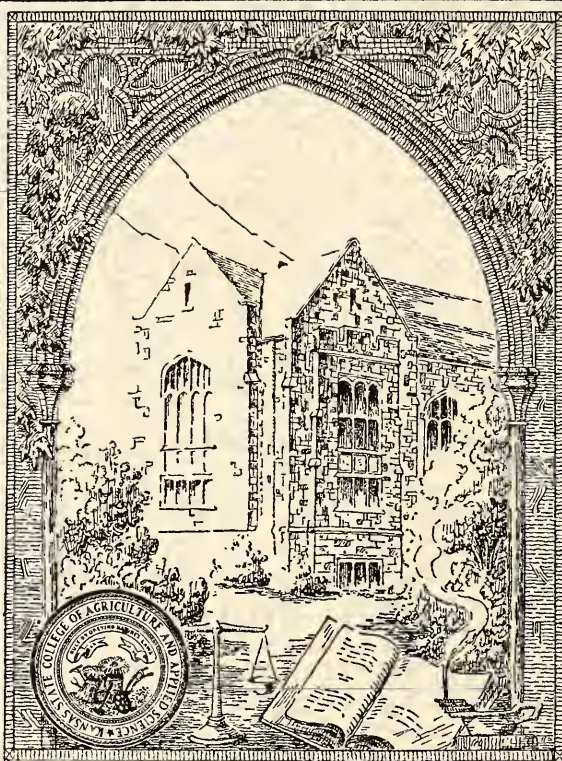


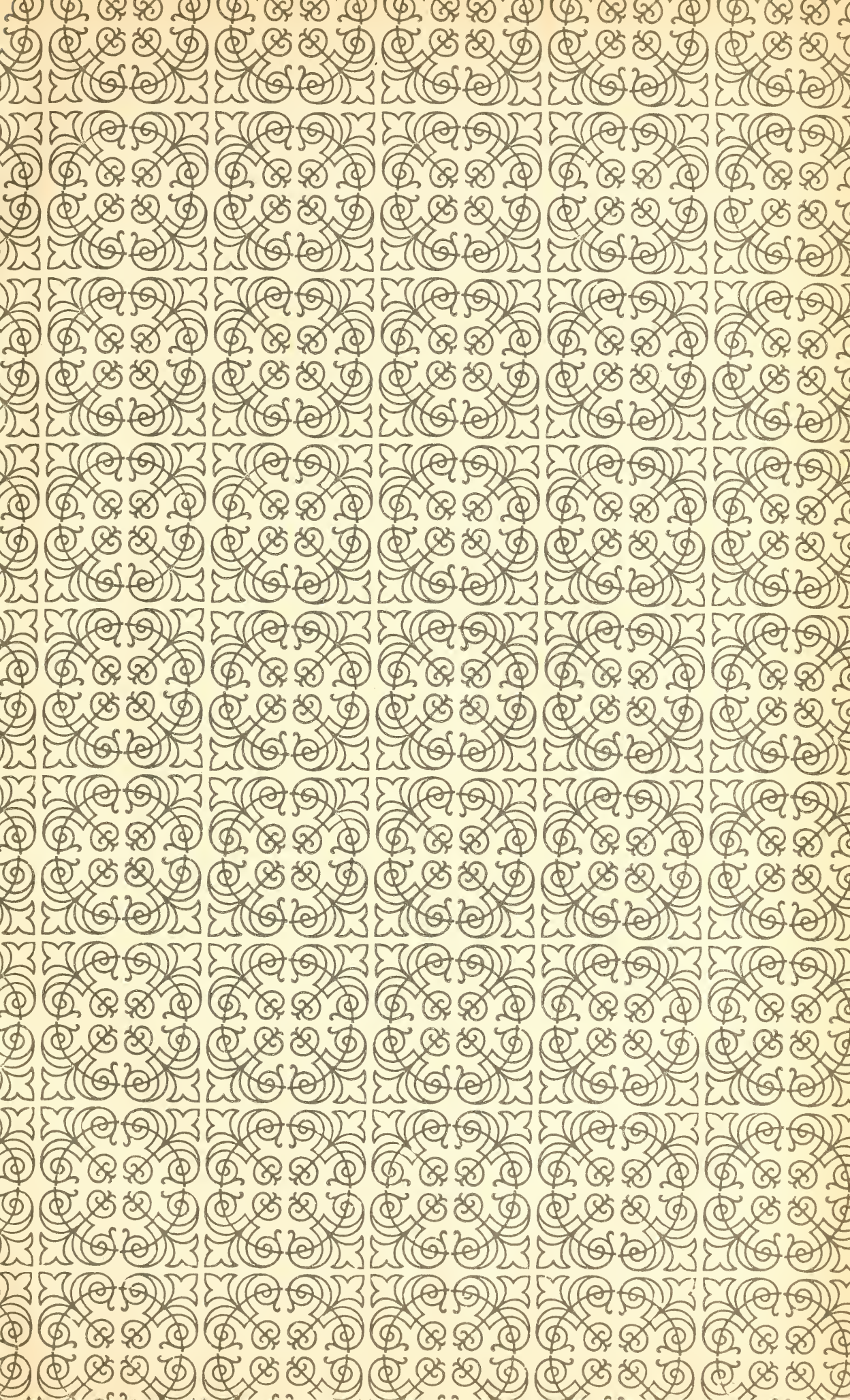



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**APPLIED SCIENCE**





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# KANSAS STATE COLLEGE BULLETIN

VOLUME XVIII

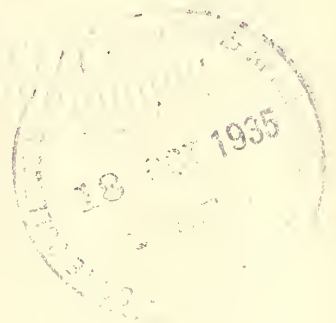
JUNE 15, 1934

NUMBER 6

## COMPLETE CATALOGUE NUMBER

SEVENTY-FIRST SESSION, 1933-'34

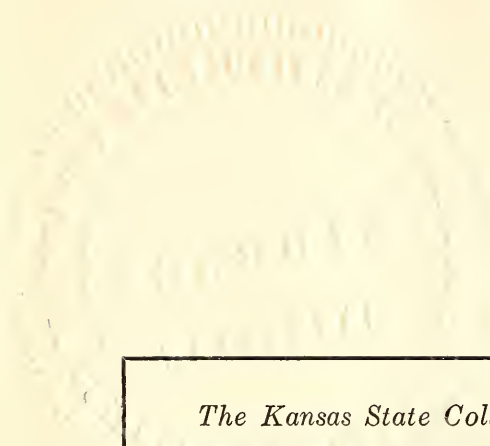
ANNOUNCEMENTS FOR THE SESSION OF 1934-'35  
STUDENT LISTS FOR THE SESSION OF 1933-'34



KANSAS STATE COLLEGE  
OF AGRICULTURE AND APPLIED SCIENCE

MANHATTAN, KANSAS  
Published by the College

PRINTED BY KANSAS STATE PRINTING PLANT  
W. C. AUSTIN, STATE PRINTER  
TOPEKA 1934  
15-3590



*The Kansas State College Bulletin is published on the first and fifteenth of each month by the Kansas State College of Agriculture and Applied Science, Manhattan, Kan., to which requests for copies of the publication should be addressed. Entered as second-class matter November 6, 1916, at the post office at Manhattan, Kan., under the Act of August 24, 1912.*



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VOLUME XVIII

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# THE COLLEGE CALENDAR

## SUMMER SCHOOL, 1934

- June 4, Monday.—Registration of students for nine-week Summer School begins at 8 a. m.  
June 4, Monday.—Examinations for students deficient in entrance subjects, 8 a. m. to 5 p. m.  
June 4 to Aug. 4, Monday to Saturday.—Nine-week Summer School in session.  
June 4 to 8, Monday to Friday.—4-H Club Round-up.  
June 15, Friday.—Preliminary reports on masters' theses are due.  
July, 4, Wednesday.—Independence Day, holiday.  
July 9 to Aug. 4, Monday to Saturday.—Four-week Summer School in session.  
July 14, Saturday.—Abstracts of masters' theses are due.  
July 28, Saturday.—Masters' theses are due.  
Aug. 3, Friday.—Commencement exercises at 8 p. m. for those receiving degrees at end of Summer School.  
Aug. 4, Saturday.—Summer School closes.  
Aug. 11, Saturday.—Reports of all Summer School grades due in registrar's office.

## FIRST SEMESTER, 1934-'35

- Sept. 7, Friday.—All members of the instructional force on duty.  
Sept. 8, Saturday.—Meeting of assigners with committee on schedule at 2 p. m.  
Sept. 8, Saturday.—Meeting of assigners with deans at 3 p. m.  
Sept. 10, Monday.—Admission and registration of students begin at 7:45 a. m.  
Sept. 10, Monday.—Examinations for students deficient in entrance subjects, 8 a. m. to 5 p. m.  
Sept. 11, Tuesday.—Registration of students closes at 5 p. m.  
Sept. 12, Wednesday.—\*Classes meet according to schedule, beginning at 8 a. m.  
Sept. 12, Wednesday.—Opening convocation, 11 a. m. to 12 m.  
Sept. 14, Friday.—†All freshman students meet at 11 a. m.  
Sept. 18, Tuesday.—†All freshman students meet at 11 a. m.  
Sept. 19, Wednesday.—†Aptitude tests for freshmen, 9 to 12 a. m.  
Sept. 21, Friday.—Annual student-faculty informal reception, 8 p. m.  
Oct. 6, Saturday.—Examinations to remove conditions.  
Oct. 13, Saturday.—Scholarship deficiency reports to students and deans are due.  
Nov. 10, Saturday.—Midsemester scholarship deficiency reports to students and deans are due.  
Nov. 15, Thursday.—Preliminary reports on masters' theses are due.  
Nov. 28, Wednesday.—Thanksgiving vacation begins at noon.  
Dec. 1, Saturday.—Thanksgiving vacation closes at 6 p. m.  
Dec. 15, Saturday.—Programs of study due from candidates for the master's degree in 1935.  
Dec. 20, Thursday.—Winter vacation begins at 6 p. m.  
Jan. 3, 1935, Thursday.—Winter vacation closes at 6 p. m.  
Jan. 4, Friday.—Abstracts of masters' theses are due.  
Jan. 18, Friday.—Masters' theses are due.  
Jan. 18 to 26, Friday to Saturday.—Examinations at close of semester.  
Jan. 26, Saturday.—First semester closes at 11 a. m.  
Jan. 26, Saturday.—Semester scholarship deficiency reports to students and deans are due not later than 6 p. m.

## SECOND SEMESTER, 1934-'35

- Jan. 28, Monday.—Meeting of assigners with committee on schedule at 2 p. m.  
Jan. 28, Monday.—Examinations for students deficient in entrance subjects, 8 a. m. to 5 p. m.  
Jan. 29, Tuesday.—Admission and registration of students begin at 7:45 a. m.  
Jan. 30, Wednesday.—Registration closes at 5 p. m.  
Jan. 31, Thursday.—\*All classes meet according to schedule, beginning at 8 a. m.  
Feb. 5 to 8, Tuesday to Friday.—Farm and Home Week.  
Feb. 9, Saturday.—Reports of all grades for first semester due in registrar's office.  
Feb. 16, Saturday.—Founders' Day. The College was located at Manhattan on Feb. 16, 1863.  
Feb. 22, Friday.—Washington's Birthday, holiday.  
Feb. 23, Saturday.—Examinations to remove conditions.  
Mar. 2, Saturday.—Scholarship deficiency reports to students and deans are due.  
Mar. 15, Friday.—Preliminary reports on masters' theses are due.  
Mar. 30, Saturday.—Midsemester scholarship deficiency reports to students and deans are due.  
April 18, Thursday.—Announcement of elections of seniors to Phi Kappa Phi.  
April 18, Thursday.—Easter vacation begins at 6 p. m.  
April 22, Monday.—Easter vacation closes at 6 p. m.

\* 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.

† Attendance of all freshmen is required on each of the three days.

May 6, Monday.—Abstracts of masters' theses are due.  
 May 14 to 21, Tuesday to Tuesday.—Examinations for seniors.  
 May 21 to 28, Tuesday to Tuesday.—Examinations at close of semester.  
 May 22, Wednesday.—Masters' theses are due.  
 May 26, Sunday.—Baccalaureate services, beginning at 8 p. m.  
 May 28, Tuesday.—Alumni Day. Business meeting at 2 p. m., banquet at 6 p. m.  
 May 29, Wednesday.—Seventy-second Annual Commencement at 10 a. m.  
 May 29, Wednesday.—Semester scholarship deficiency reports to students and deans are due not later than 6 p. m.  
 June 12, Wednesday.—Reports of all grades for second semester due in registrar's office.

#### SUMMER SCHOOL, 1935

June 3, Monday.—Registration of students for nine-week Summer School begins at 8 a. m.  
 June 3, Monday.—Examinations for students deficient in entrance subjects, 8 a. m. to 5 p. m.  
 June 3 to Aug. 3, Monday to Saturday.—Nine-week Summer School in session.  
 June 3 to 7, Monday to Friday.—4-H Club Round-up.  
 June 15, Saturday.—Preliminary reports on masters' theses are due.  
 July 4, Thursday.—Independence Day, Holiday.  
 July 8 to Aug. 3, Monday to Saturday.—Four-week Summer School in session.  
 July 13, Saturday.—Abstracts of masters' theses are due.  
 July 27, Saturday.—Masters' theses are due.  
 Aug. 2, Friday.—Commencement exercises at 8 p. m. for those receiving degrees at end of Summer School.  
 Aug. 3, Saturday.—Summer School closes.  
 Aug. 10, Saturday.—Reports of all grades for Summer School due in registrar's office.

#### FIRST SEMESTER, 1935-'36

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. 10, Tuesday.—Registration of students closes at 5 p. m.



## REGISTRATION AND ASSIGNMENT SCHEDULE

The following tabulation shows the schedule of hours for registration and assignment of students for the college year 1934-1935 arranged according to the initial letters of their last names:

### FIRST SEMESTER

MONDAY, SEPTEMBER 10, 1934

<i>Hours.</i>	<i>Initial letters.</i>
7:45 to 9:30.....	E P O U W
9:45 to 11:15.....	A D H Y
12:30 to 2:00.....	C I G R
2:15 to 3:45.....	J L M X

TUESDAY, SEPTEMBER 11, 1934

8:00 to 9:30.....	B F T V
9:45 to 11:15.....	K N Q S Z
12:30 to 5:00.....	All special students, and any students who failed to report during the period provided for their groups. Late assignment fee of \$5 in effect after this period.

### SECOND SEMESTER

TUESDAY, JANUARY 29, 1935

7:45 to 9:30.....	J L M X
9:45 to 11:15.....	B F T V
12:30 to 2:00.....	K N Q S Z
2:15 to 3:45.....	E P O U W

WEDNESDAY, JANUARY 30, 1935

8:00 to 9:30.....	C I G R
9:45 to 11:15.....	A D H Y
12:30 to 5:00.....	All special students, and any students who failed to report during the period provided for their groups. Late assignment fee of \$5 in effect after this period.

## The State Board of Regents

---

Name and address	Term expires
C. M. HARGER, <i>Chairman</i> , Abilene.....	June 30, 1934
OSCAR STAUFFER, Arkansas City.....	June 30, 1937
RALPH T. O'NEIL, Topeka.....	June 30, 1935
LESLIE WALLACE, Larned .....	June 30, 1935
DREW McLAUGHLIN, Paola .....	June 30, 1934
FRED M. HARRIS, Ottawa.....	June 30, 1934
DUDLEY DOOLITTLE, Strong City.....	June 30, 1936
B. P. WAGGENER, Atchison.....	June 30, 1936
H. D. FERGUSON, Colby.....	June 30, 1937

---

BENJAMIN FRANKLIN, *Business Manager*  
C. W. MYERS, *Assistant Business Manager*

## Administrative Officers of the College

---

President .....	F. D. FARRELL
Vice President .....	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 General Science.....	R. W. BABCOCK
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
Dean of the Division of Graduate Study.....	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
Superintendent of Maintenance.....	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

JULIUS TERRASS WILLARD, M.S., Sc.D., Vice President of the College (1883, 1918); Dean of Division of General Science (1909-1930); Professor of Chemistry (1901-1918).

B. S., K. S. C., 1883; M. S., *ibid.*, 1886; Sc. D., *ibid.*, 1908. A 46B; 1207 Houston.

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

Ph. B., Cornell College, 1889; Ph. M., *ibid.*, 1892. S 54; 613 Houston.

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 56; 615 Humboldt.

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

A. B., Central Wesleyan College, 1886; A. M., *ibid.*, 1889; LL. D., Kansas City University, 1912. A 75A; 1212 Thurston.

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 69; 325 N. 14th.

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, B. S., Dean of Women (1908, 1918).

Diploma, Iowa State College, 1904; B. S., K. S. C., 1929. A 42; 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.

\* 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)	M—Auditorium
Ag—Waters Hall (Agriculture)	MA—Music Annex
Bks—Barracks	N—Nichols Gymnasium
C—Denison Hall (Chemistry, Physics)	(Phys. Ed., Mil. Sci.)
CH—College Hospital	P—Stock Judging Pavilion
D—Chemistry Annex No. 2	PP—Power, Heat and Service Building
E—Engineering Hall	R—Farm Machinery Hall
F—Fairchild Hall (Hist., Zoöl., Ent.)	S—Engineering Shops
G—Education Hall (Educ., Publ. Spkg.)	T—Thompson Hall (Cafeteria)
H—Dickens Hall (Hort., Botany)	V—Veterinary Hall (Vet. Med., Bact.)
I—Illustrations Hall	VH—Veterinary Hospital
K—Kedzie Hall (Printing)	VZ—Van Zile Hall (Girls' Dormitory)
Li—Library	W—Chemistry Annex No. 1

- 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 27; 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. 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; 502 Osage.
- LELAND DAVID BUSHNELL, Ph. D., Professor and Head of Department of Bacteriology (1908, 1912); Bacteriologist, Agricultural Experiment Station (1908, 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. E. 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. C., 1895; M. S., *ibid.*, 1905. F 51; 1725 Poyntz.
- ROBERT KIRKLAND NABOURS, Ph. D., Professor and Head of Department of Zoology (1910, 1913); Zoölogist, Agricultural Experiment Station (1910, 1913); Curator of Natural History Museum (1910).  
Ed. B., University of Chicago, 1905; Ph. D., *ibid.*, 1911. F 29; 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 30; 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. 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; 1721 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. C., 1908; M. E., *ibid.*, 1916. S 62; 1722 Laramie.
- HARRY JOHN CHARLES UMBERGER,<sup>1</sup> B. S., Dean of Division of College Extension (1911, 1919); Director of College Extension (1911, 1919).  
B. S., K. S. 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. C., 1915; Ph. D., University of Chicago, 1918. C 28; 1711 Fairchild.

---

\* Absent on leave, Jan. 1 to June 30, 1934.

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

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. C., 1906; D. V. M., *ibid.*, 1910; B. S. in Agr., *ibid.*, 1918.  
E. 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. C., 1922.  
E. Ag 206B; 825 Houston.

JAMES EDWARD ACKERT, Ph. D., Dean of the Division of Graduate Study (1931); Professor of Zoölogy (1913, 1918); Parasitologist, Agricultural Experiment Station (1913).

A. B., University of Illinois, 1909; A. M., *ibid.*, 1911; Ph. D., *ibid.*, 1918.  
F 26; 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. W. Ag 128; 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 54; 1727 Fairview.

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 108; 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 31; 800 Poyntz.

LEO EDWARD MELCHERS, M. S., Professor and Head of Department of Botany and Plant Pathology (1913, 1919); Plant Pathologist, Agricultural Experiment Station (1913).

B. S., Ohio State University, 1912; M. S., *ibid.*, 1913. H 58; 1631 Osage.

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

A. B., Lebanon College, 1906; A. B., Yale University, 1907; Ph. D., *ibid.*, 1910.  
H 27; 211 N. 18th.

CYRUS VANCE WILLIAMS, Ph. D., Professor of Vocational Education (1920).

B. Ed., (Peru) Nebraska State Teachers College, 1909; A. M., University of Nebraska, 1910; B. S. in Agr., *ibid.*, 1919; Ph. D., *ibid.*, 1925.  
G 28; 1735 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 110; 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 57; 325 N. 17th.

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

B. S., Ohio Wesleyan University, 1908; M. S., *ibid.*, 1909; A. M., Ohio State University, 1910; Ph. D., *ibid.*, 1917. C 37; 333 N. 15th.

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

A. B., Wesleyan University, 1911; A. M., *ibid.*, 1914. K 53; 210 S. 17th.

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.

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

V. M. D., University of Pennsylvania, 1916. V 60; 1118 Bertrand.

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

A. B., University of Michigan, 1907; M. S., *ibid.*, 1913. C 29A; College Heights.

ROBERT JOHN BARNETT, M. S., Professor of Horticulture (1920); Head of Department of Horticulture (1920, 1930); Horticulturist, Agricultural Experiment Station (1920, 1930).

B. S., K. S. C., 1895; M. S., *ibid.*, 1911. H 29; 1203 Thurston.

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

A. B., Indiana University, 1907; A. M., *ibid.*, 1909; Ph. D., *ibid.*, 1912. F 39; 1821 Poyntz.

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

B. S., Cornell University, 1911. E. Ag 12; 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. C., 1913; Ph. D., University of Wisconsin, 1923. W. Ag 330A; 203 N. Delaware.

JOHN HUNTINGTON PARKER, Ph. D., Professor of Crop Improvement (1917, 1921).

B. S. in Agr., University of Minnesota, 1913; M. S. in Agr., Cornell University, 1916; Ph. D., Cambridge University, 1928. E. Ag 304A; 1728 Fairview.

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

B. S., Iowa State College, 1910; J. D., University of Chicago, 1917. G 55; 1622 Leavenworth.

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

A. B., Ohio State University, 1905; A. M., *ibid.*, 1916. K 52; 1605 Leavenworth.

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 26; 1123 Houston.

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\* Acting Dean of the Division of Agriculture and Acting Director of the Agricultural Experiment Station, Jan. 1 to June 30, 1934.

- FORREST FAYE FRAZIER, C. E.**, Professor of Civil Engineering (1911, 1922).  
C. E., Ohio State University, 1910. E 123; 1815 Leavenworth.
- ROYCE GERALD KLOEFFLER, S. M.**, Professor and Head of Department of Electrical Engineering (1916, 1927).  
B. S. in E. E., University of Michigan, 1913; S. M., Massachusetts Institute of Technology, 1930. E 120; 1218 Kearney.
- CLINTON ELLICOTT PEARCE, S. B.**, Professor and Head of Department of Machine Design (1917, 1922).  
S. B., Massachusetts Institute of Technology, 1913. E 210; 316 Denison.
- 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. 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. C., 1925. W. Ag 227A; 4 College Heights Road.
- MARTHA S. PITTMAN, Ph. D.**, Professor and Head of Department of Food Economics and Nutrition (1919, 1922).  
B. S., K. S. C., 1906; B. S., Columbia University, 1916; A. M., *ibid.*, 1918; Ph. D., University of Chicago, 1930. L 39; 1909 Poyntz.
- GEORGE ALBERT GEMMELL, Ph. D.**, 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. C., 1920; M. S., *ibid.*, 1922; Ph. D., University of Missouri, 1930. A 5; 411 N. 16th.
- WILLIAM TIMOTHY STRATTON, Ph. D.**, Professor of Mathematics (1910, 1923).  
A. B., Indiana University, 1906; A. M., *ibid.*, 1913; Ph. D., University of Washington, 1931. S 53; 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. C., 1922. W. Ag 330B; 1855 Anderson.
- MARGARET M. JUSTIN,<sup>2</sup> Ph. D.**, Dean of Division of Home Economics (1923).  
B. S. in H. E., K. S. C., 1909; B. S. in Educ., Teachers College, Columbia University, 1915; Ph. D., Yale University, 1923. L 29; 531 N. Manhattan.
- AMY KELLY,<sup>1</sup> B. S.**, Professor, State Home Demonstration Leader, Division of College Extension (1923).  
B. S., South Dakota State College, 1908. A 63A; 1031 Fremont.
- HEMAN LAURITZ IBSEN, Ph. D.**, Professor of Genetics (1919, 1924).  
B. S., University of Wisconsin, 1912; M. S., *ibid.*, 1913; Ph. D., *ibid.*, 1916. E. Ag., 58; 326 N. 16th.
- 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 64; 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 305; 1918 Leavenworth.

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

2. Absent on leave Oct. 15, 1933, to Apr. 15, 1934.

- WALTER GILLING WARD, M. S., Arch., Professor in Charge of Rural Engineering, Division of College Extension (1920, 1925).  
B. S. in Arch., K. S. C., 1912; Architect, *ibid.*, 1922; M. S., Iowa State College, 1931.  
E 131; 519 N. Manhattan.
- CHARLES ELKINS ROGERS, M. S., A. M., Professor and Head of Department of Industrial Journalism and Printing (1919, 1926).  
A. B., University of Oklahoma, 1914; M. S., K. S. C., 1926; A. M., Stanford University, 1932.  
K 30; 1740 Fairview.
- EDGAR TALBERT KEITH, B. S., Professor of Industrial Journalism and Printing (1912, 1925).  
B. S., K. S. C., 1912.  
K 26A; 1714 Fairview.
- 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 52; 1635 Fairchild.
- CHARLES WALTON MATTHEWS, A. M., Professor of English (1920, 1925).  
B. S., Kansas State Teachers College, Pittsburg, 1918; A. M., University of Chicago, 1923.  
K 55; 1718 Fairview.
- 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 39; 426 N. 17th.
- JULES HENRY ROBERT, B. S., Professor of Applied Mechanics and Hydraulics (1916, 1925).  
B. S., University of Illinois, 1914.  
E 113; 1729 Fairchild.
- HARRY WINFIELD CAVE, M. S., Professor of Dairy Husbandry (1918, 1926).  
B. S. A., Iowa State College, 1914; M. S., K. S. C., 1916.  
W. Ag 128; 1638 Osage.
- LOUIS COLEMAN WILLIAMS, B. S., Professor of Horticulture, Division of College Extension (1915, 1926).  
B. S., K. S. C., 1912; B. S., *ibid.*, 1922.  
A 34; 520 N. 11th.
- ROGER CLETUS SMITH, Ph. D., Professor of Entomology (1920, 1926).  
A. B., Miami University, 1911; A. M., Ohio State University, 1915; Ph. D., Cornell University, 1917.  
F 54; 1729 Laramie.
- EDWIN JACOB FRICK, D. V. M., Professor of Medicine (1919, 1926).  
D. V. M., Cornell University, 1918.  
VH 54; 319 N. 16th.
- ALFRED EVANS ALDOUS, B. S., Professor of Pasture Management (1926).  
B. S., Utah Agricultural College, 1910.  
E. Ag 216; 200 N. 16th.
- LOUIS HENRY LIMPER, Ph. D., Professor of Modern Languages (1914, 1926).  
A. B., Baldwin Wallace College, 1907; A. M., University of Wisconsin, 1914; Ph. D., State University of Iowa, 1931.  
A 71; 1324 Laramie.
- HELEN WHEELER FORD, Ph. D., Professor and Head of Department of Child Welfare and Euthenics (1926, 1928).  
B. S., Rhode Island State College, 1914; Ph. D., Yale University, 1925.  
L 62; 1115 Bertrand.
- 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; 202 S. 17th.
- FLOYD PATTISON, M. S., Professor of Mechanical Engineering, Home Study Service, Division of College Extension (1919, 1927).  
B. S., K. S. C., 1912; M. S., Massachusetts Institute of Technology, 1929.  
A 5; 805 Kearney.



BEATTY HOPE FLEENOR, Ph. D., Professor of Education, Home Study Service, Division of College Extension (1923, 1927).

B. S., K. S. C., 1919; M. S., *ibid.*, 1923; Ph. D., University of Missouri, 1931.  
A 5; 1635 Osage.

MAYNARD HENRY COE,<sup>1</sup> B. S., Professor, State Club Leader, Division of College Extension (1922, 1927).

B. S., University of Minnesota, 1917. A 35B; 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 32; 1123 Thurston.

ADA RICE, M. S., Professor of English (1899, 1927).

B. S., K. S. C., 1895; M. S., *ibid.*, 1912. A 61; 917 Osage.

MANFORD W. FURR, C. E., Professor of Civil Engineering (1917, 1927).

B. S., Purdue University, 1913; C. E., *ibid.*, 1925; M. S., K. S. 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 62; 1720 Fairview.

HERBERT HENLEY HAYMAKER, Ph. D., Professor of Plant Pathology (1917, 1927).

B. S., K. S. 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 3A; 333 N. 18th.

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

B. S., K. S. C., 1912; M. E., *ibid.*, 1921. E 109; 1619 Osage.

GABE ALFRED SELLERS, M. S., Professor of Metallurgy and Metallography (1919, 1928).

