Cloyde Lowell Guinn (VM); El Dorado
- *Eva Maude Guthrie (HE); Woodston
C. Walton Haas (RC); Winfield
Edwin Otto Habiger (AA); Bushton
Louis H. Hahn (AE); Minneapolis
Minnie Rosie Hahn (HE); Inman
Vernon Leslie Hahn (AA); Muncie
Kenneth Morgan Hall (AA); Agra
Catherine Marie Halstead (IJ); Manhattan
Lewis Greeley Hamilton (VM);
South Haven
Allen LeRoy Hammond (ArE); Wichita
George Risley Hanson (AA); Council Grove
Junieta LuElla Harbes (HE); Manhattan
Maude Harland (HE); Frankfort
- *Clare Harner (GS); Howard
*Florence Lavina Harold (HE); Dresden
*LuCette Adeline Harper (IJ-1; HE-2);
Emporia
- *Faye Harris (HE); Parsons
Ivan Harold Harris (CE); Manhattan
- *Theodore Garrand Harris (Ag); Manhattan
Rodney De Walt Harrison (RC); Burden
Laura Zurilda Hart (PSM); Overbrook
R. Lynn Hartman (CE); Hoisington
William Thomas Havens (EE); Manhattan
Orville Elton Hays (Ag); Manhattan
Benjamin Cecil Headrick (ME); Manhattan
- *Robert Bates Heckert (EE); Independence
Fred Hederhorst (ME); Stockton
Robert Baker Hedrick (ArE); Florence
Violet Alvina Heer (HE); Manhattan
Paul Raymond Heinback (EE); Neodesha
Helen Alberta Hemphill (IJ); Clay Center
Esther Marie Herman (RC); Abilene
Harold Kingsley Herr (RC); Hutchinson
Theron W. Hicks (CE); Norton
Homer Richard Hiatt (AA); Haven
Clarence Lewis Hill (EE); McPherson
- *Phoebe Alice Hill (PE); Great Bend
Lora Valentine Hilyard (HE); Manhattan
- *Ura Frickey Hinkle (GS); Oberlin
- *Dorothy Priscilla Hinman (HE); Darlow
Charles Frank Hirsch (RC); Ellinwood
- *Eva Burndette Hixson (RC); Wakeeney
Russell W. Hofsess (CE); Hutchinson
Anita Mae Holland (HE); Harper
Eugene Hohnberg (ME); Kansas City
Johnson Alcott Holmes (IJ); Manhattan
Vera M. Holmstrom (GS); Randolph
Myrtle Evelyn Horne (HE); Alma
Maurice Joseph Horrell (ME); Manhattan
- *Margaret Edith Horsfall (HE);
Monticello, Ark.
Ray Mitchell Hoss (AA); Potwin
William Harris Houston (Ag); Potwin

* Matriculated 1928-'29.

† Deceased.

JUNIORS—Continued.

- Clarence Paul Howard (IJ); Mount Hope
 Ida Mae Howard (GS-1; HE-2); Garnett
 Muriel Howard (GS); Oberlin
 Orlando Whiting Howe (AE); Stockdale
 John Thomas Hoyne (EE); Salina
 William Hudson (ME); Chanute
 *Aileen Hull (HE); Manhattan
 Florence Hazell Hull (HE); Downs
 *Kathleen Virginia Hulpfen (HE);
 Dodge City
 Eymann Delbert Hunt (CE); South Haven
 Thelma Irene Huse (GS); Manhattan
 James Ward Ingraham (EE); Manhattan
 Glenn Charles Isaac (Ag); Baldwin
 *Mary Jane Isbell (HE); Bennington
 Ralph William Jackson (VM); Manhattan
 Russell Everett James (ME); Wetmore
 Vernon Elmer Jefferies (EE); Kiowa
 Betty Lena Jeffers (IJ); Abbyville
 George Jelinek (GS); Ellsworth
 Ernest Frank Jenista (GS); Caldwell
 June A. Jerard (GS); Manhattan
 Howard J. Jobe (CE); Sedan
 William Howard Jobling (IC); Drury
 Alvin Adolph Johnson (AA); Topeka
 Robert Franklin Johnson (RC); Salina
 Margaret Verneal Johnson (HE); Axtell
 Hazel Mae Johnston (PSM); Leonardville
 Esther Margaret Jones (GS); Frankfort
 J. Harold Karr (EE); Troy
 Josephine Dell Keef (IJ); Glen Elder
 Pauline Kegereis (HE); Salina
 Rush Carl Kellam (RC); Hutchinson
 Elmer Willis Kelley (RC); Kansas City
 Carol Sanford Kelly (GS); Belleville
 Mary Janice Kelly (HE); Lindsborg
 Charles Harris Kenison (RC);
 New Cambria
 Floyd N. Kennedy (ArE); Anthony
 Annie Mary Kerr (HE); Manhattan
 John Harold Kershaw (EE); Garrison
 John Kimball (CE); Smith Center
 Solon Toothaker Kimball (IJ); Manhattan
 Fay Kimes (EE); Dodge City
 Wayne Kimes (EE); Dodge City
 Milford Jeter Kindig (AA); Olathe
 Edna Alma Gill King (HE); Sylvia
 Leslie R. King (CE); Manhattan
 Willis Bertrand Kinnamon (RC); Larned
 Willis Francis Kipper (CE); Belleville
 Loren Robert Kirkwood (EE); Manhattan
 Julius William Klopper (ME); Monrovia
 Martin Simon Klotzbach (EE); Humboldt
 Henry H. Knouft (GS); Circleville
 George Herman Koelling (IC); Talmage
 Clemons Malcolm Kopf (EE); Beverly
 Grace Esma Kottwitz (HE); Peabody
 Louis Joseph Kovar (AE); Rossville
 *Harvey E. Kreiss (EE); Council Grove
 Dorothy Beryl Kuhnle (GS); Miltonvale
 Joe Alphonsus Kuffler (CE); Parsons
 *Dorothy Bolick Lampton (M); Cherokee
 Kenneth James Latimer (ChE); Humboldt
 Ruth Laura Lattimore (HE); Westmoreland
 Verna Latzke (HE); Chapman
 *Eleanor Laughead (HE); Dodge City
 Eugene Pepper Lawrence (PE); Eads, Colo.
 Oliver G. Lear (AA); Stafford
 Eugene Marshal Leary (Ag); Lawrence
 Thomas Joy Leasure (VM); Solomon
 Greta Valma Leece (HE); Formoso
 Robert Lengquist (ME); Riverton
 *Lawrence Lewis (EE); Hays
 Evelyn Mae Lindsey (HE); Winchester
 Jack Harris Linscott (EE); Manhattan
 Clabern Oakley Little (ME); Manhattan
 Abe Litvien (CE); Kansas City
 Robert Ivan Lockard (Ar); Norton
 Rowena Pauline Lockridge (GS); Wakefield
 Genevieve Long (HE); Haviland
 George Wayne Long (IJ); Burlington
 Louise Loraine Lortscher (HE); Fairview
 H. Dale Lott (CE); Minneapolis
 Virginia Louise Lovitt (PSM); Great Bend
 *Howard C. Lowen (EE); Wichita
 *Bernice Etha Loyd (GS); Hiawatha
 *Verna Mern Loyd (HE); Hiawatha
 William J. Lynn (Ag); Centralia
 William D. Lyon (Ag); Faulkner
 Ruth Beryl McCammon (GS); Norton
 Caroline Louise McCarthy (HE);
 Kansas City
 Elinor Mary McCaul (HE); Elk City
 *Dorothy Marguerite McCauley (PE);
 Robinson
 Arthur Jesse McCleery (EE); Esbon
 Don Frederick McClelland (Ag); Maplehill
 Thelma Fern McClure (HE); Hutchinson
 Robert Herald McCollum (PE); El Dorado
 Roy H. McKibben (ME); Manhattan
 Margaret McKinney (IJ); Great Bend
 Charles Porter McKinnie (Ag); Glen Elder
 Harold Ivan McKinsey (RC); Kansas City
 Dan McLachlan, Jr. (IC); Pleasanton
 Howard Orville McManis (AE);
 South Haven
 Cecil James Wilson McMullen (EE); Norton
 Joseph Rankin McMullen (AA);
 Stella, Neb.
 E. Hugh McNichols (Ar); Burr Oak
 Merle Lyle Magaw (Ag); Ames
 Harold Gustav Mangelsdorf (EE); Atchison
 Ray Merlin Mannen (Ag); Lincoln
 Marjorie Ellen Manshardt (IJ);
 Leonardville
 Charles Mantz (AA); Preston
 Willa Lois Mantz (ApA); Coldwater
 Gordon Allen Mark (RC); Abilene
 Bruce Hedrick Markle (EE); Chanute
 *Beulah Fee Martin (HE); Princeton
 Clara Winifred Mather (HE); Centralia
 ‡Myrtle Alice Mather (HE); Centralia
 Richard Bruce Mather (Ag); Burdett
 Jess Roland Mathias (CE); Manhattan
 Fern Corinne Maxey (HE); Coats
 Mary Evangeline Maxwell (HE);
 Manhattan
 Mary Frances Maxwell (RC); Manhattan
 Paul Arthur Mears (AA); Simpson
 Ralph Francis Melville (RC); Muncie
 Glen Ervan Meredith (ArE); Junction City
 Thomas Nelson Meroney (Ag);
 Garden City
 John Kingsley Merritt (RC); Haven
 Wilmer Abele Meyle (Ag); Holton
 Clara Grace Miller (HE); Manhattan
 Harold Spencer Miller (ME); Kansas City
 Robert Wilson Miller (ME); Haviland
 Govan Mills Jr. (RC); Lake City
 John Lensfred Minor (AG); Syracuse
 Marion Edgar Miller (CE); Quenemo
 Walter Rankin Mitchell (EE); Salina
 Shirley Caroline Mollett (IJ); Manhattan
 Warren Dale Moore (Ag); Copeland
 Charles Elias Morgan (GS); Concordia
 Fay Albert Mueller (AA); Sawyer
 Orlan L. Mullen (CE); Garfield
 Arlee Murphey (HE); Protection
 Thomas Jerome Muxlow (VM); Manhattan
 Channing George Myers (IC); Salina
 Loyle Mac Nash (PE); Long Island
 *Marvin Francis Naylor (IC); Kansas City
 Borden Dean Neiman (EE); Wetmore

* Matriculated 1928-'29.

‡ Deceased.

JUNIORS—Continued.

- William A. Nelson (EE); Alta Vista
 William Melvin Newman (AA); Centralia
 Roscoe Townley Nichols, Jr. (RC);
 Hiawatha
 Gordon Curtis Nonken (EE); Manhattan
 Earl Conly North (EE); Manhattan
 Clarence Evan Nutter (Ag); Manhattan
 Lois Oberhelman (HE); Barnes
 *Evalyn Anna O'Donovan (GS); Topeka
 *Ruth M. O'Donovan (GS); Topeka
 Raymond William O'Hara (Ag);
 Blue Mound
 *Beatrice Oliphant (HE); Hutchinson
 Martha Luella O'Neill (HE); Winchester
 Mildred M. Osborn (PE); Clifton
 Laurel J. Owsley (EE); Manhattan
 Leone Evelyn Pacey (PE); Manhattan
 William Hockworth Painter (GS); Meade
 Frances Lenora Paisley (GS); Manhattan
 Leslie Ellison Paramore (EE); Delphos
 Helen Verna Parcels (HE); Hiawatha
 LeRoy Clay Paslay (EE); Manhattan
 Lloyd Everett Patterson (EE); St. John
 Harry Albert Paulsen (AA); Stafford
 Ray Charles Paulson (EE); Whitewater
 Raymond Charles Paynter (GS);
 Manhattan
 Paul Chadwick Perry (ME); Fredonia
 *Bertha Marie Peterson (GS); Marquette
 Ralph Frank Pettit (Ag); Humboldt
 Karl Hamilton Pfuetze (GS); Manhattan
 Leonard Milton Pike (Ag); Goddard
 John Morris Pincomb (RC); Overland Park
 *Clark Gardner Porter (GS); Alton, Ill.
 James Wilson Pratt (RC); Manhattan
 Bruce Robinson Prentice (EE); Clay Center
 Doris Estelle Prentice (HE); Manhattan
 Joe Price (RC); Valley Falls
 *Don Glenn Purcell (ArE); Wichita
 George LeRoy Quigley (EE); Halstead
 Francis James Raleigh (Ag); Clyde
 *Ben Elkins Ramsey (CE); Dighton
 Elmer Wayne Randle (EE); Jefferson
 *Mary Edith Rankin (HE); Kansas City
 Mildred Hester Rathbun (GS); Manhattan
 Mary Bell Read (PE); Manhattan
 Endris William Rector (RC); Manhattan
 Richard Anthony Redd (EE); Hutchinson
 Oscar Earl Reece (AA); Hopewell
 Herbert Curtis Reed (IC); Salina
 A. Louise Reed (GS); Manhattan
 Grace Editha Reed (PE); Topeka
 John Hogue Reed (GS); Manhattan
 Louise Eleanor Reed (HE); Holton
 Louis Powers Reitz (Ag); Belle Blaine
 Alice Luella Rhea (HE); Larned
 Clement Dee Richardson (EE); Hugoton
 Earl Cranston Richardson (IJ); Coffeyville
 George Elliott Richardson (EE); Pittsburg
 Ranald Carl Riepe (IJ); Kansas City
 Tillie Helen Rife (HE); Anthony
 Wanda Harriett Riley (GS); Chanute
 Arthur Vernon Roberts (GS); Vernon
 *Harlan Bryant Roberts (CE); Vernon
 Floyd Nolan Rogers (FME); Smith Center
 Ralph Rogers (ChE); Madison
 Randle Chester Rolfs (RC); Lorraine
 William Alfred Romary (VM); Olivet
 Flora Helena Ross (HE); Amarillo, Tex.
 Frank Henry Roth (EE); Wichita
 Neva Edwina Rush (HE); Severy
 Ray Russell (ME); Kansas City
 Robert Henry Russell (ME); Manhattan
 William Everett Russell (IJ); La Crosse
 Helen Marguerite Rust (PSM); Manhattan
 Miner Ray Salmon (Ag); Manhattan
 Jack Sanders (EE); Independence
 Robert E. Sanders (PE); Burlington
 Harry Clinton Sawin (EE); Waterville
 Gladys Myrtle Schafer (IJ); Eskridge
 Warren E. Schaulis (Ag); Wakefield
 Dorothy Pauline Schermerhorn (IJ); Wilson
 Lorna Katherine Schmidler (IJ); Marysville
 *Edward Henry Schneider (EE);
 Kansas City
 Ruby Thelma Scholz (HE); Frankfort
 Maxine Sophia Schorer (IJ); Clyde
 Leah Schreiner (HE); Ramona
 Dorothy Carolyn Schrupf (HE);
 Cottonwood Falls
 Charles Arthur Schubert (EE); Centralia
 Fredrick Henry Schultis (AA);
 Sylvan Grove
 William Joseph Schultis (GS);
 Sylvan Grove
 Ralph Lester Scott (GS); Le Loup
 Sybella Adelaide Scott (PE); Manhattan
 Lela Mae Segrist (HE); Manhattan
 Mabel Luella Sellens (HE); Russell
 *Nelle Virginia Seybold (GS); Atchison
 Karl Shaver (EE); Cedarvale
 Alene Frances Shay (HE); Miltonvale
 Gertrude Sheetz (PSB&O); Admire
 Frances Dow Sheldon (GS); Blue Rapids
 Allen Parker Shelby (ME); Atchison
 Ralph Abraham Shenk (GS); Silver Lake
 Kenneth Maynard Sherwood (Ag);
 Concordia
 *Frances Deane Shewmaker (HE); Chanute
 Helen Marie Shuyler (IJ); Hutchinson
 *Dale Harold Sieling (IC); Hays
 Travis William Siever (GS); Manhattan
 Marjorie Evon Six (HE); Manhattan
 Harry Edwin Skoog (VM); Caldwell
 H. Devore Smiley (VM); Manhattan
 Alva Smith (HE); Fellsburg
 Carl Davis Smith (RC); Mayetta
 Elmer Harold Smith (AE); Baldwin
 *Floyd Howard Smith (EE); Wichita
 James Everett Smith (Ag); Manhattan
 Leon Edward Smith (CE); Caldwell
 Ralph Ottis Smith (EE); Hutchinson
 Robert Philip Smith (GS); Junction City
 *Roscoe George Smith (PE); Sabetha
 Roy Blanchett Smith (PE); Herington
 Inez Eva Snyder (GS); Osborne
 Dale Edward Springer (AE); Garrison
 Herbert Norman Stapleton (AE); Jewell
 Arlo Lester Steele (EE); Manhattan
 *Irvin Stenzel (EE); Marion
 William Emil Steps (CE); Halstead
 Harland Stevens (Ag); Valencia
 Harold Calvin Stevens (AE); Blue Rapids
 Clarence Walter Stewart (ArE); Coldwater
 Samuel Roger Stewart (Ag); Vermillion
 James Leslie St. John (Ag); Louisville
 Lee Rudell St. John (CE); Morland
 Ross Alonzo St. John (CE); Morland
 Bertha Maidene Stout (PE); Peabody
 Bennett Thorne Stryker (CE); Waterville
 *Marguerite Marie Stullken (GS); Bazine
 Martin Gust Sundgren (AE); Wilmore
 Glenn Arthur Sutton (CE); Longton
 Wayne Frederick Tannahill (CE);
 Manhattan
 Harold Everett Taylor (IJ); Clay Center
 John Edward Taylor (Ag); Topeka
 Merrill Medsger Taylor (Ag); Perry
 Edgar Arnold Templeton (AA); Burns
 J. Allen Terrell (Ag); Syracuse
 Zabel Herman Tessorf (CE); Onaga
 Emily Sheppard Thackrey (IJ);
 Manhattan
 Eugene Ware Theiss (VM); Hutchinson

JUNIORS—Concluded.

- Dale Thompson (GS); Ness City
 *Jay Humphrey Thomson (CE-1; RC-2); Emporia
 Clyde Francis Thudin (EE); Mulvane
 Howard Phil Thudin (EE); Mulvane
 Opal Florence Thurow (IJ); Macksville
 Charles Cheuvront Todd (AA); Auburn
 Frederick Walter Toomey (EE); Neodesha
 John Gordon Towner (CE); Dwight
 William Lowell Treaster (IJ); Beloit
 Roy Henderson Trompeter (Ag); Horton
 Lorna Opha Tyner (HE); Overbrook
 Clarence Correll Uhl (CE); Manhattan
 Lorene Renota Uhlrig (GS); Belvue
 George Ruben Vanderpool (CE); Meade
 Harry Lee Vanderwilt (AE); Solomon
 Martha Jeanette Verser (GS); Okmulgee, Okla.
 Chris Viergever (GS); Willard
 Frances Marian Wagar (PE); Florence
 Dorothy Wagner (HE); Topeka
 Omar Leon Wagner (ChE); Ellinwood
 Ruel Scott Walker (ArE); Galena
 William Walker (RC); Goodland
 *Forrest Vincent Waller (GS); Faucett, Mo.
 Everett Robert Wallerstedt (ArE); Manhattan
- *Henry Brawn Walter (LG); Wichita
 Chester Joseph Ward (Ag); Osawatomie
 Ellen Louise Watson (HE); Manhattan
 John Clarke Watson (IJ); Frankfort
 Vernon Reed Weathers (CE); Great Bend
 Glenn E. Webster (EE); Salina
 Maurice F. Weckel (EE); Garnett
 Oliver Dunlap Welch (RC); Oswego
 Robert Emmit Welsh (ArE); Manhattan
 Frances Luvern Wentz (HE); Ames
 Louis George Wienche (ChE); Sabetha
 Earl LaVerne Wier (Ag); Blue Mound
 Jess Willard Wilhite (EE); La Harpe
 Leslie Earl Wilkie (Ar); Belleville
 *Kathryn Louise Wilson (PSB&O); Liberty, Mo.
 Leone Wilson (PE); Wichita
 Mary Helene Wilson (HE); Council Grove
 Adrian Edward Winkler (Ag); Paxico
 Lula Josephine Winter (HE); Ashland
 *Ruth Wolfe (PSM); Admire
 *Beatrice Woodworth (HE); Corning
 James J. Yeager (Ag); Bazaar
 Delbert Lester Yeakley (RC); Hoisington
 Homer Yoder (PSB&O); Manhattan
 Flor B. Zapata (GS&VM); Lawrence

SOPHOMORES

- Fulton G. Ackerman (AA); Lincoln
 Alice Virginia Adams (HE); Leavenworth
 Clarence Edward Ainsworth (CE); Elmo
 Russell Francis Alexander (ME); Mayfield
 *Henrietta Allen (GS); Glen Elder
 *Ruth Allen (IJ); Parsons
 *Sarah Lois Allen (IJ); Garden City
 Loren Norton Allison (EE); Falls City, Neb.
 Samuel Edward Alsop (Ag); Wakefield
 James Westerfield Amis (RC); Manhattan
 *John Edmond Anderson (IC); Belvue
 *Lydia Elizabeth Andres (GS); Alta Vista
 Theodore Alois Appl (EE); Bison
 Mahala Arganbright (HE); Wamego
 Roy Herbert Armstrong (GS); Leocompton
 Naomi Ione Atkins (PSM); Manhattan
 *Donald Keith Ayers (RC); Manhattan
 Kimball Lincoln Backus (Ag); Olathe
 *Olive Baker (GS); W. Helena, Ark.
 Willard Edmond Balderson (CE); Wamego
 *Margaret Ruth Bales (GS); Great Bend
 Lucille Marguerite Bangs (HE); Madison
 Dwight Hale Banks (EE); Wamego
 William Stevens Barackman (CE); Howard
 Ben William Barber (Ar); Altton
 Ralph Lyle Barber (CE); Osborne
 Byron Barkley (EE); Little River
 Dorothy Gertrude Barlow (HE); Manhattan
 Alex Barneck, Jr. (EE); Salina
 Lawrence Richard Barnhart (IJ); Independence
 *Ralph David Barnhart (LA-1; LG-2); Manhattan
 Josephine Louise Barry (GS); Manhattan
 *Vernon C. Bates (ArE); Garden City
 Kenneth Clinton Bauman (RC); Salina
 Eugene Elmond Beach (ME); Chanute
 *Drussilla Madge Beadle (PSM); Effingham
 Frances Alice Beal (M); Clearwater
 *Ray Hadley Beals (PSB&O); Dodge City
 Raymond William Bebermeyer (AA); Abilene
 Mildred Louise Bell (IJ); Manhattan
 William Henry Berry (CE); Attica
 Minnie Letha Best (PE); Manhattan
 *John Sherman Biggs Jr. (CE); Wichita
- Forrest Dee Blackburn (CE); Anthony
 William Earl Blackburn (EE-1; RC-2); Malta Bend, Mo.
 Howard T. Blanchard (Ar); Wichita
 Benny Wayne Blosser (ME); Caldwell
 Harold Dean Boles (CE); Madison
 Rollin Murphy Boone (Ag); Neal
 Ruth Inez Botsford (IJ); Manhattan
 Beulah Georgia Bowen (HE); Dawn, Mo.
 Louise Bowlus (GS); Russell
 Georgena Bowman (GS); Garnett
 John Shaw Boyer (Ag); El Dorado
 Margaret Irene Boys (HE); Linwood
 Margaret Louise Bragg (HE); Dodge City
 Frank Robert Brandenburg (PE); Riley
 Augustin Younse Breeden (ChE); Manhattan
 *Clarence Eckhart Brehm (Ar); Wichita
 Ione Bressler (HE); Lamar, Colo.
 Quentin Victor Brewer (IJ); Manhattan
 Anna Esther Briggs (GS); Hutchinson
 Gertrude Adeline Brill (HE); Westmoreland
 *Grace Dorothy Brill (HE); Westmoreland
 *Faith Winifred Briscoe (GS); Cambridge
 *Louie Elizabeth Britt (GS); Manchester
 George Shelton Brookover (AA); Eureka
 Chester Lee Brown (EE); Herington
 Crea Gene Brown (GS); Greensburg
 Esther Louise Brown (IJ); Manhattan
 James Clinton Brown (AE); Peru
 Kenneth Clarence Brown (ME); Chanute
 Opal C. Brown (HE); Fort Scott
 *Beryl Edith Brummitt (M); Wellington
 *Aileen Virginia Brunson (IJ); Dellvale
 Maurine Marguerite Bryan (ApA); Delia
 Edwin George Brychta (GS); Blue Rapids
 Paul Andrew Buchenan (AA); Abilene
 Alpheus Darrel Buckmaster (PE); Manhattan
 Clark W. Burch (GS); Manhattan
 Lowell Jacob Burghart (ME); Chanute
 Merl Leroy Burgin (EE); Coats
 John Wesley Burke (ArE); Glasco
 Harry Dale Burkholder (CE); Zeandale
 *Neva LeVerne Burt (HE); Greensburg
 Gerald Edwin Cain (EE); Pomona
 Paul Byron Cain (GS); Belle Plaine

SOPHOMORES—Continued.