B. S., K. S. C., 1917; M. S., *ibid.*, 1929. S 30C; 927 Moro.

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

B. S., Purdue University, 1918; M. S., Pennsylvania State College, 1922.  
W. Ag 128C; 1615 Osage.

MERRILL AUGUSTUS DURLAND, M. S., M. E., Professor of Machine Design (1919, 1928); Assistant Dean of Division of Engineering (1919, 1926).

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

FRANK LESLIE DULEY,<sup>12</sup> Ph. D., Professor of Soils (1925, 1928).

B. S., University of Missouri, 1914; A. M., *ibid.*, 1915; Ph. D., University of Wisconsin, 1923.  
E. Ag 207; 1814 Laramie.

FREDERICK CHARLES FENTON, M. S., Professor and Head of Department of Agricultural Engineering (1928).

B. S., Iowa State College, 1914; M. S., *ibid.*, 1930. E 214; 322 N. 17th.

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

N 35; 1810 Laramie.

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

A. B., University of Illinois, 1910; Ph. D., University of Michigan, 1912.  
H 76A; 1515 Humboldt.

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

12. Absent on sabbatic leave, Dec. 1, 1933, to June 30, 1934.

- JESSE LAMAR BRENNEMAN, E. E.**, Professor of Electrical Engineering (1920, 1928).  
B. S., University of Chicago, 1908; E. E., University of Wisconsin, 1913.  
E 120; 820 Laramie.
- BESSIE BROOKS WEST, A. M.**, Professor and Head of Department of Institutional Economics (1928); Manager of Cafeteria (1928).  
A. B., University of California, 1924; A. M., *ibid.*, 1928. T 52; 1617 Leavenworth.
- DON CAMERON WARREN, Ph. D.**, Professor of Poultry Husbandry (1923, 1929).  
A. B., Indiana University, 1914; A. M., *ibid.*, 1917; Ph. D., Columbia University, 1923.  
W. Ag 229; 1616 Osage.
- LUCILE OSBORN RUST, M. S.**, Professor of Home Economics Education (1924, 1929).  
B. S., Kansas State Teachers College, Pittsburg, 1921; M. S., K. S. C., 1925.  
G 28; Tatarrax Apts.
- RALPH LANGLEY PARKER, Ph. D.**, Professor of Apiculture and Entomology (1925, 1930); 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; 1809 Leavenworth.
- RODNEY WHITTEMORE BABCOCK, Ph. D.**, Dean of the Division of General Science (1930).  
A. B., University of Missouri, 1912; A. M., University of Wisconsin, 1915; Ph. D., *ibid.*, 1924.  
A 47; 1928 Leavenworth.
- HARRISON BOYD SUMMERS, Ph. D.**, Professor of Public Speaking (1923, 1930).  
A. B., Fairmount College Wichita University, 1917; A. M., University of Oklahoma, 1921; Ph. D., University of Missouri, 1931. G 55; 1525 Humboldt.
- ALLAN PARK DAVIDSON, M. S.**, Professor of Vocational Education (1919, 1930).  
B. S., K. S. C., 1914; M. S., *ibid.*, 1925. G 29; 1600 Humboldt.
- ARTHUR D. WEBER, M. S.**, Professor of Animal Husbandry (1931).  
B. S., K. S. C., 1922; M. S., *ibid.*, 1926. E. Ag 13; 359 N. 15th.
- JOHN STEPHEN SULLIVAN, Lieut. Col. Inf., U. S. A.**, Professor and Head of Department of Military Science and Tactics (1931).  
Graduate, U. S. Military Academy, 1907; Graduate, Infantry School, Advanced Course, 1929; Graduate, Command and General Staff School, 1931. N 27; 909 Humboldt.
- HILMER HENRY LAUDE, M. S.**, Professor of Farm Crops (1920, 1931).  
B. S., K. S. C., 1911; M. S., Texas A. and M. College, 1918. E. Ag 208; 321 Denison.
- EDGAR LEMUEL TAGUE, Ph. D.**, Professor of Chemistry (1914, 1931); 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.
- GEORGE EDWIN JOHNSON, Ph. D.**, Professor of Zoölogy (1924, 1931); Mammalogist, Agricultural Experiment Station (1924).  
B. S., Dakota Wesleyan University, 1913; M. S., University of Chicago, 1916; Ph. D., Harvard University, 1923. F 5; 1614 Humboldt.
- LEON REED QUINLAN, M. L. A.**, Professor of Horticulture, in Charge of Landscape Gardening (1927, 1931).  
B. S., Colorado Agricultural College, 1920; M. L. A., Harvard University, 1925.  
H 8; 919 Thurston.
- LOUIS PIERCE WASHBURN, M. P. E.**, Professor of Physical Education for Men (1926, 1931).  
B. S., Carleton College, 1907; B. P. E., Springfield Y. M. C. A. College, 1911; M. P. E., *ibid.*, 1926. N 35; 1809 Poyntz.

**HELEN G. SAUM, B.S.**, Professor of Physical Education for Women (1928, 1931).

Diploma, Battle Creek School for Physical Education, 1919; B. S. in Ed., Ohio State University, 1927. N 1; 1212 Fremont.

**JOSEPH PRESTWICH SCOTT, D. V. M.**, Professor of Pathology (1916; July 1, 1933).

B. S., Scientific Gymnasium, Lausanne, Switzerland, 1910; D. V. M., Ohio State University, 1914; M. S., K. S. C., 1924. V 2; R. R. 8.

**WILLIAM MAX MCLEOD, D. V. M.**, Professor of Anatomy and Physiology (1919; July 1, 1933).

D. V. M., Iowa State College, 1917. V 33; 1016 Vattier.

**EARLE REED DAWLEY, M. S.**, Professor of Engineering Materials (1920; July 1, 1933); Assistant Engineer of Tests (1920).

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

**CHARLES HOWARD KITSELMAN, V. M. D., M. S.**, Professor of Pathology (1919; July 1, 1933).

V. M. D., University of Pennsylvania, 1918; M. S., K. S. C., 1927. VH 71; 1810 Laramie.

**MARGARET AHLBORN, M. S.**, Professor of Food Economics and Nutrition (1923; July 1, 1928); Assistant Dean of Division of Home Economics (1923, 1929).

A. B., University of Kansas, 1906; M. S., K. S. C., 1924. L 38; 1503 Leavenworth.

**OSCAR WILLIAM ALM, Ph. D.**, Professor of Psychology (1929; Sept. 1, 1933).

A. B., University of Nebraska, 1917; A. M., Columbia University, 1918; Ph. D., University of Minnesota, 1929. G 30; 1615 Fairchild.

#### 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, M. S.**, Associate Professor of Clothing and Textiles (1902, 1918).

B. S., K. S. C., 1901; M. S., University of Wisconsin, 1931. L 55; 518 N. 16th.

**CARL G. ELLING, B. S.**, Associate Professor of Animal Husbandry, Division of College Extension (1918, 1921).

B. S., K. S. C., 1904. A 34; R. R. 1.

**ALONZO FRANKLIN TURNER,<sup>1</sup> B. S.**, Associate Professor, Field Agent, Division of College Extension (1917, 1920).

B. S., K. S. C., 1905. A 60; 810 Moro.

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

B. S., K. S. C., 1909; M. S., *ibid.*, 1926. E. Ag 308; R. R. 8.

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

A. B., University of Colorado, 1905. C 33; 1824 Humboldt.

**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. E. Ag 111; 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. C., 1922. E. Ag 202; 1615 Leavenworth.

**IRA NICHOLS CHAPMAN,<sup>1</sup> M. S.**, Associate Professor of Agricultural Economics, Division of College Extension (1916, 1925).

B. S., K. S. C., 1916; M. S., *ibid.*, 1926. W. Ag 327; 1210 Thurston.

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

- FLOYD ALONZO SMUTZ, B.S., Associate Professor of Engineering Drawing and Descriptive Geometry (1918, 1925).  
B. S. in Arch., K. S. C., 1914. E 207; 1530 Pierre.
- MORRIS EVANS, M.S., Associate Professor of Agricultural Economics (1920, 1926).  
B. S. in Agr., K. S. C., 1920; M. S., *ibid.*, 1925. W. Ag 328; 1601 Poyntz.
- HELEN ELIZABETH ELCOCK, A.M., Associate Professor of English (1920, 1926).  
A. B., College of Emporia, 1907; A. M., University of Chicago, 1921.  
A 52; 110 S. 17th.
- EMMA HYDE, A.M., Associate Professor of Mathematics (1920, 1926).  
A. B., University of Kansas, 1912; A. M., University of Chicago, 1916.  
S 56; 320 N. 15th.
- CLARENCE FLAVIUS LEWIS, M.S., Associate Professor of Mathematics (1920, 1926).  
A. B., University of Denver, 1913; M. S., K. S. C., 1925. S 53; 1615 Humboldt.
- ANNA MARIE STURMER, A.M., Associate Professor of English (1920, 1926).  
A. B., University of Nebraska, 1917; A. M., *ibid.*, 1920. A 57; 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. C., 1900; Ph. B., University of Chicago, 1907; Ph. M., *ibid.*, 1908.  
F 61 and A 47A; 1621 Fairchild.
- EUGENE CLAYTON GRAHAM, B.S., Associate Professor of Farm Shop Practice (1922, 1926).  
B. S., Carleton College, 1898; B. S. in M.E., University of Minnesota, 1902.  
S 37; 501 Sunset.
- WALDO HIRAM LYONS, A.M., Associate Professor of Mathematics (1924, 1926).  
A. B., University of Denver, 1912; A. M., *ibid.*, 1916. W. Ag 130; 816 Leavenworth.
- 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 Teachers College, 1914; A. M., Indiana University, 1918; Ph. D., University of Iowa, 1924. F 59; 823 Bluemont.
- 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 60; 1803 Anderson.
- LUTHER EARL WILLOUGHBY, B.S., Associate Professor of Farm Corps, Division of College Extension (1917, 1927).  
B. S., K. S. C., 1912; B. S. in Agr., *ibid.*, 1916. Ag 250; 918 Thurston.
- ARTHUR CECIL FAY, Ph. D., Associate Professor of Bacteriology (1921, 1927).  
B. S., University of Missouri, 1920; M. S., University of Wisconsin, 1921; Ph. D., Iowa State College, 1933. V 28; 1621 Leavenworth.
- ADA GRACE BILLINGS, M.S., Associate Professor of History and Government, Home Study Service, Division of College Extension (1921, 1927).  
B. S., K. S. C., 1916; M. S., *ibid.*, 1927. A 5; 714 Moro.
- JAMES WALTON LINN, B.S., Associate Professor of Dairy Husbandry, Division of College Extension (1923, 1927).  
B. S., K. S. C., 1915. W. Ag 125; R. R. 1.

HUGH DURHAM, A. M., Assistant Dean, Division of Agriculture (1915, 1927); Assistant to 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. E. Ag 105; 730 Osage.

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

B. S., K. S. C., 1903; C. E., *ibid.*, 1918; M. S., *ibid.*, 1927. E 122; 1832 Anderson.

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

B. S., K. S. 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. C., 1927. E 121; 804 Fremont.

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

B. S., Pennsylvania State College, 1915; M. S., K. S. C., 1917. E. Ag. 24; 323 N. 15th.

FRANK JACOBS CHEEK, JR., S. M., C. E., Associate Professor of Structural Design (1923, 1928).

A. B., Center College, 1914; C. E., Rensselaer Polytechnic Institute, 1919; S. M., Massachusetts Institute of Technology, 1933. E 223; 1109 Thurston.

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

A. B., Phillips University, 1911; M. S., *ibid.*, 1923. C 56; 1114 Bertrand.

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

A. B., Northwestern University, 1917; B. D., Garrett Biblical Institute, 1920; A. M., Northwestern University, 1922. F 61; 727 Sunset.

LOUISE HELEN EVERHARDY, A. M., Associate Professor of Art (1919, 1929).

Graduate, New York School of Fine and Applied Art, 1916; B. S., Columbia University, 1925; A. M., *ibid.*, 1926. A 55A; 1104 Vattier.

BOYD BERTRAND BRAINARD, S. M., Associate Professor of Mechanical Engineering (1923, 1929).

B. S. in M. E., University of Colorado, 1922; S. M., Massachusetts Institute of Technology, 1931. E 109; 1209 Vattier.

CORNELIA WILLIAMS CRITTENDEN, A. M., Associate Professor of Modern Languages (1926, 1929).

A. B., University of Nebraska, 1918; A. M., *ibid.*, 1926. A 71; 1031 Fremont.

RANDALL CONRAD HILL, Ph. D., Associate Professor of Sociology (1929).

B. S., K. S. C., 1924; M. S., *ibid.*, 1927; Ph. D., University of Missouri, 1929. A 51A; 1902 Anderson.

REGINALD HENRY PAINTER, Ph. D., Associate Professor of Entomology (1926, 1930).

A. B., University of Texas, 1922; A. M., *ibid.*, 1924; Ph. D., Ohio State University, 1926. F 77; 903 Thurston.

HAROLD HOWE, M. S., Associate Professor of Agricultural Economics (1925, 1930).

B. S., K. S. C., 1922; M. S., University of Maryland, 1923. W. Ag 325A; 1206 Thurston.

HENRY MILES HEBERER, A. B., Associate Professor of Public Speaking (1925, 1930).

A. B., University of Illinois, 1922. G 55; 1715 Laramie.

- JAMES PHILLIP CALLAHAN, A. M., Associate Professor of English (1924, 1930).  
B. S., Kansas State Teachers College, Hays, 1919; A. M., University of Kansas, 1926.  
K 56; 1601 Pierre.
- DOROTHY BARFOOT, A. M., Associate Professor of Art (1930).  
A. B., State University of Iowa, 1922; A. M., Columbia University, 1928.  
A 68A; 1704 Fairview.
- KINGSLEY WALTON GIVEN, A. M., Associate Professor of Public Speaking (1930).  
A. B., Park College, 1926; A. M., State University of Iowa, 1928.  
G 55; 813 Vattier.
- WILLIAM ARTHUR SWIFT, Captain, U. S. A., Associate Professor of Military Science and Tactics (1930).  
N 26; Wareham Hotel.
- FRANKLIN JESSE ZINK, B. S., Associate Professor of Agricultural Engineering (1930).  
B. S. in A. E., Iowa State College, 1924.  
E 216; 332 N. 15th.
- FRANCIS EUGENE CHARLES, M. S., Associate Professor of Industrial Journalism (1931).  
B. S., K. S. C., 1924; M. S., *ibid.*, 1929.  
K 30A; 1819 Leavenworth.
- WILLIAM FRANCIS PICKETT, M. S., Associate Professor of Horticulture (1917, 1931).  
B. S., K. S. C., 1917; M. S., *ibid.*, 1923.  
H 33; 1622 Osage.
- WALTER BUSWELL BALCH, M. S., Associate Professor of Horticulture (1921, 1931); Greenhouse Foreman (1921).  
B. S., Cornell University, 1919; M. S., K. S. C., 1925.  
H 34; 1734 Fairchild.
- JOHN WALLACE LUMB, D. V. M., M. S., Associate Professor of Veterinary Medicine, Division of College Extension (1924, 1931).  
D. V. M., K. S. C., 1910; M. S., *ibid.*, 1930.  
V 32; 1631 Leavenworth.
- HAROLD MARTIN SCOTT, M. S., Associate Professor of Poultry Husbandry (1928, 1931).  
B. S., Oregon Agricultural College, 1924; M. S., K. S. C., 1927.  
W. Ag 230; 830 Bertrand.
- KATHERINE JANE HESS, M. S., Associate Professor of Clothing and Textiles (1925, 1931).  
B. S., K. S. C., 1900; M. S., *ibid.*, 1926.  
L 53; 601 Fremont.
- WILLIAM HUGH RIDDELL, Ph. D., Associate Professor of Dairy Husbandry (1929, 1931).  
B. S. A., University of British Columbia, 1922; M. S., University of Minnesota, 1924; Ph. D., *ibid.*, 1932.  
W. Ag 125; 514 N. Manhattan.
- WILLIAM ALEXANDER VAN WINKLE, Ph. D., Associate Professor of Chemistry (1922, 1931).  
B. S., University of Michigan, 1911; M. S., University of Illinois, 1917; Ph. D., *ibid.*, 1920.  
D 29; 1110 Thurston.
- RANDOLPH FORNEY GINGRICH, M. S., Associate Professor of Engineering Drawing and Descriptive Geometry (1923, 1931); Assistant Superintendent of Maintenance (July 1, 1933).  
B. S. in C. E., University of Nebraska, 1923; M. S., K. S. C., 1929.  
S 51; 1731 Humboldt.
- JOHN FREDERICK HELM, JR., B. D., Associate Professor of Free-hand Drawing and Painting (1924, 1931).  
B. D., Syracuse University, 1924.  
E 305; 1508 Humboldt.

ALPHA CORINNE LATZKE, M.S., Associate Professor of Clothing and Textiles (1929, 1931); Head of Department of Clothing and Textiles (1929, 1932).  
B. S., K. S. C., 1919; M. S., *ibid.*, 1928. L 55; 1527 Humboldt.

DOROTHY TRIPLETT, Ph. D., Associate Professor of Child Welfare and Euthenics (1930, 1931).

B. S., Kansas State Teachers College, Emporia, 1924; A. M., State University of Iowa, 1927; Ph. D., *ibid.*, 1930. L 63; 1409 Laramie.

HARRY EDWARD VAN TUYL, D. V. M., Major V. C., U. S. A., Associate Professor of Military Science and Tactics (1929, 1931).

D. V. M., K. S. C., 1917; Honor Graduate, U. S. A. Veterinary School, 1923.  
V-27; 807 Osage.

ERNEST KNIGHT CHAPIN, M.S., Associate Professor of Physics (1923, 1932).  
A. B., University of Michigan, 1918; M. S., *ibid.*, 1923. C 53; 1860 Anderson.

HAROLD NATHAN BARHAM, Ph. D., Associate Professor of Chemistry (1929, 1932).

A. B., Bethany College, 1921; M. S., Ohio State University, 1922; Ph. D., University of Kansas, 1928. C 52; 820 Bluemont.

ALFRED THOMAS PERKINS, Ph. D., Associate Professor of Chemistry (1925; July 16, 1933).

B. S., Pennsylvania State College, 1920; M. S., Rutgers College, 1922; Ph. D., *ibid.*, 1923. C 1; 1616 Humboldt.

LEROY HENRY LOHMAN, Major C. A. C., U. S. A., Associate Professor of Military Science and Tactics (Sept. 1, 1933).

Graduate, U. S. Military Academy, 1917; Graduate, Battery Officers Course, Coast Artillery School, 1924; Graduate, Command and General Staff School, 1933.  
N 26; 727 Humboldt.

### ASSISTANT PROFESSORS

ALFRED LESTER CLAPP, B. S., Assistant Professor of Agonomy, in Charge of Co-operative Experiments (1920, 1931).

B. S., K. S. C., 1914. E. Ag 201; 1109 Kearney.

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

S 41; 1528 Pierre.

EDWARD C. JONES, M. E., Assistant Professor of Machine Tool Work (1916, 1920).

B. M. E., Iowa State College, 1905; M. E., *ibid.*, 1922. S 32; R. R. 1.

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

A. B., MacMurray College for Women, 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. C., 1924. C 53; 1010 Vattier.

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

B. S., K. S. C., 1921; M. S., *ibid.*, 1926. E. Ag 305A; 1013 Laramie.

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

B. S., University of Minnesota, 1920; M. S., K. S. C., 1926. E. Ag 9; 1425 Humboldt.

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

B. S., University of Illinois, 1919; M. S., *ibid.*, 1921; Ph. D., *ibid.*, 1922.  
C 9; 1131 Kearney.

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

B. S. in Agr., K. S. C., 1921. 3156 Belmont, 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. C., 1918; M. S., *ibid.*, 1926. A 60; 1507 Leavenworth.
- RUTH HARTMAN, Assistant Professor of Music (1924).  
Graduate in Public School Music, Iowa State Teachers College, 1912; Two-year Certificate, Northwestern University, 1923. M 56; 1519 Fairchild.
- EDGAR McCALL AMOS, B. S., Assistant Professor of Industrial Journalism and Printing (1920, 1924).  
B. S., K. S. C., 1902. K 29; 1015 Leavenworth.
- CLARICE MARIE PAINTER, Assistant Professor of Piano (1924).  
Diploma in Piano, Hardin College, 1919; Diploma, New England Conservatory of Music, 1922. M 51; 1429 Laramie.
- FRANK PLETCHER ROOT, M. S., Assistant Professor of Physical Education and Athletics (1924).  
B. S., K. S. C., 1914; M. S., *ibid.*, 1924. N 34; 314 Kearney.
- HARRY WORKMAN AIMAN, A. B., Assistant Professor of Woodwork (1918, 1925)  
A. B., Oskaloosa College, 1921. S 27A; 521 Osage.
- HAZLEY THOMAS GROODY, M. D., Assistant Physician, Department of Student Health (1925).  
B. S., Valparaiso University, 1909; M. D., Chicago College of Medicine and Surgery, 1913. A 59; 514 N. Juliette.
- EDWIN DONALD SAYRE, M. B., A. M., Assistant Professor of Voice (1925).  
A. B., DePauw University, 1923; M. B., School of Music, *ibid.*, 1925; A. M., Columbia University, 1931. MA 12; 318 S. 17th.
- 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. C., 1926. W. Ag 245; 1711 Leavenworth.
- JULIAN ADAIR HODGES, M. S., Assistant Professor of Agricultural Economics (1923, 1926).  
B. S. in Agr., University of Kentucky, 1917; M. S. in Agr. Ec., *ibid.*, 1923. W. Ag 328; 108 N. 17th.
- MARY FIDELIA TAYLOR, A. M., Assistant Professor of Household Economics (1919, 1928).  
B. S., K. S. C., 1919, 1931; A. M., Teachers College, Columbia University, 1926. T 54; 1611 Laramie.
- WILLIAM CHARLES JANES, A. M., Assistant Professor of Mathematics (1922, 1926).  
B. S., Northwestern University, 1919; A. M., University of Nebraska, 1922. S 52; 1115 Thurston.
- THIRZA ADALINE MOSSMAN, A. M., Assistant Professor of Mathematics (1922, 1926).  
A. B., University of Nebraska, 1916; A. M., University of Chicago, 1922. W. Ag 225; 1601 Fairchild.
- ORVILLE DON HUNT, M. S., Assistant Professor of Electrical Engineering (1923, 1926).  
B. S. in E. E., Washington State College, 1923; M. S., K. S. C., 1930. E 127; 1822 Poyntz.
- LOUIS MARK JORGENSEN, M. S., Assistant Professor of Electrical Engineering (1925, 1926).  
B. S., K. S. C., 1907; M. S., *ibid.*, 1930. E 127; 730 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.
- ALBERT JOHN SCHOTH, B. S., Assistant Professor in Junior Extension, Assistant State Club Leader, Division of College Extension (1921, 1927).  
B. S., Oregon Agricultural College, 1918. A 35A; 1116 Bluemont.
- GEORGIANA SMURTHWAITE, M. S., Assistant Professor and District Home Demonstration Agent Leader, Division of College Extension (1924, 1927).  
B. S., Utah Agricultural College; M. S., K. S. C., 1931. A 63B; 1531 Leavenworth.
- JEPHTHA JERRY MOXLEY, B. S., Assistant Professor of Animal Husbandry, Division of College Extension (1925, 1927).  
B. S. in Agr., K. S. C., 1922. A 34; 1030 Thurston.
- STELLA MAUDE HARRISS, M. S., Assistant Professor of Chemistry (1917, 1927).  
Graduate, (Peru) Nebraska State Normal School, 1908; B. S., K. S. C., 1917; M. S., *ibid.*, 1919. W 26; 311 Denison.
- ANNABEL ALEXANDER GARVEY, A. M., Assistant Professor of English (1920, 1927).  
A. B., Wellesly College, 1912; A. M., University of Kansas, 1914. A 54; 1601 Fairchild.
- ESTHER BRUNER, M. S., Assistant Professor of Clothing and Textiles (1920, 1927).  
B. S., K. S. C., 1920; M. S., *ibid.*, 1921. L 68; 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, 1920. F 63; 1429 Laramie.
- HARRIET SHIPLEY PARKER, A. M., Assistant Professor of English (1924, 1927).  
A. B., University of Kansas, 1909; A. M., Washington University, 1912. A 52; 1440 Laramie.
- ALICE CLAYPOOL JEFFERSON, B. M., Assistant Professor of Piano (1925, 1927).  
Graduate, American Conservatory of Music, 1921; B. M., *ibid.*, 1929. N 76D; 1601 Fairchild.
- MYRTLE ANNICE GUNSELMAN, A. M., Assistant Professor of Household Economics (1926, 1927).  
B. S., K. S. C., 1919; A. M., University of Chicago, 1926. L 54; 324 N. 15th.
- CARL ALFRED BRANDLY, M. S., Assistant Professor of Bacteriology (1927).  
D. V. M., K. S. C., 1923; M. S., *ibid.*, 1930. V 53; 1026 Kearney.
- MILDRED CAMP, B. L. S., Head Circulation Department, College Library (1927).  
A. B., Eureka College, 1912; B. L. S., University of Illinois, 1924. Li; 1213 Kearney.
- ELDEN EMANUEL LEASURE, D. V. M., Assistant Professor of Pathology (1926, 1928).  
D. V. M., K. S. C., 1923; M. S., *ibid.*, 1930. V 57A; 1531 Leavenworth.
- EDWARD RAYMOND FRANK, D. V. M., M. S., Assistant Professor of Surgery and Medicine (1926, 1928).  
B. S., K. S. C., 1918; D. V. M., *ibid.*, 1924; M. S., *ibid.*, 1929. VH 53; 1837 Anderson.
- HOMER JAY HENNEY, M. S.,<sup>6</sup> Assistant Professor of Agricultural Economics (1927, 1928).  
B. S., K. S. C., 1921; M. S., *ibid.*, 1928. W. Ag 330B; 1723 Leavenworth.

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6. On sabbatical leave, Oct. 1, to Dec. 31, 1933.

- MARTINE A. SEATON, B. S., Assistant Professor of Poultry Husbandry, Division of College Extension (1928).  
B. S. in Agr., University of Missouri, 1924. W. Ag 250; 501 Houston.
- HENRY EVERT WICHERS, M. S., Assistant Professor of Rural Architecture (1924, 1928).  
B. S. in Arch., K. S. C., 1924; M. S., *ibid.*, 1925; Architect, *ibid.*, 1930.  
E 224; 1501 Humboldt.
- HARRY MARTIN STEWART, M. B. A., Assistant Professor of Economics (1926, 1928).  
A. B., University of Kansas, 1920; M. B. A., *ibid.*, 1926. A 74; 1122 Vattier.
- GEORGE WILLARD MAXWELL,<sup>3</sup> A. M., Assistant Professor of Physics (1927, 1928).  
A. M., University of Michigan, 1920. C 57; 1106 Bertrand.
- DOROTHY BRANFORD PETTIS, A. M., Assistant Professor of Modern Languages (1927, 1928).  
A. B., University of Nebraska, 1919; A. M., *ibid.*, 1924. A 70; 514 N. 17th.
- MADALYN AVERY, M. S., Assistant Professor of Physics (1928).  
B. S., K. S. C., 1924; M. S., *ibid.*, 1932. C 31; 1031 Fremont.
- LYLE WAYNE DOWNEY, B. M., M. S., Assistant Professor of Music (1928); Director of College Band, and Instructor in Band Instruments (1928, 1929).  
A. B., James Milliken University, 1923; B. M., American Conservatory, 1928; M. S., K. S. C., 1932. M 31; 1840 Anderson.
- MARY ELIZABETH HOFF, B. S. in L. S., Head of Documents Department, College Library (1928).  
A. B., Friends University, 1925; B. S. in L. S., University of Illinois, 1928.  
Li 26; 315 N. 14th.
- DONALD ALDEN WILBUR, A. M., Assistant Professor of Entomology (1928).  
B. S., Oregon State College, 1925; A. M., Ohio State University, 1927.  
F 83; 1100 Kearney.
- EDWARD JOSEPH WIMMER, Ph. D., Assistant Professor of Zoölogy (1928).  
A. B., University of Wisconsin, 1925; A. M., *ibid.*, 1927; Ph. D., *ibid.*, 1928.  
F 38; 1116 Bluemont.
- LEVELLE WOOD, M. S., Assistant Professor of Institutional Economics (1928).  
B. S., Oregon State College, 1921; M. S., Columbia University, 1928. Van Zile Hall.
- JOHN SNELL GLASS, B. S., Assistant Professor of Rural Engineering, Division of College Extension (1928).  
B. S., Iowa State College, 1917. E 131; R. R. 8.
- CLARENCE ROY JACCARD,<sup>1</sup> B. S., Assistant Professor of Agricultural Extension, District Agricultural Agent, Division of College Extension (1922, 1928).  
B. S., K. S. C., 1926. A 60; 335 N. 15th.
- HENRY LEWIS LOBENSTEIN, B. S., Assistant Professor of Horticulture, Division of College Extension (1928, 1929).  
B. S., K. S. C., 1926. A 34; 1127 Kearney.
- ADRIAN AUGUSTUS HOLTZ, Ph. D., Men's Adviser and Secretary of Young Men's Christian Association (1919); Assistant Professor of Sociology (1929).  
A. B., Colgate University, 1909; Ph. M., University of Chicago, 1910; B. D., *ibid.*, 1911; Ph. D., *ibid.*, 1914. A 43; 419 Denison.
- CARRELL HENRY WHITNAH, Ph. D., Assistant Professor of Chemistry and Associate Food Analyst (1929).  
A. B., University of Nebraska, 1913; M. S., University of Chicago, 1917; Ph. D., University of Nebraska, 1925. C 15; 1931 Leavenworth.