- Floyd William Caldwell (EE); Parsons
 *David Valentine Campbell (ArE); McPherson
 Leslie Allan Campbell (CE); Salina
 *Erma Belle Canning (HE); Bedford, Mo.
 Thadene Carey (HE&N); Valley Center
 Delbert Gordon Carmichael (Ar); Manhattan
 *Mineta Jean Carney (PSM); Abilene
 *Myrtle Opal Casey (HE); Burlington
 Marvin Oliver Castle (AA); Mayetta
 James Willard Caughron (RC); Manhattan
 Wanda Dolores Cessna (HE); Wichita
 Dean Cyrus Chaffee (GS); Talmage
 Marguerite Virginia Chaffin (HE); Caldwell
 William Richard Chalmers (CE); Burlingame
 *Annice Emma Chase (GS); Junction City
 Arnold Ervin Chase (AA); Manhattan
 Merle Vernon Chase (IC); Manhattan
 John Bertram Cheshire (VM); Hopkins, Mo.
 Edwin Roy Chesney (EE); Wichita
 Mary Kathryn Chronister (PE); Topeka
 Raymond William Cilek (IC); Jennings
 Elmer Field Clark (AE); Jewell
 *Floyd Harvey Clark (EE); Florence
 Olive Josephine Clark (HE); Leavenworth
 *Ruby Joy Clark (VM); Richmond, Mo.
 Vernie Irene Clausen (HE); Alton
 Ruth Clency (GS); Manhattan
 Harry Pliny Coberly (AE); Hutchinson
 William Welch Coffman (AA); Overbrook
 Clarence Ralph Collins (GS); Wellsville
 Eugene Frederick Collins (CE); Wellsville
 Vance William Collins (CE); Junction City
 Ward Eldon Colwell (IJ); Onaga
 Gilbert Underwood Combs (EE); Manhattan
 Lloyd Harold Compton (EE); Larned
 Frank Robert Condell (ME); El Dorado
 Carl Clarence Conger (Ag); Iola
 Quinton Dieter Conklin (CE); Abilene
 Marguerite Josephine Conroy (PSM); Manhattan
 Mary Naomi Cook (IJ); Linn
 Ernest S. Cooke (Ar); Emporia
 Oliver Hazard Perry Cook (IC); Cawker City
 *Morris Jackson Coolbaugh (ME); Natoma
 Hazle Esther Cooley (HE); Alton
 Lloyd Marion Copenhafer (AE); Manhattan
 Kenneth Deorace Cornell (EE); Kansas City
 E. Kenneth Corporon (ME); Wichita
 John Trumbull Correll (IC); Manhattan
 James Delos Corrigan (RC); Holyrood
 Bernice Louise Cousins (GS); Manhattan
 Byron Irvin Cousins (ME); Manhattan
 *Frances Marion Covey (GS); Miltonvale
 Marion Asa Cowles (EE); Sharon Springs
 Joyce Adele Cox (HE&N); Moran
 Walter Ellis Crabb (Ar); Lebanon
 Cecil Clyde Crane (CE); Severy
 Jay James Cress (EE); Manhattan
 Grace Marie Crick (HE&N); Ashton
 Hilah Eileen Crocker (IJ); Manhattan
 Ralph Howard Crouch (EE); Herington
 Robert Marshall Crouse (RC); Marysville
 Clarence Benedict Cunningham (Ag); Manhattan
 Eli Egbert Daman (RC); Manhattan
 Margaret Hodges Darden (GS); Manhattan
 *Lillian Boyer Daugherty (PSM); Manhattan
 George Jackson Davidson (Ar); Manhattan
 John L. Davis (CE); Osage City
 Thomas John Dawe (AA); Abilene
 Leland Arthur Dellinger (AA); Louisburg
 Edgar Denny (RC); McLouth
 Grace Elizabeth Denton (GS); Jewell
 Dorothy Loreen Dexter (PSM); Manhattan
 Richard Kimball Dickens (IJ); Manhattan
 Florence Matilda Dichl (HE); Chapman
 Paul Lawrence Dittmore (ME); Manhattan
 Helen Laura Dodge (PE); Manhattan
 Mary Lou Doolittle (RC); Kansas City, Mo.
 Agatha Marie Dougan (GS); Council Grove
 Adin Montgomery Downer (RC); Syracuse
 Emily Eleanor Downing (IJ); Oklahoma City, Okla.
 Lynn E. Drake (RC); Natoma
 Miriam Genie Eads (HE); Cullison
 Dean Martin Earl (CE); Nickerson
 Lester Alfred Eastwood (Ag); Summerfield
 Nina Edelblute (GS); Keats
 Howard Carl Edinborough (LG); Tescott
 Frank Edward Edlin (IC); Herington
 Clifford Joseph Edwards (ArE); Hoxie
 Frank Guess Edwards (FME); Manhattan
 Marguerite Edwards (HE); Athol
 *Buford D. Egbert (EE); Ingalls
 Chester Ehrlich (IJ); Marion
 Waldo Floyd Eichelberger (Ar); Almena
 Marvin Neel Elder (ME); Manhattan
 Carl Emmert Elling (Ag); Lawton, Okla.
 Joseph Emmor Elliott (EE); Hartford
 *Beulah Ellis (GS); Coldwater
 *James Clinton Ellsworth (Ag); Cherryvale
 Howard Andrew Elwell (EE); Hutchinson
 *Ruth Mary Emrich (HE); Lyrnonza, Ark.
 Clarice Virginia Erickson (GS); Cottonwood Falls
 Katrina Eskeldson (HE); Ramona
 James Howard Evans (RC); Barnard
 Mary Lorraine Evans (HE); Russell
 Sidney L. Falin (IJ); Cleburne
 Pauline Carrie Farley (RC); Hardtner
 Emma Lucile Farris (HE); Winchester
 Everett Ellsworth Fauchier (RC); Osage City
 David M. Feese (Ag); Wichita
 Joseph Charles Fickel (ME); Chanute
 Virginia Fielding (HE); Manhattan
 Fred Maxwell Finch (Ag); Eureka
 Edna Elizabeth Findley (M); Manhattan
 Anabelle Finney (HE&N); Beloit
 Ladek Charles Fiser (PE); Mahaska
 Clella Lula Fisher (HE); Fellsburg
 William McAvoy Fitzgerald (ME); Goodland
 Ronald Walter Fleck (EE); Beloit
 George Fletcher (Ag); Pawnee City, Neb.
 Marion Theodore Flick (IJ); Goodland
 Mark Hays Flick (ME); Manhattan
 Elsie Louise Flinger (IJ); Manhattan
 John Sebastian Florell (ArE); Manhattan
 Virginia Forrester (IJ); Manhattan
 Wallace Albin Forsberg (PE); Lindsborg
 *Curtis Foss (EE); Manhattan
 Roy Leslie Fox (GS); Perth
 Alva Leo Frashier (EE); Kings Mill, Tex.
 Mary Rebecca French (IJ); Manhattan
 Edith Martha Fritz (HE); Manhattan
 Lloyd Everett Fritzinger (EE); Manhattan
 Frank B. Fry (AA); Eureka
 Howard Leroy Fry (AA); Hope
 Raymond Glenn Frye (AA); Freeport
 Vernon Eugene Frye (AA); Quenemo

* Matriculated 1928-'29.

SOPHOMORES—Continued.

- Katherine Idell Fullinwider (HE); El Dorado
- *Charles Elmore Funk (EE); Iola
Fred John Gabler (EE); Coffeyville
Joe Boswelle Caringer (ME); Harveyville
Ruth Starkweather Garrison (HE); Chanute
Barbara Louise Gasser (HE); Wamego
Helen Iola Gates (HE); Iola
Marion Jennings Gaumer (ArE); Oberlin
Bartlett Geer (AE); Auburn
Edna Delora Gehring (RC); Bartlesville, Okla.
Herschel R. Geiman (EE); Larned
Lee Gemmell (EE); Manhattan
- *Miles Wiley George (LA); Wichita
Ralph Friedly Germann (Ag); Fairview
Walter Geurkink (VM); Manhattan
Virginia Louise Gibson (HE); Whitewater
Glenn Gilbert (AA); Olathe
Crawford Owen Gilliam (GS); Mullinville
Eolia Eunice Gilson (HE); Manhattan
- *Theodore Roosevelt Gingrich (CE); Garden City
Ruth Pauline Gladfelter (HE); Whitewater
Charles Eugene Glasco (EE); Emporia
Helen Glunt (HE); Garrison
Letha Goheen (GS); Oak Hill
Trilla Bell Goheen (HE); Manhattan
Beatrice Ruth Gordon (HE&N); De Soto
Esther Isabelle Gould (HE); Manhattan
George Alex Graham (RC); Manhattan
Ruth Elinor Graham (HE); Manhattan
Spencer William Graham (EE); Beattie
- *Bertie Lester Greer (GS); Manhattan
- *Freda Leila Greer (HE); Marion
Howard Henry Gregory (CE); Ellsworth
Mark Cofer Griffin (CE); Merriam
Melvin Arthur Griffith (CE); Osage City
Dorothea Frances Griffiths (HE); Riley
Winston King Grigg (RC); Abilene
- *George Robbins Grimes (EE); Jetmore
Kenneth Duree Grimes (EE); Topeka
Dale Leroy Grover (IJ); Manhattan
Charles Gunn (FME); Great Bend
- *Alberta Maude Gurtler (HE); Topeka
- *Lois Marjorie Haas (PE); Arrington
Arthur Carroll Hadley (Ar); Wichita
Leo Leavitt Hadley (EE); Baldwin
Velma Irene Hahn (PSM); Idana
- *Wilma Helene Hahn (GS); Clay Center
Charles Tomas Hall (Ag); New Albany
Muriel Thelma Hallock (HE); Ada
Cloyce Marvin Hamilton (IJ); Solomon
Neva Opal Hammer (PSM); Hutchinson
John Bonar Hanna (Ag); Clay Center
Katharine Frances Harding (PSM); Manhattan
- *Reba Mildred Harman (HE); Manhattan
- *Aldene Chester Harmon (AA); Haviand
Harold Byron Harper (Ag); Hepler
Harold Francis Harper (CE); Manhattan
Vernon Eugene Harvey (CE); Selma
Lillian Iola Havley (GS); Manhattan
Maxine Hawley (PE); Manhattan
- *Mary Opal Hay (HE); Parker
Vance Samuel Hays (GS); Manhattan
Lowell Doan Hazlett (EE); Manhattan
John James Heimerich (ArE); Clay Center
Ruth Wilhelmina Helstrom (IJ); McPherson
Blanche Ernestine Hemmer (IJ); Medicine Lodge
Harvey Leon Hendrickson (EE); Manhattan
- *May Beth Herndon (HE); Amy
Clarence Dale Hershiser (Ag); Norton
Frances Ada Hester (HE); Medicine Lodge
Inez Mildred Hill (HE); Topeka
- *Ruth Hill (HE); Guthrie, Okla.
Harvey Edward Hoch (AA); Alta Vista
Clarence Athel Hollingsworth (Ag); Perry
Alfred Arnold Holmquist (CE); Logan
Violet Marie Holstine (PE); Columbus
Hazel Honey (GS); Kingman
Otis Horchem (RC); Ransom
Lynn Arthur Horwege (IJ); Belleville
- *Gayle Hosack (EE); Holton
Dewitt Clinton Houck (AA); Americus
Archie Huey (CE); Ogden
Marie Hughes (RC); Salina
Edythe Grace Huitt (PSM); Talmage
James Lawrence Hurley (CE); Aurora
Austin Floyd Huscher (RC); Concordia
LaVerne Elizabeth Huse (GS); Manhattan
Helen Eileen Ingalls (PE); Talmage
Alice Mary Irwin (PSM); Manhattan
William Wesley Irwin (Ag); Manhattan
- *Percy Jennings Isaacson (PE); Walsburg
William Bart Jackson (ME); Holton
Leila Grace James (HE); Kansas City, Mo.
Ruth Evelyn Jenkins (GS); Jewell
Mary Jeanette Jobling (PSM); Caldwell
Geneva Augusta Johannes (HE); Willis
Earl H. Johnson (AA); Norton
Genevieve Alberteen Johnson (RC); Burlingame
- *Herbert Galloway Johnson (GS); Hays
Elmer David Johnston (VM); Pomona
Geraldine Joan Johnston (PE); Manhattan
Wallace McLean Johnston (ME); Manhattan
Glenn Vivian Joines (CE); Manhattan
Dale Vincent Jones (GS); Junction City
Elmo E. Jones (EE); Barry, Ill.
- *Hugh Jones (Ar); Horton
Louise Emma Jones (GS); Manhattan
Mildred Irwin Jones (RC); Clay Center
- *Taylor Jones (Ag); Garden City
William J. Justice (ME); Olathe
Elbert Elwin Karns (AE); Bucklin
Robert Warren Kellogg (ChE); Manhattan
LeRoy Francis Kepy (CE); Chanute
Wayne Otha Kester (VM); Cottonwood Falls
Clifford Wayne Kewley (AE); Stockton
Walter Elwood Keyser (EE); Maplehill
Lawrence Wilford Kilbourne (EE); Manhattan
Pattie Margaret Kimball (GS); Manhattan
Paul A. Kindsvater (AE); Hoisington
George Wilson King (ME); Burdett
- *Venice Marie King (GS); Olsburg
Howard LeVassear Kipfer (Ar); Manhattan
Herbert H. Kirby (EE); Toronto
- *Louis Dunham Kleiss (ChE); Coffeyville
- *Millard Paul Knock (IJ) Independence
Fritz Gustave Knorr (PE); Manhattan
Charles William Koester (RC); Marysville
Norma Evelyn Koons (HE); Sharon Springs
Elsa Dorothy Krause (HE); Manhattan
May Christine Krause (HE); Manhattan
- *Menno Philip Krehbiel (EE); Moundridge
Gulven Monroe Kreutziger (EE); Neosho Falls
- *Glen Alden Krider (Ar); Newton
Lawrence Gilbert Kurtz (GS); Alton
Alonzo Lambertson (Ag); Fairview
Imogene Lampe (PE); Manhattan
Jack Junior Lampe (IJ); Cottonwood Falls
Charles Herbert Lantz Jr. (GS); Manhattan
- *J. Gwynn Lassey (CE); Miltonvale
Edna May Lawhead (GS); LaCygne
Donald Sayre Lawrence (IJ); Hiawatha
Lesta Lolita Lawrence (M); Abilene

SOPHOMORES—Continued.

- William Kenneth Lawrence (RC);
El Dorado
Daniel Noel League (EE); Wetmore
Frances Marlaie Leaman (HE); Manhattan
Olin Zebediah Leasure (ME); Boicourt
Edwin E. Lee (IC); Michigan Valley
Eugenia Leighton (HE); West Helena, Ark.
Murray Leshner (Ar); Manhattan
*Miles Corrington Leverett (ChE);
Bartlesville, Okla.
John Eugene Ley (EE); Sharon Springs.
Josephine Nellie Lighter (GS); Dodge City
Norman Merle Lindbloom (Ag); Cleburne
Clarence A. Lindenmeyer (CE); Russell
Alice Charlotte Linn (HE); Clyde
Gene Clifford Livingston (ME); Hutchinson
Esther Emma Lobenstein (HE);
Edwardsville
*Edward Wallace Lohman (IJ); Clay Center
*Helen May Loofbourrow (GS); Manhattan
Edith Marian Loomis (PSM); Osborne
*Charles Thomas Lorenz (RC); Salina
Forrest Coniver Love (VM); Manhattan
Harold Frederick Luffel (RC); Ft. Scott
Elmer Edwin Ludwig (IJ); Green
Lucile Alice Lund (HE); Manhattan
Andrew Lafayette McBride (VM);
Manhattan
Clara Deane McBride (HE); Boyle
Arla Amelia McBurney (GS); Manhattan
John Everett McBurney (RC); Manhattan
Wallace Herman McCauley (AA); Robinson
*Agnes Helen McClaren (PSM); Galena
*Alice Louise McClelland (PE); Topeka
*Harriet Elizabeth McConnell (HE);
Cherryvale
Mayme V. J. McCrann (GS); Manhattan
*Mary Alice McCreight (HE); Soldier
*Mary Elizabeth McCroskey (HE); Menlo
Eugene Porter McCulley (EE); Beloit
Marshall S. McCulloh (AA); Shawnee
*Pauline Ruth McCumber (HE);
Minneapolis
Eldwyn Carl McCune (RC); Stafford
Orpha Olive McDaniels (HE); Scottsville
Sylvia Geneva McDaniels (HE); Scottsville
Hiram Temple McGehee (IC); Manhattan
*Wilbur McGonigle (LA-1; RC-2);
Nickerson
Cedric Earle McIlvain (GS); Smith Center
Arthur Sidney McIntire (ME); Burlingame
Gladys Vera McKown (HE); Manhattan
*Conway McLeavy (RC); Dwight
*Ray John McMillin (PE); Manhattan
Leona Irene Maas (PSM); Alma
Freda Marine Mack (HE); Clay Center
Dorothy La Vern Magee (GS); Goddard
Helen Lorine Magee (PE); Goddard
Georgia Ann Maixner (HE); Wilson
Carl Jacob Majerus (VM); Falls City, Neb.
Murt Francis Makins (Ar); Abilene
Beulah Marie Manning (GS); White City
*Helen Meryl Martin (HE); Admire
Howard Eugene Martin (Ar); Eskridge
Richard Patrick Mason (GS); Cawker City
*Sara Virginia Maupin (M); Iola
Martin Nicholas Mayrath (GS);
Dodge City
*Margaret Meade (HE); Hays
William Henry Meissinger (Ag); Abilene
Alvin D. Meyer (EE); Haven
Alfred Maxwell Meyers (CE); Merriam
Edith Elaine Miller (PE); Salina
Kenneth William Miller (AE); Maplehill
Loyal J. Miller (AA); Manhattan
Marion Francis Miller (ME); Norton
Ruth Christine Miller (RC); Palco
Ruth Marie Miller (HE); Minneapolis
Walter Ford Mitchell (ChE-1; RC-2);
Manhattan
Olney Merle Mohny (AE); Sawyer
*Lloyd Fredrick Moline (RC); Randolph
Cloris Rex Molineux (EE); Goff
*Vivian Monson (RC); Lindsborg
Frederick Thomas Moore (ArE); Manhattan
*Olive Elfa Morgan (GS); Hugoton
Marjorie Eleanor Moulton (HE); St. George
Clarence Henry Moyer (AE); Hiawatha
Earl Barry Moyer (Ag); Manhattan
*William Duwane Mulnix (GS); Scott City
Michael Charles Murphy (RC); Manhattan
*Ralph Howard Murphy (CE); Hutchinson
Clyde Allen Murrell (AA); Hopewell
Ansel Joseph Myers (CE); Lyons
*Will Martin Myers (Ag); Bancroft
John William Myser (Ar); Americus
Lynn Brooke Nash (LG); Grantville
*Wilbur S. Nay (GS); Wichita
Charles Wilbur Naylor (EE); Burr Oak
Margaret Lucile Nelson (GS); Waterville
Ruby Eva Nelson (PE); Jamestown
Clyde Newman (EE); Holton
Leonor Nichols (HE); Manhattan
*William Granville Nicholson (Ag); Neal
*Lloyd Donald Nickell (ChE); Kingman
James Andrew Nielson (EE); Spearville
Alex Nigro (RC); Manhattan
*Gladys Lois Niles (HE); Dighton
Leon Fred Nixon (EE); Manhattan
Lawrence Bertram Noble (ME); Stockton
Orville Arthur Noell (EE); Hartford
Dorman Andrew Nordeen (RC); Dwight
Dale Leora Norris (GS); Raymond
Daniel Vernon Norris (GS); Randolph
Dorothy Elaine Norris (RC); Raymond
George David Oberle (Ag); Carbondale
Dorothy Lydia Obrecht (HE); Topeka
Gretchen Ellen O'Conner (HE); St John
Geraldine O'Daniel (PSM); Westmoreland
Margaret Lucile Oldweiler (GS); Mayetta
Laurene Elizabeth Orton (GS); Alta Vista
Ida Elizabeth Osborn (GS); Clifton
Marvin George Ott (EE); Madison
Louise Owens (RC); Chapman
Carol Lee Owsley (GS); Manhattan
Margaret Viola Paden (GS); Topeka
Robert Joseph Pafford (EE); Salina
Edith Alice Painter (HE); Meade
Clemont C. Parrish (CE); Radium
Luella Gertrude Parrott (HE); Manhattan
Leah Duree Parsons (PE); Cassoday
Raymond Patterson (GS); Morrowville
Nina Dorothea Paulsen (HE); Onaga
Paul E. Pearson (RC); Concordia
Laurence Adolph Peck (AA); Soldier
Mary Aleta Peck (PSM); Council Grove
*Virginia Lorena Pepper (GS); Eureka
Helen Jane Pembleton (GS); Ness City
Alice Elizabeth Peppiatt (HE); Ellsworth
*James Albert Percival (ChE); Newton
Warren Canfield Perham (RC); Iola
Lewis S. Perkins (Ag); Argonia
*Walden Richard Peterson (GS); Topeka
Elmer Petsch (ME); Waterville
Thomas Marshall Petty (IJ); Manhattan
*Marion Edgar Phillips (CE); Scott City
Edna Irene Pieplow (HE); Hutchinson
Harold Henry Platt (Ag); Manhattan
Wilford Emerson Platt (PE); Manhattan
Lucena Margaret Plummer (IJ); Newton
*Elsie Irene Popp (PE); Haven
Helen Dorine Porter (HE); Stafford
Opal Mae Porter (HE); Stafford

SOPHOMORES—Continued.

- Frances Edna Potter (PSM); Natoma
 Frederick Gerald Powell (EE); Frankfort
 H. Pierce Powers (AA); Junction City
 *Cornelia Jane Prather (M);
 Excelsion Springs, Mo.
 Frank B. Prentup (PE); Ft. Riley
 Nellie Lucile Pretz (HE); Irving
 Clayton John Price (VM); Osage City
 Delmas Eugene Price (RC); Wakefield
 Willet Jesse Price (VM); Liberty
 George Morris Purcell (CE); Manhattan
 Mildred Emily Purcell (PE); Manhattan
 Frank Bruce Rabb (CE); Turner
 Dorothy Raburn (GS); Manhattan
 *Emerald Glenn Rader (CE); Severy
 Elsie Emma Rand (HE); Wamego
 Helen Marie Randall (PSM); Ashland
 Effie Grace Rasher (PE); Solomon
 Pauline Ellen Rebman (HE); La Harpe
 Willard Virgil Redding (Ag); Coffeyville
 Helen Lenore Reder (HE); Blue Rapids
 Anna Reed (GS); Kanopolis
 Rillia N. Reed (HE); Manhattan
 Robert Bryden Reed (RC); Eureka
 Thelma Reed (HE&N); Kanopolis
 Earl Milton Regier (ChE); Moundridge
 James Kessi Reid (EE); Manhattan
 Claude Marion Rhoades (ArE); Newton
 Robert Russell Rhodes (RC); Council Grove
 Harold Duane Richardson (GS);
 Long Island
 Herbert Cecil Riepe (CE); Dighton
 Clark A. Rife (CE); Anthony
 Clarence Adam Rinard (Ar); Salina
 T. Edward Rochford (RC); Osborne
 Esther Joanne Rockey (IJ); Manhattan
 Steven Samuel Roehman (GS); White City
 Mabel Elsa Roepke (HE); Manhattan
 Fred M. Root (Ar); Medicine Lodge
 Frank Augustus Rose (EE); Luray
 *George Wesley Rose (CE); Fort Scott
 Everette Lawrence Ross (EE); Ashland
 Louise Mable Ross (GS); Goodland
 Minnie May Ross (HE); Goodland
 Vernal Charles Rowe (RC); Dighton
 Lloyd Finley Roy (CE); Wilsey
 Donald Bernard Rubert (GS); Hiawatha
 Gayl Adaline Russell (GS); Manhattan
 Mabel Verbina Ruthi (HE); Bloomington
 Robert Jacob Rychel (EE); Downs
 Henry Benton Ryon (PE); Chillicothe, Tex.
 Russell Scott Sage (EE); Maplehill
 Pauline Willa Samuel (PE); Manhattan
 Mart Benjamin Sanders (EE); Marion
 Ray Chief Sanders (PE); Larned
 Mary Lois Saxton (HE); Manhattan
 Matilda Amelia Saxton (PSM);
 Manhattan
 Venita Grace Schade (PSM); Manhattan
 Alva Marion Schlehuber (AA); Durham
 Mildred Erma Ruth Schlickan (HE); Haven
 *Katherine Schlingloff (GS); Marion
 Gladys Schmedemann (PSM); Manhattan
 Dallas Glenn Schmidt (EE); Lorraine
 Robert Allen Schober (Ar); Manhattan
 Marguerita Elsie Schrader (GS); Bavaria
 *Elmer Philip Schrog (AA); Moundridge
 Ebur Samuel Schultz (Ag); Miller
 *Virginia Marie Schwager (HE); Adrian
 *Foster James Scott (IJ); Manhattan
 Emily Alberta Seaburg (PSM); Manhattan
 William Elden Seagraves (ME);
 Albuquerque, N. M.
 Fred Andrew Seaton (IJ); Manhattan
 Mildred Elaine Sederlin (GS); Scandia
 Roy Nelson Selby (AE); Manhattan
 Gertrude Louise Seyb (HE); Pretty Prairie
 Vernon Vincent Shaffer (RC); Salina
 Stuart Avery Shaver (EE); Calhan, Colo.
 Leslie Murice Shaw (ME); Bloomington
 Kenneth Leroy Shay (CE); Miltonvale
 Estella Bernice Shenkle (GS); Geneseo
 Joe Henry Shepek (EE); Wayne
 Leota Isabella Shields (HE); Ramona
 George Raymond Shier (AE); Gypsum
 *Herold Henry Shomber (EE); Ottawa
 Leland Leroy Shoop (EE); Garden City
 Leo Charles Short (ME); Norton
 *Juanita Lee Shuck (HE); Kansas City, Mo.
 Curtis Daniel Sides (EE); Lamar, Mo.
 Kermit James Silverwood (IJ); Ellsworth
 Loula Marie Simmons (HE); Manhattan
 Ray R. Simmons (GS); Mullinville
 *Dorothy Elizabeth Simpson (HE);
 Colorado Springs, Colo.
 Esther A. Sinclair (HE); Lakin
 Elvon Gilbert Skeen (PE); Eskridge
 Mina Mae Skillin (PE); Frankfort
 Helen Louise Sloan (IJ); Hutchinson
 Roy John Sluyter (EE); Jewell
 Elbert Wendell Smith (CE); Russell
 Gerald Francis Smith (RC); Manhattan
 *Gerald George Smith (EE); Topeka
 Melvin E. Smith (EE); Concordia
 Norman Courtland Smith (GS); Manhattan
 Dale Smith Snider (RC); Abilene
 *Paul Francis Snyder (EE); Elkhart
 Pearl Fay Snyder (GS); Osborne
 Maynard Harold Solt (IC); Manhattan
 Don Harvey Spangler (VM); Stanton, Neb.
 Bessie Loretta Sparks (HE); Kingman
 Raymond Guy Spence (RC);
 Fairbury, Neb.
 Lee Otis Stafford (ArE); Republic
 *Richard Kenneth Stahl (RC); Kansas City
 Clifford A. Standley (EE); Lucas
 Z. Roy Stanley (EE); Manhattan
 Lewis Alvin Stapp (EE); Norton
 Orlin Gerson Stearns (ME); Wichita
 *Lillian Caroline Steinmeyer (HE); Alma
 *Harlan Bennett Stephenson (Ag); Iola
 Eva Almeda Stewart (IJ); Manhattan
 Leonard Stewart (Ag); Vermillion
 Esra Ervin Stockebrand (AA);
 Yates Center
 Leah Angeline Stout (HE); Peabody
 Ruby Roberta Stover (GS); Kansas City
 James Holland Strowig (RC);
 Paxico (deceased)
 Richard William Stumbo (Ag); Bayard
 Harold Leroy Sturdevant (ME); Chanute
 Dale Suplee (VM); Council Grove
 Santos Dumont Swancy (EE); Kansas City
 Price Kenneth Swartz (AA); Everest
 Cleon Orel Tackwell (PE); Manhattan
 Harry Joseph Tannehill (Ag); Boughton
 Philip Jesse Tatman (CE); Lucas
 Bruce Ross Taylor (Ag); Alma
 James William Taylor (RC); Manhattan
 Katherine Edna Taylor (HE); Chapman
 Lot Forman Taylor (AA); Ashland
 Marvin Howard Taylor (EE); Downs
 *Elsie May Tempero (HE); Clay Center
 Floyd Leonard Tempero (ChE); Broughton
 Howard Everett Tempero (GS); Broughton
 Everett Carl Temple (RC); Marysville
 *Mary Cleo Teter (HE); El Dorado
 Howard Irwin Thaller (PE); Manhattan
 Elmer Howard Thom (EE); Oakley
 Alfred Dale Thomas (IJ); Ellsworth
 Bina K. Thomen (ChE); Junction City
 Rollo Otho Thompson (CE); Wichita
 Margaret Lucille Titus (HE);
 Council Grove
 Esther Razella Toburen (H7); Cleburne

SOPHOMORES—Concluded.