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

3. Absent on leave, year 1933-'34.

- HARRY RAY BRYSON, M. S., Assistant Professor of Entomology (1924, 1929).  
B. S., K. S. C., 1917; M. S., *ibid.*, 1924. F 54; 1821 Leavenworth.
- CHARLES ALDEN LOGAN, M. S., Assistant Professor of Agricultural Engineering (1929).  
B. S., K. S. C., 1925; M. S., *ibid.*, 1932. E 216; 615 N. 9th.
- FRANCIS LEONARD TIMMONS, M. S., Assistant Professor of Coöperative Experiments, Department of Agronomy (1928, 1929).  
B. S., K. S. C., 1928; M. S., K. S. C., 1932. E. Ag 202; 1030 Ratone.
- INA EMMA HOLROYD, A. M., Assistant Professor of Mathematics (1900, 1929).  
B. S., K. S. C., 1915; B. S., Kansas State Teachers College, Emporia, 1916; A. M., Columbia University, 1929. W. Ag 225; 1001 Moro.
- ELIZABETH QUINLAN, M. S., Assistant Professor of Clothing and Textiles (1925, 1929).  
B. S., K. S. C., 1917; M. S., Columbia University, 1924. L 58; 1519 Fairchild.
- MENDEL ELMER LASH, Ph. D., Assistant Professor of Chemistry (1929).  
A. B., Ohio State University, 1920; M. S., *ibid.*, 1922; Ph. D., *ibid.*, 1928. C 9; 819 Kearney.
- MAX RULE MARTIN, Assistant Professor of Violin, Viola, and Reed Instruments (1929).  
Graduate in Violin, William A. Bunzen; Graduate in Orchestra, Sander Harmati; Graduate in Musical Composition, R. Cuscaden. MA 7; 1413 Laramie.
- ELLSWORTH YOUNG, B. S., Capt. C. A. C., U. S. A., Assistant Professor of Military Science and Tactics (1929).  
B. S., Iowa State College, 1916; Graduate, Battery Officers' Course, Coast Artillery School, 1920. N 26; 1011 Houston.
- EDWARD HENRY LEKER, M. S., Assistant Professor of Plant Pathology, Division of College Extension (1929).  
B. S., University of Missouri, 1917; M. S., K. S. C., 1927. H 53; 601 N. 14th.
- HERMAN FARLEY, D. V. M., Assistant Professor of Pathology (1929).  
D. V. M., K. S. C., 1926. V 2; 1407 Laramie.
- HALVOR H. MYRAH, First Lieut., C. A. C., U. S. A., Assistant Professor of Military Science and Tactics (1930).  
Graduate, U. S. Military Academy, 1918; Graduate, Artillery School, 1920; Graduate, Coast Artillery Battery Officers' Course, 1927. N 26; 357 N. 14th.
- MURVILLE JENNINGS HARBAUGH, A. M., Assistant Professor of Zoölogy (1929, 1930).  
A. B., University of Montana, 1926; A. M., *ibid.*, 1930. F 37; 904 Bertrand.
- JOHN VERN HEPLER,<sup>1</sup> B. S., Assistant Professor of Agricultural Extension, District Agricultural Agent, Division of College Extension (1921, 1930).  
B. S., K. S. C., 1915. A 60; 1803 Anderson.
- WILBUR JOHN CAULFIELD, M. S., Assistant Professor of Dairy Husbandry (1927, 1930).  
B. S., University of Minnesota, 1924; M. S., Pennsylvania State College, 1926. W. Ag 147; 1011 Moro.
- GEORGE MONTGOMERY, M. S., Assistant Professor of Agricultural Economics (1925, 1930).  
B. S., K. S. C., 1925; M. S., *ibid.*, 1927. W. Ag 330B; 1116 Bluemont.
- LINUS BURR SMITH, M. Arch., Assistant Professor of Architecture (1926, 1930).  
B. S., K. S. C., 1926; M. Arch., Harvard University, 1931. E 223; 800 Manhattan Ave.

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

- CHARLES WILLIAM STRATTON, B. M., M. S., Assistant Professor of Piano (1927, 1930).  
B. M., K. S. C., 1926; M. S., *ibid.*, 1933. M 55; 511 N. Sunset.
- RUFUS FRANCIS COX, M. S., Assistant Professor of Animal Husbandry (1930).  
B. S., Oklahoma A. and M. College, 1923; M. S., Iowa State College, 1925.  
E. Ag 8A; 1005 Thurston.
- LEO EVERETT HUDIBURG, M. S., Assistant Professor of Physics (1930).  
B. S., Kansas State Teachers College, Pittsburg, 1923; M. S., K. S. C., 1930.  
C 34; 1624 Osage.
- IRA EDGAR RYDER, Captain Inf., U. S. A., Assistant Professor of Military Science and Tactics (1930).  
A. B., St. John's College, 1913. N 26; 1102 Houston.
- REEFA GLENN TORDOFF,<sup>3</sup> A. B., Assistant Professor of Piano (1930).  
A. B., University of Minnesota, 1924. M 55; 1611 Laramie.
- VANCE MATHER RUCKER, B. S., Assistant Professor of Agricultural Economics, Division of College Extension (1928, 1930).  
B. S., K. S. C., 1928. W. Ag 363; 1519 Humboldt.
- DWIGHT M. SEATH, M. S., Assistant Professor of Dairy Husbandry, Division of College Extension (1930).  
B. S., Iowa State College, 1926; M. S., K. S. C., 1930. W. Ag 125; 1601 Humboldt.
- LAWRENCE FENER HALL, M. S., Assistant Professor of Vocational Education (1929, 1931).  
B. S., K. S. C., 1923; M. S., *ibid.*, 1927. G 28; 1126 Thurston.
- HAROLD EDWIN MYERS, M. S., Assistant Professor of Soils (1929, 1931).  
B. S., K. S. C., 1928; M. S., University of Illinois, 1929. E. Ag 207; 1405 Laramie.
- GEORGE ALBERT FILINGER, Ph. D., Assistant Professor of Pomology (1931); Assistant Pomologist, Agricultural Experiment Station (1931).  
B. S., K. S. C., 1924; M. S., *ibid.*, 1925; Ph. D., Ohio State University, 1931.  
H 35; 1223 Poyntz Ave.
- EUGENE ARTHUR CLEAVENGER, B. S., Assistant Professor of Farm Crops, Division of College Extension (1927, 1931).  
B. S., K. S. C., 1925. A 34; 345 N. 15th.
- VIDA AGNES HARRIS, A. M., Assistant Professor of Art (1927, 1931).  
B. S., K. S. C., 1914; A. M., University of Chicago, 1927. A 55A; 1645 Fairchild.
- MARION HERFORD PELTON, B. M., Assistant Professor of Piano (1928, 1931).  
B. M., University of Wisconsin, 1927; B. S., K. S. C., 1932. N 76E; 1006 Vattier.
- CHARLES RAY THOMPSON, A. M., Assistant Professor of Economics and Sociology (1929, 1931).  
A. B., University of Kansas, 1927; A. M., *ibid.*, 1928. A 51A; 909 Thurston.
- MARION QUINLAN,<sup>5</sup> A. M., Assistant Professor of Child Welfare and Euthenics, Department of Education (1931).  
B. S., Teachers College, Columbia University, 1923; A. M., *ibid.*, 1930.  
L 24; 531 N. Manhattan.
- RICHARD ROSLYN JESSON, M. B., Assistant Professor of Piano (1929, 1931).  
M. B., Oberlin College, 1929. M 54; 1116 Bluemont.
- JOHN HERBERT COOLIDGE, M. S., Assistant Professor of Agricultural Economics, Division of College Extension (1931).  
B. S., K. S. C., 1925; M. S., *ibid.*, 1932. 246 Ave. E East, Kingman, Kan.

3. Absent on leave, year 1933-'34.

5. Absent on indefinite leave, beginning May 16, 1933.

- CLARENCE EDWARD CREWS, M. S., Assistant Professor of Agronomy (1928, 1932).  
B. S., K. S. C., 1928; M. S., *ibid.*, 1930. 300 Ave. A West, Kingman, Kan.
- THOMAS RUSSELL REITZ, B. S., Assistant Professor of Horticulture (1931, 1932).  
B. S., K. S. C., 1927. 1415 N. 3d, Atchison, Kan.
- HELEN PANSY HOSTETTER, M. S., Assistant Professor of Industrial Journalism and Printing (1932).  
A. B., University of Nebraska, 1917; M. S., Northwestern University, 1926.  
K 28; 110 S. 17th.
- WILLIAM HAROLD METZGER, Ph. D., Assistant Professor of Soils (1932).  
B. S., Purdue University, 1922; M. S., K. S. C., 1927; Ph. D., Ohio State University, 1931.  
E. Ag 207A; 1230 Vattier.
- CHARLES ARTHUR PYLE,<sup>1</sup> D. V. M., Assistant Professor of Veterinary Medicine (1932).  
B. S., K. S. C., 1904; D. V. M., *ibid.*, 1907. Sedan, Kan.
- MARJORIE GRAHAM EBERHART, M. D., Assistant Physician, Department of Student Health (1932).  
B. S., Southern Methodist University, 1926; M. D., University of Oklahoma, 1930.  
A 58; 1429 Laramie.
- BENJAMIN LEVI SMITS, Ph. D., Assistant Professor of Chemistry (1926, 1932).  
B. S., Michigan State College, 1924; M. S., *ibid.*, 1925; Ph. D., *ibid.*, 1926.  
W 29; 1131 Kearney.
- CONIE CAROLINE FOOTE, A. M., Assistant Professor and Specialist in Foods and Nutrition, Division of College Extension (1924, 1932).  
B. S., K. S. C., 1921; A. M., Columbia University, 1931. A 62; 1429 Laramie.
- RUSSELL IRA THACKREY, M. S., Assistant Professor of Industrial Journalism (1928, 1932).  
B. S., K. S. C., 1927; M. S., *ibid.*, 1932. K 30A; 1211 Thurston.
- HUBERT WHATLEY MARLOW, Ph. D., Assistant Professor of Chemistry (1925, 1932).  
B. S., North Texas Teachers College, 1925; M. S., University of Chicago, 1928; Ph. D., *ibid.*, 1931.  
W 29A; 1441 Laramie.
- MARIA MORRIS, M. S., Assistant Professor of Art (1925, 1932).  
B. S., K. S. C., 1911; Graduate, New York School of Fine and Applied Art, 1924; M. S., K. S. C., 1927. A 68A; 816 N. Juliette.
- HILDA ROSE GROSSMANN, B. M., Assistant Professor of Voice (1927, 1932).  
B. M., Chicago Musical College, 1925; B. S. in Music Ed., K. S. C., 1932.  
N 76B; 1429 Laramie.
- VERNON DANIEL FOLTZ, M. S., Assistant Professor of Bacteriology (1927, 1932).  
B. S., K. S. C., 1927; M. S., *ibid.*, 1929. V 52; 1531 Leavenworth.
- ROBERT DODDS DAUGHERTY, M. S., Assistant Professor of Mathematics (1930, 1932).  
Ph. B., Iowa Wesleyan College, 1910; M. S., State University of Iowa, 1930.  
S 52; 615 Humboldt.
- CAMILLE LEON LEFEBVRE, Ph. D., Assistant Professor of Botany (1932).  
B. S., University of Minnesota, 1929; A. M., Harvard University, 1931; Ph. D., *ibid.*, 1932.  
H 54; 1116 Bluemont.
- WILLIAM FRED REHM, Capt. Inf., U. S. A., Assistant Professor of Military Science and Tactics (1932).  
Graduate, Concordia College, Ft. Wayne, Ind., 1915; Graduate, Company Officers Course, Ft. Benning, 1924; Graduate, Advanced Course, Ft. Benning, 1932.  
N 26; 210 S. 10th.

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

- ROY CLINTON LANGFORD, M. S., Assistant Professor in Psychology (1925; Sept. 1, 1933).  
B. S., K. S. C., 1925; M. S., *ibid.*, 1926. G 32D; 521 N. Manhattan Ave.
- WENDELL EVERETT BEALS, M. B. A., Assistant Professor of Accounting (1931; Sept. 1, 1933).  
B. S., University of Kentucky, 1930; M. B. A., Northwestern University, 1931. A 74; 519 N. 11th.
- WILLIAM LAWRENCE FAITH, Ph. D., Assistant Professor of Industrial Chemistry (Sept. 1, 1933).  
B. S., University of Maryland, 1928; M. S., University of Illinois, 1929; Ph. D., *ibid.*, 1932. D 3; 1447 Anderson Ave.

## INSTRUCTORS

- EDWARD GRANT, Instructor in Foundry (1913); Foreman of Foundry (1913).  
S 45; 1814 Anderson.
- KATHERINE MAXWELL BOWER, A. M., Instructor in English (1918, 1919).  
B. S., K. S. C., 1915; A. M., University of Kansas, 1924. A 54; 817 Poyntz.
- WILLMIMA PEARL MARTIN, R. N., Instructor in Home Health and Sanitation, Division of College Extension (1919).  
Graduate, Christ's Hospital, Topeka. A 62A; 930 Osage.
- ROY ELMER WILSON, Sergt. C. A. C., U. S. A., Instructor in Military Science and Tactics (1921).  
N 26; 517 S. Manhattan.
- NELLIE ABERLE,<sup>11</sup> M. S., Instructor in English (1921).  
B. S., K. S. C., 1912; M. S., *ibid.*, 1914. A 52; 1442 Fairchild.
- ELLEN MARGARET BATCHELOR, B. S., Instructor and District Home Demonstration Agent Leader, Division of College Extension (1917, 1921).  
B. S., K. S. C., 1911. A 63D; 1212 Fremont.
- JESSIE GULICK, Acting 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; 721 Kearney.
- MAUDE ELIZABETH DEELY, A. M., Instructor in Home Furnishings, Division of College Extension (1923, 1925).  
B. S., K. S. C., 1923; A. M., Columbia University, 1932. A 62; 1429 Laramie.
- ARTHUR CLINTON ANDREWS, M. S., Instructor in Chemistry (1926).  
B. S., University of Wisconsin, 1924; M. S., K. S. C., 1929. D 30; 1017 Bertrand.
- MAY MILES, B. S., Instructor and District Home Demonstration Agent Leader, Division of College Extension (1926, 1928).  
B. S., University of Illinois, 1926. A 63C; 1519 Fairchild.
- RUTH EMMA TUCKER, M. S., Instructor in Food Economics and Nutrition (1925, 1926).  
A. B., University of Illinois, 1923; M. S., *ibid.*, 1925. L 43; 1503 Leavenworth.
- MAYNARD LEE McDOWELL, A. M., Instructor in Chemistry (1926).  
A. B., Central College, 1924; A. M., University of Missouri, 1926. W 29A; 1638 Laramie.
- JOHN CARL OLSEN, M. S., Instructor in Machine Drawing and Design (1927).  
B. S., Colorado Agricultural College, 1925; M. S., K. S. C., 1931. E 209; 930 Laramie.

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11. Absent on sabbatic leave, Feb. 1 to May 31, 1934.

- ROYCE OWEN PENCE, M. S., Instructor in Milling Industry (1927).**  
B. S. in F. M. E., K. S. C., 1924; M. S., *ibid.*, 1930. E. Ag 111; 917 Kearney.
- LILLIAN JULIETTE SWENSON, A. B., Assistant Reference Librarian (1927).**  
A. B., Colorado College, 1924; B. S., Simmons College, 1927. Li 51; 1212 Fremont.
- ELSA OTTILIA HORN STILES, M. S., Instructor in Botany (1926, 1927).**  
A. B., University of Minnesota, 1919; M. S., Oregon Agricultural College, 1926.  
H 32; 1000 Moro.
- GEORGE FRANCIS BRANIGAN, M. S., Instructor in Engineering Drawing and Descriptive Geometry (1927).**  
B. S. in C. E., University of Nebraska, 1927; M. S., K. S. C., 1933.  
S 51; 1120 Thurston.
- KATHERINE GEYER, B. S., Instructor in Physical Education for Women (1927).**  
Diploma, Sargent School of Boston University, 1925; B. S., Ohio State University, 1927.  
N 1; 1531 Leavenworth.
- LORETTA McELMURRY, B. S., Instructor in Clothing and Textiles, Division of College Extension (1927).**  
B. S., South Dakota State College, 1901. A 62; 514 N. 17th.
- EARL LeROY SITZ, M. S., Instructor in Electrical Engineering (1927, 1928).**  
B. S. in E. E., Iowa State College, 1927; M. S., K. S. C., 1932. E 24; 1122 Bluemont.
- GLADYS ELLEN VAIL, M. S., Instructor in Food Economics and Nutrition (1927).**  
A. B., Southwestern College, 1924; M. S., University of Chicago, 1927.  
L 43; 1425 Laramie.
- MARGUERITE VELMA HARPER, B. S., Instructor in Household Management, Division of College Extension (1928).**  
B. S., K. S. C., 1928. A 62A; 1429 Laramie.
- MARGARET ALICE NEWCOMB,<sup>3</sup> M. S., Instructor in Botany (1925, 1928).**  
B. S., K. S. C., 1925; M. S., *ibid.*, 1927. H 32; 730 Vattier.
- GRATIA MARIE BURNS, A. M., Instructor in Modern Languages (1928).**  
B. S., University of Minnesota, 1926; A. M., *ibid.*, 1928. A 70; 1832 Anderson.
- MARTHA REBECCA CULLIPHER, B. S. in L. S., Assistant Loan Librarian (1928).**  
A. B., Indiana University, 1926; B. S. in L. S., University of Illinois, 1928.  
Li 51; 312 N. 15th.
- CHARLES GEORGE DOBROVOLNY, A. B., Technician and Instructor in Zoölogy (1929).**  
A. B., University of Montana, 1928. F 30; 1200 Bertrand.
- LEONE BOWER KELL, M. S., Instructor in Child Welfare and Euthenics (1927, 1929).**  
B. S., K. S. C., 1923; M. S., *ibid.*, 1928. L 33A; 727 Leavenworth.
- ARTHUR LEONARD GOODRICH, JR., M. S., Instructor in Zoölogy (1929).**  
B. S., College of Idaho, 1928; M. S., University of Idaho, 1929. F 78; 1642 Laramie.
- LESTER HENRY KOENITZER, M. S., Instructor in Applied Mechanics (1929).**  
B. S., Iowa State College, 1926; M. S., *ibid.*, 1929; C. E., *ibid.*, 1930.  
E 17; 1737 Laramie.
- REED FRANKLIN MORSE, M. S., Instructor in Civil Engineering (1929).**  
A. B., Cornell College, 1921; B. S., Iowa State College, 1923; M. S., K. S. C., 1933.  
E 220; 930 Laramie.
- GERALD PICKETT, M. S., Instructor in Applied Mechanics (1929).**  
B. S., Oklahoma A. and M. College, 1927; M. S., K. S. C., 1931. E 113; 1421 Poyntz.

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3. Absent on leave, year 1933-'34.

- JOSEPH THOMAS WARE, B. S., Instructor in Architecture (1929).  
B. S., Georgia School of Technology, 1929. E 223; 1116 Bluemont.
- GEORGE NATHAN REED, M. S., Instructor in Chemistry (1929).  
B. S., Oklahoma A. and M. College, 1922; M. S., University of Oklahoma, 1924.  
D 29; 927 Moro.
- CONRAD STEPHEN MOLL, B. P. E., M. S., Instructor in Physical Education for Men (1929).  
Graduate, Concordia College, Fort Wayne, Ind., 1918; B. P. E., George Williams College, 1925; M. S., K. S. C., 1933. N 31A; College Heights.
- ARTHUR ORAN FLINNER, M. S., Instructor in Mechanical Engineering (1929).  
B. S. in M. E., K. S. C., 1929; M. S., *ibid.*, 1933. E 109; 914 Moro.
- FRED FOSTER GREELEY, Instructor in Machine Shop and Welding (1923, 1930).  
Assistant in Shop Practice (1923, 1929). S 30; 1010 Fremont.
- STERLING McCOLLUM, Instructor in Shop Practice (1930).  
S 34; 905 Pierre.
- LAURA FALKENRICH BAXTER, M. S., Instructor in Home Economics Education (1927, 1930).  
B. S., K. S. C., 1915; M. S., *ibid.*, 1930. G 28; 610 Vattier.
- ERWIN JOHN BENNE, M. S., Instructor in Chemistry (1930).  
B. S., K. S. C., 1928; M. S., *ibid.*, 1931. W 30; 902 Ratone.
- MYRA EDNA SCOTT, A. M., Instructor in English (1928, 1930).  
B. S., K. S. C., 1921; A. M., Stanford University, 1928. A 53; 924 Moro.
- JOHN HENRY SHENK, M. S., Instructor in Chemistry (1929, 1930).  
B. S., K. S. C., 1929; M. S., *ibid.*, 1931. W 30; 916 Osage.
- ANNA TESSIE AGAN, M. S., Instructor in Household Economics (1930).  
B. S., University of Nebraska, 1927; M. S., K. S. C., 1930. L 64; 1201 Bertrand.
- NINA MYRTLE BROWNING, M. S., Instructor in Food Economics and Nutrition (1930).  
B. S., K. S. C., 1923; M. S., *ibid.*, 1927. L 28; 908 Laramie.
- FRANK BYRNE, B. S., Instructor in Geology (1930).  
B. S., University of Chicago, 1927. F 1A; 1116 Bluemont.
- WILLIAM EUGENE CONNELL, M. S., Instructor in Animal Husbandry (1930).  
B. S., Oklahoma A. and M. College, 1928; M. S., K. S. C., 1929. E. Ag 6A; 1024 Laramie.
- EVA MYRTLE McMILLAN, M. S., Instructor in Food Economics and Nutrition (1930).  
Ph. B., University of Chicago, 1918; M. S., *ibid.*, 1929. L 28; 908 Laramie.
- EDGAR LEE BARGER, B. S., Instructor in Agricultural Engineering (1930).  
B. S., K. S. C., 1930. E 216; 1614 Humboldt.
- FRANCES DEANE SHEWMAKER,<sup>13</sup> B. S., Instructor in Foods and Nutrition, Division of College Extension (1930).  
B. S., K. S. C., 1930. A 62A; 1322 Laramie.
- JESSE McKINLEY SCHALL, A. M., Instructor in English, Home Study Service, Division of College Extension (1930, 1931).  
A. B., Southeast Missouri State Teachers College, 1927; A. M., University of Missouri, 1930. A 2; 1030 Kearney.

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13. Absent on indefinite leave, beginning Oct. 9, 1933.



- LORA VALENTINE HILYARD, B.S., Instructor in Junior Extension, Assistant State Club Leader, Division of College Extension (1930).  
B. S., K. S. C., 1930. A 35B; 1429 Laramie.
- MABEL RACHEL SMITH, B.S., Instructor in Junior Extension, Assistant State Club Leader, Division of College Extension (1929, 1931).  
B. S., K. S. C., 1926. A 35A; 1718 Fairview.
- WILLIAM EDWIN JENNINGS, D.V.M., Instructor in Surgery and Medicine (1931).  
D. V. M., Cornell University, 1931. VH 53; Vet. Hospital.
- WARD HILLMAN HAYLETT, A.B., Instructor in Physical Education for Men (1928, 1931).  
A. B., Doane College, 1926. N 33; 1414 Humboldt.
- DELOS CLIFTON TAYLOR, B.S., Instructor in Applied Mechanics (1931).  
B. S. in C. E., K. S. C., 1925. E 14; 1631 Humboldt.
- LEROY CLAY PASLAY, B.S., Instructor in Electrical Engineering (1931).  
B. S., K. S. C., 1930. E 24; 1641 Anderson.
- HAZEL ALMA LYNNESS, M.S., Instructor in Home Economics Education (1930, 1932); Itinerant Teacher of Adult Home-making Education (1930).  
B. S., K. S. C., 1922; M. S., *ibid.*, 1932. G 28; ———.
- EVELYN FLORENCE DUTTON, A.M., Instructor in Art (1932).  
B. S., University of New Hampshire, 1922; A. M., Columbia University, 1932.  
A 68B; 1649 Fairchild.
- HARVEY O. WILLIAMS, Staff Sergt., U. S. A., Instructor in Military Science and Tactics (1932).  
N 26; Chelsea Apts.
- JENNIE WILLIAMS, R.N., M.S., Instructor in Child Welfare and Euthenics (1932).  
B. S., K. S. C., 1910; R. N., University of Michigan Hospital, 1924; M. S., K. S. C., 1933.  
L 63; 1718 Fairview.
- JOHN E. SEAY,<sup>10</sup> Sergt. Inf., U. S. A., Instructor in Military Science and Tactics (1933-Nov. 30, 1933).  
N 26; Wareham Hotel.
- LORRAINE MAYTUM, B.S., Instructor in Physical Education for Women (Sept. 1, 1933).  
B. S., University of Wisconsin, 1926. N 1; 1212 Fremont.
- CLIFFORD DALE McDONALD, Sergt. D.E.M.L., Instructor in Military Science and Tactics (Sept. 1, 1933).  
N 26; 618 Moro.
- MAURICE CHARLES MOGGIE, M.S., Instructor in Education (Sept. 1, 1933).  
B. S., K. S. C., 1929; M. S., *ibid.*, 1931. G 27; 1429 Laramie.
- WILLIAM A. MURPHY, M.B.A., Instructor in Accounting (Sept. 1, 1933).  
B. S., University of Kansas, 1928; M. B. A., *ibid.*, 1930. A 74; 1210 Vattier.
- FRED SCHUMANN, M.S.E., Instructor in Electrical Engineering (Sept. 1, 1933).  
B. S. E., University of Michigan, 1931; M. S. E., *ibid.*, 1932. E 19; 1429 Laramie.
- GLENN SYLVESTER FOX,<sup>4</sup> Instructor in Agricultural Economics, Division of College Extension (Nov. 6, 1933).  
B. S., K. S. C., 1933. A 34; 1415 Fairchild.

4. Temporary appointment.

10. Resigned.

ELMER LARSON, Sergt. Inf., U. S. A., Instructor in Military Science and Tactics  
(Dec. 1, 1933).

N 26; ———.

LINNEA CARLSON DENNETT,<sup>4</sup> Instructor in Foods and Nutrition, Division of  
College Extension (Dec. 14, 1933).

B. S., K. S. C., 1929.

A 62A; Manhattan.

### ASSISTANTS

ALANSON LOLA HALLSTED,<sup>1</sup> B. S., Assistant in Dry Farming, Fort Hays Branch  
Agricultural Experiment Station (1910).

B. S., K. S. C., 1903.

Hays, Kan.

NELLIE MAY, Postmistress (1911).

A 44; R. F. D. 2.

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

A 27; 717 Laramie.

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).

A 77; 628 Fremont.

MARY KIMBALL, B. S., First Assistant to the Registrar (1918).

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

A 29; 1311 Fremont.

MYRTLE EVELYN ZENER, Secretary to the Vice President (1918).

A 46; 1104 Vattier.

LOUISE SCHWENSEN, Secretary to the Dean, Division of Engineering (1915,  
1918).

E 115; 1800 Leavenworth.

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

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

A 47; 804 Moro.

EDWARD L. CLAEREN, Major, U. S. A., Retired, 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. C., 1905; R. N., Illinois Training School for Nurses, 1909.

A 64; 1720 Poyntz.

ARTHUR FRITHIOF SWANSON, B. S., Assistant in Cereal Investigations, Fort  
Hays Branch Agricultural Experiment Station (1919).

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

Hays, Kan.

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

Graduate, Lawrence Business College.

A 33; 1131 Bluemont.

CLARENCE OSBORN PRICE, Assistant to the President (1920).

A 30; 501 Bluemont.

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

4. Temporary appointment.

- JOSEPH FARRINGTON MERRILL, B. S., Assistant Chemist, Agricultural Experiment Station (1921).  
B. S., University of Maine, 1907. C 3A; 318 N. 16th.
- CLARA MAGDALENE SIEM, Financial Secretary, Division of College Extension (1920, 1924).  
A 33; 1425 Humboldt.
- HAZEL ELIZABETH TAYLOR PFUETZE, Secretary, Department of Education (1925).  
G 27; 1724 Fairchild.
- JEANNE MACBRIDE, Housekeeper in College Hospital, Department of Student Health (1925).  
College Hospital.
- FRANK LEWIS MYERS, B. M., Assistant to the Director of Physical Education (1926).  
B. M., K. S. C., 1925. N 35; 1715 Poyntz.
- ERNEST WILLIAM JOHNSON, B. S., Forest Nurseryman, Fort Hays Branch Agricultural Experiment Station (1927).  
B. S., Colorado Agricultural College, 1926. Hays, Kan.
- LISLE LESLIE LONGSDORF, M. S., Extension Editor and Radio Program Director, Division of College Extension (1927).  
B. S., University of Wisconsin, 1925; M. S., *ibid.*, 1926. A 4; 825 Bertrand.
- JANE WILSON BARNES, M. S., Secretary to the Dean, Division of Home Economics (1928).  
B. S., K. S. C., 1912; M. S., *ibid.*, 1932. L 29; 808 N. 12th.
- LIBBIE REEVES TAYLOR,<sup>10</sup> Assistant to the Superintendent, Fort Hays Branch Agricultural Experiment Station (1928-Dec. 31, 1933).  
Hays, Kan.
- EFFIE LoVISA HASTINGS, Second Assistant to the Registrar (1927, 1928).  
A 29; 122 S. Manhattan.
- BELLE CLARKE HOWARD, R. N., Nurse Department of Student Health (1928, 1930).  
R. N., Charlotte Swift Hospital, 1913. College Hospital.
- ANNA NEAL MULLER, B. S., Class Reserves Assistant in Library (1929).  
B. S., K. S. C., 1921. Li 1; 1637 Anderson.
- HENRY WILBERT LOY, JR., M. S., Assistant Chemist, Agricultural Experiment Station (1930).  
B. S., K. S. C., 1930; M. S., *ibid.*, 1933. C 3A; 1017 Laramie.
- KATHLEEN KNITTLE, B. S., Assistant to the Dean of Women (1931).  
B. S., K. S. C., 1923. A 42; 726 Leavenworth.
- FLORENCE MARGARET STEBBINS, M. S., Assistant in Genetics, Department of Zoology (1931).  
B. S., K. S. C., 1923; M. S., *ibid.*, 1928. Insectary; 312 N. 15th.
- DRYDEN MARIE QUIST,<sup>4</sup> M. S., Assistant in Education and Institutional Economics (1931, 1932).  
B. S., Iowa State College, 1924; M. S., K. S. C., 1932. T 51B; 1210 Thurston.
- NORA STEENBOCK, R. N., Head Hospital Nurse, Department of Student Health (1932).  
R. N., Christ Hospital Training School, 1930. College Hospital.

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4. Temporary appointment.

10. Resigned.

- EDITH ZERILLA WHITE, R. N., Nurse, Department of Student Health (1932).  
R. N., Christ Hospital Training School, 1918. College Hospital.
- PAUL GRIFFITH LAMERSON, M. S., Assistant in Entomology (July 1, 1933).  
B. S., K. S. C., 1927; M. S., *ibid.*, 1931. Troy, Kan.
- HELEN BERNICE FISHER, M. S., Assistant in Child Welfare and Euthenics (1932;  
Sept. 1, 1933).  
A. B., DePauw University, 1932; M. S., K. S. C., 1933. L 64; 818 Bluemont.
- BERNICE LYDIA KUNERTH, M. S., Technician, Department of Food Economics  
and Nutrition (1932; Sept. 1, 1933).  
B. S., Iowa State College, 1932; M. S., K. S. C., 1933. L 11; 1601 Humboldt.
- JOHN EDMOND ANDERSON, M. S., Assistant in Milling Industry (1932; Sept. 1,  
1933).  
B. S., K. S. C., 1932; M. S., *ibid.*, 1933. E. Ag 111; 518 Fremont.
- ROSE MARIE DARST, A. M., Assistant in Art (Sept. 1, 1933).  
B. S., Ohio University, 1926; A. M., Columbia University, 1927.  
A 68B; 1704 Fairview.
- RUTH DILLON HECKLER, A. B., Assistant in Institutional Economics (Sept.  
1, 1933).  
A. B., University of California, 1924. T 28; 818 Bluemont.
- BUEL ROREX PATTERSON, Assistant in Physical Education (Sept. 1, 1933).  
N 32; 1447 Anderson.
- JANET ISABEL WOOD, M. S., Assistant in Physical Education for Women (Sept.  
1, 1933).  
A. B., University of Oregon, 1926; M. S., University of Wisconsin, 1933.  
N 4; 1212 Fremont.
- FAITH WINIFRED BRISCOE, M. S., Technician, Department of Student Health  
(Sept. 13, 1933).  
B. S., K. S. C., 1931; M. S., K. S. C., 1933. A 58; 610 N. 14th.
- MINA FLORENCE GOERING, Ph. D., Research Assistant in Clothing and Textiles  
(Oct. 1, 1933).  
B. S., University of Nebraska, 1928; M. S., State University of Iowa, 1929; Ph. D.,  
*ibid.*, 1931. L 51; 1931 Leavenworth.
- WALTER EUGENE PEERY, Radio Operator, Division of College Extension (Oct.  
15, 1933).  
N 79; 805 Poyntz.
- LAWRENCE REED, Assistant to the Superintendent, Fort Hays Branch Agricul-  
tural Experiment Station (Jan. 1, 1934).  
Hays, Kan.
- JOHN RUSSELL LATTA,<sup>4</sup> B. S., Assistant in Soils (Feb. 1, 1934).  
B. S., K. S. C., 1934. E. Ag 207; 1031 Kearney.

### SUPERINTENDENTS

- LOUIS C. AICHER, B. S., Superintendent, Fort Hays Branch Agricultural Ex-  
periment Station (1921).  
B. S. in Agr., K. S. C., 1910. Hays, Kan.
- JACOB LUND, M. S., Superintendent of Heat and Power, Emeritus (1883, 1925);  
Custodian of Buildings and Grounds, Emeritus (1883, 1825).  
B. S., K. S. C., 1883; M. S., *ibid.*, 1886. E 26B; 1414 Fairchild.

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4. Temporary appointment.

- GEORGE RICHARD PAULING, Superintendent of Maintenance, in Charge of Buildings and Repairs, Custodian, and Heat and Power Departments (1913, 1925).  
PP 28; 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.
- THOMAS BRUCE STINSON, B. S., Superintendent, Tribune Branch Agricultural Experiment Station (1924).  
B. S., K. S. C., 1924. Tribune, Kan.
- EMBERT HARVEY COLES, B. S., Superintendent, Colby Branch Agricultural Experiment Station (1922, 1929).  
B. S., K. S. C., 1922. Colby, Kan.
- FRANK JOSEPH FEIGHT, Superintendent of Poultry Farm (1930).  
Poultry Farm; R. R. 8.

### AGRICULTURAL AGENTS<sup>1</sup>

- JOE MYRON GOODWIN, Atchison County Agricultural Agent, Division of College Extension (1919, 1923).  
Effingham, Kan.
- HERMAN FREDERICK TAGGE, B. S., Jackson County Agricultural Agent, Division of College Extension (1920, 1923).  
B. S., K. S. C., 1914. Holton, Kan.
- JOHN ALBERT HENDRICKS, 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. C., 1920. Lyndon, Kan.
- HARRY CHARLES BAIRD, B. S., Lane County Agricultural Agent, Division of College Extension (1920, 1929).  
B. S., K. S. C., 1914. Dighton, Kan.
- CARL LEWIS HOWARD, B. S., Lyon County Agricultural Agent, Division of College Extension (1920, 1926).  
B. S., K. S. C., 1920. Emporia, Kan.
- ROY ELMER GWIN, B. S., Crawford County Agricultural Agent, Division of College Extension (1921, 1930).  
B. S., K. S. C., 1914. Girard, Kan.
- PAUL BERNARD GWIN, B. S., Geary County Agricultural Agent, Division of College Extension (1921, 1925).  
B. S., K. S. C., 1916. Junction City, Kan.
- WILLIAM HERBERT ROBINSON, B. S., Shawnee County Agricultural Agent, Division of College Extension (1923, 1926).  
B. S., K. S. C., 1916. Topeka, Kan.
- CLARENCE EUGENE AGNEW,<sup>10</sup> B. S., Wilson County Agricultural Agent, Division of College Extension (1923, 1924-Dec. 7, 1933).  
B. S., K. S. C., 1923. Fredonia, Kan.

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

10. Resigned.

- LOUIS MEYERS KNIGHT, B. S., Sumner County Agricultural Agent, Division of College Extension (1923, 1926).  
B. S., K. S. C., 1923. Wellington, Kan.
- CHARLES ENOCH LYNESS, B. S., Doniphan County Agricultural Agent, Division of College Extension (1923).  
B. S., K. S. C., 1912. Troy, Kan.
- RAY LEIGHTON GRAVES, B. S., Saline County Agricultural Agent, Division of College Extension (1923, 1930).  
B. S., K. S. C., 1912. Salina, Kan.
- GEORGE W. SIDWELL, A. B., Edwards County Agricultural Agent, Division of College Extension (1913, 1928).  
A. B., Fairmount College, 1915. Kinsley, Kan.
- MOTT LUTHER ROBINSON, B. S., McPherson County Agricultural Agent, Division of College Extension (1923).  
B. S., K. S. C., 1923. McPherson, Kan.
- JUNIUS WARREN FARMER, B. S., Greenwood County Agricultural Agent, Division of College Extension (1923).  
B. S., K. S. C., 1923. Eureka, Kan.
- WILLIAM O'CONNELL, B. S., Marshall County Agricultural Agent, Division of College Extension (1924).  
B. S., K. S. C., 1916. Marysville, Kan.
- RALPH REUBEN MCFADDEN,<sup>8</sup> B. S., Harvey County Agricultural Agent, Division of College Extension (1922, 1928—Oct. 6, 1933).  
B. S., K. S. C., 1921. Newton, Kan.
- LEONARD NEFF, B. S. A., Washington County Agricultural Agent, Division of College Extension (1925, 1930).  
B. S. A., Purdue University, 1922. Washington, 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. 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. C., 1925. Mound City, Kan.
- GEORGE SMITH ATWOOD, B. S., Hodgeman County Agricultural Agent, Division of College Extension (1926).  
B. S., K. S. C., 1924. Jetmore, Kan.
- JOHN HENRY SHIRKEY, B. S., Meade County Agricultural Agent, Division of College Extension (1926).  
B. S., K. S. C., 1926. Meade, Kan.
- FRED JAMES SYKES, B. S., Norton County Agricultural Agent, Division of College Extension (1926, 1930).  
B. S., K. S. C., 1926. Norton, Kan.
- JOHN DELMONT MONTAGUE, B. S., Sedgwick County Agricultural Agent, Division of College Extension (1926, 1930).  
B. S., K. S. C., 1920. Wichita, Kan.

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8. Deceased.

- ARTHUR WILLIAM KNOTT, B.S., Montgomery County Agricultural Agent, Division of College Extension (1927).  
B. S., University of Wisconsin, 1917. Independence, Kan.
- RALPH PAUL RAMSEY, B.S., Jewell County Agricultural Agent, Division of College Extension (1927).  
B. S., K. S. C., 1916. Mankato, Kan.
- RAYMOND LUTHER STOVER, M.S., Brown County Agricultural Agent, Division of College Extension (1927, 1930).  
B. S., K. S. C., 1924; M. S., Oregon Agricultural College, 1927. Hiawatha, Kan.
- CHARLES ARCHER JONES, A. M., Johnson County Agricultural Agent, Division of College Extension (1927).  
B. S., K. S. C., 1924; A. M., University of Maryland, 1927. Olathe, Kan.
- JOHN HAROLD JOHNSON, B.S., Sedgwick County Club Agent, Division of College Extension (1927).  
B. S., K. S. C., 1927. Wichita, Kan.
- THEODORE FRANKLIN YOST, B.S., Bourbon County Agricultural Agent, Division of College Extension (1927).  
B. S., K. S. C., 1920. Fort Scott, Kan.
- ROBERT THOMAS PATTERSON, B. S., Cherokee County Agricultural Agent, Division of College Extension (1928).  
B. S., K. S. C., 1924. Columbus, Kan.
- HERMAN ALBERT BISKIE, Franklin County Agricultural Agent, Division of College Extension (1928).  
B. S., University of Nebraska, 1917. Ottawa, Kan.
- LESTER SHEPARD, B.S., Neosho County Agricultural Agent, Division of College Extension (1928).  
A. B., University of Iowa, 1913; B. S., Iowa State College, 1916. Erie, Kan.
- LYLE MAYFIELD, B.S., Clark County Agricultural Agent, Division of College Extension (1928).  
B. S., K. S. C., 1928. Ashland, Kan.
- LEONARD BEATH HARDEN, B.S., Labette County Agricultural Agent, Division of College Extension (1928).  
B. S., K. S. C., 1926. Altamont, Kan.
- OTIS BENTON GLOVER, B.S., Jefferson County Agricultural Agent, Division of College Extension (1929).  
B. S., K. S. C., 1915. Oskaloosa, Kan.
- ROBERT SAMUEL TRUMBULL, A. M., Ford County Agricultural Agent, Division of College Extension (1929).  
B. S., Nebraska Wesleyan University, 1907; A. M., University of Nebraska, 1908. Dodge City, Kan.
- MILBURNE CLINTON AXELTON, B.S., Woodson County Agricultural Agent, Division of College Extension (1929).  
B. S., K. S. C., 1928. Yates Center, Kan.
- EARL HICKS TEAGARDEN, B.S., Stafford County Agricultural Agent, Division of College Extension (1929).  
B. S., K. S. C., 1920. St. John, Kan.
- BERNIE WILLIAM WRIGHT, B.S., Russell County Agricultural Agent, Division of College Extension (1929).  
B. S., K. S. C., 1924. Russell, Kan.

- OGDEN WORLEY GREENE, B.S., Dickinson County Agricultural Agent, Division of College Extension (1929, 1932).  
B. S., K. S. C., 1929. Abilene, Kan.
- PRESTON ORIN HALE, B.S., Leavenworth County Agricultural Agent, Division of College Extension (1929).  
B. S., K. S. C., 1916. Leavenworth, Kan.
- GEORGE WINFRED HINDS, B.S., Reno County Agricultural Agent, Division of College Extension (1929).  
B. S., K. S. C., 1920. Hutchinson, Kan.
- SHERMAN STANLEY HOAR, B.S., Barton County Agricultural Agent, Division of College Extension (1929).  
B. S., K. S. C., 1928. Great Bend, Kan.
- ELMER OSCAR GRAPER, B.S., Smith County Agricultural Agent, Division of College Extension (1929).  
B. S., K. S. C., 1913. Smith Center, Kan.
- HARVEY J. STEWART, B.S., Cheyenne County Agricultural Agent, Division of College Extension (1929).  
B. S., K. S. C., 1928. St. Francis, Kan.
- DANIEL MATTHEW BRAUM, B.S., Allen County Agricultural Agent, Division of College Extension (1930).  
B. S., K. S. C., 1924. Iola, Kan.
- LAWRENCE EDWARD CRAWFORD, B.S., Finney County Agricultural Agent, Division of College Extension (1930).  
B. S., K. S. C., 1928. Garden City, Kan.
- HAROLD LEWIS MURPHEY, B.S., Greeley County Agricultural Agent, Division of College Extension (1930).  
B. S., K. S. C., 1928. Tribune, Kan.
- LAWRENCE LARUE COMPTON, B.S., Butler County Agricultural Agent, Division of College Extension (1930).  
B. S., K. S. C., 1930. El Dorado, Kan.
- RALPH WALDO MCBURNEY, B.S., Mitchell County Agricultural Agent, Division of College Extension (1930).  
B. S., K. S. C., 1927. Beloit, Kan.
- GLENN CHARLES ISAAC, B.S., Miami County Agricultural Agent, Division of College Extension (1930).  
B. S., K. S. C., 1930. Paola, Kan.
- JOHN EDWARD TAYLOR, B.S., Grant County Agricultural Agent, Division of College Extension (1930).  
B. S., K. S. C., 1930. Ulysses, Kan.
- DONALD WALTER INGLE, B.S., Gray County Agricultural Agent, Division of College Extension (1930).  
B. S., University of Missouri, 1929. Cimarron, Kan.
- FRANK ALEXANDER HAGANS, B.S., Marion County Agricultural Agent, Division of College Extension (1930).  
B. S., K. S. C., 1925. Marion, Kan.
- PAUL EVANS, B.S., Ottawa County Agricultural Agent, Division of College Extension (1930).  
B. S., K. S. C., 1923. Minneapolis, Kan.



- JAMES NOEL LOWE, B.S., Harper County Agricultural Agent, Division of College Extension (1930).  
B. S., Oklahoma A. and M. College, 1924. Anthony, Kan.
- JOEL ALLEN TERRELL, B.S., Douglas County Agricultural Agent, Division of College Extension (1931).  
B. S., K. S. C., 1930. Lawrence, Kan.
- TERRELL WEAVER KIRTON, B.S., Kingman County Agricultural Agent, Division of College Extension (1931).  
B. S., K. S. C., 1929. Kingman, Kan.
- ROBERT LOUIS RAWLINS, B.S., Nemaha County Agricultural Agent, Division of College Extension (1931).  
B. S., K. S. C., 1929. Seneca, Kan.
- RICHARD WILLIAM STUMBO, B.S., Rawlins County Agricultural Agent, Division of College Extension (1931).  
B. S., K. S. C., 1931. Atwood, Kan.
- MERRILL MEDSGAR TAYLOR, B.S., Rice County Agricultural Agent, Division of College Extension (1931).  
B. S., K. S. C., 1930. Lyons, Kan.
- FRANK ZITNIK, B.S., Ness County Agricultural Agent, Division of College Extension (1931).  
B. S., K. S. C., 1931. Ness City, Kan.
- LELAND MILTON SLOAN, B.S., Coffey County Agricultural Agent, Division of College Extension (1932).  
B. S., K. S. C., 1932. Burlington, Kan.
- JOHN MILES BUOY, B.S., Thomas County Agricultural Agent, Division of College Extension (1932).  
B. S., Iowa State College, 1917. Colby, Kan.
- KIMBALL LINCOLN BACKUS, B.S., Wyandotte County Agricultural Agent, Division of College Extension (1932).  
B. S., K. S. C., 1931. Kansas City, Kan.
- HAROLD BYRON HARPER, B.S., Harvey County Agricultural Agent, Division of College Extension (1932; Nov. 15, 1933); Pratt County Agricultural Agent, Division of College Extension (1932; Nov. 14, 1933).  
B. S., K. S. C., 1932. Newton, Kan.
- EBUR SAMUEL SCHULTZ,<sup>10</sup> B.S., Chase County Agricultural Agent, Division of College Extension (1932—Oct. 31, 1933).  
B. S., K. S. C., 1932. Cottonwood Falls, Kan.
- LESTER ALBERT SUTHERLAND, B.S., Comanche County Agricultural Agent, Division of College Extension (1932).  
B. S., Montana State College, 1929. Coldwater, Kan.
- RALPH OSCAR LEWIS, Ellsworth County Agricultural Agent, Division of College Extension (1932).  
B. S., K. S. C., 1929. Ellsworth, Kan.
- JESTER BAILEY TAYLOR, B.S., Clay County Agricultural Agent, Division of Extension (Jan. 4, 1933).  
B. S., Oklahoma A. and M. College, 1925. Clay Center, Kan.
- LAWRENCE DALE MORGAN, Sherman County Agricultural Agent, Division of College Extension (Feb. 1, 1933).

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10. Resigned.

- TOM DAVID DICKEN, B.S., Pawnee County Agricultural Agent, Division of College Extension (July 1, 1933).  
B. S., K. S. C., 1932. Larned, Kan.
- REUBEN CARL LIND, B.S., Lincoln County Agricultural Agent, Division of College Extension (Aug. 1, 1933).  
B. S., K. S. C., 1923. Lincoln, Kan.
- FULTON GEORGE ACKERMAN, B.S., Cloud County Agricultural Agent, Division of College Extension (Aug. 10, 1933).  
B. S., K. S. C., 1931. Concordia, Kan.
- LUKE MICHAEL SCHRUBEN, B.S., Riley County Agricultural Agent, Division of College Extension (Aug. 10, 1933).  
B. S., K. S. C., 1933. Manhattan, Kan.
- GLEN BRADSHAW RAILSBACK, B.S., Kiowa County Agricultural Agent, Division of College Extension (Nov. 13, 1933).  
B. S., K. S. C., 1925. Greensburg, Kan.
- JOSEPH DANIEL SMERCHEK, B.S., Pratt County Agricultural Agent, Division of College Extension (Nov. 15, 1933).  
B. S., K. S. C., 1932. Pratt, Kan.
- JOHN GREGORY BELL, B.S., Sheridan County Agricultural Agent, Division of College Extension (Nov. 23, 1933).  
B. S., K. S. C., 1932. Hoxie, Kan.

#### HOME DEMONSTRATION AGENTS<sup>1</sup>

- LAURA WINTER, Sedgwick County Home Demonstration Agent, Division of College Extension (1925).  
Wichita, Kan.
- NORA ELIZABETH BARE, B.S., Butler County Home Demonstration Agent, Division of College Extension (1927).  
B. S., K. S. C., 1925. El Dorado, Kan.
- SARA JANE PATTON, Neosho County Home Demonstration Agent, Division of College Extension (1928).  
B. S., K. S. C., 1915. Erie, Kan.
- MARY DUNLAP ZIEGLER, Shawnee County Home Demonstration Agent, Division of College Extension (1928, 1930).  
B. S., K. S. C., 1916. Topeka, Kan.
- VERNETTA FAIRBAIRN, A.B., Montgomery County Home Demonstration Agent, Division of College Extension (1928).  
A. B., University of Kansas, 1927. Independence, Kan.
- RUTH JEANETTE PECK, B.S., Bourbon County Home Demonstration Agent, Division of College Extension (1928, 1930).  
B. S., K. S. C., 1928. Fort Scott, Kan.
- ETHEL FAYE WATSON, B.S., Greenwood County Home Demonstration Agent, Division of College Extension (1929).  
B. S., K. S. C., 1926. Eureka, Kan.
- GERTRUDE EDNA ALLEN, B.S., Lyon County Home Demonstration Agent, Division of College Extension (1929).  
B. S., University of Minnesota, 1929. Emporia, Kan.

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

- IVA LUELLA HOLLADAY, B.S., Leavenworth County Home Demonstration Agent, Division of College Extension (1929).  
B. S., K. S. C., 1929. Leavenworth, Kan.
- GRACE MERLE REEDER, A.B., Miami County Home Demonstration Agent, Division of College Extension (1929).  
A. B., Baker University, 1920. Paola, Kan.
- MARY ELSIE BORDER, B.S., Johnson County Home Demonstration Agent, Division of College Extension (1929, 1931).  
B. S., Ohio State University, 1926. Olathe, Kan.
- EULA MAY NEAL, B.S., Franklin County Home Demonstration Agent, Division of College Extension (1930).  
B. S., State Teachers College, Kirksville, Mo., 1927. Ottawa, Kan.
- GLADYS MYERS, B.S., Reno County Home Demonstration Agent, Division of College Extension (1930).  
B. S., K. S. C., 1930. Hutchinson, Kan.
- RUTH KATHRINA HUFF, B.S., Pratt County Home Demonstration Agent, Division of College Extension (1931).  
B. S., K. S. C., 1924. Pratt, Kan.
- ETHYL ADELIN DANIELSON, B.S., Comanche County Home Demonstration Agent, Division of College Extension (1931).  
B. S., K. S. C., 1925. Coldwater, Kan.
- MARY CHRISTINE WIGGINS, B.S., Labette County Home Demonstration Agent, Division of College Extension (1931).  
B. S., K. S. C., 1929. Altamont, Kan.
- CHRISTIANA MARIE SHIELDS, B.S., Crawford County Home Demonstration Agent, Division of College Extension (1931).  
B. S., K. S. C., 1929. Girard, Kan.
- GLYDE ESTELLA ANDERSON, B.S., Barton County Home Demonstration Agent, Division of College Extension (1931).  
B. S., K. S. C., 1926. Great Bend, Kan.
- NANNIE CLYTIE ROSS, M.S., Rawlins County Home Demonstration Agent, Division of College Extension (1932).  
B. S., K. S. C., 1916; M. S., *ibid.*, 1924. Atwood, Kan.
- ELLA MABEL MEYER, B.S., Rice County Home Demonstration Agent, Division of College Extension (May 11, 1932).  
B. S., K. S. C., 1907. Lyons, Kan.
- MAMIE MAY SEARLES, B.S., Ford County Home Demonstration Agent, Division of College Extension (1932).  
B. S., University of Kansas, 1926. Dodge City, Kan.
- MINNIE BELLE PEEBLER, M.S., Allen County Home Demonstration Agent, Division of College Extension (1932).  
B. S., University of Oklahoma, 1924; M. S., University of Colorado, 1929. Iola, Kan.
- HELEN VIRGINIA BREWER, M.S., Harper County Home Demonstration Agent, Division of College Extension (1932).  
B. S., K. S. C., 1929; M. S., *ibid.*, 1932. Anthony, Kan.
- LEOLA MAUD GASTON, B.S., Wyandotte County Home Demonstration Agent, Division of College Extension (Jan. 2, 1933).  
B. S., K. S. C., 1908. Kansas City, Kan.

EDITH ALICE PAINTER, B. S., Smith County Home Demonstration Agent,  
Division of College Extension (Feb. 1, 1933).

B. S., K. S. C., 1931.

Smith Center, Kan.

ALBERTA PAULINE SHERROD, B. S., Harvey County Home Demonstration Agent,  
Division of College Extension (Feb. 1, 1933).

B. S., Oklahoma A. and M. College, 1926.

Newton, Kan.

### GRADUATE ASSISTANTS

ABRAM ELDRED HOSTETTER, M. S., Graduate Assistant in Chemistry (1930).

B. S., McPherson College, 1925; M. S., K. S. C., 1932.

D 30; 914 Vattier.

CARL ALFRED DORF, M. S., Graduate Assistant in Chemistry (1931).

A. B., Bethany College, 1920; M. S., K. S. C., 1932.

W 26; 1011 Bluemont.

HIRAM TEMPLE MCGEHEE, M. S., Graduate Assistant in Chemistry (1931).

B. S., K. S. C., 1931; M. S., *ibid.*, 1932.

W 29A; 615 N. 11th.

MARION JOHN CALDWELL, M. S., Graduate Assistant in Chemistry (1932).

B. S., K. S. C., 1931; M. S., *ibid.*, 1933.

D 8; 615 N. 11th.

DONALD HOUTS BOWMAN, B. S., Graduate Assistant in Botany (Sept. 1, 1933).

B. S., K. S. C., 1933.

H 56; 1206 Vattier.

ALICE BUTLER MARSH, B. S., Graduate Assistant in Institutional Economics  
(Sept. 1, 1933).

B. S., Oregon State College, 1914.

Van Zile Hall.

### GRADUATE RESEARCH ASSISTANTS

LESLIE LEE EISENBRANDT, A. B., Graduate Research Assistant in Zoölogy (1932).

A. B., College of Emporia, 1932.

F 36; 1116 Bluemont.

INGE KALLESOE KJAR, B. S. A., Graduate Research Assistant in Animal Hus-  
bandry (1932).

B. S. A., Royal Agricultural College, Copenhagen, Denmark, 1932.

E. Ag 8; 800 Leavenworth.

BURTON LOWELL BAKER, A. B., Graduate Research Assistant in Zoölogy (Sept.  
1, 1933).

A. B., Kalamazoo College, 1933.

F 5; 1803 Anderson.

HAROLD T. NELSON, B. S., Graduate Research Assistant, Engineering Experiment  
Station (Sept. 1, 1933).

B. S., University of Idaho, 1930.

E 112; 1116 Bluemont.

EUGENE JOSEPH PELTIER, B. S., Graduate Research Assistant, Agricultural  
Experiment Station (Sept. 1, 1933).

B. S., K. S. C., 1933.

E 12; 1001 Osage.

IVAN PRATT, A. B., Graduate Research Assistant in Zoölogy (Sept. 1, 1933).

A. B., College of Emporia, 1932.

F 36; 1116 Bluemont.

ARTHUR WARWICK RUCKER, B. S., Graduate Research Assistant in Electrical  
Engineering (Sept. 1, 1933).

B. S., K. S. C., 1933.

E 22; 1311 Laramie.

MARGARET JEANNE TABOR, A. B., Graduate Research Assistant in Zoölogy (Sept.  
1, 1933).

A. B., Kalamazoo College, 1933.

F 36; 1800 Leavenworth.

JAMES HERDMAN WILMOTH, B. S., Graduate Research Assistant in Zoölogy  
(Sept. 1, 1933).

B. S., Monmouth College, 1932.

F 36; 526 N. 14th.

**FELLOW**

SAMUEL GREENBERG KELLY, M. S., Agent for Xanthium Research for the Commonwealth of Australia, Division of Economic Entomology (1929).  
B. S., K. S. C., 1929; M. S., *ibid.*, 1930. F 80; 1026 Bertrand.