- Glenn Edwin Toburen (M); Cleburne
 Wayne Tolley (EE); Delphos
 William Gilbert Towler (PE); Topeka
 John Holland Townsden (GS); Jamestown
 *Nellie Florine Trechsel (HE-1; GS-2);
 Idana
 Ruth Anna Tredway (GS); La Harpe
 John Harry Tregellas (EE); Pratt
 Harold Everett Trekel (EE); Belle Plaine
 Alice Tribble (GS); Circleville
 Elliott Rodney Trull (VM); Padonia
 Lester Emil Trummel (GS); Wilmore
 Robert Weldon Trummel (GS); Wilmore
 *Charles Allen Tucker (RC); Ottawa
 Roland F. Turner (EE); Manhattan
 Selma Elin Turner (GS); Manhattan
 Mildred Fern Ungeheuer (HE); Centerville
 Luella Cane Vanderpool (HE); Meade
 Helen Louise Van Pelt (PE); Beloit
 Olive Elsie Van Pelt (PSM); Beloit
 John Lee Vaupel (GS); Manhattan
 Victor Venard (CE); Manhattan
 Richard George Vogel (RC); Stuttgart
 *Ralph Francis Vohs (PE); Osawatimie
 *Lloyd Loomis Vrooman (ArE);
 Independence
 *Ralph Richard Wagner (ArE); Emporia
 Henry Castle Walbridge (AA); Russell
 Juanita Kathryn Walker (GS); Valley Falls
 Otis Harold Walker (CE); Junction City
 Scott Wells Walker (ChE); Galena
 Vera Isabelle Walker (IJ); Wakeeney
 Vesta Estelle Walker (IJ); Wakeeney
 *Muriel Rummell Waller (GS); Manhattan
 Andrew Bernard Walsh (EE); Osage City
 Margaret Lois Walters (HE); Riley
 Florence Mae Wanklyn (HE); Frankfort
 Frances Reed Ward (PSM); Concordia
 John Robert Warner (EE); Whiting
 *Rodney Otto Warner (EE); Larned
 Frederick Henry Warnken (CE-1; GS-2);
 Hutchinson
 Mary Virginia Washington (HE);
 Manhattan
 George Wilbert Wasson (EE); Peru
 Thelma Charlaime Weathers (HE);
 Great Bend
 *Aline Wegert (GS); Rice
 Kenneth Albert Wehl (AE); Scottsville
 Frederick Charles Weingarh (IC);
 Leavenworth
 F. Henry Weirick (CE); Olathe
 *Lorine Charlotte Wenger (IJ); Sabetha
 Verne Elbridge Wesley (CE); Eureka
 Estella Laberta Westerman (HE);
 Manhattan
 Paul Charles Westerman (IJ); Waterville
 Blanche Victorene Wetzig (GS);
 Junction City
 Bernice Elizabeth Weygandt (HE); Keats
 Harry Clinton White (ME); Kansas City
 Kenneth P. White (GS); Kingsdown
 Fay Allen Whiteside (Ar); Neodesha
 Herbert Justice Whitney (ME); Utica
 Wayne Clark Whitney (Ag); St. George
 Max Wible (ArE); Corbin
 Ruth Allyce Widstrand (GS); Topeka
 Ada Caroline Wiese (GS); Manhattan
 Gertrude H. Wilber (PE); Belleville
 Jesse Isiah Wilcoxon Jr. (EE); Ford
 Carl Williams (AA); Dodge City
 Mary Elizabeth Willis (IJ); Collingswood,
 N. J.
 Anna Marion Wilson (HE); Manhattan
 Edward William Wilson (VM); Manhattan
 *Frances Surrell Wilson (PE); Chanute
 Gordon Wilson (ArE); Salina
 Jerome W. Wilson (GS); Ashland
 *John Lincoln Wilson (Ag); Geneva
 Martha Alice Wilson (RC); Manhattan
 William Edward Wilson (Ag); Lincoln
 Herbert L. Winston (EE); Stilwell
 Floyd Gerald Winters (AE); Oswego
 George Eugene Wise (EE); Wichita
 *Chester Aaron Wismer (AA); Pomona
 Richard Henry Wood (EE);
 Cottonwood Falls
 Donald Neil Woolley (IJ); Osborne
 Ruth Frances Worcester (PSM);
 Manhattan
 Clair M. Worthy (CE); Wetmore
 Leona Mildred Wright (HE); Stockton
 Zint Elwin Wyant (CE); Topeka
 F. Mabel Wyatt (Ar); Kansas City
 Clifford Richard Yardley (EE); Hutchinson
 Elmo Erville Young (ArE); Hutchinson
 George William Young (Ar); Paola
 Russell P. Young (GS); Kansas City
 Lawrence Walter Younkin (GS); Wakefield
 Grace Irene Zeller (HE); Manhattan

FRESHMEN

- Roseanne Abbey (RC); Galena
 *Erwin Abmeyer (Ag); Grantville
 *Joseph Shirley Adams (Ag); Oak Mills
 Donald Adair Adell (CE); Manhattan
 *Max Bruce Ainsworth (Ag); St. John
 *Lee Harold Albin (Ag); Norcatur
 *Vivian Forestine Albright (HE); Netawaka
 *Merle Walter Allen (GS); Manhattan
 *Nina Hazel Allen (HE); Junction City
 *Paul Guy Allmon (Ag); Kingsdown
 *Clare Kenneth Alspach (RC); Wilsey
 *Ezra Wilson Amos (EE); Manhattan
 *Robert Amsbaugh (PE); Abilene
 *Babel Caroline Amthauer (HE); Dwight
 *Floyd Wilson Anderson (EE); Waterville
 *Oscar Orlando Anderson (CE); Belvue
 *Joye Ansdell (HE); Jamestown
 *Lester Emil Applegate (Ag); Norcatur
 *Homer Alfred Asher (Ag); St. John
 *John Darwin Astle (CE); Haven
 *Omo Arthur Attwood (GS); Randolph
 *William Henry Auchard (CE); Manhattan
 *Elder LeRoy Auker (PE); Norcatur
 Herbert Willard Avery (VM); Wakefield
 *John William Aycock (Ar); Manhattan
 Guy William Ayers (ME); Pratt
 Mark J. Babb (RC); Lebanon
 Walter Worth Babbitt (Ag); Hiawatha
 George Reynolds Bagley (EE); Manhattan
 Henry Luther Bagley (GS); Manhattan
 *Tina May Bailey (GS); Hutchinson
 James Lester Baird (AA); Wellsville
 Troy Ernest Baker (RC); Cullison
 Belma Alta Bare (HE&N); Protection
 *Leo Walter Barker (VM); Lockwood, Mo.
 *Laura Marguerite Barkley (GS);
 Manhattan
 *John Hampton Barnard (ME); Oil Hill
 *Everett Chelen Barnett (CE); Sylvan Grove
 *Bertha Gesine Barre (HE); Tampa
 *Loraine Metta Barrett (PE); Topeka
 Harvey Clayton Bates (ME); Towanda
 Dorothy Ann Beagel (HE); Alta Vista
 *Leslie Richard Lee Roy Beard (ArE);
 McPherson
 *Glen Leach Beaudette (VM); Wichita

* Matriculated 1928-'29.

FRESHMEN—Continued.

- *LaVerne Dwight Behnke (Ag); Bushton
 John Gregory Bell (Ag); Atchison
 *James Leigh Bell (EE); Norcat
 *Laurence Marion Bell (ME); Selden
 Newton Lee Bennett (CE); Norton
 *Jay Russell Bentley (Ag); Ford
 *Henry Daniel Bentrup (EE); Deerfield
 *John Berglund (IJ); Clay Center
 *Esto Ray Berkey (EE); Hutchinson
 *Dalys Lewis Berry (VM); Wilsey
 *Lynn Nathan Berry (CE); Manhattan
 *Martha Pearl Betz (HE&N); Enterprise
 Winifred Bickel (IJ); Kansas City, Mo.
 *Wayne Gordon Billings (Ag); Jetmore
 *Dean Bishop (ME); Kendall
 *Orna Louise Bishop (IJ); Abilene
 *Elmer Carson Black (PE); Utica
 *Gertrude Elizabeth Blair (RC);
 Junction City
 Gordon Ingram Blair (RC);
 Junction City
 *Robert Kelly Blair (EE); Fort Riley
 *Robert Oberaw Blair (Ag); Coleman, Tex.
 *Major Guy Bliss (CE); Minneapolis
 *Edith Irene Bockenstette (GS); Sabetha
 *Lloyd Edwin Boley (VM); Topeka
 *Dale Bookstore (Ag); St. John
 *George Illingworth Boone (RC);
 Manhattan
 *Wyburn Joseph Boucek (Ag); Ada
 *Charles Elmer Boulware (Ag); Cherokee
 *Josephine Alberta Bouse (HE); Ottawa
 *Robert Louise Bower (CE-1; RC-2);
 Goodland
 *Vera Theresa Bowersox (GS); Great Bend
 *Neil Duane Bowman (GS); Pawnee Rock
 *Emanuel Boxberger (PE); Wakeeney
 *Albert Henry Boyer (EE); Welda
 Forrest Clifford Braden (RC); Eureka
 *Fred Ewing Brady (EE); Topeka
 *Sidney Oral Brady (EE); Manhattan
 *Howard Albert Brand (Ar); McPherson
 *Paul Jacob Brandy (VM); Manhattan
 Irene Lucy Branham (HE); Kansas City
 *Merle Dutton Breeding (VM); Herkimer
 *Justina Veronica Brening (HE); Burns
 *Lawrence Henry Breymeyer (EE); Wamego
 *Norma Lou Brien (IJ); Bern
 *Alice Katherine Brill (GS); Westmoreland
 *Carol Briscoe (HE); Cambridge
 *Mary Esther Brittain (HE); Atchison
 *Lloyd Sears Brock (PSM); Brewster
 *Ruthford E. Brodie (CE); Manhattan
 *Arthur Raymond Brodine (EE); Salina
 *Lester Martin Brott (EE); Glasco
 *Robert Vernon Brown (EE); Manhattan
 *William Guy Brown (PE); Fullerton, Neb.
 *Barbara Brubaker (GS); Manhattan
 *Arthur Otis Brumbaugh (IJ); Manhattan
 *John Arthur Bryan (GS); Leoti
 *Leslie Matthew Bryson (ChE); Abilene
 *Margaret Iola Buck (HE); Derby
 *Gladys Ruth Buikstra (HE); Manhattan
 *Ralph George Bump (CE); Norcat
 *Vance L. Burch (RC); Manhattan
 *Marvin Almanza Burd (GS); Agenda
 *Virgil Arthur Burfield (CE); Lyons
 *Roy Ezra Burleson (ChE); Hico, Tex.
 *Clarence Frank Burner (RC);
 Hennessey, Okla.
 *Bun W. Burnside (Ag); Garden City
 Leon Pennington Burris (RC); Chanute
 *Edith Marian Burt (RC); Manhattan
 *Scott Burton (EE); Burlingame
 *Elizabeth Doris Butrum (HE); Holton
 *Vesta Marion Butts (ME); Norton
 *Vernie Franklin Cain (Ag); Kingman
 *Olyn Danford Calhoon (ME); Manhattan
 *Donald Thomas Campbell (CE); Topeka
 *Velda Pauline Cannon (HE); Cunningham
 *Harold Vanevery Carlson (ME); Utica
 Leonard Arlo Carmichael (LA); Manhattan
 *Twila Marie Carmony (HE); Manhattan
 *Mary Lotta Carney (RC); Manhattan
 *John Clarence Carter (Ag); Bradford
 *Thelma Bernice Carver (PSM); Manhattan
 *Kenneth Walter Casebier (RC); Tonganoxie
 *Wilford Adair Caskey (RC); Ellis
 *Dorothy Virginia Cassidy (IJ); Kansas City
 *Ralph Boyd Cathcart (Ag); Winchester
 E. Ethel Chamberlain (GS); Manhattan
 *Alton Clair Chapman (CE); Manhattan
 *James Percy Chapman (IJ); Manhattan
 *Carl James Chappell (CE); Republic
 *Francis Lee Charlton (GS); Edwardsville
 *Emerson Dwight Chilcott (Ag); Jewell
 *Henry Clay Chiles (Ag); Silver Lake
 *Ida Margaret Chitwood (HE); Meriden
 *Leonard William Christal (Ag);
 Kansas City, Mo.
 *Virgil Howard Clark (VM); Webber
 *Paul C. Claudel (RC); Claudel
 *Hadley Herbert Clemens (IJ); Hiawatha
 *Robert Wiles Clugston (Ag); Cherokee
 *Allen Benford Coates (EE); Greensburg
 *Clifford Cecil Coates (GS); Greensburg
 *Orville Colberg (GS); Lyons
 *Beth Cole (PSM); Norton
 *Lawrence Len Cole (PE); Cedar
 *Maxine Alice Cole (RC); Norton
 *Lester Estell Collier (FME);
 Ardmore, Okla.
 *Ruby Leona Colony (IJ); Manhattan
 *Margaret Louise Colver (PSB&O);
 Manhattan
 *Murray Devine Comer (EE); Muscotah
 *Robin Dale Compton (EE); Manhattan
 *Ned Dennis Conrow (Ag); Manhattan
 *Charlotte Clare Conroy (RC); Manhattan
 *Helen Josephine Cook (HE); Monument
 *Joe Brady Cook (GS); Cawker City
 *Herbert Dewood Cool (RC); Manhattan
 *Stanley Franklin Corbin (Ag); Augusta
 *Lucile Maude Correll (PSM); Manhattan
 *Mary Jo Cortelyou (GS); Manhattan
 *Samuel Prentis Cory (EE); Dodge City
 *Lucile Marie Costello (HE); Carlton
 *Grant Fuller Cottrell (VM); Augusta
 *Ferrol Eugene Cowan (GS); Nickerson
 *Ora Rachel Cowen (HE); Scranton
 *William Henry Cox (PE); Elk City
 *Donald K. Coy (EE); Deerfield
 *Mary Ellen Crabbe (IJ); Manhattan
 William Dodge Craig (Ag); Natoma
 Willis Howard Cramer (Ar); Liberal
 *Dale Everett Crangle (CE); Mankato
 Charles Silvester Crank (Ag); Hill City
 Clarence William Crawley (Ag); Wilburton
 *Lowell Creighton (GS); Manhattan
 *Marian Hazel Crocker (IJ); Manhattan
 *Henry Oliver Cronkite (PE); Belle Plaine
 *Alvin Warren Crook (IJ); Great Bend
 Harry Lee Crooks (RC); Salina
 *Marian Carolyn Cross (IJ); Manhattan
 *Leonard E. Croy (ArE-1; AA-2);
 Norcat
 *Naomi R. Croy (HE); Norcat
 *Irett Lindell Cubbison (EE); Greeley
 *Clyde James Cunningham (CE); Greeley
 *Burdell Curl (EE); Bartlett
 *Blanche Irene Curry (HE); Winchester
 *Ida Mildred Curry (IJ); Winchester
 Elmer LaSalle Cyphers (CE); Harper
 *Faigh Ruth Daigh (ApA); Ashland

FRESHMEN—Continued.

- *Harold Amos Daily (Ag); Waverly
 *Richard B. Dale (Ag); Stafford
 *Sterle Ernest Dale (Ag); Protection
 *Ward Edmond Dale (ME); Topeka
 William Wesley Daniels (RC); Ellsworth
 *Roy Ed Danielson (EE); Manhattan
 *Merritt Clayborne Davidson (PE);
 Wichita
 *Muriel Elizabeth Davies (GS); Manhattan
 Rowland N. Davis (EE); Bala
 *Ethel Grace Davis (HE); Dunlap
 Hilma Ruth Davis (HE); Manhattan
 *Ben Harrison Dean (VM); Manhattan
 *Lona Marjorie Dean (GS); Manhattan
 *Phares Decker (AA); Holton
 *Glenn Maurice Deeter (PE); Norcatur
 *Paul Suddreth Deibler (CE); Manhattan
 *Thomas Edward Deupser (EE); Abbyville
 *Wayne Sherwood Dewey (Ag); Belleville
 *Ruth Ernestine DeWitt (HE);
 Medicine Lodge
 Robert C. Dial (CE); Cleburne
 *Marsden Hall Dice (Ar); Wichita
 *B. A. Dillard (PE); Chillicothe, Tex.
 *Eleanor Ruth Dillehay (HE); Agenda
 *Charles Eugene Dimon (VM); Manhattan
 Charles Ross Disney (RC); Manhattan
 Louis James Dittmore (CE); Manhattan
 *Dale D. Dixon (GS); Norcatur
 Dick Albert Dodge (AA); Manhattan
 *Iris Roberta Dodson (PSM); Silt, Colo.
 *William Lovejoy Dole (Ag); Almena
 *Gerald Michael Donahue (EE); Ogden
 *Carl Elliott Donovan (Ag); Lewis
 *Devere Delos Doty (Ag); Cunningham
 *Dorothea Helen Doty (GS-1; HE-2);
 Cunningham
 *Elmer Douglas (EE); Caldwell
 *Gladys Hope Dowd (IJ); Bayneville
 *Dorothy Dee Downie (PE); Grantville
 Thomas Edward Doyle (PE); Manhattan
 *Lowell Milles Drake (GS); Natoma
 *Truman Ben Drury (EE); Burden
 Robert Watson Dudley (PE); Manhattan
 *Junia Louise Duffin (GS); Kingman
 *Cecile Winfred Dugan (IJ); Randolph
 *Ethel Louise Dunn (HE); Oskaloosa
 *James Phil Dunn (CE); Liberal
 *Kenneth Wayne Dunnington (ME);
 Elmont
 *Helen Gertrude Durham (M); Manhattan
 *Gerald Kenneth Dusenbury (Ag); Anthony
 *Keith Barber Dusenbury (Ag); Anthony
 *Izola Mildred Dutton (ApA); Manhattan
 *Orin Dutton (CE); Jamestown
 *Philip William Dutton (CE); Burlingame
 Max Leon Eaton (ChE); Colby
 *Arthur Harold Eberhart (EE);
 Council Grove
 *Ethel Amelia Eberhart (Ar); Topeka
 *Doii Ann Eckart (ApA); Lincoln
 *Virginia Edelblute (PE); Manhattan
 *Mildred Rae Edlin (HE); Herington
 *Anna Marie Edwards (GS); Athol
 *Richard Laurence Edwards (ME); Meade
 *Elizabeth F. Egelston (RC); Westmoreland
 *Bessie Kathryn Ehrlich (GS); Marion
 *Milton Ehrlich (RC); Marion
 *Esther Willemihna Eikmeier (IJ); Garfield
 *Alvah William Elliott (AE); Minneapolis
 *Loren Wesley Elliott (GS); Bennington
 *Harold Ward Ellis (Ag); Coldwater
 *Glenn Leslie Ellithorpe (AE); Russell
 *Gerald Franklin Ely (EE); Spivey
 Carl Hugh Errington (Ag); Ruleton
 *Grace Elizabeth Eustace (GS); Wakefield
 *Morton Frank Ewing (IJ); Benedict
 *Howard Eugene Fagg (ME); Colony
 *Paul Eugene Fairbank (PE); Topeka
 *Laura Virginia Fairman (IJ); Manhattan
 *Wilma Marie Falen (RC); Oak Hill
 *Verona Anna Fark (GS); Greensburg
 *James Henry Farmer (EE); Pratt
 *Harold Ralph Fatzer (AA); Fellsburg
 *Hubert Lewis Fatzer (AA); Fellsburg
 Forrest Malcolm Faulconer (GS);
 Clay Center
 *Violet Sarah Featherston (ApA); Quenemo
 *Gerald Emerson Feldhausen (EE);
 Frankfort
 G. Jean Ferguson (HE); Manhattan
 *Elsie Marie Fiechter (PSM); Robinson
 *Everett Leroy Fiedler (EE); Enterprise
 *Elmo Viola Wilson (PSM); Scott City
 *Eva Merle Filson (HE); Scott City
 *Alice Louise Fincham (IJ); Pratt
 *Julia Pearl Finney (PSM); Beloit
 *Wayne Wanda Finney (ApA); Beloit
 *William H. Finney (PE); Beloit
 *Lendall Kiple Firth (VM); Cowgill, Mo.
 *Forrest Lynn Fisher (Ag); Fellsburg
 *Laurence Ervin Fisher (Ag); Fellsburg
 *Wyona Myrtle Florence (IJ); Manhattan
 Robert Sheldon Florer (CE); Marion
 *Oliver Elroy Flory (VM); Great Bend
 *Max Frank Fockele (RC); Ottawa
 *Olive June Foltz (GS); Wakarusa
 *James Lawrence Fonconnon (PE); Ashland
 *Kale Max Fones, Jr. (AE); Kansas City,
 Mo.
 *John Herbert Footitt (Ag); Atchison
 *Alberta Lucile Forbes (IJ); Irving
 *John Neil Forbes (AE); Mayfield
 *Tony Dominic Fornelli (CE); Cherokee
 Joseph Fremont Foster (Ag); Topeka
 *Leta Orvillene Foster (HE); Penalsosa
 *Lea Natalia Frank (RC-1; HE-2);
 Manhattan
 *Clarence Edward Frederick (CE);
 King City, Mo.
 *Frank Ryder Freeman (EE-1; Ag-2);
 Kirwin
 *Rachel Margaret Fretz (PE); Junction City
 *Keith Gerald Friel (RC); Manhattan
 *Frank Leslie Fuller (RC); Ellis
 Eugene Louis Gardiner (Ag); Oxford
 *Leonard Elvin Garrison (RC);
 Manchester
 *Evelyn Garton (GS); Dighton
 Hubert Cornelius Gary (GS); Abilene
 *Martin Henry Gates (GS); Topeka
 *Chester Dale George (EE); Manhattan
 *John Lester George (VM); Mulberry
 *Mariam Alpheus George (AA); Prescott
 *Bernard Kenneth Geraghty (EE); Selden
 *Robert Clyde Getty (ChE); Winchester
 *Leah Myrtle Gibbs (IJ); Spearville
 *Ward A. Gibbs (PE); Topeka
 *Clarence Byron Gibson (IC); Douglas
 Harold Stewart Gibson (RC); Lyons
 *Norman John Gibson (GS); Mena Ark.
 *Frank Cecil Gill (EE); Sylvia
 *Walter E. C. Gill (VM); St. Johns,
 Barbados, B. W. I.
 *Dean Gillaspay (PE); La Crosse
 *George Adamson Gillespi (Ag); Welda
 *Robert Frank Glore (ME); Kansas City
 *William Phillip Glunt (GS); Garrison
 *Harold Alvin Goff (Ag); Manhattan
 *Paul Robert Goheen (Ag); Manhattan
 *William Rollie Gohn (ArE); Protection
 *Theodore Roosevelt Gooch (AE); Hugoton
 *Pauline Marie Goudreau (IJ); Norton
 *Grace Gould (GS); Beloit

FRESHMEN—Continued.

- *Bertha Marie Graham (HE); Manhattan
 *Earl Edward Gray (RC); Manhattan
 *Gerald Goodale Green (RC); Norton
 *Veila Virginia Green (IJ); Jamestown
 *Marion Mildred Green (ApA); Lincoln
 *Ada Irene Gregory (PE); Woodston
 *May Louise Gregory (PE); Ellsworth
 *Wava Eula Grigsby (HE); Attica
 *Karl Grogger (AE); Solomon
 *Danton Grover (CE); Salina
 *Orrin F. Grover (IC); Manhattan
 *Pauline Gudge (HE); Wichita
 *Dorothy Belle Gudge (IJ); Edmond
 *Lloyd Oscar Gugler (Ag); Woodbine
 *Harry William Gunzelman (VM); Abilene
 *William Howard Guthrie (RC); Cedarvale
 *Paul Anton Haas (EE); Kansas City
 *Lester Theodore Hagadorn (CE);
 Manhattan
 *Albert Gustave Hahn (ME); Halstead
 *John Lowell Haki (VM); Stanton, Neb.
 *Lyman Monroe Hall (RC);
 Downers Grove, Ill.
 *Thelma Lucille Hall (HE); Utopia
 *Thomas Elliot Hall (AA); Manhattan
 *William Hall (ME); Lindsborg
 *Lewis Glenn Halverstadt (EE); Oxford
 *Homer Joshua Hammond (EE); Osborne
 *Marvin Harvey Hammond (RC);
 Great Bend
 *Frances Pearl Hampshire (ApA);
 Manhattan
 *John Edward Haney (RC); Council Grove
 *Carl Hansen (ME); Strong City
 *Robert John Hansen (ArE); Independence
 *Leonard Blake Hardison (EE); Kiowa
 *John Marion Hardman (RC); Wakeeney
 *Oscar Miles Hardtarfer (Ag); Lawrence
 *Marshall K. Harner (RC); Clay Center
 *Charles Douglas Harrison (RC); Wichita
 *Frank Lee Hart (Ag); Macksville
 *James Hubert Hart (Ag); Ford
 *Edward Lynn Hartley (AA); Manhattan
 *Harold Percy Hartzell (VM);
 Carrollton, Mo.
 *Russell Hastings (ArE); Atchison
 *Everett Hattabaugh (EE); Pratt
 *Kenneth Havener (RC); Solomon
 *LeRoy Raymond Hawk (IJ); Atchison
 *Louis Ernest Hay (EE); Clay Center
 *Dwight Loyd Heath (Ag); Lamar, Colo.
 *Hal Thomas Heath (GS); Enterprise
 *Todd Heath (Ag); Marienthal
 *Achille Charlie Hebert (EE); Boley, Okla.
 *Ivaley Beryl Hedge (HE); Manhattan
 *Allen Richard Heidebrecht (EE); Buhler
 *Alfred Helm (Ag); Chanute
 *Willard Sandman Hemker (EE);
 Great Bend
 *Kenneth Mason Henderson (IJ); Pratt
 *George R. Hewes (EE); Ingalls
 *Harlan Harold Hicks (CE); Norton
 *Catharine Myrtle Hiatt (PE); Haven
 *Frederick Franklin Hiatt (AA); Haven
 *Joseph Glenn Hilyard (IJ); Severy
 *Harry Wilson Hinckley (PSB&O); Barnard
 *Walter Clarence Hinkle (AE); Lucerne
 *Pearl Harriet Hinshaw (HE); Plevna
 *Everett A. Hinz (ME); Abilene
 *Edwin Robert Hitchcock (FME-1; PE-2);
 Oberlin
 *Olin Francis Hitt (ChE); Wellington
 *Ernestine Mae Hobbs (RC); Lebanon
 *Hubert Andrew Hockensmith (IJ); Abilene
 *Raymond Kenneth Hoefener (ArE);
 Leavenworth
 *Willard Emmerson Hoffman
 (ChE-1; AA-2); Hope
 Lawrence Kenneth Hofman (GS);
 St. George
 *Loretta Alberta Hofman (HE);
 St. George
 *Horace Alvin Holmes (GS); Eureka
 *Richard Louis Holmes (Ag); Manhattan
 *Paul Holstrom (CE); Holcomb
 *Julius Dennis Holt (Ag); Cleburne
 *Leslie D. Holtman (PE); Leonardville
 *Ruby Marie Holtman (HE); Leonardville
 *Marjorie Marcena Homrighouse (HE);
 Garnett
 *Joseph Vernon Hook (Ag); Topeka
 *Zadock Wayne Hook (Ag); Manhattan
 *LeRoy William Horne (GS); Alma
 *Seward Ellis Horner (PE); Abilene
 *Otis Fearing Hornish (EE); Bucklin
 *Will Sidney Hornsby (VM); Millington,
 Tenn.
 *Floyd James Hoss (AA); Potwin
 *Alvin Albert Hostettler (Ar-1; RC-2)
 Hutchinson
 *Helena Mae Hotchkiss (GS); Concordia
 *Edwin Meyer Houghton (RC); Manhattan
 *Ansel Taft Howard (ArE); Kansas City,
 Mo.
 *William Scott Howard (RC); Topeka
 *Helen Phebe Howe (HE); Stockdale
 *Genevieve Loban Hoyt (IJ); Manhattan
 *Vernon C. Hoyt (IJ); Manhattan
 *Adolph Rduolph Hraha (FME);
 St. Louis, Ill.
 *Victor Eugene Hubbs (RC); Dorrance
 *Harlow Kenyon Hudson (GS); Manhattan
 *Clarence Merl Huffman (RC); Goodland
 *Wilbur Glenn Huffman (PE); Goodland
 *Helen Mary Hughes (GS); Manhattan
 *Electa Jewell Hull (PSM); Manhattan
 *James William Hunter (Ag); Westmoreland
 *Fred Huntington (CE); Eureka
 *Lloyd Wendling Hurlbut (GS-1; AE-2);
 Sylvan Grove
 *Adelaide Hutter (RC); Cherryvale
 *Vernon William Hutton (EE); Plainville
 *Kermit Roosevelt Huyck (AA); Morrowville
 *Harold Thomas Hyde (GS); Wichita
 *Kenneth Vernon Ingle (ME); Caldwell
 *Arlie Virgil Jackson (AE); Lenora
 *Luther Arthur Jacobson (Ag); Horton
 *Pearl Elizabeth Jahnke (HE); Leonardville
 *Olive Catherine James (HE); Wetmore
 *Paul Leslie Jameson (Ag); Garrison
 *Gordon Llewelyn Janssen (EE); Lorraine
 *E. Merle Jay (GS); Kingsdown
 *Alice Evelyn Jenista (GS); Caldwell
 *George Henry Jenkins (EE); Topeka
 *William Gordon Jenkins (Ar); New Castle,
 Pa.
 *Elmer Roy Jensen (EE); Herington
 *Mabel Jensen (GS); Burns
 *John J. Jewett (EE); Halstead
 *Mason Earnest Joerg (ArE); Randall
 *Everett Johannes (EE); Kanopolis
 *Clifford Clyde Johnson (VM); Stockton
 *Jay Bernard Johnson (CE); Olsburg
 *Naomi Marie Johnson (HE); Oskaloosa
 *Roland Justin Johnson (ME); Marysville
 *Vern Waldo Johnson (ArE); Salina
 *Wendell Wilbur Johnson (RC); Axtell
 *William Lee Johnson (Ag); Alma
 *Winifred Laura Johnson (HE); Frankfort
 *Donald Robert Johnston (PE); Manhattan
 *William Thomas Johnston (Ag);
 Bennington
 *John Hoffman Johnitz (RC); Abilene
 *Walter M. Jolley (CE); Manhattan
 *Anna Baker Jones (HE); Frankfort

FRESHMEN—Continued.