**OTHER OFFICERS**

JESSIE McDOWELL MACHIR, Registrar (1913).  
A 29; 1641 Fairchild.

KENNEY LEE FORD, M. S., Alumni Secretary (1928).  
B. S., K. S. C., 1924; M. S., *ibid.*, 1932. A 38A; 1516 Leavenworth.

DOROTHY JEAN MACLEOD, A. B., Secretary of the Young Women's Christian Association (1930).  
A. B., Washington State College, 1927. A 36, 36A; 1429 Laramie.

FLOYD JOSEPH HANNA, College Photographer (1922, 1930).  
I; 1612 Leavenworth.

STEPHEN ARNOLD GEAUQUE, Custodian (1918, 1926).  
PP 35; 1014 Laramie.

LESTER HENRY DRYER, 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, H. L. Ibsen, Geo. A. Dean.

**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, C. H. Scholer, W. E. Grimes, J. H. Robert, C. V. Williams, Katherine J. Hess.

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

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

**CATALOGUE:** J. V. Cortelyou, J. T. Willard, J. O. Faulkner.

**COMMUNITY CHEST EXECUTIVE:** F. L. Parrish, H. T. Hill, Mary P. Van Zile, F. D. Farrell, A. A. Holtz, Dorothy MacLeod, Jessie McD. Machir.

**CONTROL:** I. V. Iles, Margaret M. Justin, R. A. Seaton, R. R. Dykstra, Mary P. Van Zile, R. J. Barnett.

**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, William Lindquist, Mrs. J. E. Ackert.

**PUBLIC EXERCISES:** J. E. Kammeyer, H. W. Davis, E. L. Holton, William Lindquist, A. C. Fay.

**REINSTATEMENT:** R. I. Throckmorton, Elizabeth Quinlan, W. M. McLeod, J. H. Robert, E. C. Miller.

**RELATIONS WITH JUNIOR COLLEGES AND ARTS COLLEGES:** George Gemmell, R. R. Dykstra, M. A. Durland, F. L. Parrish, Margaret Ahlborn, G. A. Filinger.

**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, L. E. Conrad, R. I. Throckmorton, Grace E. Derby, Harold Howe, F. P. Root.

**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, L. E. Conrad.

**VOCATIONAL GUIDANCE:** Mary P. Van Zile, R. A. Seaton, R. R. Dykstra, E. L. Holton, Margaret M. Justin, L. E. Call, R. W. Babcock.

## Kansas Agricultural Experiment Station

### OFFICERS OF THE STATION

F. D. FARRELL, President of the College

#### ADMINISTRATION—

L. E. CALL, Director  
HUGH DURHAM, Assistant to Director  
BENJAMIN FRANKLIN, Business Manager

#### AGRICULTURAL ECONOMICS—

W. E. GRIMES, Farm Organization, in Charge  
R. M. GREEN, Marketing Grain  
MORRIS EVANS, Farm Organization  
HAROLD HOWE, Land Economics  
J. A. HODGES, Farm Organization  
HOMER J. HENNEY, Marketing Live Stock  
GEORGE MONTGOMERY, Marketing Fruits and Vegetables

#### AGRICULTURAL ENGINEERING—

F. C. FENTON, in Charge  
FRANK J. ZINK, Farm Power Machinery  
C. A. LOGAN, Rural Electrification and Home Equipment  
E. L. BARGER, Farm Power Equipment

#### AGRONOMY—

R. I. THROCKMORTON, in Charge  
J. H. PARKER, Plant Breeding<sup>1</sup>  
A. E. ALDOUS, Pasture Management  
F. L. DULEY, Soils  
A. M. BRUNSON, Corn Breeding<sup>1</sup>  
J. W. ZAHNLEY, Crops  
H. H. LAUDE, Crops  
A. L. CLAPP, Coöperative Experiments  
F. L. TIMMONS, Coöperative Experiments  
C. D. DAVIS, Crops  
W. H. METZGER, Soils  
H. E. MYERS, Soils  
I. K. LANDON, Southeastern Kansas Experiment Fields  
C. E. CREWS, South Central Kansas Experiment Fields  
ELISABETH HARLING, Seed Analyst  
CARL BOWER, Corn Breeding<sup>1</sup>  
C. O. GRANDFIELD,<sup>1</sup> Forage Crops

#### ANIMAL HUSBANDRY—

C. W. McCAMPBELL, in Charge  
A. D. WEBER, Cattle Investigations  
C. E. AUBEL, Swine Investigations  
R. F. COX, Sheep Investigations  
D. L. MACKINTOSH, Horse Investigations  
H. L. IBSEN, Animal Genetics  
W. E. CONNELL, Live Stock  
INGE K. KJAR, Graduate Research Assistant in Genetics

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

## BACTERIOLOGY—

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

## BOTANY—

L. E. MELCHERS, in Charge  
 E. C. MILLER, Plant Physiology  
 O. H. ELMER, Plant Pathology  
 F. C. GATES, Taxonomy  
 C. L. LEFEBVRE, Plant Pathology  
 HURLEY FELLOWS, Cereal Investigations<sup>1</sup>  
 C. O. JOHNSTON, Cereal Investigations<sup>1</sup>  
 C. H. FICKE, Cereal Investigations<sup>1</sup>

## CHEMISTRY—

H. H. KING, in Charge  
 J. T. WILLARD, Consulting Chemist  
 E. L. TAGUE, Protein Investigations  
 J. S. HUGHES, Animal Nutrition  
 C. J. WHITNAH, Feedingstuffs Analysis  
 J. F. MERRILL, Fertilizer Analysis  
 A. T. PERKINS, Soil Investigations  
 J. L. HALL, Physical Chemical Investigations  
 H. W. LOY, Assistant Chemist

## DAIRY HUSBANDRY—

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

## ENTOMOLOGY—

G. A. DEAN, in Charge  
 ROGER C. SMITH, Staple Crop Insect Investigations  
 RALPH L. PARKER, Apiculture, Fruit Insects  
 R. H. PAINTER, Staple Crop Insect Investigations  
 H. R. BRYSON, Staple Crop Insect Investigations  
 DONALD A. WILBUR, Staple Crop Insect Investigations  
 SAMUEL G. KELLY, Cocklebur Control Investigations<sup>2</sup>

## HOME ECONOMICS—

MARGARET M. JUSTIN, in Charge (on leave)  
 MARTHA M. KRAMER, Food Economics and Nutrition  
 ESTHER BRUNER, Clothing and Textiles  
 KATHERINE HESS, Clothing and Textiles  
 MARY F. TAYLOR, Home Management  
 BERNICE KUNERTH, Technician  
 MINA GOEHRING, Clothing and Textiles

## HORTICULTURE—

R. J. BARNETT, in Charge  
 L. R. QUINLAN, Landscape Gardening  
 W. F. PICKETT, Orchard Investigations  
 W. B. BALCH, Floriculture and Vegetable Gardening  
 G. A. FILINGER, Pomology  
 T. R. REITZ, Northeastern Kansas Experiment Fields

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

2. In coöperation with the Division of Economic Entomology, Commonwealth of Australia.



MILLING INDUSTRY—

C. O. SWANSON, in Charge  
EARL B. WORKING, Wheat and Flour Investigations  
R. O. PENCE, Milling Technology  
J. E. ANDERSON, Assistant in Milling

POULTRY HUSBANDRY—

L. F. PAYNE, in Charge  
D. C. WARREN, Genetics  
H. M. SCOTT, Poultry Production  
F. J. FEIGHT, Superintendent Poultry Farm

VETERINARY MEDICINE—

R. R. DYKSTRA, in Charge  
H. F. LIENHARDT, Pathology  
J. P. SCOTT, Blackleg Investigations  
C. H. KITSZELMAN, Abortion Disease Investigations  
HERMAN FARLEY, Shipping Fever Investigations  
CHARLES A. PYLE, Anaplasmosis Investigations<sup>1</sup>  
FRANCISCO R. TABERNER, Anaplasmosis Investigations<sup>1</sup>

ZOOLOGY—

R. K. NABOURS, in Charge  
J. E. ACKERT, Parasitology  
G. E. JOHNSON, Injurious Mammals  
FLORENCE STEBBINS, Genetics  
CHARLES G. DOBROVOLNY, Technician  
LESLIE EISENBRANDT, Graduate Research Assistant  
JAMES H. WILMOTH, Graduate Research Assistant  
IVAN PRATT, Graduate Research Assistant  
BURTON L. BAKER, Graduate Research Assistant  
MARGARET TABOR, Graduate Research Assistant

**BRANCH EXPERIMENT STATIONS**

FORT HAYS—

L. C. AICHER, Superintendent  
E. W. JOHNSON, Forest Nurseryman  
A. L. HALSTED, Dry-land Agriculture Investigations<sup>1</sup>  
A. F. SWANSON, Cereal Crop Investigations<sup>1</sup>  
D. A. SAVAGE, Forage Crop Investigations<sup>1</sup>  
O. E. HAYS, Soil Erosion Investigations<sup>1</sup>  
R. R. DRAKE, Soil Erosion Investigations<sup>1</sup>

GARDEN CITY—

F. A. WAGNER, Superintendent  
R. L. VON TREBRA, Dry-land Agriculture Investigations<sup>1</sup>

COLBY—

E. H. COLES, Superintendent<sup>1</sup>  
J. B. KUSKA, Dry-land Agriculture Investigations<sup>1</sup>

TRIBUNE—

T. B. STINSON, Superintendent

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

## Engineering Experiment Station

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### OFFICERS OF THE STATION

F. D. FARRELL, President of the College

#### ADMINISTRATION—

R. A. SEATON, Director  
 LOUISE SCHWENSEN, Secretary  
 M. A. DURLAND, Bulletin Editor

#### AGRICULTURAL ENGINEERING—

F. C. FENTON, in Charge  
 F. J. ZINK, Farm Machinery  
 C. A. LOGAN, Rural Electrification and Home Equipment  
 E. L. BARGER, Farm Power

#### APPLIED MECHANICS—

C. H. SCHOLER, in Charge  
 E. R. DAWLEY, Materials of Construction  
 L. H. KOENITZER, Road Materials  
 W. E. GIBSON, Road Materials\*  
 D. C. TAYLOR, Road Materials  
 H. T. NELSON, Graduate Research Assistant  
 E. J. PELLETIER, Graduate Research Assistant

#### ARCHITECTURE—

PAUL WEIGEL, in Charge  
 H. E. WICHERS, Rural Architecture

#### CHEMICAL ENGINEERING—

H. H. KING, in Charge  
 W. L. FAITH, General Investigations  
 W. A. VAN WINKLE, Concrete  
 R. F. CHILDS, Road Materials\*

#### CIVIL ENGINEERING—

L. E. CONRAD, in Charge

#### ELECTRICAL ENGINEERING—

R. G. KLOEFFLER, in Charge  
 J. L. BRENNEMAN, General Investigations  
 R. M. KERCHNER, Power Circuits  
 FRED SCHUMANN, Radio Investigations  
 L. C. PASLAY, General Investigations  
 A. W. RUCKER, Graduate Research Assistant

#### MACHINE DESIGN—

C. E. PEARCE, in Charge  
 M. A. DURLAND, General Investigations  
 J. C. OLSEN, Photo-elasticity  
 G. F. BRANIGAN, Materials of Construction

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\* In coöperation with the Kansas State Highway Department.

MECHANICAL ENGINEERING—

J. P. CALDERWOOD, in Charge  
A. J. MACK, General Investigations  
B. B. BRAINARD, General Investigations  
A. O. FLINNER, General Investigations

PHYSICS—

J. O. HAMILTON, in Charge  
G. E. RABURN, General Investigations  
E. K. CHAPIN, General Investigations  
L. E. HUDIBURG, 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  
EDWARD GRANT, Foundry Practice

**Bureau of Research in Home Economics**

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**OFFICERS OF THE BUREAU**

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

**CHILD WELFARE AND EUTHENICS—**

HELEN WHEELER FORD, in Charge  
DOROTHY TRIPLETT, Child Welfare  
JENNIE WILLIAMS, Public Health

**CLOTHING AND TEXTILES—**

ALPHA LATZKE, in Charge  
KATHERINE HESS, Physics of Textiles  
ESTHER BRUNER, Chemistry of Textiles  
MINA GOEHRING, Assistant

**FOOD ECONOMICS AND NUTRITION—**

MARTHA S. PITTMAN, in Charge  
MARTHA KRAMER, Nutrition  
BERNICE KUNERTH, Food and Nutrition  
ALICE BRILL, Assistant

**HOUSEHOLD ECONOMICS—**

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

**INSTITUTIONAL ECONOMICS—**

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

# The Kansas State College of Agriculture and Applied Science

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## 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. By act of the legislature, effective March 9, 1931, the name was changed to Kansas State College of Agriculture and Applied Science.

Under the enabling act the College received an endowment of 90,000 acres of land and its leading object as stated by 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 legislatures 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 February 16, 1863, 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 1875. 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 by state highways Nos. 13 and 29, and U. S. highways 40, 40N, and 40S. It has taxi service between the railway stations and the College, and motor-bus service with cities to the east and 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 members of the student body respond by conducting themselves habitually in an orderly and law-abiding manner.

## AIMS AND PURPOSES

The Kansas State 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.

The second important aim of the Kansas State 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

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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 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 155 acres, the College owns 1,428.7 acres of land at Manhattan valued at \$415,093. 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 a fine quality of limestone obtained from the College quarries. These buildings are listed below, and have a total value of \$2,894,000.

**ANDERSON HALL.** Erected, 1879, 1883, and 1885; cost, \$79,000; dimensions, 152 x 250 feet; two stories and basement. Contains the offices of administration of the College, a social center hall, the College post office, offices of the Division of College Extension and of the Department of Student Health, and offices and classrooms of the Departments of Applied Art, Economics, English, Mathematics, and Modern Languages. It also contains the alumni and stadium offices.

**ANIMAL HUSBANDRY BARN.** Erected, 1914; 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.

**AUDITORIUM.** Erected, 1904; cost, \$40,000; dimensions, 113 x 125 feet. Has a large stage with drop curtain and scenery. Seating capacity, 2,300. Contains also the offices and music rooms of the Department of Music.

**CALVIN HALL.** Erected, 1908; cost, \$70,000; dimensions, 92 x 175 feet; two stories and basement. The first floor and basement are occupied by the laboratories, classrooms, and offices of the Departments of Food Economics and Nutrition, and Household Economics; the second floor is occupied by the laboratories, classrooms, and offices of the Department of Clothing and Textiles.

**CHEMISTRY ANNEX No. 1.** Erected, 1876; cost, \$8,000; dimensions, 35 x 110 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 woman'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 Hus-

bandry from the time of its erection till the fall of 1923, since which time it has been used by the Department of Chemistry.

**DAIRY BARN.** Erected, 1933; cost, \$45,000; dimensions, central portion, 41 x 215 feet, and two wings, each 30 x 35 feet; two stories. Connected with the barn are a milk house, which contains, in addition to ordinary facilities for handling milk, an office, sleeping rooms for student care-takers, a milk-testing laboratory and a locker-room with shower baths. Back of the main barn is the feed-storage room consisting of four 16 x 40 foot cement-stave silos, eleven bins for grain, and a feed elevator, grinder, and mixer. Mow space is available for 200 tons of loose hay and 100 tons of baled straw. The barn is designed to provide facilities for the College dairy herd and for experimental work with dairy cattle.

**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.

**ENGINEERING HALL.** Erected, east wing, 1909; main portion, 1921. 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, 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, Shop Practice, and Mathematics. The woodworking shop (35 x 160 feet) is equipped with bench tools and woodworking machinery. The metallographic work occupies rooms on the first floor totalling 3200 square feet and has modern equipment for the study of metals. Adjoining is the machine shop (40 x 170 feet) amply equipped with modern machine tools. The blacksmith shop (50 x 100 feet) contains 20 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 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 1,125 kilowatts. A complete system of underground tunnels connects the main buildings and through these tunnels are carried the steam and electric 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. The west wing is used by the student pastors and student groups in their religious work.

**INFIRMARY.** Erected, previous to 1871; rebuilt, 1919; cost, \$6,500; dimensions, 34 x 34 feet; two stories. Originally a farm house, later used as dwelling by the president, 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, 1898; 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 classrooms and offices used by the Department of English.

**LIBRARY.** Erected, 1927; cost, \$250,000; three stories and basement. The floor plan is of "T" shape, with dimensions of 183 x 46 feet and 107 x 64 feet. Three large reading rooms 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.

**MEMORIAL STADIUM.** West wing erected, 1922; east wing erected, 1924; back wall of the east wing built in 1928; 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 and the east wall are built of limestone; the south entrance and wall and the west wall 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 rooms, 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, literary society halls, and the radio broadcasting studio. This building is constructed on the old armory-castle type and is modern in every respect.

**NURSES' QUARTERS.** 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, now as quarters for nurses connected with the Department of Student Health.

**PRESIDENT'S RESIDENCE.** Erected, 1923; cost, \$31,000; three stories and basement; built from funds bequeathed by Mehitable Calef Coppenhagen Wilson in memory of her husband, Davies Wilson.

**THOMPSON HALL.** Erected, 1922; 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, 1927; cost, \$175,000; dimension, 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 Surgery and Medicine, 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 dimension 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, 1913; 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, and 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:

**EXPERIMENT STATION BUILDING.** Erected, 1918; dimensions, 40 x 176 feet; two stories. Built as barracks No. 4 for the S. A. T. C., now used by the Agricultural Experiment Station.

**GENERAL-PURPOSE BUILDING.** Erected, 1918; dimensions, 40 x 80 feet; two stories. Built as barracks No. 6 for the S. A. T. C. This building is used by the Department of Electrical Engineering and as a hospital for patients with contagious diseases. A portion of this building is used as a wash and locker room by the Department of Shop Practice.

**GREENHOUSE.** Erected, 1910; cost, \$10,000; dimensions, 114 x 150 feet. Contains six sections used by the various departments as follows: Horticulture, three; Botany, one; Agronomy, one; Entomology and Zoölogy, one.

**NEW GREENHOUSE.** Erected, 1927; cost, \$10,000; dimensions, 29 x 100 feet; occupied by the Departments of Agronomy and Botany.

**PLANT MUSEUM.** Erected, 1907; cost, \$2,500; dimensions, 20 x 100 feet. Used by the Department of Horticulture. Contains a large number of rare growing plants, including many subtropical species.

**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.

**SERUM BARN.** Erected, 1914; cost, \$3,000; dimensions, 92 x 96 feet; contains 30 pens, each 8 x 12 feet, and two feed rooms of the same dimensions. This is a frame and cement building situated three-quarters of a mile north of the College campus.

**SERUM PLANT.** Erected, 1914; cost, \$7,000; constructed of brick; dimensions, 20 x 60 feet; two stories.

**SHEEP BARN.** Erected, 1927; cost, \$10,000; dimensions: main structure, 43 x 51 feet, and wings, 32 x 90 feet. Situated north of the main campus.

**SHOP WAREHOUSE.** Erected, 1918; moved to present location in 1927; dimensions, 30 x 75 feet, two stories high. This building is part of the structure erected for the Students' Army Training Corps as mess hall (barracks No. 5). The building is used for storage of general shop supplies.

**TRACTOR LABORATORIES.** Erected, 1918. These are two frame buildings on concrete foundations, built originally as barracks Nos. 2 and 3 for the Students' Army Training Corps.

## The College Library

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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, 1933, the Library contained 102,000 bound volumes, besides much unbound material. It receives currently about 1,100 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, 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

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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 the 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 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 \$11,220.

The student health service is maintained by the student-health fee fund. For data concerning this fee see the section on expenses, under General Information.

## Requirements for Admission

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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 the 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 ask his high-school principal to send, in advance, a certificate showing his high-school credits.

In order to carry the several curricula successfully the following subjects must have been completed:

English, 3 units; Algebra, 1 unit; Geometry, 1 unit; Science, 1 unit

Agriculture (4 years)

Agricultural Administration (4 years)

Animal Husbandry and Veterinary Medicine (6 years)

Applied Music (4 years)

Home Economics (4 years)

Home Economics with special training in Art (4 years)

Home Economics with special training in Institutional Economics and Dietetics (4 years)

Home Economics with special training in Journalism (4 years)

Home Economics and Nursing (5 years)

Industrial Journalism (4 years)

Music Education (4 years)

Physical Education for Men (4 years)

Physical Education for Women (4 years)

Veterinary Medicine (5 years)

English, 3 units; Algebra, 1½ units; Geometry, 1 unit; Science, 1 unit

Agriculture with special training in Landscape Gardening (4 years)

Commerce (4 years)

Commerce with special training in Accounting (4 years)

General Science (4 years)

General Science and Veterinary Medicine (6 years)

Premedical and Prepharmaceutical (2 years)

English, 3 units; Algebra, 1½ units; Geometry, 1½ units; Science, 1 unit

Agricultural Engineering (4 years)

Architecture (4 years)

Architectural Engineering (4 years)

Chemical Engineering (4 years)

Civil Engineering (4 years)

Electrical Engineering (4 years)

Industrial Chemistry (4 years)

Landscape Architecture (4 years)

Mechanical Engineering (4 years)

Milling Industry (4 years)

The above curricula were formulated on the assumption that high-school subjects named will be offered for admission. A graduate of an accredited high school who in accordance with a state law is admitted as a freshman without all of the high-school subjects that are prerequisite to carry the curriculum chosen will be assigned, if necessary, to a five-hour course in College Algebra instead of the regular three-hour course, and to a two-hour course in Solid Geometry, and may be allowed College credit toward graduation for the extra hours. A student lacking the required unit of high-school science is held for four hours of college physical or biological science in addition to any science required by his college curriculum, but may be allowed elective credit toward graduation on such science.

A student without high-school credit in one unit of algebra and one unit of geometry is not permitted to register for an engineering curriculum, the curriculum in industrial chemistry, the curriculum in general science or the curriculum in milling industry, until those fixed entrance requirements are completed. Algebra, one unit, and geometry, one unit, are offered each semester

in study-center classes provided by the Department of Home Study. A student without high-school credit in one unit of algebra is required to enroll in the algebra class mentioned above, the first semester of attendance. A student with one unit of algebra but without one unit of geometry should enroll in the geometry class the first semester of attendance; such a student must complete this requirement in geometry by the close of the third semester of attendance. A student will not be advanced in classification until these required units are completed.

A person who is not a graduate of an accredited high school or academy will be admitted to the freshman class if he has completed fifteen acceptable units of high-school work, including the fixed requirements. (A unit is defined to be the work in an accredited high school or academy in five recitation periods a week for one school year.) One who offers fourteen such units will be admitted as a freshman, but will be conditioned in one unit. Such deficiency (whether fixed or optional requirement) must be made up the first year that the student is in attendance. If the optional requirement is not made up within that time College credits are taken in its place.

Subjects acceptable for entrance, arranged in eight groups, together with the number of units that may be offered, are shown as follows:

- GROUP I ..... English, three to four units  
ENGLISH ..... Journalism, one-half or one unit  
Public speaking, one-half or one unit
- GROUP II ..... French, one to four units  
FOREIGN ..... German, one to four units  
LANGUAGES ..... Greek, one to four units  
Latin, one to four units  
Spanish, one to four units
- GROUP III ..... Elementary algebra, one or one and one-half units  
MATHEMATICS ..... Plane geometry, one unit  
Advanced algebra, one-half unit  
Solid geometry, one-half unit  
Plane trigonometry, one-half unit
- GROUP IV ..... \*Botany, one-half or one unit  
NATURAL ..... \*Chemistry, one unit  
SCIENCES ..... \*General biology, one-half or one unit  
\*General science, one-half or one unit  
Physical geography, one-half or one unit  
\*Physics, one unit  
\*Physiology, one-half or one unit  
\*Zoölogy, one-half or one unit
- GROUP V ..... American history, one unit  
HISTORY AND ..... Civics, one-half or one unit  
SOCIAL SCIENCES ..... Constitution, one-half unit  
Economics, one-half or one unit  
English history, one unit  
Greek and Roman history, one unit  
Medieval and modern history, one unit  
Sociology, one-half unit
- GROUP VI ..... Higher arithmetic, one-half unit  
NORMAL TRAINING ..... Methods and management, one-half unit  
SUBJECTS ..... \*Music, one unit  
Psychology, one-half unit  
Reviews  
Grammar, geography, and reading }  
twelve weeks each, or } 1 unit  
Two of these, eighteen weeks each }
- GROUP VII ..... \*Agriculture, one-half to four units  
INDUSTRIAL ..... \*Domestic art, one-half, one, or two units  
SUBJECTS ..... \*Domestic science, one-half, one, or two units  
\*Drawing, one-half or one unit  
\*Forging, one-half or one unit  
\*Printing, one-half, one, or two units  
\*Woodwork, one-half, one, or two units
- GROUP VIII ..... Bookkeeping, one-half or one unit  
COMMERCIAL ..... Commercial geography, one-half unit  
SUBJECTS ..... Commercial law, one-half unit  
Salesmanship, one-half unit  
\*Shorthand and typewriting, one-half or one unit each

\* 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

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 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 certified transcripts of their work at other colleges at least two or three weeks in advance of entrance. Transcripts received later than one week prior to enrollment cannot be acted upon completely before the opening days of College.

Matriculated students may secure advanced credit in certain subjects of freshman rank 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 or summer session. Examinations, however, which affect the assignment of a semester or summer session will be given the first Saturday of that semester or summer session. After the expiration of the thirty-day period such examinations are authorized by the students' 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 10, 1934, Monday, January 28, 1935, and Monday, June 3, 1935. These examinations are given for the benefit of those students who need some additional high-school credits to qualify them for admission 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 admission. 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 later than one week prior to enrollment cannot be acted upon before the opening days of College.

### LATE ASSIGNMENT

A considerable amount of extra work and a great deal of confusion are 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. *There is no exception to this rule.*

A student is not admitted to the College later than ten days after the opening of a semester, except by special permission of his dean.



**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 persons over twenty-one years of age who are unable to meet the regular entrance requirements. For admission as special students in Veterinary Medicine, applicants must have completed at least fifteen units of high-school work. The age limit is not applied to special students in music.

Students who are able to meet the regular entrance requirements may also be permitted for sufficient reason to register as special students for work toward definite ends not provided for by the regular curricula. This classification does not, however, include students who merely fulfill curricular requirements irregularly in respect to weight or content of assignments, or who take approved courses in addition to those provided for in their curricula.

An applicant for admission as a special student must secure a permit from the dean of the division in which the major work is to be done, and this dean approves each assignment. Such a permit is good for one semester only but may be renewed in succeeding semesters.

Special students must present certificates of their preliminary training, and must give evidence of satisfactory preparation for the courses they wish to pursue. They are subject to all the general regulations and requirements of regular students, such as assignments to physical education and military training, payment of fees, regular attendance at classes, and maintenance of satisfactory scholastic standing.

**KANSAS HIGH SCHOOLS AND ACADEMIES IN ACCREDITED  
RELATIONS WITH THE COLLEGE**

(Candidates admitted without examination)

Abbyville	Athens	Beverly
Abilene	Glen Elder P. O.	Bird City
Ada	Athol	Bison
Adams	Atlanta	Blaine
Admire	Attica	Bloom
Agenda	Atwood	Blue Mound
Agra	Rawlins Co. Com.	Blue Rapids
Alden	Auburn	Bluff City
Alexander	Augusta	Bogue
Allen	Aurora	Bonner Springs
Alma	Axtell	Brewster
Almena	Axtell H. S.	Bronson
Altamont	St. Michael's H. S.	Brookville
Labette Co. Com.	Baldwin	Brownell
Alta Vista	Bancroft	Brownville
Alton	Barclay	Brewster P. O.
Altoona	Barnard	Bucklin
Americus	Barnes	Bucyrus
Andale	Basehor	Bucyrus H. S.
Andover	Bavaria	Wea H. S.
Anthony	Baxter Springs	Buffalo
Anthony H. S.	Bazine	Buhler
Spring Twp. H. S.	Beattie	Bunkerhill
Antrim	Beeler	Burden
St. John P. O.	Bellefont P. O.	Burdett
Appanoose	See Windthorst	Burdick
Pomona P. O.	Belle Plaine	Diamond Valley H. S.
Arcadia	Belleville	Burlingame
Argonia	Belmont	Burlington
Arkansas City	Beloit	Burns
Arlington	Beloit H. S.	Burr Oak
Arma	St. John's H. S.	Burrton
Arnold	Belpre	Bushong
Asherville	Bendena	Bushton
Ashland	Benedict	Byers
Assaria	Bennington	Caldwell
Atchison	Bentley	Cambridge
Atchison H. S.	Benton	Caney
Mt. St. Scholastica Academy	Bern	Canton
St. Benedict's College Academy	Berryton	Carbondale
	Bethel P. O.	Carneiro
	Washington R. H. S.	Cassoday

- Castleton  
 Cawker City  
 Cedar  
 Cedar Point  
 Cedarvale  
 Centerview  
 Centralia  
 Chanute  
 Chapman  
     Dickinson Co. Com.  
 Chase  
 Chautauqua  
 Cheney  
 Cherokee  
     Crawford Co. Com.  
 Cherryvale  
 Chetopa  
 Cimarron  
 Circleville  
 Claffin  
 Clay Center  
     Clay Co. Com.  
 Clayton  
 Clearwater  
 Cleburne  
 Clements  
 Clifton  
 Climax  
 Clyde  
 Coats  
 Cockerill  
     Mulberry P. O.  
 Codell  
 Coffeyville  
 Colby  
     Thomas Co. Com.  
 Coldwater  
 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  
 Damar  
 Deerfield  
 Delavan  
 Delia  
 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  
     Emporia H. S.  
     K. S. T. C. H. S.  
 Englewood  
 Ensign  
 Enterprise  
 Erie  
 Esbon  
 Eskridge  
 Eudora  
 Eureka  
 Everest  
 Fairview  
 Fall River  
 Falun  
 Fellsburg  
 Florence  
 Flush  
     St. Joseph's H. S.  
 Fontana  
     Oswego Twp.  
 Ford  
 Formoso  
 Fort Scott  
 Fostoria  
 Fowler  
 Frankfort  
 Fredonia  
 Frontenac  
 Fulton  
 Galena  
 Galesburg  
 Galva  
 Garden City  
 Garden Plain  
 Gardner  
 Garfield  
 Garnett  
 Garrison  
 Gaylord  
 Gem  
 Geneseo  
 Geneva  
 Geuda Springs  
 Girard  
 Glasco  
 Glendale  
     Brookfield P. O.  
 Glen Elder  
 Goddard  
 Goessel  
 Goff  
 Goodland  
     Sherman Co. Com.  
 Gorham  
     St. Mary's H. S.  
 Gove  
 Grainfield  
 Great Bend  
     Great Bend H. S.  
     Immaculate Conception  
 Greeley  
 Green  
 Greenleaf  
 Greensburg  
 Grenola  
 Gridley  
 Grinnell  
 Gypsum  
 Haddam  
 Halstead  
 Hamilton  
 Hamlin  
 Hanover  
 Hanston  
 Hardtner  
 Harlan  
 Harper  
 Hartford  
 Harveyville  
 Havana  
 Haven  
 Havensville  
 Haviland  
 Hays  
     Hays H. S.  
     Girls Catholic H. S.  
     St. Joseph's College Acad-  
         emy  
 Hazelton  
 Healy  
 Hepler  
 Herington  
 Herndon  
     Herndon H. S.  
     St. Mary's H. S.  
 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  
 Howard  
 Hoxie  
     Sherman Co. Com.  
 Hoyt  
 Hudson  
 Hugoton  
 Humboldt  
 Hunter  
 Huron  
 Hutchinson  
     Hutchinson H. S.  
     Bresee College Academy  
     St. Theresa's Academy  
 Independence  
 Ingalls  
 Inman  
 Iola  
 Ionia  
 Irving  
 Isabel  
 Jamestown  
 Jarbalo  
 Jennings  
 Jetmore  
     Hodgeman Co. Com.

- Jewell City  
 Johnson  
 Junction City  
   Junction City H. S.  
   St. Xavier's H. S.  
 Kackley  
 Kanopolis  
 Kanorado  
 Kansas City  
   Argentine H. S.  
   Rosedale H. S.  
   State School for Blind  
   Sumner H. S.  
   Ward H. S.  
   Western Univ. Academy  
   Wyandotte H. S.  
 Keats  
 Kendall  
 Kensington  
 Kincaid  
 Kingman  
 Kingsdown  
 Kinsley  
 Kiowa  
 Kipp  
 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  
   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  
 Linn  
 Linwood  
 Little River  
 Logan  
 Lone Elm  
 Longford  
 Long Island  
 Longton  
 Lorraine  
 Lost Springs  
 Louisburg  
 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  
 Manning  
 Manter  
 Maplehill  
 Marion  
 Marquette  
 Marysville  
 Matfield Green  
 Mayetta  
 Meade  
 Medicine Lodge  
 Melvern  
 Menlo  
 Meriden  
 Merriam  
   Shawnee Mission H. S.  
 Michigan Valley  
 Midian  
 Milan  
 Mildred  
 Milford  
 Miller  
 Milton  
 Miltonvale  
   Miltonvale R. H. S.  
   Miltonvale Wesleyan Acad-  
   emy  
 Minneapolis  
 Minneola  
 Moline  
 Montezuma  
 Montrose  
 Monument  
 Moran  
 Morehead  
 Morganville  
 Morland  
 Morrill  
 Morrowville  
 Moscow  
 Mound City  
 Moundridge  
 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  
 North Branch  
   North Branch Academy  
 Norton  
   Norton Co. Com.  
 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  
   Pittsburg H. S.  
   K. S. T. C. H. S.  
 Plains  
 Plainville  
 Pleasanton  
 Plevna  
 Pomona  
 Portis  
 Potter  
 Potwin  
 Powhattan  
 Prairie View  
 Pratt  
 Prescott  
 Preston  
 Pretty Prairie  
 Princeton  
 Protection  
 Quenemo  
 Quincy  
 Quinter  
 Radium  
 Ramona  
 Randall  
 Randolph  
 Ransom  
 Rantoul  
 Raymond  
 Reading  
 Reece  
 Republic  
 Reserve  
 Rexford  
 Richfield  
 Richmond  
 Riley

- Riverton  
 Robinson  
 Rock Creek  
 Rolla  
 Rosalia  
 Rosedale  
   See Kansas City  
 Rose Hill  
 Rossville  
 Roxbury  
 Rozel  
 Ruleton  
 Russell  
 Russell Springs  
 Sabetha  
 Saffordville  
 St. Francis  
 St. George  
 St. John  
   St. John H. S.  
   Antrim R. H. S.  
 St. Marys  
   St. Marys H. S.  
   Immaculate Conception  
     H. S.  
 St. Paul  
   St. Paul H. S.  
   St. Francis H. S.  
 Salina  
   Salina H. S.  
   Sacred Heart H. S.  
   St. John's Military School  
   Marymount Academy  
 Satanta  
 Savonburg  
 Sawyer  
 Scandia  
 Schoenchen  
 Scott City  
   Scott Co. Com.  
 Scottsville  
 Seranton  
 Seaman  
   North Topeka P. O.  
 Sedan  
 Sedgwick  
 Selden  
 Seneca  
   Seneca H. S.  
   Sts. Peter and Paul H. S.  
 Severance  
 Severy  
 Shallow Water  
 Sharon  
 Sharon Springs  
   Wallace Co. Com.  
 Shawnee Mission  
   Merriam P. O.  
 Silver Lake  
 Simpson  
 Smith Center  
 Smolan  
 Soldier  
 Solomon  
 South Haven  
 Sparks  
 Spearville  
 Speed  
 Spivey  
 Spring Hill  
 Spring Twp.  
   Anthony P. O.  
 Stafford  
 Stanley  
 Stark  
 Sterling  
 Stillwell  
 Stockdale  
 Stockton  
 Strawn  
 Strong City  
 Sublette  
 Summerfield  
 Sun City  
 Sylvan Grove  
 Sylvia  
 Syracuse  
 Talmage  
 Tampa  
 Tescott  
 Thayer  
 Tipton  
 Tonganoxie  
 Tonovay  
   Utopia P. O.  
 Topeka  
   Topeka H. S.  
   Catholic H. S.  
   Highland Park H. S.  
   Kansas Vocational School  
   Seaman R. H. S.  
   Washburn H. S.  
 Toronto  
 Towanda  
 Tribune  
   Greeley Co. Com.  
 Trousdale  
 Troy  
 Turner  
 Turon  
 Tyro  
 Udall  
 Ulysses  
   Grant Co. R. H. S.  
 Uniontown  
 Utica  
 Valley Center  
 Valley Falls  
 Vermillion  
 Vernon  
 Vesper  
 Victoria  
   St. Fidelis H. S.  
 Vilas  
 Vinland  
 Viola  
 Virgil  
 Wakeeney  
   Trego Co. Com.  
 Wakefield  
 Waldo  
 Walker  
   St. Ann's H. S.  
 Wallace  
 Walnut  
 Walton  
 Wamego  
 Washburn H. S.  
   Topeka P. O.  
 Washington  
 Washington R. H. S.  
   Bethel P. O.  
 Waterville  
 Wathena  
 Waverly  
 Wayside  
 Wea  
   Bucyrus P. O.  
 Webber  
 Webster  
 Weir  
 Welda  
 Wellington  
 Wellsville  
 Weskan  
 West Mineral  
 Westmoreland  
 Westphalia  
 Wetmore  
 Wheaton  
 White City  
 White Cloud  
 White Water  
 Whiting  
 Wichita  
   Wichita East H. S.  
   Wichita North H. S.  
   American Indian Institute  
   Cathedral H. S.  
   Mt. Carmel Academy  
   St. John's Academy  
 Wilburton  
 Williamsburg  
 Willis  
 Wilmore  
 Wilsey  
 Wilson  
 Winchester  
 Windthorst  
   See Bellefont P. O.  
   Immaculate Heart of Mary  
 Windom  
 Winfield  
   Winfield H. S.  
   St. John's Academy  
 Winona  
 Woodbine  
 Woodruff  
 Woodston  
 Yates Center  
 Zenda  
 Zook  
   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  
Highland Junior College, Highland  
College of Paola, Paola  
St. John's College, Winfield

## Undergraduate Degrees

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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, or both, is about 120 to 140 semester hours, according to the four-year curriculum taken. (A semester hour is one hour of recitation or lecture work, or three hours of laboratory a week, for one semester of eighteen weeks. When no possible ambiguity is involved, the term "hour" is used for "semester hour" in this catalogue.)

A student, to be considered as a candidate for graduation, must have done his last year's work in residence. Resident work is interpreted to mean all regularly scheduled class or laboratory instruction given by the regular College faculty under the direct supervision of the College and within the bounds of its campus. Not less than twenty semester hours of undergraduate work are to be taken here while this residence requirement is being fulfilled. Not to exceed sixteen 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 will be considered who have completed three full years of work here and have carried their last year of work in an institution approved by the faculty.

Seniors meeting the graduation requirement in hours 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.

No student is considered a candidate for graduation in the spring who, at the beginning of the first semester, is deficient more than nine hours in addition to his regular assignment for the year. Candidates desiring to be graduated must make application to the registrar at least thirty days before the date when graduation is expected. The responsibility rests with a candidate to see that he has complied with all the requirements.

Candidates for graduation 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. Degrees are conferred only in the spring and in the summer. Candidates for graduation are required to be present at the exercises of baccalaureate Sunday, unless excused by the council of deans.

### DEGREES

The following degrees are conferred on completion of four-year curricula:

- Bachelor of Science
- Bachelor of Science in Agriculture (Agriculture; Agricultural Administration; Landscape Gardening)
- Bachelor of Science in Agricultural Engineering
- Bachelor of Science in Architecture
- Bachelor of Science in Architectural Engineering
- Bachelor of Science in Chemical Engineering
- Bachelor of Science in Civil Engineering
- Bachelor of Science in Commerce (Commerce; Commerce and Accounting)
- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Home Economics (Home Economics; Home Economics and Art; Home Economics and Institutional Economics and Dietetics; Home Economics and Journalism)

Bachelor of Science in Industrial Chemistry  
Bachelor of Science in Industrial Journalism  
Bachelor of Science in Landscape Architecture  
Bachelor of Science in Mechanical Engineering  
Bachelor of Science in Milling Industry  
Bachelor of Music  
Bachelor of Science in Music Education  
Bachelor of Science in Physical Education

The degree of Bachelor of Science in Home Economics and Nursing is conferred upon those who complete the five-year curriculum in Home Economics and Nursing.

The degree of Doctor of Veterinary Medicine is conferred upon those who complete the five-year curriculum in Veterinary Medicine.

Those pursuing the six-year curriculum in Animal Husbandry and Veterinary Medicine are awarded the degree Bachelor of Science in Agriculture upon completion of the first four years, and the degree Doctor of Veterinary Medicine upon completion of the last two years of the curriculum.

Upon those taking the six-year curriculum in General Science and Veterinary Medicine the degree Bachelor of Science is conferred when the first four years are completed, and the degree Doctor of Veterinary Medicine is conferred upon completion of the remaining two years of the curriculum.

For a second bachelor's degree an additional year of not less than thirty semester hours is required. This work is in charge of the dean who administers the curriculum chosen.

## General Information

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### 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 the literary societies, the Department of Music, the Manhattan Theatre, the Intersociety Oratorical Board, and 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 \$7.50 for residents of Kansas, or \$15 for nonresidents, is charged all students in College curricula. Short-course students do not pay this fee, and it is not paid by students in the summer school unless they are candidates for a degree at the end of the session. It is payable by special students.

**INCIDENTAL FEE.** An incidental fee of \$18.75 a semester or \$15 for the nine-week summer term is charged residents of Kansas; nonresidents pay \$37 a semester or \$25 for the nine-week 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 four-week summer term is \$7.50.

**STUDENT-HEALTH FEE.** Each undergraduate 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. Graduate students do not pay this fee, nor do they receive the benefits of the student-health service.



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 undergraduate 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 Governing Association. The members of the faculty, the employees of the College, and graduate students 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, but not including the laboratory fees, which are announced in a succeeding paragraph, the following tabular statement is given:

FOR RESIDENTS OF KANSAS

	<i>New students</i>	<i>Old students</i>
Matriculation (paid only once).....	\$7.50	None
Incidental (one semester).....	18.75	\$18.75
Student-health (one semester) .....	3.00	3.00
Student-activity (one semester) .....	5.00	5.00
Totals .....	\$34.25	\$26.75

FOR NONRESIDENTS OF KANSAS

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

**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. Charges are noted under the descriptions of the several courses; changes in charges are effective June 1. The following tabulation shows the laboratory charges for each semester of the freshman year in the several curricula. In a few instances these are approximate, since options exist in some curricula and charges are affected by the subjects chosen.

<i>Curriculum</i>	<i>First Semester</i>	<i>Second Semester</i>
Agricultural Administration .....	\$18.50	\$22.00
Agricultural Engineering .....	12.75	14.25
Agriculture .....	18.50	22.00
Agriculture with Landscape Gardening.....	18.00	19.50
Animal Husbandry and Veterinary Medicine (six year)....	18.50	22.00
Applied Music (not incl. sheet music and private lessons)..	3.50	3.50
Architectural Engineering .....	12.75	14.25
Architecture .....	5.25	6.75
Chemical Engineering .....	14.25	14.25
Civil Engineering .....	12.75	12.75
Commerce .....	8.50*	8.50*
Commerce and Accounting .....	8.50*	8.50*
Electrical Engineering .....	18.25	12.75
General Science .....	17.25	17.25
General Science Pre-Medic and Pre-Pharmaceutical Adap.....	13.50	13.50
General Science and Veterinary Medicine (six year).....	17.25	17.25
Home Economics .....	18.50	13.25
Home Economics and Art.....	18.50	13.25
Home Economics and Industrial Journalism.....	18.50	13.25
Home Economics and Inst. Economics and Dietetics.....	18.50	13.25
Home Economics and Nursing (five year).....	17.75	12.50
Industrial Chemistry .....	15.00	13.50
Industrial Journalism .....	16.50*	8.00*
Landscape Architecture .....	9.00	10.50
Mechanical Engineering .....	14.25	12.75
Milling Industry .....	16.25	16.25
Music Education (not incl. sheet music and private lessons)	3.50	8.50*
Physical Education for Men.....	13.50	11.00
Physical Education for Women.....	12.50	12.50
Veterinary Medicine (freshman or second year).....	21.50	19.50

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 .....	\$22.10	\$12.40
Agricultural Engineering .....	23.85	10.05
Agriculture .....	22.10	12.40
Agriculture with Landscape Gardening.....	23.35	9.85
Animal Husbandry and Veterinary Medicine (six year)....	22.10	12.40
Applied Music (not incl. sheet music and private lessons),	15.22*	.....
Architectural Engineering .....	23.85	6.05
Architecture .....	31.60	5.50
Chemical Engineering .....	23.50	4.55
Civil Engineering .....	23.75	10.15
Commerce .....	16.10*	6.80*
Commerce and Accounting.....	16.10*	6.80*
Electrical Engineering .....	22.35	11.05
General Science .....	23.65	4.55
General Science Pre-Medic and Pre-Pharmaceutical Adap.....	21.25*	4.55
General Science and Veterinary Medicine (six year).....	23.65	4.55
Home Economics .....	17.60	7.55
Home Economics and Art.....	17.60	7.55
Home Economics and Inst. Economics and Dietetics.....	17.60	7.55
Home Economics and Journalism.....	17.60	7.55
Home Economics and Nursing.....	17.10	6.30
Industrial Chemistry .....	25.15	7.50
Industrial Journalism .....	18.00*	6.25
Landscape Architecture .....	23.75	6.10
Mechanical Engineering .....	23.85	11.30
Milling Industry .....	18.45	12.00
Music Education (not incl. sheet music and private lessons),	3.50	8.50*
Physical Education for Men.....	15.10	7.05
Physical Education for Women.....	16.15	7.85
Veterinary Medicine .....	24.60	.....

\* Approximate figures.

**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.*

**COMMENCEMENT FEE.** On graduation students pay a commencement fee of \$7.50 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.

**FEES FOR GRADUATE STUDENTS.** Fees to be paid by graduate students are listed fully in the section headed "Graduate Study."

**FEE RECEIPTS 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 before the end of the first week of the semester or summer term may receive a refund of all the fees paid for that semester or summer term.

A student permitted to withdraw after remaining the first week and less than one-third semester or summer term may receive a refund of one-half the fees paid for that semester or summer term.

Refund is made on the unused portion of laboratory fees. All claims for refunds on laboratory deposits must be made within fifteen days of the close of the semester or summer school.

Refunds are given *only* on the presentation of the fee receipts for various fees paid. Refunds are authorized at the office of the registrar. *Fee receipts must be preserved* by the student. To be accepted, claims for fee refunds must be presented at the office of the registrar not later than the end of the semester or summer term for which the fees were paid.

A student dropping music before the end of a term or semester may receive a refund of fees paid proportional 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 semester are retained.

**DRAWING INSTRUMENTS.** In several curricula, especially in architecture and engineering, drawing instruments are required. These range in price from \$7.50 to \$25 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 \$6 a month and upward 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.

Van Zile Hall is available as a residence for about 125 young women.

**BOARD.** The cost of board depends largely upon individual requirements. In clubs and private boarding houses the cost is \$3 a week and upward. 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.

Board and room may be obtained at a minimum cost of about \$4 a week.

**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 Kansas State 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 Anderson 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, fire-proof 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 last 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 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 the students are judged on the basis of their personal worth and efficiency.

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 State Board of Regents has established the following rules covering the administration of student loan funds:

1. The development of sound character in student borrowers as well as the furnishing of financial aid to deserving students shall be regarded as a major purpose in administering student loan funds. Prompt payment of interest and of principal and other essential features of good business procedure shall be required to the fullest practicable extent.

2. When not inconsistent with the terms of the bequest or gift providing a student loan fund, not less than 10 per cent of the annual income from the fund shall be set up as a reserve to cover possible losses of principal, until the total reserve for that fund equals 10 per cent of the amount of the fund.

3. When not inconsistent with the terms of the bequest or gift providing a student loan fund, as much as necessary (but not exceeding 90 per cent) of the annual income from the fund may be used to defray expenses for clerical help, supplies, postage, etc., necessary in administering the fund, but this expense shall not include the services of faculty members, these services being contributed without extra compensation.

4. When not inconsistent with the terms of the bequest or gift providing the loan fund involved, a student loan is to be made only when a note or notes are signed by the borrower and one other responsible person, preferably the borrower's parent or guardian, and this indorser must be recommended by his bank as of good financial standing and as otherwise satisfactory as an indorser.

5. As a general policy, loans will be made only to juniors, seniors and graduate students who have attended Kansas State College for at least one semester and preferably for one year, and who have a scholarship average of at least "C." Departures from this policy will be permissible only in highly exceptional and strictly meritorious individual instances.

The College has established the following rules, among others, as to procedure with reference to all student loan funds:

1. The office of the Executive Secretary of Kansas State College Alumni Association is to be the central office through which all student loan activities are coördinated.

2. To apply for a loan from any of the loan funds, a student must present his request to the Alumni office. The Alumni office will give each such student a card designating the Loan Fund Committee to which he should apply for a loan. Decision concerning the Loan Fund Committee to which application should be made is to be based upon the qualifications of the student for a loan; the loans, if any, previously obtained by the student; the amount available to lend in each fund, and such other matters as may be mutually agreed upon by the chairmen of the committees concerned. The student must present the card from the Alumni office to the chairman or other designated representative of the committee named on the card. The Alumni office will keep a duplicate of every such card issued to students. The committee will retain the card presented by the student and furnish the student with the necessary application blanks, provided it appears worth while for the student to make formal application for a loan.

3. A student who has borrowed from one loan fund shall receive a loan from another fund only after those in charge of the fund from which the first loan was made have had an opportunity to extend an additional loan to the student. If the second loan is made from a fund other than the one from which the first loan was secured, then the first loan shall have priority of payment.

4. The maximum total amount loaned from all loan funds to one individual, under usual circumstances, shall not exceed \$400.

Students wishing loans from any of the funds listed below should apply to Kenney L. Ford, Secretary of the K. S. C. Alumni Association, Room 38A, Anderson Hall.

**THE ALUMNI LOAN FUND.** The Alumni Association of the Kansas State College has created a loan fund, chiefly by means of payments by which the alumnus is relieved from further 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 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 \$45,970, 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.

Acknowledgment of additions to the Life Membership Fund is made at this place from year to year. Since the last report, up to and including October 10, 1933, the following named persons have completed payments for life membership: Laura Falkenrich Baxter, Sigrid E. Beckstrom, Lynn H. Bradford, Charles L. Brainard, John B. Brown, Lucile B. Burt, Samuel D. Capper, Vernie I. Clausen, Daisy D. Davison, Jack W. and Hilda Frost Dunlap, B. H. Fleenor, Miles W. George, John V. Hepler, Mott L. Robinson, Clytice Ross, Joseph P. Scott, Harry E. Skoog, S. Frances Smith, Harlan B. Stephenson, Charles W. Stratton, Ada C. Wiese, Anna M. Wilson, and John L. Wilson. This list brings the total paid-up life members to 636.

**LOCKHART LOAN FUND.** The Lockhart Loan Fund is represented by a one-sixth interest in the Lockhart Ranch in Wabaunsee county. This interest was bequeathed to the College by the late George N. Lockhart, who stated that the purpose of the bequest is "to form a fund to assist male students through college by means of loans at a reasonable rate of interest." The annual income from the fund is approximately \$1,000, so that the amount of the fund available for student loans increases at the rate of approximately \$1,000 a year. The fund is administered by a special committee of which Dr. W. E. Grimes is chairman.

**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 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. This fund is administered by Prof. J. O. Hamilton, chairman of the Waters Loan Fund Committee, Manhattan, Kan.

**THE 4-H CLUB LOAN FUND.** The Collegiate 4-H Club of the College has created a loan fund of approximately \$1,500 to be loaned to deserving students

who were former successful 4-H club members. This fund is loaned in units of \$50, drawing interest at 6 per cent per annum. The fund has been created by the efforts of the members of the Collegiate 4-H Club in editing and publishing the "Who's Whoot," the annual 4-H Club Year Book of Kansas. It is hoped that the fund will increase in size from year to year and that it will prove helpful to deserving 4-H Club members attending college. The fund is administered by the K. S. C. Alumni Association in coöperation with the Collegiate 4-H Club.

**THE STATE FEDERATION OF WOMEN'S CLUBS LOAN FUND.** Each year several of the young women students of the Kansas State 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. 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 Alumnae 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 AMERICAN ASSOCIATION OF UNIVERSITY WOMEN LOAN FUND.** The Manhattan branch of the American Association of University Women maintains a small loan fund which is available to a graduate woman student enrolled in any department of the College recognized by the Graduate Council. Applications for this loan should be made to the chairman of the Graduate Loan Fund Committee of the Manhattan branch of the American Association of University Women.

**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 Waters Loan Fund Committee.

**MASONIC LOAN FUND.** The Knights Templar Commandery has established a loan fund that is available for junior and senior men and women who have given evidence of scholarship and worth. Applicants should seek recommendations from the commandery with whose members they may be acquainted.

**FRANKLIN LITERARY SOCIETY LOAN FUND.** The Franklin Literary Society has established a loan fund which is available to members of the society. It is administered by the Waters Loan Fund Committee.

### 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.

**DAIRY JUDGING.** The Student Dairy Club 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 \$100 to students in poultry-judging contests.

**GRAIN JUDGING.** The Klod and Kernel Klub holds an annual grain-judging contest. Cash prizes, trophies, merchandise and subscriptions to farm papers are given to the highest ranking students.

**ARCHITECTURE.** The American Institute of Architects offers a medal to the senior architect 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.

Alpha Rho Chi, national social fraternity of architecture, awards a medal to the graduating senior of the Department of Architecture who has shown through his attitude and personality the greatest ability for leadership, service for his school and department, and real professional merit.

**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.

**MARGARET RUSSEL SCHOLARSHIP AWARD.** Phi Alpha Mu, the honor society for women taking work offered in the curriculum in general science, awards \$50 each year to the junior young woman enrolled in the curriculum in general science who had the highest scholastic standing at the close of the second semester of the previous college year. To be eligible for this award the student must have done her sophomore work in the division of general science at the Kansas State College.

**OMICRON NU SCHOLARSHIP AWARD.** 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.

**SIGMA TAU SCHOLARSHIP AWARD.** Sigma Tau, the honor society in the Division of Engineering, awards annually medals to the three sophomore engineering students making the highest scholastic records in their freshman year.

**COMMERCE.** The Alpha Omega chapter of Alpha Kappa Psi, professional commerce fraternity, offers a scholarship medallion annually to the student who makes the highest scholastic record among all junior men enrolled in the curriculum in commerce.

**SHORT-STORY WRITING.** The Quill Club offers annually \$10 to the student of Kansas State College writing the best short story in a contest held by this organization.

**JOURNALISM.** The outstanding student in Agricultural Journalism each year is honored by having his name engraved upon one of the several small shields surrounding a larger shield which bears 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 College."

**ORATORY.** The literary societies through the Inter-Society Council offer each year in the Inter-Society Oratorical Contest three substantial cash and medal prizes.

The College is a member of the Missouri Valley Oratorical Association and is represented in its annual contest in which valuable cash and medal awards are offered.



Other contest opportunities of an inter-collegiate character and carrying substantial awards are available from time to time.

**SOCIOLOGY.** The Kappa Alpha Chapter of Chi Omega Sorority offers a prize of \$25 to the woman student who holds the highest grade in sociology at the end of the first semester each year, the standing of the student to be determined by the instructor.

**VETERINARY MEDICINE.** Within the Division of Veterinary Medicine awards are made as indicated below:

Harwood prizes in physiology—donated by Dr. N. D. Harwood, K. S. C., '18—consist of a first prize of \$10 and a second prize of \$5. Sophomore students are eligible.

Jensen-Salsbery prizes in therapeutics—donated by the Jensen-Salsbery Laboratories—consist of a first prize of \$10 and a second prize of \$5. Junior students are eligible.

Franklin prizes in pathology—donated by Dr. O. M. Franklin, K. S. C., '12—consist of a first prize of \$10 and a second prize of \$5. Senior students are eligible.

Schmoker prizes in general efficiency—donated by Dr. E. A. Schmoker, K. S. C., '17—consist of a first prize of \$10 and a second prize of \$5. Senior students are eligible.

### SCHOLARSHIPS

**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 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 argiculture, veterinary medicine, or home economics.

Senator Arthur Capper of Topeka, Kansas, offers \$300 annually for the purpose of providing two 4-H Club scholarships of \$150 each for any full-term course at the Kansas State College. One of these scholarships goes each year to the boy standing highest and the other to the girl standing highest in the 4-H leadership project in Kansas.

**FOR WORLD WAR VETERANS AND THEIR DESCENDANTS.** The trustees of the estate of LaVerne Noyes award to the Kansas State College annually six scholarships which cover the cost of matriculation fees, incidental fees, and laboratory charges only. These scholarships are available, with certain reservations, to deserving students who need this assistance and who served in the army or navy of the United States between April 6, 1917, and September 11, 1918, or descended by blood from some one who so served. Applications for these scholarships should be made through the student's dean.

### GRADUATE ASSISTANTSHIPS

Graduate assistantships and graduate research assistantships have been established for some years by action of the Board of Regents, and are available in several departments of the College. See Division of 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.

### 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 Kansas Agricultural Student* is issued monthly by the Division of Agriculture and the Division of College Extension.

The students of the College publish a semiweekly periodical, *The Kansas State Collegian*, in the interests of the students at large. *The Kansas State Engineer* is published by students in the Division of Engineering. *The Home Economics News* is published quarterly by the faculty and students of the Division of Home Economics. A College annual, *Royal Purple*, is published each year by the Student Governing Association.