- *Harold Elvin Jones (Ag); Monrovia
 *Leslie Carl Jones (EE); Scott City
 Marion Edward Jones (Ag); Linwood
 *Robert Reynolds Jones (GS); Clifton
 *Wayne LeRoy Jones (AE); Talmage
 *William Laurie Jones (VM); Perry, Mo.
 *William Styne Jones (RC); Manhattan
 *Edgar Allen Jordan (GS); Mancos, Colo.
 *John Willis Jordan (Ag); Claffin
 *Paul Nick Jorgensen (EE); Wamego
 *Mildred Bernice Julien (IJ); Wamego
 *Richard Hulett Jurden (VM);
 Kansas City, Mo.
 John Ralph Justice (Ag); Manhattan
 *Mildred Ruth Kadel (HE); Victor
 *William Arch Keene (CE); Kansas City
 Vincent H. Keith (RC); Attica
 Vincent James Kelley (Ag); Chapman
 *John Howard Kelly (RC); Mayetta
 *Lynn Miller Kelly (CE); Waverly
 *Lonnie Worth Kemper (EE); Augusta
 *William Richard Kendall (RC); Manhattan
 *Walter Charles Kennedy (EE); Soldier
 *George Raymond Kent (Ag); Wakefield
 *Oliver Willard Kershaw (GS); Garrison
 *Marvin Gleeson Keyte (PE); Council Grove
 *Jay Grant Kimball (RC); Manhattan
 *Keith James Kimball (GS-1; Ag-2);
 Nickerson
 *Tom Russell Kimball (GS); Manhattan
 *Sam Melvin Kimmel (Ag); Morrill
 *Clara Bess King (HE); Delphos
 *Claude Lewis King (AA); Olsburg
 *Helen Louise King (HE-1; GS-2);
 Manhattan
 *Otha Powell King (AE); Burdett
 *Mildred Edna Kingsbury (PE); Herington
 *Eunice Velma Kinner (GS); White City
 Arthur Elliott Kirby (EE); Chanute
 *Lawrence Dee Kirkman (RC); Hays
 *William Harold Kirkpatrick (GS); Webber
 *Norbert Julius Klinge (EE); Topeka
 *Wendell Francis Knabe (ArE); Edgerton
 Harold Kneeland (RC); Council Grove
 *Frank Alfred Knox (Ag); Tonganoxie
 *Benjamin Christ Kohrs (Ag); Dillon
 *Otha Merton Koontz (GS); Jetmore
 *Al Joseph Koster (ChE); Manhattan
 *Edwin Fred Kotapish (GS); Irving
 *Clarence Carl Krecklow (PE); Manhattan
 *Waldo Ottive Kretzmeier (ArE);
 Manhattan
 *Earl Joseph Krieger (VM); Falls City, Neb.
 *Fred Short Kruger (Ag); Holton
 *Marjorie Kuhn (HE); Marion
 *Theodore Andrew Kurtenboch (VM);
 Lindsay, Neb.
 *Mary Vaughn Lacey (PE); Sharon Springs
 *Dorothea Annette LaFollette (IJ);
 Manhattan
 *Amy Lamb (GS); Blue Rapids
 *Rachel Joy Lamprecht (IJ); Manhattan
 Florence Mary Landrum (GS); Effingham
 *Geneva Mozelle Langfitt (HE); Hamlin
 *Ernest Ira Largent (RC); Oak Hill
 *Mary Lucile Larkin (HE); Admire
 *Ralph Vernon Larkin (Ag); Admire
 *Frances Kathryn Marie Larson (HE);
 Smola
 *John Russell Latta (Ag); Holton
 *Esther Anna Laue (HE); Lyndon
 *Minnie Marie Laue (HE); Lyndon
 *Philip Ott Lautz (EE); Newton
 *Howard Kenneth Learned (GS); Plevna
 *Lawrence Cecil Learned (Ag); Plevna
 *Aileen Gertrude Leedy (RC); Cedarvale
 *Victor Lee Lehrling (Ag); Wichita
 *John Thomas LeNoir (RC); Pratt
 *Carolyn Alice Leonard (HE); Holly, Colo.
 *Russell Harold Lessenden (Ag); Cheney
 *William James Leuty (Ag); Louisville
 Frank William Leeb (GS); Claffin
 *Charles M. Light (FME); Liberal
 *Velma Liles (HE); Kingsdown
 *Eugene Michael Lill (CE); Mt. Hope
 *Carlton Edward Logan (CE); Quenemo
 *John Royer Long (ChE); Abilene
 Wilma Marie Long (HE); Manhattan
 *Willard Shull Longabach (GS-1; CE-2);
 Wakarusa
 Evelyn Longren (GS); Leonardville
 *Muriel Ruth Loofburrow (PSM);
 Manhattan
 *Cled Dempsey Loper (ME); Manhattan
 *Laura Esther Lortscher (ApA); Fairview
 *Kenneth Dean Loveland (Ag); Cherokee
 *Harley Lawrence Lowe (ME); Powhattan
 *Gilbert Victor Ludeman (EE); Anthony
 *Arthur Conrad Lundgren (EE); Osage City
 *William Harold Lundry (ME); Arlington
 *Ruth Devanta Lutz (HE); Manhattan
 *Robert George Lyons (PE); Topeka
 Sumner V. Lyons (GS); Lucas
 *Warren Peer Lyttle (EE); Council Grove
 *James Andrew McBride (CE); Seneca
 *Lester LaVerne McBride (VM); Manhattan
 *Mildred Katherine McBride (HE); Boyle
 *Ben McCammon (PE); Mankato
 *Francis Dean McCammon (Ag); Oronoque
 *Ted Roosevelt McCandless (Ag); St. John
 *Lucile McClaskey (HE); Arapahoe, Colo.
 *Vernita Rose McClelland (IJ); Topeka
 *Harold LeRoy McClure (ChE); Kingman
 *William Elroy McClurg (EE); Meriden
 *Loretta Irene McCormick (IJ); Plainville
 *Walter Hood McCrea (ME); Boyle
 *Chester Clinton McCullick (EE);
 Minneapolis
 *Zada Gayle McCutchen (PE); Kingman
 *Wilbur McDaniel (GS); Michigan Valley
 *Harold McElroy (CE); Randall
 Willard Lawrence McFillen (EE); Athol
 *Donald Pierce McIntosh (RC); Marion
 Dean Owen McIntyre (RC); Herington
 *Stanley Donald McKay (ME); Natoma
 *Annetta Frances McKee (HE); Chanute
 *Robert Fuller McKnight (GS); Caldwell
 *Charles Scott McMichael (EE); Lincoln
 *Lauren Eugene McMillen (CE-1; IJ-2);
 Le Roy
 *Marvin Albert McMinimy (CE); Sitka
 *Marvin Irvin McMinimy (AA); Ashland
 *Blanche Irene McMoran (HE); Coldwater
 *Charles Edward McNeal (ME); Larned
 *Fred Elmo McVey (ME); Oak Hill
 *Donald Cleburne Mabie (ME); Green
 *Bernice Clara Machmer (RC); Wakefield
 Louise Madsen (PSM); Natoma
 *Byron Laurence Magill (ME); Hoisington
 *Elmo John Mahoney (ME); Dorrance
 *Arvid Irwin Mall (GS); Manhattan
 *George Junior Manchester (VM); Paola
 *Carroll Manda (GS); Dodge City
 *Eugene Bruce Mangelsdorf (Ag); Atchison
 Hugh Laverne Manion (IC); Almena
 *Dorothy Ione Mannen (HE); Lincoln
 *Wilbur Ervin Mannen (CE); Paola
 Chester Archibald Marcy (AE); Milford
 *Annis Merle Marks (GS-1; HE-2);
 Abilene
 Benjamin Eber Markley (EE); Bennington
 *Olin Vail Markley (AE); Scott City
 *Margaret Mary Marks (PSM); Ogden
 *Frank Stephen Martin (ChE); Manhattan

FRESHMEN—Continued.

- *James William Martin (EE); Sabetha
 *Margaret Belle Martin (HE); Glasco
 *Robert George Martin (EE); Leavenworth
 *Leona Bernice Martinson (HE); Bigelow
 *Carl Jesus Martinez (EE); Manhattan
 *Roy Marion Martiz (CE); Manhattan
 *Mildred Ruth Masden (PSM); Lenora
 *Everett Raymond Mason (EE); Wakefield
 *Paul Lampdin Massengill (Ag); Caldwell
 *Kenneth Leon Mast (ME); Belvue
 *John Hollister Masters (GS); Manhattan
 *Margaret Maude Mathews (GS);
 Manhattan
 *Murray Edgar Matter (EE); Jewell
 *Jabeel Almer Mauk (LA); Enid, Okla.
 *Edna Estella Maxwell (GS); Manhattan
 *Irl McClellan Mayden (GS); Manhattan
 *Challis Walter Meagher (IJ); Severy
 David Pace Meall (Ag); Cawker City
 *Ben L. Meibergen (CE); Downs
 *Harold Meier (RC); Abilene
 *Mildred Elnora Mellinger (GS); Milford
 Rhinaldo Bohannon Meredith (Ag);
 Manhattan
 *Stanley Taylor Merrill (EE); Abilene
 *Earle Harold Merritt (GS); Fletcher, Okla.
 *True Meserve (RC); Abilene
 *Vera Jane Miles (GS); Jewell
 *Albert Royce Miller (EE); Centralia
 *Arch Earl Miller (Ag); Cottonwood Falls
 Edith Frances Miller (GS); Milford
 *Eva Mae Miller (IJ); Colby
 *Grant Gould Miller (EE); Offerle
 Harry Earl Miller (GS); Manhattan
 *Joyce Walker Miller (Ag); Sycamore
 *Lowell Miller (RC); Topeka
 *Melval Stanley Miller (EE); Kansas City
 *Vera Malinda Miller (HE); Norton
 *Verna Irene Miller (GS); Milford
 *Zola Frances Miller (HE&N); Minneapolis
 *Clark Carlyle Milligan (Ag); Boyle
 *Frank Missimer (RC); Russell
 *Anthony Mleynek (ME); Irving
 *Loyal Kay Mock (ME); Osborne
 *Fred William Moehlman (EE); Manhattan
 John George Mogge (ME); Goodland
 *Luther Emanuel Monell (EE); Osage City
 *Charles Falmoth Monteith (CE); Hoxie
 *Leonard Howard Montgomery (Ag);
 Neodesha
 *Francis Reed Moore (AE); Protection
 *Hugh Isaac Moore (EE-1; AA-2);
 Wakarusa
 *Inez Hanlin Moorshead (RC); Newton
 Minnie Luella Morehead (HE); Norton
 *Grace Selina Morehouse (GS); Irving
 *Clark Leroy Morford (GS); Olsburg
 *Alvin Morgan (Ag); Lebo
 *Alvin Hanson Morgan (EE); Miltonvale
 *Lawrence Dale Morgan (Ag); Manhattan
 *Marvin Bradford Morgan (Ag);
 Manhattan
 Eva Hope Morrison (HE); Manhattan
 *J. Atwood Morrison (GS); Hutchinson
 *Jared Barnett Morse (Ar); Manhattan
 *Gladys Mortensen (PSM); Everest
 *Florence Erma Mott (HE); Webster Grove,
 Mo.
 *William Howard Moulton (Ag); Neodesha
 *Delphia Sylvia Mugler (HE); Clay Center
 *Grace Irene Mundell (HE&N); Nickerson
 *Gaylord Russell Munson (Ag);
 Junction City
 *Ralph Conrad Munson (Ag); Junction City
 Frank Albert Murphy (IJ); Manhattan
 *Robert William Murphy (CE); Chanute
 *Ferne Alrea Murray (PSM); Manhattan
 *John William Murray (IJ); Junction City
 *Ruth Naomi Myers (HE); LaHarpe
 *Huey Robert Nabours (Ag); Manhattan
 *Charles William Nanheim (Ag); Hoyt
 *William Walter Neal (ME); Dodge City
 *Dorothy Belle Neill (ApA); Clay Center
 *Harold Milton Nellans (ME); Potwin
 *Jennie Joy Nelson (ApA); Manhattan
 Richard Duane Nelson (IJ); Jamestown
 *Kenneth Elmer Netson (ArE); Manhattan
 *Hampton Nett (Ag); Manhattan
 *Ralph Wesley New (EE); Norcat
 *Ruth Craigie Newcomb (GS); Garnett
 *Ralph Theodore Newman (Ag); Holton
 *Laurence Lyall Nichols (AA); Utopia
 *Bonnidell Nicholson (HE); Olathe
 *Mary Vivian Nickels (GS); Manhattan
 *Paul Leslie Nielson (ME); Vesper
 *Freda Marie Nixon (GS); Topeka
 Kenneth Lyle Noland (CE); Cedarvale
 *Harold LeRoy Nonomaker (AE-1; AA-2);
 Osborne
 *Clarence Russel Northcott (Ag); Waverly
 *Evelyn Jean Nuzman (IJ); Manhattan
 *Robert William Myce (Ag); Levant
 *Wilber Enoch Oberg (IJ); Manhattan
 Eugene Clark Ollinger (LG); Denver, Colo.
 *Armine Oller (EE); Rago
 *Lillie Clara Olson (HE); Manhattan
 *Carl Gerhardt Ossmann (EE); Concordia
 *Dale Oswalt (AE); Little River
 *Thomas O'Toole (GS); Arnold
 *Marion Corydon Oursler (RC); Newton
 *Roberta Lee Oursler (IJ); Circleville
 *Raymond Clyde Oveson (CE); Overbrook
 *Vivien Mary Oveson (ApA); Osage City
 *Foster M. Owen (Ag); Green
 *Thelma Leota Owen (HE); Dighton
 *Ronald Blair Owston (CE); Hutchinson
 *Chester Anson Paige (VM); Aurora, Mo.
 Earl Wright Palmer (GS); Ashland
 *Clifford Arthur Palmquist (EE);
 Concordia
 *Edwin George Parcell (EE); El Dorado
 *Ralph Berthard Parker (GS-1; ChE-2);
 Broughton
 *Robert Scott Perker (LG); Manhattan
 *Luman Gilbert Parrott (Ar);
 Kansas City, Mo.
 *John Tudhope Parry (Ag); Linwood
 Harry Clinton Parshall (RC); Manhattan
 *Fred Ray Patrick (GS); Dodge City
 *Virgil Arthur Patterson (Ag); Anthony
 Arthur Ray Patton (Ar); Caldwell
 *Glen Frank Patton (VM); Cawker
 *Bernice Paulson (IJ); Newton
 Harley Artie Paynter (GS); Manhattan
 *Paul Fredrick Peak (RC); Manhattan
 LeRoy Pembleton (Ag); Palco
 *Melba Maxine Pennington (GS); Frankfort
 *Alice Mae Perkins (HE); Meade
 *Edgar Ernest Perry (GS); Council Grove
 *Paul Clutter Perry (AE); Little River
 *Raymond Louis Peters (ME); Leavenworth
 *Sam Turner Peters (ME); Mankato
 Vera Linnea Peterson (HE); Gypsum
 *Chester W. Pettibon (EE); Augusta
 *Dorothy Irene Pettit (LA); Humboldt
 *Robert Emil Pfuetze (GS); Manhattan
 *Kenneth Dale Phelps (ME); Pratt
 *William David Philip, Jr. (Ag); Hays
 *Robert Phillips, Jr. (Ag); Joplin, Mo.
 Lorenza Dow Pierce (AE); Scranton
 Lawrence Bryan Pilcher (PE); Glasco
 Wallace Henderson Piper (ArE); Fort Scott
 *Dale Franklin Pocock (RC); Atlanta
 Ted Nicholas Polcyn (RC); Gorham

FRESHMEN—Continued.

- *Lucile Posey (HE); Larned
 *Charles Edwin Powell (LG); Frankfort
 *Laurence Allen Pratt (RC); Manhattan
 John Jesse Province (AE); Stafford
 *George Lee Pryor (GS); Salina
 *John William Purcell (EE); Horton
 *Kenneth Webb Putney (CE); Topeka
 *Esther Clarabel Quenzer (HE); Bazine
 *Verne Major Ragsdale (CE); Waverly
 *Emma Evelyn Rathbone (GS); Manhattan
 Pearl Rayback (Ar); Goodland
 Donald Reber (EE); Wetmore
 *Clarence Maynard Record (ME); Humboldt
 *George Michael Reddy (IC); Manhattan
 *Leonard Abbott Rees (Ag); Abilene
 *Earl Hubert Regnier (GS&VM); Spearville
 Donald William Rehberg (EE); Niles
 *Holly Marks Reichart (RC); Valley Falls
 *Della Mae Reid (HE-1; PSM-2); Topeka
 *Walter Carleton Reid (GS); Topeka
 *Charles Carter Reinert (Ag); Hoisington
 *Charlotte Louise Remick (PE); Manhattan
 *Dean Royal Resley (RC); Clay Center
 *Harlan Cromer Rhodes (RC); Manhattan
 *Mildred Joyce Rhodes (GS); Tampa
 *Arthur Pardee Rice (EE); Fowler
 *Laurence Walter Rice (CE); Parsons
 *Frank Garfield Richard (RC); Topeka
 *Helen Sophie Richt (VM); Omaha, Neb.
 Gerald Kenneth Rickey (GS); Norton
 *Gerald Eugene Riepe (CE); Rosedale
 *Carl Jay Riggs (EE); Clayton
 Eugene Ellis Rippey (ArE); Ellis
 *Joseph Alexander Ritchie (Ag); McLouth
 *Ivan Everett Roberson (RC); Abilene
 *June Roberts (AE); Larned
 *George Thompson Robinson (IJ);
 Manhattan
 *Ralph Edwin Roderick (CE); Manhattan
 *Lyla Sophia Roepke (HE); Manhattan
 *Grayce Constance Rogers (RC);
 Long Island
 Merlin LaReux Rogers (AA); Norton
 Roland Cribner Rogler (AA); Manhattan
 *Karl William Root (CE); Topeka
 *Chester Earl Ross (GS); Dodge City
 *Marjorie Lucille Ross (GS); Marquette
 *Theodore Joseph Rostocil (EE); Zurich
 *Clyde Eugene Row (IC); Larned
 *Harold Thomas Rowland (CE);
 Clay Center
 *Edna Earl Royse (HE); Cunningham
 *Dorothy B. Rude (HE); Great Bend
 *Anna Marie Rueschoff (HE); Grinnell
 *Louis Elmer Rufener (GS); Strong City
 *Edward Joseph Ruisinger (IJ); Kansas City
 Harold O. Russell (GS); Ellis
 *John Howard Rust (VM); Manhattan
 Homer Clyde Rutan (RC); Pratt
 Milton Ernest Saffry (AA); Alma
 *Victor Henry Saffry (AA); Alma
 Marion Oscar Sager (Ag); Brewster
 Clifford William Said (Ag); Garnett
 Vern R. Salisbury (RC); Manhattan
 *Charlotte Samco (PE); Canning, S. Dak.
 *Edward Burns Sammons (Ar); Dodge City
 Harold E. Sanders (Ag); McLouth
 *Willard Conn Sarna (Ag); Ada
 *Myrl M. Martin (RC); Cedar Vale
 *Loretta Maye Sawin (HE); Waterville
 *Charles Athol Sayre (Ag);
 Cottonwood Falls
 *Mary Elizabeth Sayre (HE); Manhattan
 *Norma Harriet Sayre (HE); Ingalls
 *Karl Marion Scanlan (ME); Agra
 *John Seaton Schafer (ME);
 Del Norte, Colo.
 *Mary Ellen Schafer (HE); Manhattan
 *John W. Scherzinger (RC); Ransom
 *Martha Louise Scheu (HE); Clay Center
 *Francis Thomas Schiller (ChE); Abilene
 *John Nicholas Schiltz (GS); Wakefield
 *Charles Alexander Schmidt (GS); Lenexa
 *Fred F. Schmidt (VM); Junction City
 *J. Clifford Schmidt (CE); Syracuse
 *Leon Schmutz (ME); Chanute
 Ethel Lucile Schoen (GS); Cawker City
 *Kenneth Page Schoenleben (Ag);
 Racine, Wis.
 *Forrest Leroy Schooley (RC); Hutchinson
 *Gertrude Lena Schrader (RC); Bavaria
 *Marlin Charles Schrader (GS); Olivet
 Jonah Schreiner (EE); Ramona
 *Robert Edwin Schroeder (EE); Frederick
 *Eunice Alvina Schroeter (HE); Ellinwood
 *Charles Henry Schruben (RC); Stockton
 *La Velle Robert Schruben (EE); Dresden
 *Nick John Schumaker (VM);
 Havenville, Iowa
 *Henry John Schwartz (CE); Hanover
 *Stanley William Schwartzman (ME);
 Abilene
 *Nina Gertrude Schwarz (ApA);
 Council Grove
 *Lyle Joseph Scoley (GS); St. Francis
 *Corwin Rex Scott (RC); Berryton
 *Dorothy Beverly Scott (GS); Hanover
 *Harold J. Scott (GS); Altoona
 *Robert Ansel Scott (FME); Burlingame
 *Sarah Elizabeth Scott (GS); Manhattan
 *Mila Blanche Sedivy (GS); Blue Rapids
 *Elbert James Settles (IJ); Amiot
 *Ralph William Sexton (EE); Neodesha
 *Walter Bell Sexton (EE); Garden City
 *Floyd Henry Seyb (Ag); Pretty Prairie
 *Scott William Shady (RC); Pratt
 Jerome Anthony Shaffer (GS); Simpson
 *Loren Mannen Shannon (Ag); Lewis
 *Walter Garrett Shaw (AA);
 Kansas City, Mo.
 John Keith Shay (RC); Miltonvale
 *Wyatt Ellett Shelor (AE); Bloom
 *Emma Frances Shepek (HE); Narka
 *Charles Lawrence Shepherd (RC);
 Harveyville
 Wasley Marion Shields (ChE); Hoxie
 *William H. Shivel (EE); Galena
 *Oliver Wendell Shoup (Ag); Udall
 *Taylor Staats Shreve (EE); Beverly
 *Phyllis Foster Shultice (M); Topeka
 *Virgil William Siebert (ME);
 Pretty Prairie
 Francisco Antonio Sierra de Soto (IC);
 New York City
 *Galvesta May Siever (GS); Manhattan
 *Ruth Elizabeth Silkensen (PE);
 Dell Rapids, S. Dak.
 *Emmett Silva (GS); Manhattan
 *Earl Lee Simms (PE); Republic
 *Forister Simpson (ChE); Dodge City
 Maynard Henry Simpson (RC); Bernard
 *Josephine Nell Skinner (HE); Topeka
 *Kelso Wilton Slaughter (ME); Manhattan
 *Leland Milton Sloan (Ag); Leavenworth
 *Raymond D. Sloan (CE); Boise City, Okla.
 *Leslie Allen Slocum (CE); Chanute
 *Frieda A. Sloop (HE); Lyndon
 *Eva Mae Smalley (PE); Kansas City
 *Muriel Estelle Smeltzer (HE); Dighton
 *Joseph Daniel Smerchek (Ag); Garnett
 *Libbie Ann Smerchek (HE); Garnett
 *Walter Smirl (PE); Wilsey
 *Daphne Vivian Smith (HE); Hamlin
 *Elton Taft Smith (CE); Caldwell
 *Frank Lynn Smith (IC); Longford

FRESHMEN—Continued.

- *Glen Ober Smith (RC); Hope
 *Hal Hampton Smith (Ag); Franklin, Neb.
 *Hobart Muir Smith (GS); Bentonville, Ark.
 *Mildred Marie Smith (HE); Duchess, Canada
 *Morton Eugene Smith (LG); Melvern
 *Walter Bruce Smith (ME); Hoisington
 *Thomas Howard Snethen (IJ); Dawson, Neb.
 *Edna Mae Socolofsky (GS); Tampa
 *Kenneth George Sollenberger (Ag); Plainville
 *Ernest George Sommers (EE); Rose
 *Merrian Jane Sparr (PE); Ellsworth
 *Bernice Pauline Spaulding (RC); Manhattan
 *Grace Ethel Speers (HE); Agenda
 *Robert William Spiker (ChE); Manhattan
 *Noel Lee Spreier (GS); Pawnee Rock
 *Harold Henry Springer (Ar); Stockdale
 *Alice Virginia Sproul (IJ); Norton
 *Homer Ackerly Staadt (CE); Garnett
 *John Loren Stafford (GS); Leonardville
 *Charles Guy Steele, Jr. (GS-1; Ag-2); Barnes
 *Elvis Elliott Steele (Ag); Amoret, Mo.
 *Elden Russell Stensaas (EE); Concordia
 *Alvin Howard Stephenson (Ag); Clements
 *William Carl Stephenson (AA); Effingham
 *Dorothy Claire Stevens (GS); Medicine Lodge
 *Elsie Mildred Stevens (GS); Manhattan
 *Roy Raymond Stevens (AE); Junction City
 *Anne Stever (HE); Eureka
 *Charles William Stewart (ArE); Hunter
 *Walter Martyn Stingley (Ar); Manhattan
 *Joseph Edward St. John (EE); Westmoreland
 *J. Lawrence Stoddard (EE); Manhattan
 *Lester Clarence Stoffer (Ag); Abilene
 *Russell Stoker (CE); Morrowville
 *Edward Leroy Stoneking (Ag); Baldwin
 *Mona Valeria Stoops (GS); Bellaire
 *John Wayne Stormont (CE); Dighton
 *August Fred Storz (VM); Kansas City
 *Ione Strickland (GS); Manhattan
 *Virgil Carle Strobel (ME); Pratt
 *Archie Raymond Stuck (PE); Salina
 *Ida Sarah Studt (PSM); Glasco
 *Harold Howard Stump (AA); Blue Rapids
 *Stella Dollie Subera (IJ); Caldwell
 *John Godfred Sugar (RC); Parsons
 *Lloyd Eiver Suiter (ME); Macksville
 *Carl Clinton Surig (EE); Altoona
 *Thelma Alberta Sutterlin (HE); Westmoreland
 *Karl J. Svaty (CE); Ellsworth
 *Maryon Henry Swartz (ArE); Manhattan
 *Charles Henry Talbot (EE); Manhattan
 *Charles Andrew Taylor (CE); St. Louis, Mo.
 *Elmer Alexander Taylor (AE); Solomon
 *Mark Mowell Taylor (Ag); Harveyville
 *Wayne Avery Taylor (CE); Concordia
 *Lewis Whitney Teall (IC); Larned
 *John Tedrow (RC); Medicine Lodge
 *Helen Theodora Teichgraeber (HE); Marquette
 *George Baldridge Telford (RC); Manhattan
 *V. Preston Terrell (Ar); Syracuse
 *John Franklin Thackrey (IJ); Manhattan
 *Florence Joanne Thiebaut (IJ); Kansas City
 *Ruth Thomas (M); Baxter Springs
 *Chester Gordon Thompson (Ag); Randolph
 *Dale Elliott Thompson (CE); Green
 *Orville Freeman Thompson (AA-1; RC-2); Alma
 *William Sims Thompson (EE); Topeka
 *Arthur Chase Thomson (Ag); McCune
 *Willis Alexander Thomson (Ag); McCune
 *Loren Wilbur Thrall (RC); Eureka
 *Edith Catherine Thummel (IC); Leavenworth
 *Carl Lester Thurlow (Ag); Hill City
 *Lovell Thurow (PE-1; AE-2); Macksville
 *Mary Louise Thurow (PSM); Macksville
 *Vernell Ellsworth Thurston (EE); Delphos
 *Edward Tibbetts (Ag); Westmoreland
 *John Herman Tietze (CE); Kansas City
 *Alvin Paul Timmons (ME); Geneseo
 *Obed Lee Toadvine (Ag-1; PE-2); Dighton
 *Mayme Thelma Toburen (HE); Cleburne
 *Irene Lillice Todd (HE); Topeka
 *Corabelle Tolin (GS); Havensville
 *Helen Tolin (PE); Havensville
 *Dwight Siebert Tolle (GS); Norcatuar
 *William Norton Tomlinson (EE); Erie
 *Elta Marie Tompkins (HE); Byers
 *Clinton Keith Tomson (Ag); Wakarusa
 *Gladys Clara Tonn (PSM); Haven
 *Joseph Edward Torkelson (PE); Everest
 *Ruth Sarah Tracewell (ApA); Lincoln
 *Leroy Tripp (ME); Waldo
 *Delber William Turner (EE); Holton
 *Robert Todd Turner (CE); Valley Falls
 *Paul Iman Turney (EE); Osage City
 *Ernest Julius Underwood (GS); Topeka
 *Virgil Arvid Unruh (Ag); Pawnee Rock
 *Roy Leslie Upton (IC); St. Francis
 *Effie Lea Vail (IJ); Kansas City, Mo.
 *Clea Maurine Van Meter (HE); Ada
 *Arthur Frederick Van Meveren (VM); Alton, Iowa
 *Fred Lewis Van Scoyoc (ME); Oak Hill
 *Milo M. Vanseyoc (CE); Utica
 *Beatrice Petrinella Vaught (HE); Plains
 *Robert Vernon Vaupel (GS); Manhattan
 *William Dale Vawter (ME); Liberty
 *Reva Wanda Venard (IJ); Manhattan
 *Mary Ellen Vetter (PE); Topeka
 *Oliver Rodger Vignery (CE-1; RC-2); Concordia
 *Hadley Herman Voigts (Ag); Rosedale
 *Very Evelyn Voigt (PSM); Topeka
 *Georgie Frances Voshell (HE); Bucklin
 *Leo Conrad Wacker (EE); Leavenworth
 *Ted Henry Walker Jr. (IJ); Salem, Mass.
 *Helen Frances Walker (GS); Manhattan
 *Joseph Lee Walker (EE); Junction City
 *Mary Catherine Walker (HE); Manhattan
 *John Francis Walsh (IJ); Osage City
 *Cecil Newton Walter (CE); Kingman
 *Margaret Emma Walters (PE); Manhattan
 *Virgil Howard Walters (EE); Centralia
 *Doris Aileen Wapler (PSM); Wakefield
 *Charles Fayette Ward (IC); Pratt
 *Charles Marion Ward (RC); Glasco
 *Howard William Ward (GS); Abilene
 *Robert Dale Ward (EE); Chanute
 *Louise Ware (HE); Fairbury, Neb.
 *George Washington (Ag); Manhattan
 *Larry O'Neil Washington (Ar); Kensington
 *Edna Alberta Watson (PSM); Riley
 *Effie Mae Webb (PSM); Randolph
 *Fern Webster (ApA); Vesper
 *Margaret Wegert (GS); Rice
 *Russell True Weirick (Ar); Olathe
 *Harold Rowe Weller (PE); Olathe
 *Eugene L. Wells (EE); Meriden

FRESHMEN—Concluded.

- *Everett Homer Wells (ChE); Turon
 *John Fred Wells (EE); Pretty Prairie
 *Henry John Weltmer, Jr. (IJ); Hiawatha
 *Ivan Lee Welty (CE); Hill City
 *Harvey R. Wenger (RC); Junction City
 *Alice Rosabel Wesley (PE); Norton
 *Dick Estes West (EE); Hartford
 *Elsie Mae West (GS); Manhattan
 *Kermit Louis Westrup (GS); Woodbine
 *Sydney Francis Weybrew (EE); Wamego
 *Harry Lee Wheeler (IJ); Sharon Springs
 *Waldo Peak Wheeler, Jr. (Ag);
 Williamsburg
 *Delta Nadine Whitmore (HE); Manhattan
 *Max Allen Wickham (Ag); Manhattan
 *Maxine Wickham (HE); Manhattan
 *George Samuel Wiggins (PE); Lyons
 *Leon Clifford Wilcoxon (EE); Ford
 *Ernest Sherman Wild (PE); Wilsey
 *George Frank Wiley (ME); Chanute
 *Rolland E. Wilkens (RC); Bushton
 *Floyd Evans Willard (ME); Morrill
 *Harold Ray Williams (CE); Valley Falls
 *John Alden Williams (AE); Smith Center
 *Paul Lester Williamson (ME); Great Bend
 *Charles Edward Wilson (PE); Abilene
 *John Francis Wilson (Ag); Marienthal
 *Lawrence Oscar Wilson (LA); Auburn, Neb.
 *Robert Jerome Wilson (RC); Manhattan
 *Wallace Edwin Wilson (AE-1; GS-2);
 Potwin
 *Claude Chester Winchell (EE); Douglass
 *Leota Mae Winkelman (HE); Bloom
 *George O. Wise (IJ); Newton
 *Jo Marie Wise (PSM); Manhattan
 *Wenzella Witherspoon (IJ);
 Wichita Falls, Tex.
 *George Gordon Wolf (ArE); Marion
 *Alvin Johnson Wolfe (Ag); Axtel
 *Warren Paine Wolfe (ME); La Cygne
 *Eleanor Womer (GS); Agra
 *Wallace Robert Womer (RC); Manhattan
 *Paul Breese Wood (CE); Cottonwood Falls
 *John Dewey Woodruff (CE); Dodge City
 *Alfred Eugene Wooster (EE); Erie
 *Norman Ralph Worley (EE); White City
 *Helen Katherine Wyant (GS); Topeka
 *Fred George Wyatt (ArE); Kansas City
 *Ralph Lloyd Wymann (VM); Courtland
 *Mary Irene Yoder (GS); Manhattan
 *John Dean Youle (Ag); Winfield
 *Betty Armstrong Youngman (IJ);
 Manhattan
 *Gladys Christine Zalabak (HE); Caldwell
 *Robert Allen Zebold (AA); Pine Bluff, Ark.
 *Walter William Zeckser (CE); Alma
 *Della Evangeline Zeigler (HE); Abilene
 *Leslie George Zies (ChE); Pratt
 *Iva May Zimmerman (GS); Simpson
 *Bertha Annetta Zimmers (HE); Hiawatha
 *Catharine Eva Zink (HE); Lincoln

SPECIAL STUDENTS

- *John T. Blair Jr. (Ag); Manhattan
 *Alta Rosalind Blazier (HE); Junction City
 *Grace Irene Boyce (GS); Manhattan
 *Ray James Bryan (GS); Woodbine
 *Margaret Brooks Chaney (HE); Manhattan
 *Edwin L. Coleman (GS); Vermillion
 *Andy W. Crawford (VM); Manhattan
 *Francis Willard Crawford (GS); Chanute
 *Harvey Ellis Davidson (EE); Emporia
 *Russell Clay Derbyshire (GS);
 Omaha, Neb.
 *Helenden Harris Dodderidge (HE);
 Manhattan
 *Joseph Leslie Dole (CE); Almena
 *Harold O. Edmondson (FME); Manhattan
 *Lillian D. Feese (HE); Wichita
 *Theresa Emma Florell (GS); Manhattan
 *Harvey Strack Grammer (GS);
 Junction City
 *David George Griffiths (GS); Manhattan
 *Floyd Joe Hanna (Ag); Manhattan
 *Hazel Hanna (GS); Riley
 *Harvard Glenn Haskin (Ag); Olathe
 *William Huey (GS); Ogden
 *Alice Claypool Jefferson (GS); Manhattan
 *Roy William Johnson (ArE); Wichita
 *Yun Sur Kim (Ag); Shanghai, China
 *Marjorie Russell Kimball (HE); Manhattan
 *Blanche Margaret Knisel (GS); Solomon
 *Don Quincy Lamb (GS); Manhattan
 *Adolph Lanzrein (Ag); Berne Switzerland
 *Thomas MacGregor (GS); Solomon
 *Bohman Henry Mack (Ag); Narka
 *Laura May Marcy (GS); Milford
 *Minnie Lee Marks (GS); Council Grove
 *Dorothy Adelle Martin (GS); Manhattan
 *Leslie Eugene Moody (GS); Ogden
 *Roy Moore (Ag); Manhattan
 *Harold Hawley Munger (CE); Manhattan
 *Thelma E. Neiel (HE); St. John
 *Clarence Leslie Nelson (ME); Manhattan
 *Loren Conrad Northcutt (Ag); Copeland
 *Esther Margaret Pagan (GS); Beverly
 *Donald Plumb (GS); Clay Center
 *Hazel Spangler Price (GS); Liberty
 *Erma Henrietta Sand (GS); Riley
 *Clara B. Sapp (GS); Hugoton
 *Raymond Robert Smith (GS); Plainville
 *David Ray Stewart (Ag); Wamego
 *Fred Stevens (Ag); Cleveland, Tenn.
 *Daniel Edward Still (GS); Ogden
 *Velma May Talmadge (GS); Kansas City,
 Mo.
 *Merillat Anne Taylor (GS); Manhattan
 *Cecil Kermit Thomas (GS); Ulysses
 *Herman Utterback (GS); Junction City
 *Vawn Utterback (GS); Junction City
 *Mary Pierce Van Zile (GS); Manhattan
 *Rose Hammond Wampler (GS); McPherson
 *Claude Allen White (Ag); Manhattan
 *Mary Wilhite (GS); Manhattan

* Matriculated 1928-'29.

Students in Special Courses

The abbreviations following the names of students have the following significations: DMSC, dairy manufacturing short course; FSC, farmers short course; AMTC, auto mechanics' trade course; MTC, machinists' trade course

Charles James Banghan (DMSC); Salina
 Mahlon M. Beachy (FSC); Yoder
 Merrill John Behnke (FSC); Bushton
 Julius Edwin Blades (FSC); Minneapolis
 Howard R. Blubaugh (FSC); Burrton
 Charles Arthur Boyer (FSC); Powhattan
 Lorin Y. Bradshaw (FSC); Langdon
 Floyd Coleman Bridges (AMTC); Lewis
 Wayne Henry Brothers (AMTC); Norton
 Alva Leland Cade (DMSC); Manhattan
 Melvin Robert Cairns (FSC); Greenleaf
 John Christoffersen (DMSC); Briggsville,
 Wis.

Ray Roy Conger (FSC); Iola
 H. Paul Cook (DMSC); Manhattan
 Joseph Maxwell Corbin (FSC); Augusta
 Clifford Carl Cranston (FSC); Ness City
 Paul Calvin Davidson (MTC); Simpson
 Edward J. Den Haerynek (DMSC);

St. Marys

Sidney Robert Dukelow (MTC); Hutchinson
 Murray Burke Elliott (DMSC); Carthage,
 Mo.

Olga Elliott (DMSC); Carthage, Mo.
 Lewis Edward Everhart (DMSC); Salina
 Roy C. Frantz (DMSC); Conway Springs
 Harry Bertram Garard (FSC); Olivet
 Raymond C. Gillilan (DMSC); Manhattan
 Charles Vernon Glassburn (FSC); Freeport
 Orville Grant Gordanier (FSC); Randall
 Charles Thornton Grimm (FSC); Caldwell
 Floyd D. Guyer (FSC); Bloomington
 Irvin Ruthi Guyer (FSC); Bloomington
 Lawrence Habiger (FSC); Bushton
 Glen Lawrence Harris (FSC); Hoyt
 Williams Harold Haun (AMTC); Larned
 Henry Frank Hazel (DMSC); Lamar, Colo.
 Raymond Everett Hoffman (FSC);

Cawker City

Raymond Carl Hoglund (FSC); McPherson
 G. Ray Horton (FSC); Madison
 Harold Lynn Horton (FSC) Madison
 Willard Edward Kauzer (MTC);
 Hutchinson

Orren Leslie Karr (FSC); Americus
 Harold Nelson Kilbourn (FSC); Sterling
 Fred James Kline (FSC); Kanopolis
 Berney Hallonquist Leshner (AMTC);
 Dodge City

Chester Lyle Lewis (FSC); Alton
 Wilson Perry Lewman (DMSC); Wetmore
 Alvin L. Loomis (FSC); Manhattan
 Charles Everett Lowry (FSC); Logan
 Joseph Wendell McFarland (FSC); Sterling
 Earl Ward Miller (FSC); Rossville
 Frederick William Millenbruch (FSC);
 Herkimer

Dee L. Northcutt (FSC); Cheney
 Walter G. Olson (FSC); Herndon
 Herbert John Osterman (DMSC); Wichita
 Edward Partridge (AMTC); Pittsburg
 Emil F. Peeks (FSC); Marysville
 Clyde C. Reed (FSC); Kanopolis
 Albert Lawrence Reichle (FSC); Riley
 Vernon Evan Ritz (FSC); Cawker City
 Dwight B. Robb (FSC); Dodge City
 Orville William Robson (FSC); Abilene
 Ralph Lester Rolfs (FSC); Lorraine
 Homer Glace Rundle (FSC); Clay Center
 Harry George Schlickan (FSC); Haven
 Norman Schrader (FSC); Horton
 Dale Wilbur Schweitzer (FSC); Osborne
 Louis C. Schwietzer (FSC); Osborne
 Donald S. Shannon (FSC); Powhattan
 Glen Siegle (FSC); Manhattan
 E. N. Skidmore (DMSC); Garden City
 Leonard Stangeland (DMSC); Ponca City,
 Okla.

George Richard Steigleder (FSC); Keats
 Rolf Ulrich Stein (FSC); Havana, Cuba
 Ernest P. Suderman (FSC); Hillsboro
 Harry William Thomas (DMSC); Chapman
 William Axtell Van Lew (FSC); Abilene
 H. Bill Wolfskill (DMSC); Wichita
 Lester David Wolgamuth (AMTC); Hartford
 Paul Willard Zimmer (FSC); Dodge City

Summer School Students

First Session

Vivian Dial Abell; Riley
 Georgene Barbara Affleck; Palmer
 Anna Tessie Agan; St. Edward, Neb.
 Carroll Ferdinand Alexander; Manhattan
 Martin Adkisson Alexander; Manhattan
 Raymond Hilton Alexander; Manhattan
 Helen Bertha Allen; Glen Elder
 Henrietta Allen; Glen Elder
 Agnes Johanna Allgeier; Home
 Fred Denman Allison; Abilene
 Annie Altha Alrid; Chetopa
 Ray Lee Althouse; Anthony
 Mary Elizabeth Alverson; Frankfort
 William Gerald Amstein; Manhattan
 Anna Ingeborg Anderson; Beattie
 Bernard Martin Anderson; Manhattan
 Carl Boyd Anderson; Richland
 Jennie Emelia Anderson; Beattie
 Kenneth Charles Anderson; Eskridge
 Virginia Mae Anderson; Lincoln
 Arthur Clinton Andrews; Manhattan
 Lottie Sybil Andrews; Junction City
 Marie Arbuthnot; Bennington
 Ruth Celestia Archer; Hutchinson
 Clarissa Emeline Arnold; Frankfort
 Emmons Leslie Arnold; Marysville
 Helen Opal Arnold; Frankfort
 Esther Mary Babcock; Hiawatha
 Frances Mable Backstrom;
 Kansas City, Mo.
 Mary Irene Bailey; Council Bluffs, Iowa
 James Lister Baird; Wellsville
 Robert Roy Baird; Riley
 Amy Belle Baker; Meadville, Mo.
 Margaret Ellen Baker; Washington
 Rosa Belle Baker; Axtell
 Esther Letha Bales; Manhattan
 Clarence O. Banta; Ottawa
 Lillian Evelyn Banta; Ottawa
 Alta Elizabeth Barger; Manhattan
 Dorothy Gertrude Barlow; Manhattan
 Ruth Gertrude Barnes; Alma
 Leona Mirth Barnett; Clayton
 Ruth E. Barnhisel; Wichita
 Sadie Barr; Manhattan
 Margaret Virginia Barrett; Frankfort
 Ellen Margaret Batchelor; Manhattan
 Laura Belle Baxter; Manhattan
 Dorothy Ann Beagel; Alta Vista
 Callie Coram Beard; Manhattan
 Etnah Beaty; Lakin
 Dietrich Becker; Webster
 Lois Harriet Beckman; Randolph
 Winifred Daisy Beeby; Hays
 Floyd Wayne Bell; Manhattan
 Marion Bell; Upper Montclair, N. J.
 Lois Shouse Benjamin; Kansas City
 Kenneth Dean Benne; Washington
 Helen Lee Bentley; Manhattan
 Marjorie Marie Berger; Manhattan
 Minnie Louise Bergsma; Lucas
 William Henry Berry; Attica
 Christine Leola Bertsch; Mayetta
 Mary Leola Beyer; Arrington
 Grace Bickel Centralia
 Vera Elizabeth Biddle; Axtell
 Gladys Marie Black; Beloit
 Theresa Altha Black; Coyle, Okla.
 Lee Ella Blake; Kansas City
 Almon Carl Bock; Manhattan
 Mildred Freda Bohnenblust; Leonardville
 Mary Mellissa Bole; Haddam
 Lila Telma Bonar; Vining
 Roy Elmer Bonar; Washington
 Mabel Irene Bonesteel; Washington
 Frederick Bruce Bosley; New Creek, W. Va.
 Kate Marie Bowen; Chillicothe, Mo.
 Benjamin Philip Bowman; Woodston
 Bertha Jane Boyd; Manhattan
 Verne W. Boyd; Irving
 Carrie Brandesky; Severy
 Carl Alfred Brandy; Manhattan
 Jacob Hoffman Brant; Manhattan
 Bessie Mary Braun; Council Grove
 Milton Brawner; Manhattan
 Elmer Henry Bredehoft; Manhattan
 Esther Bertha Breunsbach; Liberty, Neb.
 Helen Virginia Brewer; Peabody
 Grace Dorothy Brill; Westmoreland
 Stanley Hyde Brockway; Topeka
 Chester Arthur Brodie; Manhattan
 Frank Brokesh; Munden
 Albert Brown; Manhattan
 Claude Harold Brown; Winfield
 Esther Louise Brown; Manhattan
 Forest Orivelle Brown; Westmoreland
 Leona Bernice Brown; Westmoreland
 Nina Myrtle Browning; Manhattan
 Leonard Hathaway Brubaker; Manhattan
 Hugh Herschel Bruner; Concordia
 Agnes Bryan; Manhattan
 Doris Isabelle Bryan; Greensburg
 Lillian Josephine Brychta; Blue Rapids
 Wilma Mae Bucknell; Olathe
 Amy Bernice Bullock; Wilsey
 Agnes McCord Burch; Fowler
 Helen Marie Burgess; Wamego
 Margaret Esther Burgess; Westmoreland
 Ruth Aileen Burkholder; Wamego
 Blanche Ethel Burns; Scandia
 Betty Lou Burr; Pittsburg
 Leon Pennington Burris; Chanute
 Daryl Durland Burson; Manhattan
 Maurine Burson; Manhattan
 Lucile Beatrice Burt; Scott City
 Florence M. Burton; Haddam
 Emma Caroline Bushell; Broughton
 Fern M. Butler; Abilene
 Nina M. Butler; Abilene
 Norvall Odell Butler; Manhattan
 Lucille Edith Byarlay; Green
 Bernice Leon Caldwell; Culver
 Sylvia Mae Callahan; Wetmore
 Donad Lawrence Cameron; El Dorado
 Oren Emery Campbell; Manhattan
 Lila Marguerite Canavan; Lawrence
 Samuel David Capper; Manhattan
 Nora Helen Capsly; Soldier
 Golda Laurena Carlson; Vliets
 Ellen Irene Carlstrom; Clay Center
 Vera Maud Carney; Manhattan
 Ebbie Mae Carpenter; Clay Center
 Clifford A. Carpenter; Great Bend
 Lucy Elmira Caster; Manhattan
 Elisha Joseph Castillo; Independence
 Mary Cecelia Cates; Kingman
 Doris Diane Chamberlain; Riley
 Virginia Chambers; Grandfield, Okla.
 Carl Sutter Channon; Ottawa
 Francis Eugene Charles; Manhattan
 Arnold Ervin Chase; Manhattan
 Early Mast Chestnut; Manhattan
 Etta Estella Chillson; Manhattan
 Ruth Rosalee Chitwood; Garnett
 Vivian Winifred Chitwood; Garnett
 Clara Jane Chrest; Louisville

SUMMER SCHOOL—Continued.

Bradley Ruthford Christie; Atchison
 Ruth Rosalie Claeren; Manhattan
 Virginia Talbot Clammer; Manhattan
 Alfred Lester Clapp; Manhattan
 Ina L. Clements; Havensville
 Helen Marie Clydesdale; Gaylord
 Percy Walter Cockerill; Manhattan
 Erma Mildred Coleman; Mayetta
 Bertie Marie Conley; Jennings
 Kenneth Elwyn Converse; Manhattan
 Emma Miller Cook; Milford
 Ida Corinne Cool; Manhattan
 Victor Vincent Cool; Stockdale
 Hazel Esther Cooley; Manhattan
 Lelia Gale Cope; Frankfort
 E. Jack Coulson; Manhattan
 Earl Jewell Cover; Ozawkie
 Lela S. Coyle; Wichita
 Genevieve Martha Craik; Washington
 Joseph Earl Cress; Manhattan
 Alva Harley Criehtfield; Geneseo
 W. Garnet Criehtfield; Geneseo
 Earl Edward Crocker; Manhattan
 Marian Hazel Crocker; Manhattan
 Edith Nonken Cross; Kansas City, Mo.
 Laura Crowder; Topeka
 Louise Crowder; Manhattan
 Gladys Hattie Crumbaker; Manhattan
 James Louis Culbertson; Hobart, Okla.
 James Milton Cullum; Beverly
 Frances Harriet Cunningham; Hazelton
 Emily J. P. Curtis; Lincoln
 Geraldeane Jeannette Cutler; Manhattan
 Dawn Daniels; Manhattan
 Hazel Marie Dannevik; Centralia
 Nellie Dorothy Darrah; Marquette
 Nettie Dolores Darrah; Marquette
 Grace Annetta Daugherty; Republic
 Ina Willimetta Davidson; Manhattan
 Muriel Elizabeth Davies; Manhattan
 Anna Dahl Davis; Manhattan
 Loren LeRoy Davis; Manhattan
 Marion Bradford Davis; Manhattan
 Harold John Dayhoff; Abilene
 Ben Harrison Dean; Manhattan
 Clara Farmer Denison; Hazelton
 Laura C. Denk; Agenda
 Rowland L. Dennen; Manhattan
 Linnea Carlson Dennett; Lindsborg
 Russell Clay Derbyshire; Omaha, Neb.
 Richard Kimball Dickens; Manhattan
 Donna Marie Dickinson; Udall
 Herbert A. Dimmitt; Topeka
 Mary Louise Dittmore; Manhattan
 Esther Eulalia Dizmang; Manhattan
 Helen Laura Dodge; Manhattan
 Harry S. Dole; Alma
 Mary Lena Dorgan; Alta Vista
 Agatha Marie Dougan; Council Grove
 Faye Agnes Dougán; Council Grove
 Fern Alice Dougan; Council Grove
 Myrtle Dougherty; Manhattan
 James McNair Douglass; Burlington
 Dorothea Ruth Dowd; Manhattan
 Eleanor Fern Drummond; Frankfort
 Lewis Albert Dubbs; Beeler
 Donna Gayle Duckwall; Abilene
 Winifred Eloise Dudley; Manhattan
 Raymond Earl Dunnington; Manhattan
 Leda Anna Dunton; Lebanon
 Dean Lewis Dutton; Alta Vista
 Hazel Mae Dwelly; Manhattan
 John Clayton Dwelly; Manhattan
 Meredith Ernestine Dwelly; Manhattan
 Agnes Nieda Easterberg; Palmer
 Martin Arthur Edwards; Chautauqua
 Philip Joseph Edwards; Athol
 Edna Frances Ehrlich; Manhattan
 Helen Elizabeth Elcock; Wichita
 Franklin A. Elkin; Horton
 Leonard Paul Elliott; Manhattan
 Mildred Martha Emery; Hutchinson
 Helen Mae Engle; Sabetha
 Freda Marie Erichsen; Ogden
 Mabel Christine Erichsen; Ogden
 Mildred Bernice Esslinger; Bala
 Ruth Elizabeth Esslinger; Bala
 Elsie Dora Eustace; Wakefield
 Grace Elizabeth Eustace; Wakefield
 Oliver Freeman Ewbank; Miller
 Laura Virginia Fairman; Manhattan
 Everett Ellsworth Fauchier; Osage City
 Thelma A. Feather; Bridgeport
 Ethel B. Feese; Junction City
 Carl Ralph Feldmann; Sabetha
 Alice J. Ferguson; Minneapolis
 Veda Edith Fincham; Blue Rapids
 Anna May Finnerty; Summerfield
 Annabelle Finney; Beloit
 Clarence Keith Fisher; Fellsburg
 Ted Allen Fleck; Wamego
 Beatty Hope Fleenor; Manhattan
 Max Charles Fleming; Paola
 Marie A. Fletcher; Scott City
 Nellie Geraldine Fletcher; Pawnee City, Neb.
 Nellie Dwyer Flinn; Admire
 Vernon Daniel Foltz; Manhattan
 Mary I. Frame; Liberal
 Rebecca Louise Francis; Westmoreland
 Edward Raymond Frank; Manhattan
 Gladys Dallas Freeborn; Harveyville
 Paul W. Freeburg; McPherson
 Evelyn Mildred Freeland; Manhattan
 Mary Elizabeth Freeman; Manhattan
 Wilber Dean French; Manhattan
 Everett Wayne Frey; Manhattan
 Mae Irene Frey; Vassar
 Francis Glenn Fry; Waldo
 Raymond Glenn Frye; Manhattan
 Nellie Marie Fuhrman; Bendena
 Florence Mable Funk; Iola
 Lois Winnie Furney; Alta Vista
 Velmar Edward Gagelman; Great Bend
 Eldred LaMonte Gann; Burden
 Andrew McKinley Gardner; Manhattan
 Harold Davis Garber; Manhattan
 Solomon C. Gary; Abilene
 Lester Charles Gates; Manhattan
 Gertrude Spencer Geer; Auburn
 Bessie Geffert; Manhattan
 Cora Mae Geiger; Salina
 Ralph Waldo George; Wichita
 Frances Irene Geren; Axtell
 Verda Verene German; Glen Elder
 Walter Geurkink; Manhattan
 Frances Eloise Gibson; Muskogee, Okla.
 Leland Nobel Gibson; Whitewater
 Henry Nelson Gilbert; Manhattan
 Willard LeRoy Gillmore; Manhattan
 Rowena Goldie Ginn; Washington
 Ruth Glick; Junction City
 Clarence J. Goering; Moundridge
 Lavone Goheen; Oak Hill
 Bonnie Goodman; Troup, Tex.
 Harley Hooker Goodwin; Manhattan
 Thelma Gossard; Topeka
 Edward Lawrence Grafel; Manhattan
 Earl Ervin Graham; Magnolia, Ark.
 George Alex Graham; Manhattan
 George Laurin Graham; Manhattan
 Ruth Elinor Graham; Manhattan
 Clarence Owen Grandfield; Manhattan
 Erma Sarah Gravenstein; Riley
 William Herbert Gray; Oxford
 Bertha Marie Green; Concordia
 Francis Edwin Greenbury; St. Louis, Mo.