### MOTOR CAR PARKING REGULATIONS

**PUBLIC PARKS.** Two public motor-car parks have been provided for general use by students, faculty members, employees, and visitors. One of these is northwest of Engineering Hall and the other is north of Waters Hall. No permits are required for the use of these parks but cars must be so parked as not to interfere with the free movement of other cars into and out of parking spaces.

**RESTRICTED PARKS.** To accommodate crippled students and others having special need for parking spaces, a few small motor-car parks have been provided and permits for the exclusive use of these parks are issued when necessary. Each stall is assigned to a certain car and may be used by that car only. Cars must be so parked as not to interfere with the free movement of other cars into and out of the stalls.

**PARKING ON DRIVEWAYS.** No parking is permitted on the driveways except during public exercises. During such public exercises and for a short time before and after them, cars may be parked on the driveways provided they are so parked as not to interfere with either vehicular or pedestrian traffic.

In the interest of safety, the good appearance of the campus, and the general welfare of the college community, the coöperation of students and faculty in the observance of these regulations is requested. Furthermore, the handling of the parking problem will be greatly simplified if students and faculty members who come to the campus in motor cars will make extensive use of the streets adjacent to the campus for parking purposes.

### COLLEGE ASSEMBLY

The College Assembly is held one hour each week. The library, offices, classrooms, and laboratories are closed and the students and faculty 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 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 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 twice a day. Matter may be deposited for insured and 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.

### APTITUDE TESTS FOR FRESHMEN

Aptitude tests of all freshmen have been conducted here since 1919. In recent years, examinations of this character have been given quite generally in educational institutions. The tests required in this college occupy only about three hours. These tests are designed to ascertain what features of the student's mental endowment and attainments are strongest. The results are very helpful to deans and advisers in judging the intellectual progress of students, and in giving them counsel concerning occupational aptitudes. They are also of assistance in placing students or graduates in positions.

### 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 last period provided 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 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.

### AUDITING CLASSES

Auditing a class consists in attending it regularly without other participation, and without credit. Only persons having written permits may audit classes. Permission to audit is issued to (a) any person who is enrolled for credit, by the dean in charge of his assignment; (b) an employee of the College not enrolled for credit, by the dean of the division in which the person is employed with approval of the head of the department in which the course is offered; (c) any other person, by the dean of the division in which the course is offered with the approval of the head of the department. Laboratory courses may not be audited.

### SCHOLARSHIP DEFICIENCIES

Any freshman student who receives deficiencies (grades of F or Con.) in one-third of the work to which he is assigned, or any other student who receives deficiencies in one-fourth of his work, at the end of the semester, is automatically placed on probation for one semester and the parent or guardian of the student is informed of the fact. A third such probation automatically includes dismissal from the College.

Any freshman student who receives deficiencies in one-half of his work, or any other student who receives deficiencies in two-fifths of his work, at the end of the semester, is automatically dismissed from the College. The deans notify parents and guardians of the fact when students are dismissed or put on probation on account of scholarship deficiencies.

Students dismissed at the end of the first semester are excluded until the beginning of the next summer session. Those dismissed at the end of the second semester are excluded till the end of the next fall semester. During this period of dismissal 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 on 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, unless exempted under the provision that a junior or senior student is given the privilege of optional attendance at class exercises if, during the last two semesters he attended this College, he made not fewer than thirty-two points each semester with an average record of not fewer than two points per credit hour each semester and no grades below passing.

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 5 o'clock p. m. Excuses submitted by students are transmitted with a recommendation in respect to excusing the absence. Action concerning excuse for absence is taken by the student's dean. Excuse for an absence does not relieve the student from responsibility for lecture, recitation or laboratory work lost while absent.

Any student who is found to be persistently inattentive in his College work is at once temporarily suspended by his dean, and reported to the president for permanent suspension.

### EXAMINATIONS

Examinations are held during the last eight days of the semester in accordance with a definite examination schedule which, as far as possible, gives the student not more than two examinations on any one day.

No regular examination may be given at a date in advance of that provided except that, at the discretion of the head of the department, a student may be permitted to take his examination with another class in the same subject instead of 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 that 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 conditional 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 examination. 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. 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 on 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 result 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, unless in the meantime the student has reënrolled in the course, in which case the Con. shall not become an F if the student completes the course satisfactorily.

The grade F, meaning failed, is used to indicate work that is so unsatisfactory as to require that the work be repeated in class or under an approved tutor.

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. However, extensions of time may be made in meritorious cases by the dean concerned, provided notice of such extension is sent by him to the registrar within the "first semester" time limit.

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, not later than 6 p. m. of the last day of the first semester, and not later than noon of the last day 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.

Students desiring reports of intrasemester grades must supply their teachers with properly filled officially provided cards between the fourth and the eleventh days after the fifth or the ninth Saturday of a semester. Reports so requested are to be made by the teachers, and may be sent to the students or student organizations through the College post office, or otherwise.

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. However, regardless of the time of withdrawal, if all the required work of a course has been completed, a final grade shall be reported.

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 connection with the institution.

## THE POINT SYSTEM

For each hour 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 hours. Above the freshman year classification is based on the same requirement in points as in hours.

Seniors meeting the graduation requirements in hours 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.

## CLASSIFICATION OF STUDENTS

New students are classified by the Committee on Admission. To be classified as a freshman on entrance one must have been graduated from an accredited high school, or offer fifteen units of acceptable high-school work. One offering fourteen acceptable high-school units is classified as a conditioned freshman. A student is not advanced in classification until the required entrance units are completed. A student is classified as a sophomore, junior or senior when he attains credit in a number of hours and also of points nine less than the full number of hours required in one, two or three years, respectively, of the curriculum in which he is enrolled. Reclassification of students is made by the registrar each academic year previous to the opening of the first semester.

## CREDITS FOR EXTRACURRICULAR WORK

Credit toward graduation may be obtained through satisfactory performance of the duties of certain activities not included in the requirements of any curriculum. These subjects and the limitations upon the semester hours of credit that may be so obtained are as follows:

<i>Subject</i>	<i>Per Semester</i>	<i>Total</i>
Orchestra .....	1/2	4
Band .....	1/2	4
Choral Ensemble .....	1/2	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

To obtain credit on one of these subjects, the student must be regularly assigned to it in accordance with the general rules governing assignments, but may be assigned only 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 obtained in the above-named subjects may be counted as electives in the student's curriculum, or may be formally substituted for required subjects if the curriculum does not offer sufficient elective opportunity. Approval as electives or substitutions is obtained only through the regular procedures. A total of not more than eight semester credits may be allowed a student for these subjects, and not more than two of these may be obtained in any one semester.

## 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 .....	10
Sophomores, 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 student 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 welcome in 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 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. Anderson Hall is the headquarters of the association, to which all young women of the College are at all times cordially welcome. An office for the general secretary and rest rooms for the young women are maintained in this building during the College year.

An employment bureau for women students is maintained by the general secretary, without charge to its beneficiaries. Various committees are responsible for the lines of work of the association. At the opening of the College semesters the incoming trains are met by "Big Sisters" who assist new women students, the "Little Sisters," in securing suitable lodging and boarding places. If any prospective woman student will write to the general secretary of the association, her "Big Sister" will correspond with her during the summer vacation.

During the College year various social functions are given for the young women. The first of these is an informal reception to enable the College girls to become acquainted with one another. Once each year the two 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, Eurodelphian 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 economics character. The object of the club is to promote interest in agricultural economics topics, to encourage sound economic thinking, and to further the acquaintanceship of faculty and students. Outside speakers are frequently secured for special meetings which are open to the public.

The Block and Bridle Club meets on the first and third Mondays of each month. Membership is open to all animal husbandry students above the freshman year. The object of the club is to promote the interests of animal husbandry in the College and in the state. Live-stock problems of all kinds are taken up, and the members of the faculty and outside speakers are secured for addresses on special topics.

The Dairy Club meets on the first and third Mondays of each month. Membership is open to anyone who is taking any four-year 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 Kernal 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 *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.

### EXTENSION SERVICE SOCIETIES

The Collegiate 4-H Club is an organization composed of college young men and young women who formerly were 4-H Club members. Its purpose is to maintain and increase the interest of its members in extension work and 4-H Club work, to develop more effective leadership in such work, to maintain and increase a loan fund for 4-H Club members in college, and in general to aid and promote the well-being of former 4-H Club members at Kansas State College. It participates actively in many campus activities and lends its aid to the various extension activities conducted on the campus or in connection with the College. The club publishes each year the yearbook of 4-H Club work in Kansas known as the "Who's Whoot." The organization aims to acquaint its members with the latest developments in the various fields in which they are interested and to bring added opportunities for professional and educational development. Outside speakers are frequently secured and the organization sends representatives to various national or interstate student conventions or meetings.

### 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 product of the grade values and the credit hours by the number of credit hours of work taken. In order to receive honors, the students' 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 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 Kappa Psi .....	Commerce
Alpha Zeta .....	Agriculture
K Fraternity .....	Athletics
Mu Phi Epsilon .....	Music
Omicron Nu .....	Home Economics
Phi Alpha Mu .....	Women's Science
Phi Delta Kappa .....	Education
Phi Lambda Upsilon .....	Chemistry
Phi Mu Alpha .....	Music
Pi Kappa Delta .....	Debating
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 and student members. (See "Honor Societies," above.)

### AMERICAN CHEMICAL SOCIETY

This institution is headquarters for the Kansas State College section of the American Chemical Society. Its regular and special meetings constitute a valuable stimulus to interest and progress in chemistry. The section provides each year for one or more lectures by eminent chemists from out of town.

### THE COLLEGE BAND

The College Band is a military organization, composed chiefly 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 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 Graduate Study

JAMES EDWARD ACKERT, *Dean*

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Facilities for advanced degrees were offered at the Kansas State College of Agriculture and Applied Science as early as 1866. Opportunities for investigation and research were afforded originally in 1877, when the Master of Science degree first was authorized. Graduate study was administered by the general faculty up to 1903, when this work was placed in the hands of a faculty committee. After 1903 the graduate work grew steadily. In 1909 it was put under the supervision of the Council of Deans. The work was reorganized in 1919 and placed under the supervision of a Graduate Council, which had charge of all graduate work until November 1, 1931. On that date a Division of Graduate Study was formed and a dean of the division appointed. During the next year the College was authorized to offer work leading to the degree Doctor of Philosophy, effective September 1, 1932.

The Graduate Council, which is continued, 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 by the president. The dean of the Division of Graduate Study is chairman of the council.

The graduate faculty consists of the president of the College, the deans of the academic divisions, the heads of departments offering graduate work and staff members recommended by the heads of departments and approved by the Graduate Council as qualified to give graduate instruction. The president of the College is chairman of the graduate faculty, the dean of the Division of Graduate Study is vice chairman and the secretary of the Graduate Council is secretary. 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 State 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 for advanced degrees and other matters which relate to the proper administration and development of graduate work in the College.

## ADMISSION

Admission to graduate study is granted to graduates of institutions whose requirements for the bachelor's degree are substantially equivalent to those of the Kansas State College of Agriculture and Applied Science. Admission to graduate study, however, may not be construed to imply admission to candidacy for an advanced degree. Such candidacy is determined after the student has demonstrated by his work for a period of two months or longer (M. S.), or approximately two years (Ph. D.), that he has the ability to do major work of graduate caliber.

Application blanks for admission to graduate study may be secured from the dean of the Division of Graduate Study. Each applicant who is not a graduate of this College must submit with his application an official transcript of his college record.

## REGISTRATION

Students applying for graduate work should present themselves to the dean of the Division of Graduate Study at Nichols Gymnasium during the regular registration days (see College calendar), and at other times at his office, room 26, Fairchild Hall.

Students who have been admitted to graduate study are required to register with the College registrar and be assigned by the dean of the Division of Graduate Study at the beginning of each semester.

### ASSIGNMENTS

Not more than sixteen credits, including thesis, may be secured in a single semester, nor more than eight credits during the Nine-week Summer School, nor more than four credits during the Four-week Summer School. Students holding graduate assistantships may not obtain more than twelve credits, including thesis, in one semester.

### GRADES

Graduate student's work is graded in eight classes: A, B, C, D, Con.,\* Inc.,\* F, and Wd. The degree will not be conferred on any student who does not receive an average grade of B or higher in three-fourths of the hours 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.

### DEGREES

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

**CONFERRING OF DEGREES.** Candidates for advanced degrees are required to be present in the academic costume and hood appropriate for the degree, unless arrangements have been made in advance for the conferring of the degree *in absentia*. Application for this privilege should be made to the dean of the Division of Graduate Study. Degrees are conferred only at the end of the second semester and of Summer School. Candidates for degrees, except professional degrees, at the end of the second semester are required to be present at the exercises of baccalaureate Sunday also, unless excused by the Council of Deans.

### GENERAL REQUIREMENTS FOR THE DEGREES MASTER OF SCIENCE AND DOCTOR OF PHILOSOPHY

Candidates for the degrees Master of Science and Doctor of Philosophy are 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 necessarily will 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

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\* Penalty if not completed on time. See section headed Grades, under General Information.



department. The nature and distribution of the majors and minors (program of study) are approved by the Graduate Council, upon the recommendation of the major instructor and the head of the department (M.S.), or of the supervisory committee (Ph.D.).

The approved program of study is made the basis of the formal assignment to courses at the beginning of each semester and of the summer sessions.

Courses numbered in the two hundreds are open to both graduate and undergraduate students. For graduate credit in such courses, the student must do extra work, the nature and amount of which is determined by the instructor.

### REQUIREMENTS FOR THE DEGREE MASTER OF SCIENCE

Work leading to the degree Master of Science is offered in the following departments:

#### DIVISION OF AGRICULTURE

Agricultural Economics  
Agronomy  
Animal Husbandry  
Dairy Husbandry  
Horticulture  
Milling Industry  
Poultry Husbandry

English  
Entomology  
Geology  
History and Government  
Industrial Journalism and Printing  
Mathematics  
Modern Languages  
Physics  
Public Speaking  
Zoölogy

#### DIVISION OF ENGINEERING

Agricultural Engineering  
Applied Mechanics  
Architecture  
Civil Engineering  
Electrical Engineering  
Machine Design  
Mechanical Engineering  
Shop Practice and Industrial Arts

#### DIVISION OF HOME ECONOMICS

Art  
Child Welfare and Euthenics  
Clothing and Textiles  
Food Economics and Nutrition  
Home Economics Education  
Household Economics  
Institutional Economics

#### DIVISION OF GENERAL SCIENCE

Bacteriology  
Botany and Plant Pathology  
Chemistry  
Economics and Sociology  
Education

#### DIVISION OF VETERINARY MEDICINE

Anatomy and Physiology  
Pathology  
Surgery and Medicine

**RESIDENCE REQUIREMENTS.** Candidates for the degree 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 semester hours, including a thesis, must be satisfactorily completed.

**LANGUAGE REQUIREMENTS.** A reading knowledge of two modern foreign 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 major instructor and the head of the department. (See general requirements for the master's and doctor's degrees.)

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 dean of the Division of Graduate Study. (See College calendar for dates.)

A candidate for the master's degree is subject to a rigid oral examination covering the major and minor subjects and thesis by a committee consisting of the instructors with whom the major and minor work was taken, the head of the major department, the dean of the division in which the major work is offered, and a member of the Graduate Council as chairman.

**REQUIREMENTS FOR THE DEGREE DOCTOR OF PHILOSOPHY**

**DEPARTMENTS OFFERING MAJOR WORK.** Major work leading to the degree Doctor of Philosophy is offered in the following departments: Bacteriology, Chemistry, Entomology, and Milling Industry. Minor work for this degree may be chosen in the departments offering major work for the degree and in supporting fields in other departments offering graduate work.

**RESIDENCE AND CREDIT REQUIREMENTS.** At least three years (of nine months each) of graduate study beyond the bachelor's degree, equivalent to 90 semester credits including a thesis, are required of candidates for the degree Doctor of Philosophy. At least one year of this time must be spent in residence at this College.

**LANGUAGE REQUIREMENTS.** Each candidate for the degree Doctor of Philosophy must demonstrate to the head of the Department of Modern Languages, or to members of his staff designated by him, ability to read the literature of the major field in two modern foreign languages, to be designated by the supervisory committee. The language requirements shall be fulfilled before the preliminary examinations are taken.

**SUPERVISORY COMMITTEE.** For each student who contemplates working for the degree Doctor of Philosophy, a supervisory committee is chosen by the dean of the Division of Graduate Study. This committee, consisting of five members representing the major and minor fields, aids the student in the preparation of the program of study, which must be approved by the Graduate Council, and has charge of all examinations except the language examinations.

**MAJORS AND MINORS.** Approximately two-thirds of the graduate work (program of study) shall be in a major field and the remainder devoted to one or two minors. In exceptional cases, all of the graduate work may be chosen in one field. The work in the major field may be taken wholly within a department or it may include closely related courses and problems in other departments or divisions of the College. The same principle applies to the minor or minors. (See general requirements for the degrees Master of Science and Doctor of Philosophy.)

**PROGRAM OF STUDY AND EXAMINATIONS.** Students enrolling in graduate study leading to the degree Doctor of Philosophy work on a tentative program of study until approximately two-thirds of the program, including a substantial portion of the thesis, has been completed. Ordinarily at the close of the second year of graduate study and not later than the beginning of the year in which the student contemplates receiving the degree, the candidate must pass oral and written preliminary examinations over the entire field of study. When the student has passed the language examinations and the preliminary oral and written examinations, he is recommended by the supervisory committee to the Graduate Council for admission to candidacy for the degree Doctor of Philosophy. The program of study leading to the degree accompanies the recommendation.

On completion of the three years of graduate study as prescribed in the program of study and on submission of a thesis satisfactory to the supervisory committee, at least one month before commencement, the candidate is given the final examination.

**DOCTOR'S THESIS.** Early in the graduate work a thesis subject is chosen in the major field and approved by the supervisory committee. The finished thesis must constitute a contribution to knowledge, either presenting conclusions from new material, or interpreting previous knowledge in a new light. Two complete typewritten copies of the thesis approved by the supervisory committee shall be submitted to the dean of the Division of Graduate Study at least one month before commencement. On the completion of all requirements for the degree, one copy shall be placed on the shelves of the College library and the other filed with the head of the department in which the major work is taken.

Before the degree is conferred the candidate shall guarantee the printing of the doctor's thesis (wholly or in part as determined by the supervisory committee) within three years after the date of the conferring of the degree. This guarantee shall be either a statement from the editor of an appropriate technical serial or publishing company that the thesis has been accepted for publication or shall be in the form of a cash deposit of \$100 or a bond acceptable to the Graduate Council. If the thesis is not published in acceptable form within three years, the deposit or the bond shall be forfeited unless an extension of time is granted by the Graduate Council for delayed publication after acceptance. When the thesis has been published 125 copies shall be consigned to the College library.

### REQUIREMENTS FOR PROFESSIONAL DEGREES IN ENGINEERING AND ARCHITECTURE

A graduate in engineering or in architecture from this College will be granted the professional degree of Mechanical Engineer, Civil Engineer, Chemical Engineer, Electrical Engineer, Agricultural Engineer, Flour Mill Engineer, Architect, Architectural Engineer, or Landscape Architect, under the following conditions:

The candidate must submit a statement of his experience and a thesis covering some phase of his practice. The 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 State Board of Regents.

The 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 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.

The candidate for a professional degree shall present himself at the commencement exercises in academic costume in order that the degree may be conferred.

He shall pay a diploma fee of \$7.50 to the registrar not later than May 15.

### 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 dean of the Division of Graduate Study 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 *in absentia* on a *pro rata* basis, on the recommendation of a member of the graduate faculty and with the approval of the dean of the Division of Graduate Study.

## GRADUATE ASSISTANTS

In order to encourage graduates of this College and of similar institutions to continue their studies and to pursue advanced work leading to advanced degrees, the College has established graduate assistantships in several departments. These assistantships, which may be graduate assistantships, or graduate research assistantships, demand approximately one-half 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 study. No graduate assistant or graduate research assistant may receive more than twelve hours of graduate credit per semester nor satisfy the residence requirements in less than two semesters and one nine-week summer school.

Graduate assistantships, paying a salary fixed each year by the State Board of Regents, have been established as follows:

<i>Subject</i>	<i>Number</i>
Botany and Plant Pathology.....	1
Chemistry .....	4
Institutional Economics .....	2

Graduate research assistantships as listed below usually are maintained in the departments named. Occupants of these positions assist in the conduct of regular research work in the institution.

<i>Subject</i>	<i>Number</i>
Applied Mechanics .....	2
Electrical Engineering .....	1
Food Economics and Nutrition.....	2
Household Economics .....	1
Zoölogy .....	5

By satisfactorily completing eight credits of graduate work in the Nine-week Summer School, graduate assistants and graduate research assistants may meet the requirements for a master's degree within one calendar year.

Applications for all assistantships should be made annually by March 15 for the following academic year. Students desiring such appointments may obtain application blanks from the dean of the Division of Graduate Study.

## FELLOWSHIP

General Education Board (Rockefeller Foundation) Fellowship.

## GRADUATE LOAN

The Manhattan Branch of the American Association of University Women maintains a loan fund which is available to graduate women students enrolled in any department of the Kansas State College of Agriculture and Applied Science, recognized by the Graduate Council. Application for this loan shall be made to the chairman of the Graduate Loan Fund Committee of the Manhattan Branch of the American Association of University Women.

## 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 dean of the Division of Graduate Study, 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 dean of the Division of Graduate Study

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 bulletin concerning the work offered in the summer session may be obtained by addressing the Vice President, Kansas State College, Manhattan, Kan.

### 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.

### FEES AND EXPENSES

**TUITION.** There is no charge for tuition.

**MATRICULATION FEE.** A matriculation fee of \$7.50 for residents of Kansas, or \$15 for nonresidents, is charged all graduate students from other institutions. This fee is not charged a Summer School student, unless he is a candidate for a degree at the end of the session.

**INCIDENTAL FEE.** An incidental fee of \$18.75 a semester or \$15 for the nine-week summer term is charged residents of Kansas; nonresidents pay \$37 a semester or \$25 for the nine-week summer term. The incidental fee for the four-week summer term is \$7.50. The incidental fee for members of the College faculty, including graduate assistants and graduate research assistants, is prorated.

**STUDENT-HEALTH FEE.** Graduate students are excused from payment of the student-health fee and do not receive the benefits of the student-health service.

**STUDENT-ACTIVITY FEE.** Graduate students are not assessed the student-activity fee, but they are allowed the privilege of participating in the activity fee plan.

**LABORATORY FEES.** Laboratory fees, ranging from 50 cents to \$10 a semester, are charged graduate students in the various subjects. These are stated with the descriptions of the courses.

**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.

**COMMENCEMENT FEE.** Students receiving an advanced degree pay a commencement fee of \$7.50 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 and laboratory fees are payable at the beginning of each semester.

**ROOMS.** Rooms are not furnished by the College. They are readily obtained in the city at a cost of from \$6 to \$7 a month upward 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 from \$4 a week upward. 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.

For additional information address, Dean of the Division of Graduate Study, Kansas State College, Manhattan, Kan.

# The Division of Agriculture

LELAND EVERETT CALL, *Dean*

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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 products 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 College of Agriculture and Applied Science furnishes a means of acquiring systematic training in agriculture which fits young men adequately for the farm 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 the 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 agricultural training at this College are of a high order. The College owns 1,428.7 acres of land, which is used for investigation, instruction, and demonstration in the various courses in agriculture and allied branches. The campus, which comprises 155 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.

## 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 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 in regard to 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. The Summer School bulletin may be secured by addressing a request to the Vice President, Kansas State College, Manhattan, Kan.

### 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 milling industry.

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

A six-year curriculum in animal husbandry and veterinary medicine.

### 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

The curriculum in agriculture and the curriculum in agricultural administration have a common freshman year. It is not necessary until near the end of this freshman year that any student of agriculture state formally which of these curricula he will pursue.

Students selecting the curriculum in agriculture are not required until the second semester of the sophomore year to name the department in which they will major. A student may major not only in any department in the Division of Agriculture but also in the Departments of Botany and Plant Pathology, Entomology, Zoölogy, Bacteriology, Chemistry, or Agricultural Engineering. Liberal provision is also made for substitutions to meet definite and purposeful objectives. See "Substitutions to Meet Certain Objectives," following the outline of "Curriculum in 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 opportunities for men who by nature and training are adapted

to the work. The United States Department of Agriculture, the state colleges and departments of agriculture, high schools, private institutions of secondary and college rank, and a great variety of commercial interests, are constantly demanding men trained in agriculture.

The young man who expects to make farming his life work can start with no better asset than the thorough training in practical and scientific agriculture afforded by the four-year curriculum. The American farmer needs more of the skill that comes through the training of the hand, in order that he may better do the work of farming; but 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 how 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 to 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:

	<i>Semester credits</i>	
Prescribed in agriculture .....	31	
Electives in agriculture, required with the prerequisites.....	21	
Required in agriculture .....	—	52
Prescribed in nonagriculture .....	47	
Electives in nonagriculture, required.....	6	
Electives that may be nonagricultural.....	19	
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 school 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. For the field of agricultural education, field 6 as presented under "Electives" in the outline of the curriculum, these requirements may be classified as follows:

	<i>Semester credits</i>	
Prescribed in agriculture .....	25	
Elective in agriculture required with the prerequisites.....	27	
Required in agriculture .....	52	52
Prescribed in nonagriculture .....	38	
Electives in nonagriculture, required.....	15	
Electives that may be nonagricultural.....	19	
Total allowed in nonagriculture.....	72	
Required in military science.....	4	
Total semester credits for graduation.....	128	

For fields 1 to 5 the credits may be grouped as follows:

	<i>Semester credits</i>	
Prescribed in agriculture .....	25	
Electives in agriculture required with the prerequisites.....	30	
Required in agriculture .....	55	55
Prescribed in nonagriculture.....	38	
Electives in nonagriculture, required.....	15	
Electives that may be nonagricultural.....	16	
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. 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 are as follows: Psychology, Principles of Secondary Education, Educational

Psychology, Vocational Education, Methods of Teaching Agriculture, and Practice Teaching.

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, include the following courses or their equivalents:

	<i>Semester credits</i>
Minor electives .....	15
Principles of Secondary Education.....	3
Educational Psychology .....	3
Methods of Teaching Agriculture.....	3
Teaching Participation in Agriculture.....	3
Vocational Education .....	3
General electives .....	17
Gas Engines and Tractors.....	3
Farm Buildings .....	3
Farm Machinery .....	3
Farm Carpentry I .....	3
Farm Blacksmithing I.....	1
Farm Blacksmithing II.....	1
Farm Shop Methods .....	3
Total .....	32

### THE CURRICULUM IN MILLING INDUSTRY

The milling of wheat and other cereals is one of the major industries in this country and calls for men of the best training. While the milling of grains is probably the oldest of the mechanic arts, it is one of the last to find a place in the educational system. Only two colleges in the United States have curricula especially planned for students particularly interested in the milling industry.

The curriculum in milling industry is planned to meet the needs of students in three major fields of the industry: (1) Milling administration, (2) milling technology, and (3) milling chemistry. The first is related to the merchandising of the raw materials and manufactured products; the second to the management and operation of the mechanical equipment; the third to the testing and control of the products.

The curriculum requires 128 semester hours for graduation. The basic work calls for 65 hours, allowing 63 hours for electives. These electives are divided into majors and minors, the major electives for each of the three fields being hereafter listed. Considerable leeway is allowed in the selection of minors so as to better adapt the curriculum to the individual needs of the students.