SUMMER SCHOOL—Continued.

- Arville Jane Griffing; Manhattan
 Grace Darline Grinstead; Liberal
 Dale L. Grover; Manhattan
 Orrin F. Grover; Manhattan
 Fred Theodore Gunselman; Holton
 Iola Marguerite Gunselman; Holton
 Eva Maude Guthrie; Woodston
 Lois Marjorie Haas; Arrington
 Ferdinand Daniel Haberkorn; Hutchinson
 Wilma Helene Hahn; Clay Center
 Mary Olive Hall; New Albany
 Ruth V. Hallett; Topeka
 Richard Edward Hamler; Manhattan
 Maude Harland; Frankfort
 May Harland; Frankfort
 Florence Lavina Harold; Dresden
 Harold Byron Harper; Manhattan
 Marguerite Velma Harper; Emporia
 Mary Caroline Harrison; Galena
 Fern Elizabeth Harsh; Cassoday
 Derrill A. Hart; Winfield
 Maude Hart; Albuquerque, N. Mex.
 Viola Grace Hart; Topeka
 Julia Ruth Hartman; Manhattan
 Ayleen Manerva Hartzell; Rossville
 Harvey Rockburn Harwood; Manhattan
 Ora Adehlia Hatton; Bunkerhill
 Iola Lillian Hawley; Manhattan
 Everett Haukenberry; Manhattan
 Virginia Deane Hawkins; Monte Vista, Colo.
 Maxine Hawley; Manhattan
 Rachel Hearn; Marshall, Okla.
 Hal Thomas Heath; Enterprise
 Raymond Leonard Heischman; Winfield
 Marylin Hemphill; Broughton
 Grace Mildred Henderson; Manhattan
 Gwendolyn Marie Henderson; Manhattan
 Alice Evangeline Henley; Brownell
 Ula Jeanne Henningsen; Esbon
 Merle Revere Henre; Kansas City
 Lucille Hesselbarth; Abilene
 Edna Elizabeth Higgins; Solomon
 Beulah Mae Hill; Agenda
 Garnet Isal Hill; Westmoreland
 Robert Towner Hill; Grand Meadow, Minn.
 Emma Jean Hilton; Caney
 Zelma E. Hockett; Manhattan
 Lawrence Kenneth Hofman; St. George
 Victoria Esther Holloway; Washington
 Vera M. Holmstrom; Randolph
 Verna Doris Holmstrom; Randolph
 William Milton Holt; Augusta
 Ruth Louise Holton; Manhattan
 John Lester Hooper; Robinson
 Elmer Earl Hoover; Manhattan
 Elsa Ottilia Horn; Manhattan
 Velma Irene Horner; Haviland
 Burtis Elliott Horrall; Manhattan
 Bernetha Horsman; Junction City
 Hazel Juanita Hotchkiss; Manhattan
 Marion Roy Hottell; Manhattan
 Mignon Corwin House; Manhattan
 Charles Wilber Howard; Holcomb
 Ida May Howard; Garnett
 Hazel Dell Howe; Manhattan
 Nellie May Hubbard; Cedarvale
 Gladys Huber; Leonardville
 Lela Ethel Huber; Leonardville
 Leo Everett Hudiburg; Pittsburg
 Agnes Mae Hudson; Salina
 Delia Viola Hudson; Smith Center
 Blanche Katherine Huey; Louisville
 Estelle Marie Huey; Louisville
 Hazel Gertrude Huey; Louisville
 Mary Melvina Hungerford; Manhattan
 Harley Main Hunter; Kansas City
 Margaret Anne Hyde; Manhattan
 Leslie David Hyland; Manhattan
 Agnes J. B. Hyrup; Mentor
 Elma Stewart Ibsen; Manhattan
 Le Ora Margaret Irwin; Wilsey
 Lorene Bernice Irwin; Wilsey
 Ralph Alexander Irwin; Hutchinson
 Percy Jennings Isaacson; Walsburg
 Frank Jacobs; Quenemo
 Lillian May Jacobson; Sedgwick
 Marie Sophie Janssen; Herkimer
 John Wesley Jarrott; Hutchinson
 June Jerard; Manhattan
 Pauline Gertrude Jermark; Delphos
 Edna Minnie Johnson; Alma
 Tracy El Delle Johnson; Olsburg
 Eleanor Anne Johnson; Cedarvale
 Esther Louise Johnson; Kansas City
 Francis E. Johnson; Manhattan
 Helen Wilhelmena Johnson; Burlingame
 Lillie Marie Johnson; Walsburg
 Jay Bernard Johnson; Manhattan
 Meriam Elsie Johnson; Argentine
 Paul Eugene Johnson; Garnett
 Sara Virginia Jolley; Manhattan
 Edward C. Jones; Manhattan
 Louise Emma Jones; Manhattan
 Roy Winfield Jones; Manhattan
 Shelby Jones; Goodland
 Anna Marguerite Juenuman; Axtell
 Lana Ann Justice; Manhattan
 Herbert Lee Kammeyer; Wamego
 Ann Mary Pauline Kaster; Dexter
 Pauline Kegereis; Manhattan
 Robert Warren Kellogg; Manhattan
 Annie Mary Kerr; Manhattan
 Martha Helen Keyes; El Dorado
 Helen Kimball; Manhattan
 Marjorie Russell Kimball; Manhattan
 Solon Toothaker Kimball; Manhattan
 Venice Marie King; Olsburg
 Hester Ellen Kinkad; Troy
 Aaron Kipp; Ellsworth
 Leola May Kipper; Belleville
 Herbert Henry Kirby; Toronto
 Kathryn Emile Kirch; Marysville
 Lester Allen Kirkendall; Oberlin
 Marion Gibbonney Kirkpatrick; Manhattan
 Loren Robert Kirkwood; Manhattan
 Ruth Vera Kistler; Kingman
 Joe Donald Klahr; Netawaka
 Karl Knaus; Menonimie, Mich.
 Grace Mae Knisley; Talmage
 Vera Lilyan Kniseley; Liberal
 Norma Louise Knoch; Lincoln
 Altha Naomi Koehler; Manhattan
 Grace Esma Kottwitz; Peabody
 Clara Mary Kramer; Seneca
 Anna Vera Kraushaar; St. George
 Carrie Gertrude Krueger; Bison
 Julia Sirena Lamb; Blue Rapids
 Paul Griffith Lamerson; Manhattan
 Joseph Ralph LaMont; Westmoreland
 Imogene Lampe; Manhattan
 Aldene Scantlin Langford; Manhattan
 Emil E. Larson; Agenda
 Eveline Juliet Larson; Leonardville
 Paul Merville Larson; Manhattan
 Orrill Latzke; Manhattan
 George William Lawrence; Ottawa
 Eva B. Leland; Wichita
 Carroll Mendenhall Leonard; Manhattan
 Florence Marie Leonard; Manhattan
 Virgil Hudson Leonard; Richland
 Bessie Helen Lewis; Wakefield
 Gladys Faye Lewis; Home
 Rose Aline Lewis; Emporia
 Ruby Mae Lewis; Concordia
 Harold Carl Lindberg; Courtland
 Lois Regina Lindsey; Frankfort
 Elva Viola Lindstrum; Leonardville
 Lorena Josephine Linquist; Clay Center

SUMMER SCHOOL—Continued.

Jack Harris Linscott; Manhattan
 Aubrey Erskine Lippincott; Fort Riley
 Helen May Loofbourrow; Manhattan
 Hibbard Alden Loomis; Manhattan
 Elizabeth Lorimer; Kansas City, Mo.
 Forrest Coniver Love; Manhattan
 Henry W. Loy, Jr.; Chanute
 John Wallace Lumb; Manhattan
 Mark Robert Lumb; Manhattan
 Myrtle Cecelia Lund; Green
 Elvera Lundine; Hope
 Hattie Lanaea Lundine; Hope
 Lawrence Nile Lydock; Winfield
 Agnes Jeanne Lyon; Manhattan
 Harris Kelley McAtee; Manhattan
 Andrew Lafayette McBride; Manhattan
 Thomas Elmore McCarty; Wichita
 Everett Lynn McClelland; Manhattan
 Cecile G. McClaskey; Weskan
 Grace Kerns McCoppin; Phillipsburg
 Bertha Mae McCormick; Sumner, Mo.
 Esther Beatrice McGuire; Manhattan
 Ada Marie McKeever; Holton
 Paul Melvin McManis; Manhattan
 Ella Ruth McMains; Manhattan
 Caroline May McMichael; Council Grove
 Mary Martha McMichael; Council Grove
 Reva McNeil; Miltonvale
 Mary Marcella McQuiestan; Clay Center
 Merle Lyal Magaw; Ames
 Gladys Isabelle Mahaffey; Norton
 Edna Madeline Mailloux; Clyde
 Georgia Ann Maixner; Wilson
 Hugh LaVerne Manion; Almena
 Margery Ellen Manshardt; Leonardville
 Laura May Marey; Milford
 Bruce Hedrich Markle; Chanute
 Vivian Anna Marley; Manhattan
 Daniel Claire Marshall; Manhattan
 Reva Merle Marten; Wamego
 Claire Arnot Martin; Abilene
 Edith Seavey Martin; Manhattan
 Florence Merle Martin; Cuba
 James William Martin; Sabetha
 Rebecca Mason; Wakefield
 Myrtle Alice Mather; Centralia
 Charlotte Viola Mathias; Manhattan
 Mary Frances Maxwell; Manhattan
 Wilbert Maynard; Blue Rapids
 Lester E. Mayer; Alta Vista
 Elmer Quintin Mell; Wetmore
 Lora Gertrude Mendenhall; Salina
 Edward W. Merrill; Manhattan
 Patsy Ruth Merritt; Portageville, Mo.
 Hazel Gladys Meyer; Mound City, Mo.
 Mary Amanda Meyer; Mound City, Mo.
 Albert William Miller; Manhattan
 Breta Stena Miller; Blue Rapids
 Clara Grace Miller; Colby
 Edith Elaine Miller; Lebanon
 Helen Marjorie Miller; Ulysses
 Horace Gratiot Miller; Lebanon
 Ina Marguerite Miller; Hays
 Otto Martin Miller; Manhattan
 Vern Denton Mills; Manhattan
 Pearl Rosie Milner; Republic
 Edna Ona Mitchell; Clifton
 Mable M. Mitchell; Belleville
 Beryl Johnson Mohri; Olsburg
 Shirley Caroline Mollett; Manhattan
 Leon Francis Montague; Solomon
 Leslie Eugene Moody; Ogden
 Ferne Hilda Moore; Blue Rapids
 Harry Allyson Moore; Manhattan
 Roy Moore; Manhattan
 Alta Marie Morehouse; Manchester
 William Nathaniel Moreland; Manhattan
 Virgil Idmire Morey; Narka
 Ruth Ann Morgareidge; Manhattan
 Marguerite Morris; Paxico
 Mary Hope Morris; Manhattan
 Merle Dallas Morris; Manhattan
 Paul Reddick Morris; Paxico
 Sarah Morris; Manhattan
 Eva Hope Morrison; Manhattan
 Teresa Madeline Morton; Minneapolis
 Marjorie Eleanor Moulton; St. George
 Alice Mace Moyer; Marceline, Mo.
 John Ross Moyer; Hiawatha
 Elizabeth Emma Mueller; Washington
 Leland Raymond Mueller; St. Louis, Mo.
 Willard Dow Munson; Madison
 Gladys Myers; Burns
 Hylen Myers; Burns
 Raymond Soper Myers; Salina
 Esther Amanda Nauwerth; Keats
 Margaret Ilene Naylor; Manhattan
 Leonard George Nehring; McFarland
 Margaret Marie Nelson; Belleville
 William Anthony Nelson; Alta Vista
 Anna Mae Nettletrouer; Manhattan
 Jennie Viola Nettletrouer; Manhattan
 Leonor Nichols; Manhattan
 Karl Polk Niederlander; Manhattan
 Alice Evelyn Nightingale; Centralia
 Alex N. Nigro; Manhattan
 Alice Agnes Nobel; Oneida
 Luther Owen Nolf; Manhattan
 Dellia Noll; Manhattan
 Gordon Curtis Nonken; Manhattan
 Laura Ann Norse; Kansas City, Mo.
 Ethel Louisa Oberholser; McPherson
 Celia Teresa O'Connor; Chapman
 Geraldine J. O'Daniel; Westmoreland
 Vera Maye Odell; Republic
 Verle R. Oline; Sterling
 Velma Luella Oliphant; Kinsley
 Charles Robert Omer; Mankato
 Hester Berle Orton; Alta Vista
 Daisy Marietta Osborn; Elmont
 Lyle Owen; Douglass
 Leone Evelyn Pacey; Manhattan
 Alfred Robert Paden; Argonia
 Cecil H. Pankratz; Hillsboro
 Herman L. Pankratz; Hillsboro
 Laurence Parker; Pittsburg
 Lois Lilly Parker; Broughton
 Edythe La Verne Parrott; Manhattan
 Marvin Joseph Paul; Moran
 Clara Margaret Paustian; Clay Center
 Lillian Susanna Paustian; Clay Center
 Helen Elizabeth Paynter; Manhattan
 Clara Marie Pearson; Windom
 M. Bertrand Pearson; Manhattan
 Zita Emelia Pecenka; Bremen
 Lucile Elizabeth Peck; Soldier
 Merle Duff Peck; Jamestown
 Ruth Jeannette Peck; Manhattan
 Royce Owen Pence; Manhattan
 Fern Doris Pendleton; Rossville
 Kenneth Orval Peters; Utica
 Effie Ane Peterson; Vining
 Effie Louise Peterson; Riley
 Irving Everett Peterson; Haddam
 Anna Petr; Waterville
 Paul Eugene Pfuetze; Manhattan
 Louise Arminda Phelps; Dwight
 Robert Phillips, Jr.; Joplin, Mo.
 Frances Louise Pickens; Lake City
 Esta Pearl Pickering; Glen Elder
 Vernon Lee Pierce; Kansas City
 Irene Olive Pierson; Stanton, Iowa
 Lucile Pierson; Burlington
 Wren William Pierson; Burlington
 Martin William Pommerenke; Clay Center
 Gladys Lydia Popejoy; Junction City
 Myra Thelma Potter; Mulvane

SUMMER SCHOOL—Continued.

Walter Preston Powers; Netawaka
 James Wilson Pratt; Manhattan
 Delmas Eugene Price; Wakefield
 Hazel Spangler Price; Liberty
 Charles Stanley Prince; Manhattan
 Alberta L. Pullins; Council Grove
 Harry Charles Quantic; Riley
 Elizabeth Quinlan; Manhattan
 Dorothy Raburn; Manhattan
 Margaret Elizabeth Raffington; Hutchinson
 George Hemrod Railback; Manhattan
 M. Rosemary Railsback; Langdon
 Ethel Agnes Ramsour; Junction City
 Esther Virginia Ratliff; Manhattan
 Bernice Marie Read; Manhattan
 Lyle Cheadle Read; Clay Center
 Grace Editha Reed; Topeka
 Mary Frances Reed; Holton
 Horace John Reinking; Tescott
 Evelyn Marjorie Reust; Frankfort
 Wilda Aileen Rhodes; Manhattan
 Carl Clark Rice; Manhattan
 Lewis Jones Richards; Manhattan
 Lois Thomas Richards; Manhattan
 Beulah Alice Richardson; Washington
 Earl Cranston Richardson; Coffeyville
 Zora Ida Specht Richter; Manhattan
 Mary Alice Ridge; Basil
 Tillie Helen Rife; Anthony
 Harold Barrows Riley; Kansas City
 Ruth Riordan; Solomon
 Theodore Roosevelt Robb; McPherson
 Mary Eillenn Roberts; Manhattan
 John Bissell Roberts; Manhattan
 Sarah Helen Roberts; Manhattan
 Blanche Helen Robertson;
 Council Bluffs, Iowa
 Frances G. Robinson; Hays
 Esther Joanne Rokey; Manhattan
 Jane Edith Roether; Ogden
 Bernard Adlai Rogers; Manhattan
 Guy G. Rogers; Garnett
 Lucile Kathryn Rogers; Abilene
 Emily May Rogler; Manhattan
 Florence Eileen Rohrer; Bourbon, Mo.
 Zelma Marie Rohrer; Bourbon, Mo.
 Loree Loetta Rolph; Delphos
 Pearl Rorabaugh; Lebanon
 Edith Rosevear; Troy
 Juanita Routt; Paola
 Gayl Adaline Russell; Manhattan
 Lois Russell; Manhattan
 Paul Wilfred Russell; Mankato
 Helen Marguerite Rust; Manhattan
 Lucile Osborn Rust; Manhattan
 Cecil Reed Ryan; Kansas City
 Martha Ilah Sackett; Washington
 Mary Jane Salmon; Manhattan
 Lilia Maria Samuel; Manhattan
 Blanche Fay Sanderson; Scandia
 Lillian Sands; Kansas City
 Frances Wilma Sandesky; St. Joseph, Mo.
 Mary Elsie Sargent; Riley
 Marjorie Louise Sarvis; Norton
 Velma Irene Saunders; Courtland
 Clara Mae Sawin; Washington
 Lois Mary Saxton; Manhattan
 Matilda Amelia Saxton; Manhattan
 Everett Duane Sayles; Manhattan
 Paul Griffith Sayre; Manhattan
 Lillian Hilda Schachat; New York City
 Margaret James Schattenburg; Riley
 Warren Ellsworth Schaulis; Wakefield
 Ira F. Schindler; Jewell
 Margaret Mary Schippert; Manhattan
 Stella Marie Schlinger; Atchison
 Lorna Katherine Schmidler; Marysville
 Edward Schneberger; Cuba
 Ruby Thelma Scholz; Frankfort
 John Edward Schrock; Wilmore
 Loretta Margaret Schroll; Greenleaf
 Galen Emil Schwandt; Manhattan
 Louis C. Schwanke; Alma
 Sybella Adelaide Scott; Manhattan
 Clarice Scott; Jennings
 Earnest Othello Scott; Elgin
 George Whitefield Scott; Udall
 Harriet Newel Scott; Kirwin
 Sarah Elizabeth Scott; Manhattan
 Simon Walter Scott; Kansas City
 Mirriam Edna Selden; Clyde
 Mabel Luetta Sellens; Russell
 Isabel Seright; Atchison
 Sheridan Howard Settler; Council Grove
 Frank William Shaw; McPherson
 Alene Frances Shay; Miltonvale
 Oren Logan Shelley; Wichita
 John Henry Shenk; Manhattan
 Ralph Abraham Shenk; Silver Lake
 Helen Ladd Shepherd; Colby
 Vivian A. Shields; Hoxie
 Lee Edward Shirley; Lucas
 Jeanne A. Shoemaker; Centralia
 Ruth Stephenson Showalter; Lebanon
 Mabel Ida Shrontz; Wilsey
 Marie June Shultz; Minneapolis
 Velma Alice Siddens; Westmoreland
 Francisco Antonio Sierra de Soto;
 Medellin, Colombia, S. A.
 Lonnie Joseph Simmons; Manhattan
 Esther Alice Sinclair; Lakin
 Millard Paul Sink; West Lafayette, Ind.
 Silvanus Hull Sisson; Colony
 Sister M. Frances Castello; Manhattan
 Sister M. Roselita Hull; Manhattan
 Garnett Irene Skinner; Mankato
 Cleo Anna Slingsby; Topeka
 Edna Loretta Small; Beattie
 Elizabeth Ann Smerchek; Cleburne
 Alma Pearl Smith; Marysville
 Ella Lavonne Smith; Agenda
 Emmett Allen Smith; Manhattan
 Harold Leonal Smith; Severy
 Hazel Anna Smith; Agenda
 Margaret Helene Smith; Meade
 Myrna Frances Smith; Manhattan
 Roy Smith; Washington
 Sam J. Smith; Florence
 Vere Genevieve Smith; Manhattan
 Vesta Smith; Parsons
 Georgiana H. Smurthwaite; Manhattan
 Mary Freda Smurr; Manhattan
 Ida Elizabeth Snyder; Effingham
 Elsie Elaine Steckel; Dwight
 Artela Belle Steele; Beaver City, Neb.
 Bertha Matilda Steenbock; Barnes
 Lillian Caroline Steinmeyer; Alma
 Towner Hardy Stevens; Manhattan
 Dorothy Louise Stewart; Omaha, Neb.
 LaVon Stewart; Wamego
 Martha Eldana Stewart; Frankfort
 Mary Emma Stewart; Auburn
 Dorothy M. Stoddard; Manchester
 Maidene Bertha Stout; Peabody
 Ione Strickland; Manhattan
 Birdia Viola Sturgeon; Cherryvale
 Mary Lena Stutz; Manhattan
 Gladys Estelle Suiter; Macksville
 Mae Rachel Sullivan; Arkansas City
 Vera Olive Sunderland; Vermillion
 Luella Jean Sutton; Minneapolis
 Coit Alfred Suneson; Missoula, Mont.
 Carola Agnes Swanson; Manhattan
 Mabel Manghild Swanson; Manhattan
 Harry Alcid Swim; Manhattan
 Cleon Orel Tackwell; Manhattan
 Harry Patrick Taylor; St. Louis, Mo.

SUMMER SCHOOL—Concluded.

Hazel Elizabeth Talyor; Washington
 Hazel Evelyn Taylor; Marysville
 Mark Mowell Taylor; Harveyville
 James F. Teachworth; Burns
 Esther Marie Teasley; Manhattan
 Audrey Argey Tedrow; Scandia
 Marguerite Wilhelmina Terrass; Alma
 Howard Irwin Thaller; Manhattan
 Alene Bernice Theisner; Manhattan
 Alfred Dale Thomas; Ellsworth
 Doris Lillian Thompson; Belleville
 Laureda Thompson; Manhattan
 Marcia Story Throckmorton; Manhattan
 Clyde Francis Thudin; Mulvane
 Mildred Bertha Thurow; Macksville
 Opal Florence Thurow; Macksville
 Rosemary Tischhauser; Manhattan
 Viva May Tobler; Wamego
 Margaret Mina Todd; Oak Hill
 Mateel Finch Todd; Manhattan
 Ivan Kieth Tompkins; Byers
 Mildred Ellen Toombs; Wamego
 Mildred Ilene Toomey; Neodesha
 Evelyn Lucile Torrence; Independence
 Dean Willard Towner; Solomon
 Ivan C. Townsdin; Randall
 Genevieve Thelma Tracy; Manhattan
 Ruth Anna Tredway; La Harpe
 Helen Grace Tembley; Hutchinson
 Ruth E. Tucker; Manhattan
 Mary Edna Tupper; Manhattan
 Bernice Marie Turnbull; Summerfield
 Ruth Viola Turner; Washington
 Howard Dale Tyner; Manhattan
 Anton Urban, Jr.; Miltonvale
 Gladys Ellen Vail; Plains
 Winifred Grace Vanderwilt; Solomon
 Inez Nola Van Scoyoc; Oak Hill
 Mary Pierce Van Zile; Manhattan
 Rollo Evans Venn; Wichita
 Lillian Elizabeth Vennum; Columbus
 Ruth Kathleen Vennum; Columbus
 Rose Mary Vesely; Blue Rapids
 Bess Marie Viemont; Lafayette, Ind.
 Velma Elizabeth Vincent; Alden
 Orletha Mae Vincent; Miltonvale
 Lucile Waddell; Holcomb
 Donald Wade; Manhattan
 Mary Francis Wagner; Manhattan
 Eleanor Irene Walker; Manhattan
 Violet Lovina Walker; Manhattan
 Helen Laura Walter; Wakefield
 Hazel Maude Walter; Riley
 Helen Louise Walters; Riley
 Margaret Emma Walters; Manhattan
 Margaret Lois Walters; Riley
 Wirt Dudley Walton; Leavenworth
 Louise Wampler; Manhattan
 Charles Fayette Ward; Pratt
 Walter Gilling Ward; Manhattan
 Glen Chase Ware; Manhattan
 Daisy Ann Warman; Washington
 Vera C. Warnock; Hutchinson
 Theodore Roosevelt Warren; Manhattan
 Arthur Wasson; Peru
 Eugene Albertice Waters; Wellsville
 Edgerton Lynn Watson; Manhattan
 Joseph Ardrey Watson; Sedan
 Ella Henrietta Webb; Kansas City
 Frances Cornelia Webb; Greenfield, Mo.
 Marie Margaret Weber; Salina
 Aline Wegert; Rice
 Margaret Wegert; Rice
 Alice M. Weigel; Victoria
 Helen Clarice Weinhold; Clifton
 Esther Weisser; Paxico
 Ruth Weisser; Paxico
 Katherine Welker; Coffeyville
 Janet C. Wells; Belleville
 Olive O. Wells; Belleville
 Bertha Evelyn Wentworth; Furley
 Ethel Regina Werner; Baileyville
 Lulu Parken Wertman; Morrowville
 Fannie Susan Westerdale; Bushong
 Jesse Frederick Westerdale; Bushong
 Harry Lee Wheeler; Sharon Springs
 Mary Frances White; Manhattan
 Royden Keith Whitford, Jr.; Hamlin
 Nana Frances Whitman; Kansas City
 Clyde Frederick Whiter; Nevada, Mo.
 Ada Caroline Wiese; Manhattan
 Gertrude Helena Wilber; Belleville
 Lillian M. Wilber; Belleville
 Myrtle Elizabeth Wilkins; Miltonvale
 Helen Rovene Williams; Crawfordville, Ind.
 Lila Williams; Broughton
 Myrna Faye Williams; Clifton
 Ruth Williams; Broughton
 Homer Bryan Willis; Manhattan
 Helen Mildred Wilmore; Halstead
 Alfred Jacoby Wilson; Wichita
 Daisy Mae Wilson; Irving
 Karl Marx Wilson; Concordia
 Leone Wilson; Wichita
 Mary Helene Wilson; Council Grove
 Otis Harold Wilson; Jennings
 Florence Thelma Wineinger; Norwich
 Claude Jennings Winslow; Tonganoxie
 Ruby Anna Wohlgenuth; Washington
 Wallace Robert Womer; Manhattan
 Gladys Wood; Tulsa, Okla.
 Ned Woodman; Manhattan
 Ernest Burton Woodward; Medicine Lodge
 Ruth Frances Worcester; Manhattan
 Mary Abigail Worcester; Manhattan
 Wilbur William Wright; Hope
 Claude Newton Yapple; Ford
 Hulda Bertha Yeuni; Ogden
 Inez Anna Youngquist; Blue Rapids
 Iscah Marian Zahm; Topeka

Second Session

Jasper Dorman Adams; Garden City
 Thomas W. Bruner; Jewell
 Edward Albert Clawson; Columbus
 Hubert L. Collins; Topeka
 Arthur Everett Cook; Holcomb
 Charles Ambrose Davis; Topeka
 Arnold Joseph Englund; Coats
 William Raymond Essick; Lawrence
 Thomas C. Faris; Lebanon
 Vernet Edward Fletcher; Alton
 Kenney Lee Ford; Norton
 Irma S. Gorton; Pittsburg, Pa.
 Clarence Owen Grandfield; Manhattan
 Cecil Canum Holmes; Goff
 Julian Almon Johnson; Kiowa
 Havard Lawrence Keil; Manhattan
 George McDonald; Langston, Okla.
 Ezra Perle Mauk; Havensville
 Jephtha Jerry Moxley; Manhattan
 Vernon Emery Paine; Admire
 Robert Harlan Perrill; Coldwater
 Fred Thomas Rees; Mound City
 Lester J. Schmutz; Wakefield
 Sophia Mae Shade; Hays
 David Loyd Signor; Effingham
 H. Arlo Stewart; Topeka
 Oral Martin Williamson; Garden City
 Homer Carlton Wood; Reading

Home Study Service Students

(Instruction by Correspondence)

For the year January 1, 1928, to January 1, 1929, those who took credit courses numbered 954 and those who enrolled in vocational courses numbered 4.

In the following list, those taking college credit courses are indicated by (c), those taking high-school courses by (p), and those taking vocational courses by (v).

Where enrollments are from Kansas the name of the state is omitted. It is given in all other cases.

Gerda Abel (c); Chicago, Ill.	Doris Bland (c); Lucas
Lloyd S. Adams (c); El Dorado	Oscar Blase (c); Wichita
Mary Adee (p); Gretna	Edna Blayney (p); Manhattan
Ray Alexander (c); Chicago, Ill.	Edna Bloom (c); Enterprise
Pearl Mareta Alexander (c); Norcatur	Adora Bogart (p); Norcatur
Merle Allen (p); Manhattan	Wm. Bokenkroger (c); Sabetha
Anne M. Alleson (c); Manhattan	Harold D. Boles (c); Madison
Paul Allin (p); Manhattan	Elbert S. Bonnel (p); Winfield
Loren N. Allison (c); Falls City, Neb.	Geneva D. Booth (c); Fairview
Ray Althouse (c); Colorado Springs, Colo.	Sister Borromeo (c); Wichita
Erma Altwegg (p); Chapman	Fred Bosley (c); Manhattan
Lawrence V. Anderson (c); Manhattan	Verne W. Boyd (c); Manhattan
Harold L. Anderson (c); Agenda	Lora Boydston (c); Eureka
Eunice Miriam Anderson (c); Chicago, Ill.	Merle Braden (p); Beloit
Ethel Ida Anderson (c); Cicero, Ill.	Faythe E. Brandt (c); Agricola
Mrs. A. C. Andrews (c); Manhattan	James Brasche (p); Paxico
Francisco A. Asis (c); Manhattan	Emma Brelsford (c); Jennings
Geo. S. Atwood (c); Jetmore	Raymond Brenner (p); Manhattan
Freda Ausmus (c); Oketo	Helen Brewer (c); Peabody
Ruth Hilda Avery (c); Riley	Gertrude Brill (c); Westmoreland
H. F. Axtell (c); Dimmitt, Tex.	Irene Brinkman (c); Freeport
H. Z. Babbitt (c); Manhattan	Carol Briscoe (c); Cambridge
Kimball Backus (c); Manhattan	Alice Britschge (c); Manhattan
George Bagley (c); Chanute	Harrison S. Britton (p); Oronoque
Henry Bagley (c); Chanute	Mary Brookover (c); Eureka
Doris Bailey (p); Phillipsburg	James Byron Brooks (c); Garrison
Wm. A. Baird (c); Topeka	Lester M. Brott (c); Glasco
Mabel Viola Baker (p); Dunlap	R. A. Brown (c); Waterville
Kenneth Baker (p); Harper	James L. Brown (p); Riley
B. A. Balanag (c); St. Louis, Mo.	Verdis U. Brown (c); Larned
Alieda E. Balzer (c); Whitewater	Ruby D. Brown (p); Harper
Lola Banta (c); Oberlin	M. B. Brown (p); Manhattan
Lila Banta (c); Oberlin	Kenneth Brown (p); Chanute
Deane De Vere Banta (p); Little River	Mildred Brown (c); Winfield
Margaret Harriett Banz (c); Hutchinson	Robert V. Brown (p); Manhattan
Ethel Barnes (c); Morrowville	Leone E. Bruch (c); Randall
Frank Barnes (c); Osawatimie	Hugh C. Bryan (c); Osage City
Ida Barnett (c); Denison	Nathan D. Bryant (c); Scottsville, Ky.
Roxie Barrett (p); Blue Rapids	Barkley Bryan (c); Little River
Louise M. Barton (c); Cuba	Nadine E. Buck (c); Topeka
Vernon Bates (c); Manhattan	Darrel Buckmaster (p); Manhattan
Kenneth Bauman (c); Salina	Emmerson Buenning (p); Hope
Darline Baumgartner (p); Ellenwood	Harold A. Brunett (c); Wichita
Callie Beard (c); Manhattan	James Michael Burke (p); Greenleaf
Etnah Beaty (c); Lakin	Willma Burr (p); Blue Rapids
Victoria Beaty (c); Lakin	Eugene H. Burt (p); Merriam
L. O. Beatty (c); Manhattan	Marvel Bushby (c); Munden
Vernon Augustus Beck (c); Topeka	Mrs. R. D. Bushong (c); Wendell, N. C.
Mrs. Ruth Beeson (c); Wamego	Norvall D. Butler (c); Manhattan
Theodora Behrens (c); Chicago, Ill.	Mabel Caldwell (c); Topeka
Raymond A. Bell (c); Beverly	Lois N. Call (c); Hoisington
Lottie Benedick (c); Manhattan	Marjorie Call (p); Manhattan
Lois Benjamin (p); Manhattan	Sylvia Callahan (c); Fairview
Reva Louise Bentley (p); Pendennis	Maurine Cannard (p); Tulsa, Okla.
Revus Berkley (p); Manhattan	Adelia Carlson (p); Leonardville
Goldie Bergsten (c); Cleburne	Nancy Carney (c); Manhattan
Wm. H. Berry (c); Attica	Clifford Carpenter (c); Great Bend
T. G. Betts (c); Detroit	Bill Carr (p); Attica
Raymond Bevitt (c); Randolph	Ruth E. Carswell (c); Topeka
J. W. Biddison (c); Americus	R. C. Carter (c); Hutchinson
Merrill Blacker (p); Gardner	Ruth E. Carwell (c); Hannibal, Mo.
Mary E. Blakslee (c); Manhattan	Mildred Casey (p); Manhattan
	Alfred L. Casey (c); Racine, Wis.

HOME STUDY STUDENTS—Continued.

- Mildred Casey (c); Dorrance
 Marvin Castle (c); Mayetta
 Helen Caughron (c); Manhattan
 Wilbur Chamberlin (c); Newton
 Alton Chapman (p); Manhattan
 Francis L. Charlton (p); Edwardsville
 Annice Chase (c); Junction City
 E. Roy Chesney (c); Wichita
 Louise Child (c); Manhattan
 C. F. Chrisman (c); Manhattan
 Blanche Christensen (c); Bushong
 Neva Christenson (p); Jewell
 Bradley R. Christie (c); Atchison
 Arlene Church (c); McPherson
 Coral M. Clark (c); Ottawa
 Velma Clark (p); Savannah, Mo.
 Cora Clark (p); Alta Vista
 Lewis J. Clason (c); Long Island
 Alice M. Clema (c); Frankfort
 Elizabeth O. Clency (c); Manhattan
 P. W. Cockerill, (c); Junction City
 Homer W. Coddington (c); Chicago, Ill.
 Erma Coleman (c); Mayetta
 Ward Colwell (c); Manhattan
 Robin E. Compton (c); Lawrence
 Lewis Congrove (p); Goff
 Effie Conner (c); Lyons
 Ralph M. Conrad (p); Manhattan
 Charlotte Conroy (p); Manhattan
 Chas. E. Converse (c); Manhattan
 Robert Athos Cook (p); Delphos
 Lutie H. Cowles (c); South Haven
 James M. Culum (c); Beverly
 Inez M. Crabb (c); Colby
 Roger R. Craig (c); Gardner
 Mary E. Crawford (c); Keota, Iowa
 Jay J. Cress (p); Manhattan
 Earl D. Crider (p); Phillipsburg
 Paul Crider (p); Phillipsburg
 W. A. Crites (c); Senath, Mo.
 Zola Crofton (p); Scott City
 Ralph Crouch (c); Everest
 Kathryn Crowder (c); Manhattan
 C. E. Critchfield (c); Manhattan
 Fern Cunningham (c); Manhattan
 Raymond C. Curtis (c); St. John
 Bess L. Cusick (c); Ottawa
 Edmond R. Dailey (c); Garden City
 Chas. O. Dailey (c); Manhattan
 Dorothy D. Dale (c); Coldwater
 Mrs. Maude Daniels (c); Randolph
 Bill Daniels (c); Westfall
 Nettie D. Darrah (c); Manhattan
 Eulah Mary Davies (p); Manhattan
 John L. Davis (c); Osage City
 Paschel Davis (p); Pattersville, Mo.
 Anna Marie Davis (p); Manhattan
 Elmer K. Davis (c); Glen Elder
 Daisy Davis (c); Glen Elder
 S. Paul Daugherty (c); Chicago, Ill.
 Harold John Dayhoff (c); Abilene
 Ivan Dayhoff (p); Detroit
 Geo. T. Dean (c); Manhattan
 John W. Deay (p); Eudora
 L. D. De Busk (c); Manhattan
 John W. Decker (c); Manhattan
 Bernice L. Decker (c); Holton
 Irma Deeter (p); Norcatur
 Hazel Deibler (p); Manhattan
 Robert Denny (c); Moline, Ill.
 Darcy D. Dial (c); Manhattan
 Doak Dickenson (p); Rolla
 Archie H. Diehl (c); Polo, Ill.
 May Dikeman (c); Manhattan
 H. A. Dimmitt (c); Manhattan
 Charles E. Dimon (p); Manhattan
 Laurence A. Dival (c); Berwyn, Ill.
 Frank Dixon (p); Junction City
 Esther E. Dizmang (c); Manhattan
 Joseph L. Dole (p); Manhattan
 Harry S. Dole (c); Almena
 Margaret A. Doll (p); Ellinwood
 Earl Domoney (c); Saginaw, Mich.
 Rose Donohue (p); Washington
 Dorothea Helen Doty (p); Wichita
 Myrtle Dougherty (c); Manhattan
 Mrs. Hattie M. Doughty (p); Howard
 David E. Downs (p); Wathena
 Kathryn Doyle (p); Junction City
 Deda Louise Drake (p); Manhattan
 Herbert Drake (c); Nekoma
 Mary Lou Dronenburg (c); Kansas City, Mo.
 Eva Dudgeon (c); Carleton
 Gersie Duff (c); Manhattan
 Mabel Ethlin Dunham (c); Broughton
 William Dunlap (c); Berryton
 James J. Dunlop (c); Detroit
 Robert I. Dunlop (c); Detroit
 Frances P. Dunn (c); Aurora, Ill.
 Dora Dean Dunn (p); Phillipsburg
 D. L. Dutton (c); Alta Vista
 Ruth Dutton (p); Alta Vista
 Genevieve Duering (c); Chicago, Ill.
 Lillys Duvall (c); Arkansas City
 Charles Eads Jr. (p); Quinter
 E. O. Earl (c); Manhattan
 Roy H. Eastwood (c); Summerfield
 Martha Eberhardt (c); Salina
 Rudolph Eugene Eberle (p); Emporia
 Albert R. Edwards (c); Manhattan
 Hellen R. Elling (c); Lawton, Okla.
 J. E. Elliott (c); Hartford
 Irene Elliott (c); Topeka
 Marjorie Emery (c); Tescott
 Oran Emrich (p); Wakefield
 Clara Eness (c); Searcy, Ark.
 Julia Enos (c); Fort Riley
 Merrill Enyeart (c); Norcatur
 W. N. Epler (c); Manhattan
 Anna F. Erickson (p); Vermillion
 George Ernsbarger (c); Delphos
 August Etzold Jr. (p); Independence
 A. B. Eustace (c); Manhattan
 John H. Ewert (c); Blackwell, Okla.
 Charles Fairbanks (p); Blue Rapids
 Burdean Falen (c); Stafford
 Everett Fauchier (c); Topeka
 Edith Fear (c); Bala
 Thelma A. Feather (c); Bird City
 Marian M. Feess (c); Belvue
 Esther Ferguson (c); Jasper, Mo.
 Lulu Ferrell (p); Peru
 Garnett L. Field (p); Zeandale
 Alta Fields (c); Manhattan
 Wave W. Finney (p); Beloit
 H. K. Fisher (c); Beverly
 Pauline Fisher (p); Sylvan Grove
 Clarence Fisher (c); Manhattan
 Gilla E. Fitch (c); Salina
 J. T. Fitzgerald (p); Blair
 Alice Fleck (c); Wamego
 O. W. Fletcher (c); Meade
 Lucy Fletcher (c); Salina
 Lulu Folsom (p); Webster
 R. W. Frank (c); Manhattan
 Matthew Franzen (v); Sheboygan, Wis.
 Theo. R. Freeman (c); West Plains, Mo.
 Mattie French (c); Kinsley
 John D. Friesen (p); Buhler
 Ruth I. Frost (c); Blue Rapids
 Raymond G. Frye (c); Hunnewell
 Lowell Funk (c); Manhattan
 O. E. Funk (c); Manhattan
 Gertrude Fulcher (c); Manhattan
 Edgar D. Furse (c); Pleasanton
 Fred Gabler (c); Coffeyville
 Mary B. Gabriel (c); Garden City

HOME STUDY STUDENTS—Continued.

- Mrs. John Gaeddert (c); Hutchinson
 H. L. Gamble (c); Halstead
 Kenneth Gapen (c); Manhattan
 Sylvia Garrett (p); Rover, Mo.
 Minnie Dee Gay (p); Paragould, Ark.
 Gertrude Geer (c); Randolph
 Irwin Geis (c); Manhattan
 Lois E. Gibson (p); Manhattan
 Glenn Gilbert (c); Manhattan
 Dorothy Gillaspie (c); Colby
 Susie Glass (c); Winfield
 Elizabeth Glick (p); Summerfield
 Louise C. Glick (c); Garden City
 Mary Gold (p); Herndon
 Clarence H. Goppert (p); Haddam
 Elizabeth Gordon (p); Independence
 Arline L. Grady (p); Alden
 Ray L. Graves (c); Newton
 W. L. Gray (c); Ellinwood
 John Ellsworth Greathouse (c); Garden City
 Thello Green (c); Murdock
 Lola Greenup (c); Manhattan
 W. Ellsworth Gregory (c); Manhattan
 Letha Gresser (c); Geneva, Neb.
 Edith Griffith (p); Rush Center
 M. A. Griffith (c); Osage City
 Eugene A. Grim (c); Wheaton
 Lewis Grindle (p); Formoso
 Albert Groh (p); Wathena
 Carol Grover (p); Iola
 Dale L. Grover (c); Manhattan
 Roderic Gruff (c); Manhattan
 Bill Guerrant (p); Manhattan
 Chster W. Haas (c); Larned
 Edwin Habiger (c); Bushton
 Lydia Hackler (c); Chanute
 Velma Irene Hahn (c); Idana
 John F. Hale (c); Manhattan
 Avis Hall (c); Manhattan
 Sister M. Thomas Halle (c); Salina
 Velma Hallock (c); Ada
 Helen Hallowell (p); Osage City
 W. T. Hamilton (c); Fort Riley
 Richard Hamler (c); Manhattan
 Rose Hammond (c); Courtland
 Eleanor Hand (p); Kanopolis
 Hazel Hanna (c); Riley
 Russell Hanna (p); Manhattan
 Gladys Hanson (c); Leonardville
 J. R. Hardin (c); Manhattan
 Katharine Harding (c); Manhattan
 Muggins Hardwick (c); Clovis, N. Mex.
 May Harland (c); Frankfort
 Fern A. Harris (c); Bloomington
 Albert Harris (c); Industrial City, Mo.
 Blanche Harris (c); Midland, Mich.
 Maude M. Harris (p); Wichita
 John Harris (c); Washington, D. C.
 Gertrude Harrison (c); Riley
 V. H. Harwood (c); Manhattan
 Glenn Haskin (c); Olathe
 Lillian Haugsted (c); Manhattan
 W. W. Hayes (c); Tuskegee Institute, Ala.
 Lillian Hazlett (c); Whitewater
 LeRoy Hawk (p); Manhattan
 Virginia Hawkins (c); Monte Vista, Colo.
 Beulah L. Heath (c); Leoti
 Josephine Heaton (c); Liberal
 Ivalee Hedge (p); Manhattan
 John J. Heimerich (c); Clay Center
 Roe Heller (c); Detroit
 Chas. Helman (p); Norton
 Chas. Helman (p); Norton
 R. L. Helmreich (c); Kansas City
 Grace V. Henley (c); Eureka
 Joseph E. Hershe (c); Danville
 Ruth Hickok (p); Ulysses
 Irving J. Hickman (c); McKittrick, Mo.
 John Henry Hicks (p); Bushong
 Arlie Wm. Higgins (c); Manhattan
 Maurice L. Hill (c); Manhattan
 Homer Hinnen (c); Holton
 Mrs. Pearl Hix (p); Norcatar
 Gail Hixenbaugh (p); Beloit
 Mildred Hoag (p); Manhattan
 C. E. Hobson (v); Sedan
 Robert Hodgson (c); Little River
 Mary P. Hoffman (c); Frenchburg, Ky.
 Anita Holland (c); Harper
 Clarence Hollingsworth (c); Manhattan
 Vera Holmstrom (c); Randolph
 Verna Holmstrom (c); Randolph
 Milton Holt (c); Augusta
 Mary Holton (p); Manhattan
 Lydia Hommon (c); Smith Center
 Travers R. Honeman (p); Enterprise
 J. Lester Hooper (c); Manhattan
 Walter Landis Hoover (c); Andover, S. Dak.
 J. C. Hopkins (c); Manhattan
 Harold J. Horsman (c); Alma
 Hazel Gleda Hosler (c); Aplington, Iowa
 Bert Hostinsky (c); Manhattan
 De Witt C. Houck (c); Americus
 H. O. Hough (c); Ottawa
 Dee Householder (c); Manhattan
 Inez Hovey (p); Miltonvale
 Marjorie Howard (c); Garnett
 Elenaoir M. Mubbell (p); Lebanon
 Archie Huey (c); Hat Creek, Wyo.
 Blanche Huey (c); Louisville
 Vance Hugunin (c); Kirwin
 Thelma V. Hull (c); Mankato
 Philip Hulland (p); Manhattan
 James Hunter (c); Westmoreland
 Mrs. W. W. Hurtt (v); Fort Scott
 Thelma Huse (c); Manhattan
 Keith Hushaw (p); Scott City
 Lucile Hutchison (c); Alma
 Vera Hutchison (c); Summerfield
 Joe Hyer (c); Coffeyville
 Perle L. Hyndman (c); Fort Riley
 J. G. Immer (c); Hudson
 Helen Ingalls (c); Talmage
 Eugene Irwin (c); Le Roy
 Ruth Irwin (p); Chanute
 Olivia J. Jackson (c); Holliday, Mo.
 Frank Jacobs (c); Atchison
 Nellie Jacobs (c); Manhattan
 Leila G. James (c); Kansas City, Mo.
 Ethel Janes (c); Kansas City
 Jerry D. Jarmon (c); New York, N. Y.
 Geo. E. Jauss (c); Iola
 Irene Jenkins (c); Wamego
 Florence Jenkins (p); Stafford
 L. Virginia Jennings (c); Quenemo
 Carl Jensen (p); Leavenworth
 Pearl S. Jepson (c); Alsbury
 Frank Jobs (c); Hiawatha
 Mary Jobling (c); Drury Park,
 Caldwell
 Elston L. Johnson (c); Randolph
 Maurice Johnson (p); Salina
 G. A. Johnson (c); Manhattan
 Viola Johnson (p); St. Francis
 Erma Johnson (p); Caldwell
 Lula Johnson (c); Manhattan
 Doris Johnson (p); Phillipsburg
 Donald R. Johnston (c); Manhattan
 Hazel Johnston (c); Leonardville
 Frank K. Johnston (c); Hillsboro, W. Va.
 Gus N. Jolliff (p); West Plains, Mo.
 Roberta Jones (p); Manhattan
 Amos S. Jones (v); Solomon
 Mrs. C. I. Jones (c); Sentah, Mo.
 Lawrence Jones (p); Manhattan
 J. Harold Jones (c); Bala
 Hans P. Jorgensen (c); Chicago, Ill.
 Agnes Jumper (p); Manhattan
 J. R. Justice (c); Manhattan

HOME STUDY STUDENTS—*Continued.*

R. M. Karns (p); Byers
 Josephine Keef (c); Glen Elder
 Elizabeth M. Keller (p); Manhattan
 F. W. Keller (c); Falls City, Neb.
 Hilda Kellerman (p); Stuttgart
 Sam G. Kelly (c); Manhattan
 Frank L. Kelley (c); McCune
 Mrs. Christina Kemper (p); Winfield
 Lonnie Kemper (p); Augusta
 L. F. Kepley (c); Chanute
 Kenneth Kern (p); Junction City
 Marjorie Kimball (c); Manhattan
 Nellie Kimbrell (p); Norton
 Kiltan Kimisky (p); Alta Vista
 Vernon King (p); Manhattan
 Eugene Kingery (p); Phillipsburg
 Mary Belle Kirk (c); Scott City
 J. K. Kirk (c); Cottonwood Falls
 L. R. Kirkwood (c); Manhattan
 Fern L. Kirkwood (c); Marysville
 Hazel Kitch (c); Partridge
 Alice Kjellin (c); Manhattan
 Alex Klein (p); Lucas
 Edwin J. Klein (c); Clay Center
 Elmer W. Kliesen (c); Dodge City
 Karl Knaus (c); Menominee, Mich.
 Harold Kneeland (c); Council Grove
 Mrs. Norma Kneeland (c); Boomer, Mo.
 Arthur Knost (p); St. Louis, Mo.
 Ruth Edith Koelliker (c); Robinson
 Walter Koelsch (p); Ellinwood
 Esther Fae Kotapish (p); Blue Rapids
 E. Dorothy Krause (c); Manhattan
 Waldo Kretzmeier (p); Manhattan
 Clifton B. Kruse (c); Herington
 Emanuel Kuehn (p); Bazine
 Wm. Kuehn (p); Bazine
 Alice Kunze (c); Green
 Edith Lale (c); Odessa, Mo.
 Mildred Lale (c); Odessa, Mo.
 Ila Mae Larmer (c); Webber
 Florence M. Landrum (c); Effingham
 Dorothy Lanning (c); Sabetha
 Ollie A. Lamborn (c); Newton
 Alfred W. Larson (c); Topeka
 Raymond Lass (p); Riley
 G. W. Lawrence (c); Manhattan
 Wilmer H. Learned (c); Zenith
 Lawrence Leavitt (c);
 Cardston, Alberta, Canada
 Roy S. Lee (c); Denton, Tex.
 Don C. Lee (c); Harper
 R. C. Lee (c); McKinney, Tex.
 Helen Lefebore (c); Havensville
 Mildred Lemert (c); Cedarvale
 Benjamin Leonard (p); Beloit
 Harry Leonard (p); Holly, Colo.
 Florence Leonard (c); Manhattan
 James E. Lewis (c); Wichita
 John E. Ley (c); Sharon Springs
 Esther Linck (p); Wathena
 Mrs. J. F. Lindquist (c); Manhattan
 J. H. Linscott (p); Manhattan
 Harold W. Lipper (p); Hazelton
 Mack O. Little (c); Hoxie
 Orville Livingston (c); Manhattan
 Ralph Lockhart (c); Solomon
 Lucille Logan (c); Bushton
 Adolph C. Lonborg (c); Topeka
 Evelyn Longren (c); Leonardville
 Ernest J. Loomer (p); Independence
 Helen Loveless (c); Marion
 Ruth Lowrey (c); Tribune
 Elmer E. Ludwig (c); Green
 Harold F. Luffel (c); Manhattan
 J. W. Lumb (c); Manhattan
 Mark Lumb (c); Manhattan
 Lucille Lynch (p); Beloit
 Raymond Lynch (p); Phillipsburg
 Mary Margaret Lynn (c); Tarkio, Mo.
 Mary Ellen Macklin (c); Manhattan
 Raymond Maddox (p); Paola
 Oscar L. Madinger (p); Wathena
 Anna Maixner (p); Wilson
 Carroll Manda (p); Dodge City
 Hattie A. Manke (p); Ellinwood
 Beulah Mann (c); Hiawatha
 Charles Mantz (c); Preston
 Marceline Markle (c); Chase
 Helen Marquis (c); Manhattan
 Marguerite Marsh (c); Manhattan
 Irene E. Marshall (c); Clay Center
 Mrs. G. Edw. Marshall (c); Manhattan
 R. B. Mather (c); Manhattan
 Earl H. Martin (c); Manhattan
 Donald J. Martin (c); Fellsburg
 Esther Masheter (c); Sabetha
 Everett R. Mason (p); Wakefield
 Gwendolyn Masson (p); Salina
 Wayne Maxwell (p); Independence
 W. S. Mayden (c); Manhattan
 J. L. Mayfield, (c); Manhattan
 Clara Deane McBride (c); Boyle
 R. W. McBurney (c); Beloit
 Kenneth D. McCall (c); Salina
 F. E. McCall (c); Wakeeney
 Thos. E. McCarty (c); Manhattan
 Wayne McCaslin (c); Osborne
 H. L. McCaulley (c); Lebanon
 Mrs. Mable McCaw (c); Chicago, Ill.
 Thelma McClure (c); Hutchinson
 Willard L. McFillen (c); Athol
 Wilbur McIntire (p); Dexter
 Harry L. McIntire (c); Lost Springs
 Jessie B. McKay (c); Kansas City, Mo.
 Ada McKeever (c); Holton
 Harold McKinsey (c); Kansas City
 W. D. McLaughlin (p); Independence
 Valora McLaughlin (p); Kanapolis
 Paul McMains (c); Manhattan
 Francis McManamon (p); Junction City
 Howard McManis (c); South Haven
 Hobart W. McMillen (c); Le Roy
 Harley E. McMillen (c); Le Roy
 W. Loy McMullen (c); Oberlin
 Mary McMullin (p); Danville
 E. Hugh McNichols (c); Burr Oak
 David Meall (c); Manhattan
 Ruth Mears (p); Simpson
 W. H. Meissinger (c); Hennessey, Okla.
 A. H. Meroney (c); Manhattan
 Dela Meyer (p); Phillipsburg
 Elsie M. Miller (p); Quinter
 Anna L. Miller (c); Salina
 Bernita Miller (p); Blue Rapids
 Merle Miller (p); Chapman
 Ruth Marie Miller (c); Minneapolis
 Alma Miller (c); Howard
 Dean O. Miller (p); Manhattan
 Edith Frances Miller (c); Milford
 Kenneth W. Miller (c); Maplehill
 Raymond Miller (p); Paola
 Jack Miller (p); Manhattan
 John W. Miller (p); Bushong
 Ralph N. Miller (c); Manhattan
 Charley Miller (p); Manhattan
 Velma Miller (p); Harper
 Carrie Miller (c); Oronogo, Mo.
 Vern D. Mills, (c); Manhattan
 Maurice C. Moggie (c); Manhattan
 Lucille B. Mohr (c); Marysville
 Mary Molby (p); Greenleaf
 Lloyd F. Moline (c); Randolph
 Leslie Moody (c); Manhattan
 Roy Moore (c); Manhattan
 Reginald Moore (c); Robinson
 Inez H. Moorshead (p); Manhattan
 Bernice Morehouse (p); St. Francis

HOME STUDY STUDENTS—Continued.

- Opal Morgan (p); Washington
 Mary Louise Morgan (c); Kansas City, Mo.
 J. Wallace Morganville (p); Amherst, Neb.
 Mary Morris (p); Medicine Lodge
 Douglas A. Morrison (p); Delphos
 Faye Moss (c); Boulder, Colo.
 Pauline Moyer (p); Manhattan
 Donald Moyers (c); Smith Center
 Merlin Mundell (c); Manhattan
 Harold H. Munger (c); Manhattan
 Ferne Murray (p); Manhattan
 Ellery A. Myers (p); Salina
 Gladys Myers (c); Burns
 Vera Myers (c); Hiawatha
 Enos Needham (c); Independence, Mo.
 James Dale Neel (p); Independence
 Thelma Neill (c); St. John
 Clyde Nelson (p); Beloit
 D. K. Nelson (c); Manhattan
 Linden Nelson (p); Wathena
 E. F. Nelson (c); Little Rock, Ark.
 La Berma Neves (c); Fairview, Okla.
 Jimmie Neville (c); Coffeyville
 Lucile Newell (c); Wakefield
 E. M. Newman (c); La Crosse
 John C. Noble (c); Manhattan
 Ethel Noland (c); Manhattan
 Paul Norman (p); Leonardville
 Ruth M. Norman (p); Chapman
 Naomi Norris (p); Junction City
 Clara Norris (c); Marienthal
 Harold A. Noyce (c); Manhattan
 Mabel Nulk (p); Alta Vista
 Bertha Nye (p); Manhattan
 Olivette Obitts (p); Herington
 W. F. O'Daniel (c); Westmoreland
 Geraldine O'Daniel (c); Westmoreland
 Helen Okerberg (c); Newton
 Velma Oliphant (c); Kinsley
 Wm. Oldfather (p); Attica
 Margaret Oldweiler (c); Mayetta
 Mary O'Neil (c); Prescott
 Inez E. O'Neill (p); Manhattan
 Daisy M. Osborn (c); Elmont
 Mildred Osborn (c); Clifton
 Marvin G. Ott (c); Madison
 Robert L. Owens (c); Chapman
 Haydn Owens (c); Elmhurst, Ill.
 Margaret Paden (c); Manhattan
 Beth Page (p); Norton
 Victor Palenske (c); Alma
 Howard B. Palmer (c); Aulne
 A. L. Pannitch (c); Smolan
 Clemont C. Parrish (c); Great Bend
 B. R. Patterson (c); Manhattan
 Bruce Patton (p); Solomon
 Mrs. S. Paulding (p); Whitewater
 Helen Pauling (p); Manhattan
 Norma Paulson (p); Speed
 Orval Paxton (p); Mullinville
 Raymond Patterson (c); Morrowville
 M. B. Pearson (c); Manhattan
 Bertha Dowd Pearson (c); Topeka
 Mary G. Pellett (p); Fort Scott
 W. C. Perham (c); Iola
 Eva Louise Perkins (c); Wendell, N. C.
 Paul Perry (c); Little River
 Verla Persinger (p); Oronoque
 Raymond Persinger (p); Norton
 Floyd Peterie (p); Kinsley
 Marguerite Peterson (c); Manhattan
 Rolf L. Peterson (c); Huron, S. Dak.
 Vera Peterson (c); Gypsum
 Leona Peterson (c); Enterprise
 Louise Peterson (c); Randolph
 Roland W. Peterson (c); Riley
 Helen Lockwood Pettyjohn (c); Maywood,
 Ill.
 Hans Pfuetze (p); Manhattan
 Mrs. Ethel Reeves Philip (c); Chicago, Ill.
 Howard Phillips (p); Blue Rapids
 Lester R. Pincomb (p); Overland Park
 Mary K. Pitney (c); Kansas City, Mo.
 Alma Pittaway (p); Densmore
 Raymond Platt (p); Manhattan
 Wilfred Platt (c); Manhattan
 Leona Plautz (p); Bushton
 D. Donald Plumb (c); Clay Center
 Sylvia Plymire (p); Beloit
 Gladys Popham (p); Minneapolis
 Melba Potter (p); Harper
 Blanche Prachar (p); Wilson
 Merna M. Pruitt (c); Barnard
 Lester Ptacek (c); Newman Hospital,
 Emporia
 Alberta Pullins (c); Council Grove
 Arthur Purma (p); Wilson
 Ernest Quick (c); Bellefont
 Ellen E. Rackley (c); Princeton, Ill.
 Frances Ramsey (p); Beloit
 Ben Ramsey (c); Wichita
 Elsie Rand (c); Wamego
 Ruby Ransom (c); Chicago, Ill.
 Mrs. Mary C. Rasmussen (c); Junction City
 Dorris L. Ratherford (c); Gorin, Mo.
 Rev. L. M. Reel (c); Reece
 Willard V. Redding (c); Manhattan
 Lenore Reder (c); Blue Rapids
 Alzina Reed (c); Manhattan
 Thelma Reed (c); Kanopolis
 Anna Reed (c); Kanopolis
 Edith T. Reel (c); Detroit
 Arthur A. Regier (c); Elbing
 Theodore J. Regier (p); Elbing
 Mrs. Merle Reinking (c); Tescott
 Fred T. Rees (c); Mound City
 Wilda Aileen Rhodes (c); Manhattan
 Paul Wesley Rich (p); Bayard
 Ruth J. Richards (c); Manhattan
 Nellie Richards (p); Keats
 Clement D. Richardson (c); Hugoton
 Ruth Richardson (c); Manhattan
 Harold D. Richardson (c); Long Island
 Margaret Richardson (p); Glade
 Paul Richardson (p); Densmore
 Tillie Rife (c); Anthony
 Harold B. Riley (c); Kansas City
 Marion Riordan (c); Solomon
 Tracy M. Roberds (c); Caney
 Mrs. Sarah Robinson (c); Lexington, Mo.
 Frances G. Robinson (c); Englewood
 Guy Rogers (c); Garnett
 Owen G. Rogers (c); Bronson
 R. C. Rohrdanz (c); Humboldt
 Mary M. Rolfe (c); Fairview
 Hazel Romer (c); Holly, Colo.
 Dorothy Rosencrans (p); Manhattan
 Don C. Ross (p); Manhattan
 Marshall B. Ross (c); Manhattan
 Marvin G. Roth (c); Leavenworth
 Henry Ruff (c); Newton
 Browning Ruggles (c); Jewell
 Lillian Rundus (p); Belleville
 Neva Edwina Rush (c); Severy
 Mabel Ruthi (c); Bloomington
 Marion Sager (c); Manhattan
 Erma Sand (p); Riley
 Ray F. Sanders (c); Manhattan
 Lillian Sands (c); Morrison, Tenn.
 Helen Sandusky (p); Wichita
 Bill Sargent (p); Manhattan
 Robert Sargent (p); Riley
 Elsie Sargent (c); Riley
 Margaret Schattensburg (c); Riley
 Dale Scheel (c); Manhattan
 Eunice Schmedeman (p); Alta Vista

HOME STUDY STUDENTS—Continued.

Helen Diller Schneberger (c); Manhattan
 L. Evelyn Schultz (c); Hincley, Ill.
 Galen E. Schwandt (c); Manhattan
 Louis Schwanke (c); Alma
 Doris Schwanke (c); Alta Vista
 Helen Schwartzel (c); Ellsworth
 Harriett Scott (c); Phillipsburg
 Hazelle Scriptor (p); Detroit
 Florence C. Sederlin (c); Scandia
 Archie P. Seller (p); Elk City
 Earl W. Schaffer (c); Bunker Hill
 Cecile Shadley (p); Independence
 Leslie Shaw (c); Bloomington
 John Keith Shay (c); Miltonvale
 Oren L. Shelley (c); Manhattan
 Mrs. Fontella Shepherd (c); Gem
 Kenneth K. Sherwood (p); Larned
 K. M. Sherwood (c); Manhattan
 Leota Shields (c); Lost Springs
 George R. Shier (c); Gypsum
 Wayne D. Shier (c); Gypsum
 Mrs. Ruth Showalter (c); Lebanon
 Raymond E. Shrader (c); Kansas City
 Mrs. Helen Shriver (c); Denison
 Julia M. Sickel (p); Leavenworth
 Lois Sitterley (c); Manhattan
 Twyla Skinner (c); Peabody
 Mrs. Mildred L. Skinner (c); Marion
 Edward Skradski (c); Kansas City
 Myrtle Smedley (p); Gretna
 Elizabeth Smerchek (c); Cleburne
 Leah M. Smock (c); Sanborn, Iowa
 Mildred Smith (p); Manhattan
 Dorothy Smith (c); Baxter Springs
 Doris Jane Smith (c); Burlingame
 Leora L. Smith (c); Clay Center
 John A. Smith (p); Monument
 Myrna Smith (c); Manhattan
 Leon E. Smith (c); Caldwell
 Richard Smith (p); Lincoln
 Twila Snyder (c); Morrill
 Floyd Snyder (p); Hutchinson
 Frances Snyder (p); Winfield
 Pearl Snyder (c); Osborne
 L. G. Snyder (c); Beeler
 Ferne Russell Snyder (c); Manhattan
 Esther Snodgrass (c); St. Joseph, Mo.
 Stanley R. Snook (p); Beloit
 Asa L. Sowell (p); Manhattan
 Bernice Spaulding (c); Manhattan
 Irene Spear (c); Bushong
 Raymond Spilman (p); Manhattan
 Edna Sprague (c); Chicago, Ill.
 Bessie Springer (c); Wakeeney
 Mary Ellen Springer (p); Manhattan
 Edith Sprinkle (p); Belpre
 Isla C. Swarner (c); Bushong
 Marjorie Stafford (c); Leonardville
 J. L. Stafford (c); Leonardville
 Thelma Stafford (c); Republic
 Belle Stanton (c); Watson, Mo.
 Mrs. Rilla S. Steele (c); Richland
 Hazel Steenis (c); Manhattan
 Pauline E. Stephens (c); Park Ridge, Ill.
 Lois Stevens (p); Blue Rapids
 Mildred Stevens (p); Manhattan
 Amy Stewardson (c); Colby
 Eva Stewart (c); Manhattan
 Mrs. Edith L. Stewart (c); Rosedale
 Edith Stinson (p); Lawrence
 Russell Stoker (c); Morrowville
 Harold Stover (c); Goddard
 R. W. Strahm (c); Wilmington, Ill.
 Paul Streeter (p); Manhattan
 Marna Strever (c); Aurora, Ill.
 Archie R. Stuck (c); Manhattan
 W. E. Studebaker (c); Topeka
 Clarence Stull (c); Brownell
 Reva M. Stump (c); Rapids
 Harold Suedekum (c); Stafford
 Dale Suplee (c); Council Grove
 Clarence L. Swann (p); Leavenworth
 Maryon H. Swartz (c); Manhattan
 Eugene Tackwell (p); Phillipsburg
 Laura E. Taggart (c); Crownpoint, N. Mex.
 Mary Tanner (p); Wamego
 Grace E. Taylor (c); Manhattan
 Mary Taylor (p); Norton
 Margaret Teaford (p); Almena
 D. M. Telford (c); Manhattan
 Geo. A. Tercy (c); Ellsworth
 J. A. Terrell (c); Auburn, Ind.
 S. I. Thackrey (p); Manhattan
 Hulda E. Thieme (c); Goff
 Alta N. Thierer (p); Manhattan
 Marjorie Thompson (c); Almena
 Beulah Thomas (c); Ottawa
 Ester C. Thomas (c); Narka
 Orville W. Thurow (c); Moscow
 Helen Titus (c); Council Grove
 T. K. Tomson (c); Dover
 R. D. Tongish (p); Herndon
 F. W. Toomey (c); Manhattan
 Dean W. Towner (c); Manhattan
 Ernest Joe Trickle (p); Blue Rapids
 C. Leonard Turner (p); Reading
 Harold W. Turner (p); Argonia
 Alva W. Turner (c); Lucas
 Ruth Turner (c); El Dorado
 Undine Uhl (c); Holton
 Beulah Underwood (p); Densmore
 Lillian Utterback (c); South Haven
 Jess Vague (p); Osborne
 Claude Vail (p); Manhattan
 H. Lee Vanderwilt (c); Manhattan
 Marjorie V. Van Vranken (c); Denver, Colo.
 Ruth Varney (c); Manhattan
 Mollie J. Vesely (p); Munden
 Sister Joseph Marie Viau (c); Concordia
 Victor Venard (c); Humboldt
 Adrienne Viergever (c); Willard
 Zenobia Vilander (c); Cleburne
 Jaunita Vilander (p); Manhattan
 Forrest B. Volkel (c); Lenora
 Donald Wade (c); Manhattan
 Omar Wagner (c); Ellinwood
 Mildred Walker (c); Manhattan
 Fred H. Walker Jr., (p); Manhattan
 Virginia Waller (c); Caney
 Margaret Walters (p); Manhattan
 Helen Louise Walters (c); Riley
 Chester J. Ward (c); Osawatomie
 Kirk M. Ward (c); Elmdale
 Leigh A. Warner (c); Gardner
 Vera C. Warnock (c); Hutchinson
 Lulu Evalyn Washburn (p); Quinlan, Okla.
 Anne Washington (p); Manhattan
 Carmie Waters (c); Junction City
 Louise Watson (c); Manhattan
 Frances Webb (c); Greenfield, Mo.
 Clarissa Weeks (c); Wichita
 Earl Weinhold (p); Wilson
 Verina M. Wells (p); Arkansas City
 Lorine Wenger (c); Manhattan
 Lyla Wernet (p); Little River
 Ermine Werts (c); Republic
 L. A. West (c); Manhattan
 Ellen Westberg (c); Goff
 Marie Wetta (p); Colwich
 Fletcher D. Wharton (c); Sapulpa, Okla.
 Mrs. Gertrude Wheeler (p); Manhattan
 Ila E. Wheeler (p); Manhattan
 Dorcas Mary Whisler (c); Abilene
 Myrtle E. Whittaker (p); Wathena
 Vee White (p); Manhattan
 Virginia E. White (c); Kansas City, Mo.
 Roy Wicks (p); Beloit
 Max Wickham (p); Manhattan

HOME STUDY STUDENTS—*Concluded.*

Esther Anna Wickstrom (c); White Cloud	W. R. Womer (c); Manhattan
Paula Wiebe (p); Whitewater	Bernice Wood (p); Manhattan
Gerhard Wiens (c); Newton	Mrs. Etha Wood (c); Reading
James Willey (c); Wamego	Mildred W. Wood (c); Dallas, Tex.
Laura M. Willfoung (c); Manhattan	Anna Lee Woods (c); Holiday, Mo.
Annie E. Williams (c); Emporia	Ernest Woodward (c); Manhattan
Evelyn A. Williams (c); Mount Olive, Ill.	Eugene Wooster (c); Pittsburg
Mary Williamson (c); Manhattan	Alberta E. Wright (c); Concordia
Fred Williamson (c); Marion	Mrs. Adrian P. Wright (c); Valley Center
Clara F. Willis (c); Glenwood, Mo.	Fred G. Wyatt (p); Kansas City
Mrs. Laura Willis (c); Glenwood, Mo.	Richard J. Wyatt (p); Westmoreland
Pansy Willis (c); Glenwood, Mo.	Hattie Mae Yehle (c); South Haven
Helen M. Wilmore (c); Halstead	Hulda Yenni (c); Ogden
Francis L. Wilson (c); Abilene	Clara Helen Young (c); Winchester
Mrs. Katherine H. Wilson (c); Turner	G. A. Youngstrom (c); Fredonia
Adrian E. Winger (c); Manhattan	Helen Zabel (c); Zeandale
Amy Winget (c); Garden City	Iscah Zahn (c); Manhattan
Paul Winsor (p); Seneca	Flor B. Zapata (c); Topeka
Herbert L. Winston (c); Stillwell	Robert A. Zebold (c); Manhattan
Lloyd A. Winter (p); Manhattan	Florence L. Zecha (p); Ellinwood
Paul R. Wise (c); Manhattan	Ruth Zeigler (c); Abilene
Viola Wittrock (p); Alta Vista	Elva Zeigler (c); Hunter
Grace G. Wolcott (c); Excelsior, Minn.	Louise Zink (p); Dodge City
Clarence J. Wolf (p); St. Charles, Mo.	Kathryn Zipse (c); Manhattan
Jessie Wolverton (p); Beloit	

Summary of Attendance, 1928-1929

Grand totals, net.....	Total.		537	
Counted twice.....	M	W	195	190
Totals.....	M	W	342	398
Miscellaneous Engineering.....	M	M	17	29
Mechanical Engineering.....	M	M	17	29
Landscape Architecture.....	M	M	1	2
Flour-mill Engineering.....	M	M	1	2
Electrical Engineering.....	M	M	77	78
Civil Engineering.....	M	M	26	42
Chemical Engineering.....	M	M	6	11
Architectural Engineering.....	M	M	5	15
Architecture.....	M	M	7	10
Agricultural Engineering.....	M	M	12	15
Applied Art.....	W	W	6	11
Home Economics and Nursing.....	W	W	3	14
Home Economics.....	W	W	99	122
Music—Voice or Instrument.....	M	W	1	3
Public-school Music.....	M	W	8	12
Industrial Chemistry.....	M	M	5	13
Physical Education.....	M	W	3	5
Rural Commerce.....	M	W	28	34
Industrial Journalism.....	M	W	10	19
General Science.....	M	W	56	38
General Science and Vet. Med.....	M	M	47	27
Veterinary Medicine.....	M	M	16	16
Landscape Gardening.....	M	M	1	1
Animal Husbandry and V. M.....	M	M	1	1
Agricultural Administration.....	M	M	17	28
Agriculture.....	M	M	59	50
Senior.....			59	50
Junior.....			41	31
Sophomore.....			149	27
Freshman.....			11	11
Special.....			36	
Graduate.....				
Trade Courses:				
Machinists.....				
Auto mechanics.....				
Short Courses:				
Farmers.....			51	
Dairy Manufacturing.....			*18	
Totals.....			*415	103
Summer Session (1928).....				
Grand totals.....				
Duplicates in summer sessions.....				
Net totals.....				

* One woman. † Two women. ‡ Five women.
Number of persons pursuing graduate work for the year, exclusive of duplicates, was 208 men and 157 women; total, 365.

Students by States and Counties

Arizona	1	Maryland	1	Oklahoma	23
Arkansas	9	Massachusetts	1	Oregon	2
California	2	Michigan	3	Pennsylvania	2
Colorado	16	Minnesota	2	South Dakota	5
District of Columbia...	2	Missouri	61	Tennessee	2
Idaho	3	Montana	1	Texas	13
Illinois	6	Nebraska	26	Utah	1
Indiana	3	New Jersey	2	Wisconsin	3
Iowa	8	New Mexico	2		
Kansas	3,664	New York	2	Total	3,866

FOREIGN COUNTRIES

British West Indies....	~ 1	Cuba	~ 1	Turkey	1
Bulgaria	1	Germany	1		
Canada	~ 2	Siberia	~ 1	Total	13
China	1	Switzerland	~ 2		
Colombia, S. A.....	~ 1	Syria	~ 1	Grand total	3,879

KANSAS COUNTIES

Allen	27	Greenwood	34	Pawnee	19
Anderson	21	Hamilton	7	Phillips	13
Atchison	27	Harper	18	Pottawatomie	83
Barber	17	Harvey	25	Pratt	28
Barton	39	Haskell	3	Rawlins	3
Bourbon	10	Hodgeman	3	Reno	77
Brown	46	Jackson	46	Republic	51
Butler	40	Jefferson	34	Rice	31
Chase	18	Jewell	37	Riley	908
Chautauqua	16	Johnson	23	Rooks	17
Cherokee	17	Kearny	4	Rush	5
Cheyenne	2	Kingman	19	Russell	22
Clark	12	Kiowa	12	Saline	45
Clay	88	Labette	17	Scott	11
Cloud	55	Lane	11	Sedgwick	70
Coffey	19	Leavenworth	18	Seward	6
Comanche	16	Lincoln	31	Shawnee	98
Cowley	19	Linn	12	Sheridan	7
Crawford	18	Logan	3	Sherman	14
Decatur	22	Lyon	31	Smith	26
Dickinson	113	McPherson	31	Stafford	30
Doniphan	9	Marion	45	Stanton	1
Douglas	16	Marshall	99	Stevens	5
Edwards	15	Meade	17	Sumner	44
Elk	3	Miami	10	Thomas	8
Ellis	17	Mitchell	37	Trego	6
Ellsworth	27	Montgomery	30	Wabaunsee	50
Finney	23	Morris	53	Wallace	6
Ford	41	Morton	3	Washington	45
Franklin	21	Nemaha	41	Wichita	4
Geary	44	Neosho	32	Wilson	14
Gove	3	Ness	18	Woodson	12
Graham	8	Norton	46	Wyandotte	62
Grant	2	Osage	43		
Gray	7	Osborne	39	Total	3,664
Greeley	..	Ottawa	36		

College Enrollment, 1928-1929

THE DIVISION.	Men.	Women.	Total.
The Division of Agriculture	530	1	531
Graduate students.....	36	.....	36
Seniors.....	78	.....	78
Juniors.....	82	.....	82
Sophomores.....	75	.....	75
Freshmen.....	180	.....	180
Special students.....	11	.....	11
Short-course students.....	68	1	69
The Division of Veterinary Medicine	84	1	85
Graduate students.....	3	.....	3
Seniors.....	16	.....	16
Juniors.....	16	.....	16
Sophomores.....	14	.....	14
Freshmen.....	34	1	35
Special students.....	1	.....	1
The Division of General Science	660	549	1,209
Graduate students.....	67	34	101
Seniors.....	95	94	189
Juniors.....	101	89	190
Sophomores.....	136	152	288
Freshmen.....	245	163	408
Special students.....	16	17	33
The Division of Home Economics.....	.....	514	514
Graduate students.....	.....	42	42
Seniors.....	.....	101	101
Juniors.....	.....	98	99
Sophomores.....	.....	130	129
Freshmen.....	.....	137	137
Special students.....	.....	6	6
The Division of Engineering	971	8	979
Graduate students.....	16	3	19
Seniors.....	153	.....	153
Juniors.....	199	2	201
Sophomores.....	242	1	243
Freshmen.....	346	2	348
Special students.....	6	.....	6
Trade-course students.....	9	.....	9
The Summer School	333	587	920
Totals.....	2,578	1,660	4,238
Counted twice.....	183	176	359
Net totals.....	2,395	1,484	3,879
Students Pursuing Graduate Work	209	157	366
Graduate students in regular session.....	109	72	181
Graduate students in summer session (excluding duplicates).....	68	65	133
Graduate students in absentia (excluding duplicates).....	11	5	16
Senior students pursuing graduate work.....	21	15	35

Record of Attendance, 1863-1929

Advanced degree†	Graduated	Net total	Counted twice	Graduate	Senior	Junior	Sophomore	Freshman	Vocational school	Subfreshman	Preparatory	Special	Apprentice	Farmers' short course	Dairy short course	Dairy Mfg. short course	Housekeepers' short course	Summer school	
1863-64	107	107						14			93								
1864-65	113	113						14			90								
1865†	150	150						28			112								
1866-67	178	178						11			154								
1867-68	168	168																	
1868-69	170	170						11			146								
1870-71	194	194						13			164								
1871-72	202	202						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						42			75								
1878-79	207	207						89				1							
1879-80	276	276						166				1							
1880-81	267	267						178				6							
1881-82	312	312						227				5							
1882-83	347	347						241				4							
1883-84	395	395						255				2							
1884-85	401	401						271				2							
1885-86	428	428						273				1							
1886-87	481	481						303											
1887-88	472	472						305											
1888-89	445	445						266											
1889-90	514	514						307				1							
1890-91	593	593						343											
1891-92	584	584						336											
1892-93	587	587						339											
1893-94	555	555						275											
1894-95	572	572						276				5							
1895-96	647	647						353				3							
1896-97	734	734						321				6							
1897-98	803	803						316				15							
1898-99	870	870						306				40							
1899-1900	1,094	1,094						376				50							
1900-01	1,321	1,321						348				23							
1901-02	1,396	1,396						396				19							
1902-03	1,574	1,574						471				36							
1903-04	1,605	1,605						403				33							
1904-05	1,462	1,462						289				30							
1905-06	1,690	1,690						373				46							
1906-07	1,937	1,937						411				48							
1907-08	2,192	2,192						450				42							
1908-09	2,308	2,308						491				42							
1909-10	2,305	2,305						456				87							
1910-11	2,407	2,407						533				94							
1911-12	2,523	2,523						337				85							
1912-13	2,928	2,928						444				129							
1913-14	3,027	3,027						516				112							
1914-15	3,091	3,091						575				120							
1915-16	3,314	3,314						605				175							
1916-17	3,340	3,340						693				171							
1917-18	2,406	2,406						483				138							
1918-19	2,991	2,991						810				199							
1919-20	3,352	3,352						894				271							
1920-21	3,395	3,395						878				270							
1921-22	3,560	3,560						931				297							
1922-23	3,626	3,626						1,004				12							
1923-24	3,812	3,812						1,160				3							
1924-25	4,031	4,031						1,391				5							
1925-26	4,019	4,019						1,494				89							
1926-27	4,083	4,083						1,311				71							
1927-28	3,878	3,878						1,039				88							
1928-29	3,879	3,879						1,084				59							

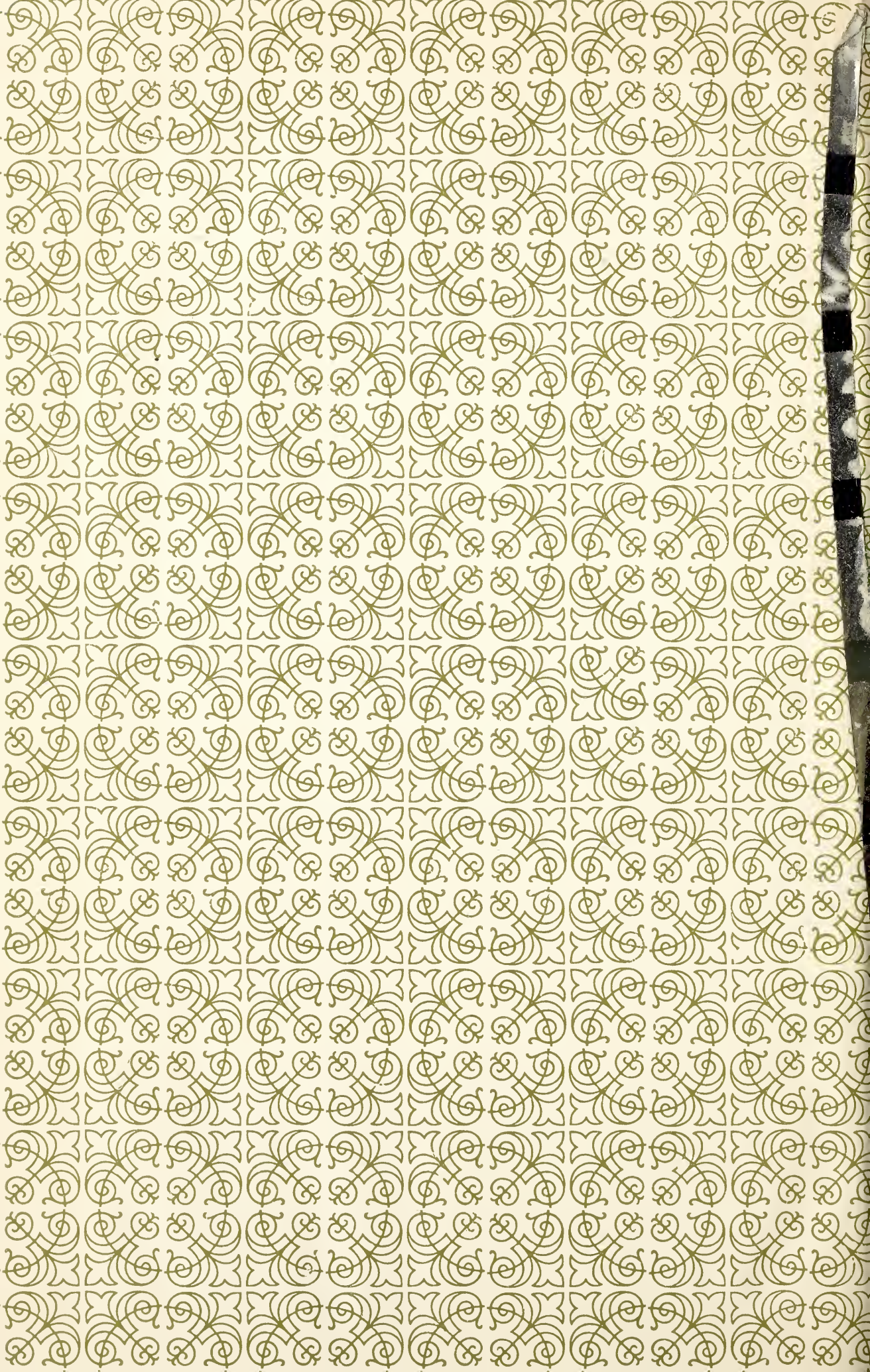
* Estimated.

† Calendar year.

‡ Incomplete data.







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