### THE 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 increase, 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 employ-

ment 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	SECOND SEMESTER
College Rhetoric I, Engl. 101..... *3(3-0)	Gen. Geology, Geol. 103..... 3(3-0)
Gen. Botany I, Bot. 101..... 3(1-4, 2)	Gen. Botany II, Bot. 105..... 3(1-4, 2)
Gen. Chemistry, Chem. 110..... 5(3-6)	Gen. Org. Chemistry, Chem. 122.... 5(3-6)
El. of An. Husb., An. Husb. 125..... 3(2-4)or	El. of Dairying, Dairy Husb. 101.... 3(2-3)or
El. of Dairying, Dairy Husb. 101.... 3(2-3)	El. of An. Husb., An. Husb. 125..... 3(2-4)
Freshman Lect., Gen. Agric. 102.... 1(2-0)	Library Methods, Lib. Ec. 101..... 1(1-0)
Infantry I, Mil. Tr. 101A..... 1(0-3)	Infantry II, Mil. Tr. 102A..... 1(0-3)
Phys. Education M, Phys. Ed. 103.. R(0-2)	Phys. Education M, Phys. Ed. 104.. R(0-2)
Agric. Seminar, <sup>1</sup> Gen. Agric. 103.... R	Agric. Seminar, <sup>1</sup> Gen. Agric. 103.... R
Total..... 16	Total..... 16

#### SOPHOMORE

FIRST SEMESTER	SECOND SEMESTER <sup>2</sup>
El. of Horticulture, Hort. 107..... 3(2-3)	Prin. of Feeding, An. Husb. 152..... 3(3-0)
Agric. Economics, Agric. Ec. 101.... 3(3-0)	College Rhetoric II, Engl. 104..... 3(3-0)
Anat. and Physiol., Anat. 131..... 3(2-3)or	
Plant Physiology I <sup>3</sup> , Bot. 208..... 3(3-0)	
Soils, Agron. 130..... 4(3-3)or	Farm Crops, Agron. 101..... 4(2-6)or
Farm Crops, Agron. 101..... 4(2-6)	Soils, Agron. 130..... 4(3-3)
Farm Poul. Pro., Poul. Husb. 101.. 2(1-2, 1)	General Zoölogy, Zoöl. 105..... 5(3-6)
Infantry III, Mil. Tr. 103A..... 1(0-3)	Infantry IV, Mil. Tr. 104A..... 1(0-3)
Phys. Education M, Phys. Ed. 105.. R(0-2)	Phys. Education M, Phys. Ed. 106.. R(0-2)
Agric. Seminar, <sup>1</sup> Gen. Agric. 103.... R	Agric. Seminar, <sup>1</sup> Gen. Agric. 103.... R
Total..... 16	Total..... 16

#### JUNIOR

FIRST SEMESTER	SECOND SEMESTER
Genetics, An. Husb. 221..... 3(3-0)	Gen. Econ. Entomology, Ent. 203... 3(2-3)
Plant Pathology I, Bot. 205..... 3(1-4, 2)	Agric. Microbiology, Bact. 106..... 3(1-6)
Farm Organization, Agric. Ec. 106... 3(2-3)	Agric. Journalism, Ind. Jour. 160... 3(2-3)
Electives..... 7	Electives..... 7
Agric. Seminar, <sup>1</sup> Gen. Agric. 103.... R	Agric. Seminar, <sup>1</sup> 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, <sup>1</sup> Gen. Agric. 103.... R	Electives..... 16
Total..... 16	Agric. Seminar, <sup>1</sup> Gen. Agric. 103.... R
Total..... 16	Total..... 16

Number of hours required for graduation, 128.§

\* The number before the parenthesis indicates the number of hours of credit; the first number within the parenthesis 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.

§ Seniors must meet the graduation requirement in points as well as in hours. See section headed: The Point System.

**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: English, Education, Economics and Sociology, History and Government, Mathematics, Modern Languages.	
GENERAL ELECTIVES .....	19
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.

SUBSTITUTIONS TO MEET CERTAIN OBJECTIVES

Students desiring more definitely to prepare themselves for scientific or special work in the field of agriculture may, with the approval of the dean of the Division of Agriculture and the head of the department in which they expect to major, substitute courses in the Departments of Mathematics, Physics, Chemistry, Bacteriology, Entomology, Zoölogy, Botany and Plant Pathology, Education, Agricultural Engineering, Modern Languages, and other approved departments, in place of twenty-five credit hours in the curriculum in agriculture; provided, that no student may receive a degree in agriculture who does not have at least twenty-five credits in technical agriculture in not fewer than three departments.

**Curriculum in Agricultural Administration**

FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
College Rhetoric I, Engl. 101.....	3(3-0)	Gen. Geology, Geol. 103.....	3(3-0)
Gen. Botany I, Bot. 101.....	3(1-4, 2)	Gen. Botany II, Bot. 105.....	3(1-4, 2)
Gen. Chemistry, Chem. 110.....	5(3-6)	Gen. Org. Chemistry, Chem. 122.....	5(3-6)
El. of An. Husb., An. Husb. 125.....	3(2-4) <i>or</i>	El. of Dairying, Dairy Husb. 101.....	3(2-3) <i>or</i>
El. of Dairying, Dairy Husb. 101.....	3(2-3)	El. of An. Husb., An. Husb. 125.....	3(2-4)
Freshmen Lect., Gen. Agric. 102.....	1(2-0)	Library Methods, Lib. Ec. 101.....	1(1-0)
Infantry I, Mil. Tr. 101A.....	1(0-3)	Infantry II, Mil. Tr. 102A.....	1(0-3)
Phys. Education M, Phys. Ed. 103..	R(0-2)	Phys. Education M, Phys. Ed. 104..	R(0-2)
Agric. Seminar,* Gen. Agric. 103....	R	Agric. Seminar,* Gen. Agric. 103....	R
Total.....	16	Total.....	16

SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
General Psychology, Educ. 184.....	3(3-0)	El. of Hort., Hort. 107.....	3(2-3)
Agric. Economics, Agric. Ec. 101.....	3(3-0)	Feeding L. S., An. Husb. 172.....	3(3-0)
College Algebra A, Math. 107.....	5(5-0)	College Rhetoric II, Engl. 104.....	3(3-0)
Soils, Agron. 130.....	4(3-3) <i>or</i>	Soils, Agron. 130.....	4(3-3) <i>or</i>
Farm Crops, Agron. 101.....	4(2-6)	Farm Crops, Agron. 101.....	4(2-6)
Infantry III, Mil. Tr. 103A.....	1(0-3)	Farm Poul. Pro., Poul. Husb. 101..	2(1-2, 1)
Phys. Education M, Phys. Ed. 105..	R(0-2)	Infantry IV, Mil. Tr. 104A.....	1(0-3)
Agric. Seminar,* Gen. Agric. 103....	R	Phys. Education M, Phys. Ed. 106..	R(0-2)
Total.....	16	Agric. Seminar,* Gen. Agric. 103....	R
Total.....	16	Total.....	16

\* Four meetings each semester.

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Agric. Journalism, Ind. Jour. 160....	3(2-3)	Agric. Seminar,* Gen. Agric. 103....	R
Agric. Seminar,* Gen. Agric. 103....	R	Electives.....	16
Electives.....	13		
Total.....	16	Total.....	16

SENIOR

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

Number of 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.....	16	19
Total.....	61	61

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.

Curriculum in Milling Industry

FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
Prin. of Mill. I, Mill. Ind. 104.....	2(1-3)	Prin. of Mill. II, Mill Ind. 106.....	1(0-3)
College Rhetoric I, Engl. 101.....	3(3-0)	College Rhetoric II, Engl. 104.....	3(3-0)
College Algebra, Math. 104.....	3(3-0)	Plane Trigonometry, Math. 101.....	3(3-0)
Gen. Chemistry, Chem. 110.....	5(3-6)	Gen. Organic Chem., Chem. 122.....	5(3-6)
Freshmen Lects., Gen. Agric. 102....	1(2-0)	Engr. Drawing, Mach. Des. 101.....	2(0-6)
Library Methods, Lib. Ec. 101.....	1(1-0)	Current History, Hist. 126.....	1(1-0)
Infantry I, Mil. Tr. 101A.....	1(0-3)	Infantry II, Mil. Tr. 102A.....	1(0-3)
Phys. Education M, Phys. Ed. 103... R(0-2)		Phys. Education M, Phys. Ed. 104... R(0-2)	
Milling Seminar <sup>1</sup> .....	R	Milling Seminar <sup>1</sup> .....	R
Agric. Seminar, <sup>2</sup> Gen. Agric. 103....	R	Agric. Seminar, <sup>3</sup> Gen. Agric. 103....	R
Total.....	16	Total.....	16

\* Four meetings each semester.

1. Two meetings each month.

2. Four meetings each month.

SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
Milling Practice I, Mill. Ind. 109....	3(1-6)	Milling Practice II, Mill. Ind. 111....	3(1-6)
Gen. Physics I, Phys. 135.....	4(3-3)	Gen. Physics II, Phys. 140.....	4(3-3)
Gen. Botany I, Bot. 101.....	3(1-4, 2)	Gen. Botany II, Bot. 105.....	3(1-4, 2)
Infantry III, Mil. Tr. 103A.....	1(0-3)	Infantry IV, Mil. Tr. 104A.....	1(0-3)
Phys. Education M, Phys. Ed. 105..	R(0-2)	Phys. Education M, Phys. Ed. 106...	R(0-2)
Milling Seminar <sup>1</sup> .....	R	Milling Seminar <sup>1</sup> .....	R
Agric. Seminar, <sup>2</sup> Gen. Agric. 103....	R	Agric. Seminar, <sup>2</sup> Gen. Agric. 103....	R
Elective <sup>3</sup> .....	5	Elective <sup>3</sup> .....	5
<hr/>		<hr/>	
Total.....	16	Total.....	16

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Milling Entomology, Ent. 116.....	1(1-0)	Mill. Qual. of Wheat, Mill. Ind. 212..	3(3-0)
Farm Crops Lab., Agron. 101.....	2(0-6)	Grain Grad. and Judg., Agron. 108..	2(0-6)
Agric. Economics, Agric. Ec. 101....	3(3-0)	Milling Seminar <sup>1</sup> .....	R
Milling Seminar <sup>1</sup> .....	R	Agric. Seminar, <sup>2</sup> Gen. Agric. 103....	R
Agric. Seminar, <sup>2</sup> Gen. Agric. 103....	R	Elective <sup>3</sup> .....	11
Elective <sup>3</sup> .....	10	<hr/>	
<hr/>		Total.....	16
Total.....	16		

SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Milling Seminar <sup>1</sup> .....	R	Milling Seminar <sup>1</sup> .....	R
Agric. Seminar, <sup>2</sup> Gen. Agric. 103....	R	Agric. Seminar, <sup>2</sup> Gen. Agric. 103....	R
Elective <sup>3</sup> .....	16	Agric. Relationships, Gen. Agric. 105,	R
<hr/>		Elective <sup>3</sup> .....	16
Total.....	16	<hr/>	
		Total.....	16

Number of hours required for graduation: 128—basic courses, 65 hours, elective courses, 63 hours.

Electives for Students in Milling Administration

MAJOR ELECTIVES

General Psychology, Educ. 184.....	3(3-0)	Grain Marketing, Agric. Ec. 203....	3(3-0)
Extempore Speech I, Pub. Spk. 106..	2(2-0)	Money and Banking, Econ. 116.....	3(3-0)
Extempore Speech II, Pub. Spk. 108..	2(2-0)	Business Law I, Hist. 163.....	3(3-0)
Com'l. Correspondence, Engl. 122...	3(3-0)	Business Law II, Hist. 164.....	3(3-0)
Writ. & Oral Salesmanship, Engl. 123,	3(3-0)	Prin. of Advertising, Ind. Jour. 178..	4(4-0)
Accounting I, Econ. 133.....	3(2-3)	Business Finance, Econ. 217.....	3(3-0)
Accounting II, Econ. 134.....	3(2-3)	<hr/>	
Mktg. of Farm Prod., Agric. Ec. 202..	3(3-0)	Total.....	41

MINOR ELECTIVES: A total of 22 hours of minor electives complete the work of the curriculum.

Electives for Students in Milling Technology

MAJOR ELECTIVES

Plane Anal. Geometry, Math. 110...	4(4-0)	Str. of Mat. E, Ap. Mech. 216.....	3(3-0)
Calculus I, Math. 205.....	5(5-0)	Flour Mill Const., Mill. Ind. 203....	3(0-9)
Calculus II, Math. 206.....	3(3-0)	Steam & Gas Engineering C,	
Applied Mechanics, Ap. Mech. 202...	4(4-0)	Mech. Engr. 120, 125.....	3(2-3)
Des. Geom., Mach. Des. 106.....	2(0-6)	Elec. Engr. C, Elect. Engr. 102, 106..	3(2-2, 1)
Mechanism, Mach. Des. 121.....	3(3-0)	Engr. Woodwork, Shop 101.....	1(0-3)
Mach. Drawing I, Mach. Des. 111...	2(0-6)	<hr/>	
Mill. Tech. I, Mill. Ind. 201.....	2(0-6)	Total.....	40
Mill. Tech. II, Mill. Ind. 202.....	2(0-6)		

MINOR ELECTIVES: A total of 22 hours of minor electives complete the work of the curriculum.

1. Two meetings each month.
2. Four meetings each semester.
3. Major electives may be in milling administration, milling technology, or milling chemistry. These groups of electives are listed below. Minor electives are flexible and are intended to give leeway to adapt the curriculum to individual needs. Minor electives must be officially approved before assignment by the dean of the Division of Agriculture and the head of the Department of Milling Industry.

**Electives for Students in Milling Chemistry**

**MAJOR ELECTIVES**

Chemistry II, Chem. 102.....	5(3-6)	Chemistry of Proteins, Chem. 236A..	3(2-3)
Plane Anal. Geometry, Math. 110...	4(4-0)	Experimental Baking, Mill. Ind. 206,	3(1-6)
Calculus I, Math. 205.....	5(5-0)	Colloidal Chemistry, Chem. 213.....	2(2-0)
Physiological Chemistry, Chem. 231,	5(3-6)	Adv. Wheat & Flour Testing,	
Quan. Analysis A, Chem. 250.....	3(1-6)	Mill. Ind. 210.....	2(0-6)
Quan. Analysis B, Chem. 251.....	3(1-6)	Chemical Microscopy, Chem. 245....	1(0-3)
Prin. Animal Nutr., Chem. 230.....	3(3-0)		
Wheat & Flour Test., Mill. Ind. 205..	3(0-9)		
Physical Chemistry I, Chem. 206....	5(3-6)		
		Total.....	47

MINOR ELECTIVES: A total of 16 hours of minor electives complete the work of the curriculum.

**Curriculum in Agriculture, With Special Training in Landscape Gardening**

**FRESHMAN**

**FIRST SEMESTER**

College Rhetoric I, Engl. 101.....	3(3-0)
Gen. Botany I, Bot. 101.....	3(1-4, 2)
Gen. Chemistry, Chem. 110.....	5(3-6)
Engr. Draw., Mach. Des. 101.....	2(0-6)
Library Methods, Lib. Ec. 101.....	1(1-0)
Freshman Lect., Gen. Agric. 102....	1(2-0)
Infantry I, Mil. Tr. 101A (men)....	1(0-3)
Phys. Education M, Phys. Ed. 103..	R(0-2)or
Phys. Education W, Phys. Ed. 151A.	R(0-3)
Agric. Seminar,* Gen. Agric. 103....	R

**SECOND SEMESTER**

College Rhetoric II, Engl. 104.....	3(3-0)
Gen. Botany II, Bot. 105.....	3(1-4, 2)
Gen. Org. Chemistry, Chem. 122....	5(3-6)
Domestic Arch., Arch. 124.....	2(2-0)
Gen. Geology, Geol. 103.....	3(3-0)
Infantry II, Mil. Tr. 102A (men)....	1(0-3)
Phys. Education M, Phys. Ed. 104... R	(0-2)or
Phys. Education W, Phys. Ed. 152A,	R(0-3)
Agric. Seminar,* Gen. Agric. 103....	R

Total (men).....	16
Total (women).....	15

Total (men).....	17
Total (women).....	16

**SOPHOMORE**

**FIRST SEMESTER**

Object Draw. I, Arch. 111.....	2(0-6)
Agric. Economics, Agric. Ec. 101....	3(3-0)
Silviculture, Hort. 119.....	3(2-3)
Soils, Agron. 130.....	4(3-3)
Landscape Gardening I, Hort. 125... 3	(3-0)
Infantry III, Mil. Tr. 103A (men)....	1(0-3)
Phys. Education M, Phys. Ed. 105..	R(0-2)or
Phys. Education W, Phys. Ed. 153..	R(0-3)
Agric. Seminar,* Gen. Agric. 103....	R

**SECOND SEMESTER**

Object Drawing II, Arch. 114.....	2(0-6)
Plane Trigonometry, Math. 101.....	3(3-0)
Ext. Speech I, Pub. Spk. 106.....	2(2-0)
El. of Horticulture, Hort. 107.....	3(2-3)
Agric. Journalism, Ind. Jour. 160....	3(2-3)
Physiographic Geol., Geol. 110.....	3(3-0)
Infantry IV, Mil. Tr. 104A (men)....	1(0-3)
Phys. Education M, Phys. Ed. 106..	R(0-2)or
Phys. Education W, Phys. Ed. 154..	R(0-3)
Agric. Seminar,* Gen. Agric. 103....	R

Total (men).....	16
Total (women).....	15

Total (men).....	17
Total (women).....	16

**JUNIOR**

**FIRST SEMESTER**

Plant Materials I, Hort. 224.....	3(2-3)
Pencil Rend. & Sketch., Arch. 116... 2	(0-6)
Surveying I, Civ. Engr. 102.....	2(0-6)
Theory of Lands. Design, Hort. 243..	2(2-0)
Greenhouse Con. & Mgt., Hort. 128... 3	(3-0)
Taxo. Bot. of Fl. Plants, Bot. 225....	3(1-4, 2)
Agric. Seminar,* Gen. Agric. 103....	R

**SECOND SEMESTER**

Plant Materials II, Hort. 226.....	3(2-3)
Water Color I, Arch. 118.....	2(0-6)
Surveying III, Civ. Engr. 151, 155... 3	(2-3)
Gen. Econ. Entomo., Ent. 203.....	3(2-3)
Gen. Hist. of Arch., Arch. 244.....	3(3-0)
Horticultural Probs., Hort. 244.....	2(0-0)
Agric. Seminar,* Gen. Agric. 103....	R

Total.....	15
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Total.....	16
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**SENIOR**

**FIRST SEMESTER**

Landscape Gard. II, Hort. 238.....	3(1-6)
Landscape Constr., Hort. 227.....	3(2-3)
Plant Physiology I, Bot. 208.....	3(3-0)
Plant Pathology I, Bot. 205.....	3(1-4, 2)
Horticultural Probs., Hort. 244.....	2(0-0)
Electives <sup>1</sup> .....	2
Agric. Seminar,* Gen. Agric. 103....	R

**SECOND SEMESTER**

Agric. Relationships, Gen. Agric. 105,	R(1-0)
Civic Art, Hort. 223.....	3(1-6)
Landscape Gard. III, Hort. 246.....	3(1-6)
Spraying, Hort. 207.....	3(2-3)
Plant Ecology, Bot. 228.....	2(2-0)
Horticultural Probs., Hort. 244.....	2(0-0)
Electives <sup>1</sup> .....	3
Agric. Seminar,* Gen. Agric. 103....	R

Total.....	16
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Total.....	16
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Number of hours required for graduation: Men, 129; women, 125.

\* Four meetings each semester.

1. 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.

## 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

Industrial Writing.....	2(2-0)	Principles of Advertising.....	4(4-0)
Editorial Practice.....	2(2-0)	Copy Reading.....	2(0-6)
Industrial Feature Writing.....	2(2-0)	History and Ethics of Journalism....	3(3-0)
The Rural Press.....	2(2-0)	Journalism Surveys.....	2(0-6)

## Agricultural Economics

Professor GRIMES  
 Professor GREEN  
 Associate Professor EVANS  
 Associate Professor HOWE

Assistant Professor HODGES  
 Assistant Professor HENNEY  
 Assistant Professor MONTGOMERY

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 for 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 \$3,476.†

### 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. Montgomery.  
 Economic principles as they relate to agriculture.

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

\* The number before the parenthesis indicates the number of hours of credit; the first number within the parenthesis 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, 1933.

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



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 and Mr. Hodges.

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, Mr. Henney, and Mr. Montgomery.

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.

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. 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 and Mr. Hodges.

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

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

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.

240. PRINCIPLES OF COÖPERATION. 3(3-0); II. Prerequisite: Ag. Ec. 101. Dr. Grimes and Mr. Montgomery.

A study of the principles underlying coöperative endeavor. Experiences of coöperative associations of farmers are used as illustrative material.

251. MARKETING OF DAIRY PRODUCTS. 3(3-0); I. Prerequisite: Ag., Ec. 202. Mr. Montgomery.

Principles underlying the marketing of dairy products, factors affecting prices, and the function of dairy marketing organizations.

270. AGRICULTURAL ECONOMIC PROBLEMS. 1 to 4 hours; 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, Mr. Henney, and Mr. Montgomery.

#### FOR GRADUATE CREDIT

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

Individual research problems in the marketing of farm products, coöperation among farmers, farmer movements, land problems, taxation, tenancy, agricultural 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. Prerequisite: Ag. Ec. 101 or equivalent. 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. Prerequisite: Ag. Ec. 101 or equivalent. Dr. Grimes.

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

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## Agronomy

Professor THROCKMORTON  
 Professor PARKER  
 Professor ALDOUS  
 Professor DULEY  
 Professor LAUDE  
 Associate Professor ZAHNLEY

Assistant Professor DAVIS  
 Assistant Professor CLAPP  
 Assistant Professor TIMMONS  
 Assistant Professor MYERS  
 Assistant Professor METZGER  
 Seed Analyst HARLING

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 \$28,118.

## 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, \$3.50.

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, \$1.

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, corn, oats, barley, rye, buckwheat, flax, rice, alfalfa, clover, soybeans, cowpeas, field beans, and grain sorghums. Charge, \$3.

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.

### 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.

*Laboratory.*—A study of heritable characters in crop plants and of laboratory, greenhouse, and field methods of plant breeding. Charge, \$1.

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, soybeans, 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. Laude.

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, \$1.

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.

Distribution, forage value, and grazing management of tame and native pasture plants; principal poisonous plants, their distribution and methods to use in eliminating losses; and the importance of tame and native pastures.

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 1932-'33 and alternate years thereafter.

209. GENETICS SEMINAR. 1(1-0); I and II. 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. Prerequisites: Agron. 101 and 130. Dr. Parker, Mr. Aldous, Mr. Laude, and Mr. Zahnley.

Special problems chosen or assigned; written report upon completion of problems; credit varies with amount and quality of work done. Deposit, \$4.

211. CROP ECOLOGY. 2(2-0); II. Prerequisite: Agron. 101. Mr. Laude.

Distribution of farm crops with special reference to the soil, climatic, 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.

213. SPECIAL CROPS. 2(2-0); II. Prerequisite: Agron. 101. Offered in 1931-'32, and alternate years thereafter. 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. RESEARCH IN CROPS. 1 to 10 credits; I, II, and SS. Prerequisites depend upon the problem selected. Dr. Parker, Mr. Aldous, Mr. Laude, and Mr. Zahnley.

Special problems chosen or assigned, resulting data being available for master's thesis. Deposit, \$4.

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, Mr. Myers, and Dr. Metzger.

Fundamental principles underlying the management of soils. Charge, \$3.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

231. DRY-LAND FARMING. 2(2-0); I. Prerequisite: Agron. 130. Mr. Myers. 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, \$3.50.

234. DEVELOPMENT AND CLASSIFICATION OF SOILS. 2(2-0); II. Prerequisite: Agron. 130. Dr. Metzger.

A study of the influence of soil-forming agencies on soil characteristics and their relationship to soil classification.

236. SOIL PROBLEMS. 1(0-3) to 4(0-12); I, II, and SS. Prerequisites depend on problem assigned. Mr. Throckmorton, Dr. Duley, Mr. Myers, and Dr. Metzger.

Special problems in soils, chosen or assigned. Deposit, \$4.

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. Mr. Myers.

Chemical laws, plant physiology, and ecological factors applied to soil problems in relation to crop production.

#### FOR GRADUATE CREDIT

331. RESEARCH IN SOILS. 1 to 10 credits; I, II, and SS. Prerequisites: Agron. 130 and Chem. 250. Mr. Throckmorton, Dr. Duley, Mr. Myers and Dr. Metzger.

Special soil problems, which may extend throughout the year and furnish data for a master's thesis. Charge, \$4.

## Animal Husbandry

Professor McCAMPBELL  
Professor WEBER  
Professor BELL  
Professor IBSEN

Associate Professor AUBEL  
Assistant Professor MACKINTOSH  
Assistant Professor COX  
Instructor CONNELL

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 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 \$31,323. This includes live stock having a value of \$24,958.

### COURSES IN ANIMAL HUSBANDRY

#### FOR UNDERGRADUATE CREDIT

125. ELEMENTS OF ANIMAL HUSBANDRY. 3(2-4); I and II. Mr. Bell, Mr. Aubel, Mr. Cox, and Mr. Connell.

A general survey of the field of animal husbandry with special emphasis on the relation of live stock to agriculture in general. Type, conformation, quality, character, and breed characteristics in animals are stressed in the laboratory. Charge, 50 cents.

140. ADVANCED STOCK JUDGING I. 2(0-6); I. Prerequisite: An. Husb. 125. 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. 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. Open only to students enrolled in the Curriculum in Agriculture. Mr. Cox.

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.

156. BEEF-CATTLE PRODUCTION. 2(2-0); II. Prerequisite: An. Husb. 152 or 172. Mr. Weber.

Economical methods of producing beef cattle.

159. SWINE PRODUCTION. 2(2-0); II. Prerequisite: An. Husb. 152 or 172. Mr. Aubel.

Economical methods of producing swine.

162. SHEEP PRODUCTION. 2(2-0); I. Prerequisite: An. Husb. 152 or 172. Mr. Cox.

Economical methods of producing sheep.

165. HORSE PRODUCTION. 2(2-0); I. Prerequisite: An. Husb. 152 or 172. Mr. Mackintosh.

Economical methods of producing horses.

167. MEATS. 2(1-3); II. Prerequisites: An. Husb. 125, and 152 or 172. Mr. Mackintosh.

Killing and dressing, cutting, curing, judging, and selecting meats. Charge, \$1.

171. LIVE-STOCK PRODUCTION. 3(3-0); I. Prerequisite: An. Husb. 152 or 172. Open only to juniors and seniors not majoring in animal husbandry. Mr. Cox.

Practical insight into the production of beef cattle, horses, swine, and sheep.

172. FEEDING LIVE STOCK. 3(3-0); II and SS. Prerequisite: Chem. 122 or its equivalent. Open only to students not enrolled in the Curriculum in Agriculture. Mr. Bell.

A practical study of the processes of digestion and assimilation, the feed requirements of different animals, the relative feeding value of different feeds, and methods of calculating rations.

176. MEATS HE. 1(0-3); I and II. For juniors and seniors in home economics. Prerequisite: Food and Nutr. 106. Mr. Mackintosh.

The selection, cutting and curing of meats; particular attention to grading of carcasses and uses of the various cuts of meats. At least one field trip required. Charge, \$1.

184. BREED STUDIES. 2(2-0); I. Prerequisite: An. Husb. 125. 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.

186. ANIMAL HUSBANDRY PRACTICUMS. 2(0-6); II. Mr. Weber, Mr. Aubel, Mr. Mackintosh, and Mr. Cox.

A course designed to give students information relative to, and experience in, the manual phases of live-stock management.

189. FEEDS AND FEEDING. 3(3-0); II. Prerequisites: Chem. 122 and Anat. 222. Open only to students enrolled in the curriculum in Veterinary Medicine. Mr. Connell.

This course includes a résumé of digestion and nutrition but deals primarily with the practical phases of feeding different classes of live stock.

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.

224. ANIMAL BREEDING. 2(2-0); 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(1-0); I and II. Prerequisites: Consult instructors. Dr. Nabours, Dr. Ibsen, Dr. Parker, Dr. Warren, and Dr. Brunson.

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. 185. Mr. Mackintosh.

Pedigrees and prepotency and 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. Weber.

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(1-0); II. Open only to seniors and graduate students majoring in animal husbandry. Prerequisite: An. Husb. 152. Mr. Weber.

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. Prerequisites: An. Husb. 184 and 224; senior or graduate standing. Dr. McCampbell.

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. LIVE-STOCK AND MEAT INDUSTRY. 3(3-0); II. Prerequisites: An. Husb. 125 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.

274. **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 percentages of meat animals; and identification of meats from different animals.

290. **PROBLEMS IN TRAINING AGRICULTURAL JUDGING TEAMS.** Class, 2 hours daily; 2 credits. 2d SS. Prerequisites: An. Husb. 125, Agron. 101, Poultr. Husb. 101, Dairy Husb. 101, one year's teaching experience. Mr. Bell in charge, coöperating with Mr. Zahnley, Mr. Scott, Mr. Cave, and Mr. Davidson.

A seminar course in problems involved in training agriculture judging teams in animal husbandry, agronomy, poultry husbandry, and dairy husbandry. Practice in each field is a part of the course.

#### 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 and other members of the department.

Special problems in beef-cattle production, swine production, sheep production, horse production, pure-bred live-stock production, and genetics.

305. **ANIMAL NUTRITION SEMINAR.** 1(1-0); I and II. Prerequisite: Consult instructor. Dr. McCampbell.

Study and criticism of experimental work in animal nutrition, of the methods employed, and of the validity of conclusions drawn.

311. **THE WOOL INDUSTRY.** 3(2-3); II. Prerequisite: An. Husb. 161. Mr. Cox.

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

Associate Professor RIDDELL  
Assistant Professor CAULFIELD

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 herd is now housed in a new dairy barn with up-to-date equipment for housing dairy cattle.

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 com-



panies or in business for themselves. The dairy industry is expanding in Kansas, and this is bringing a greater demand for men with experience and knowledge of dairying.

The instruction in the Department of Dairy Husbandry includes the study of the selection and breeding of dairy animals, the production of milk, its manufacture into butter, cheese, and other dairy products, and its sale on the market. The success of the instruction in judging dairy animals may be assumed from the fact that in fourteen national contests the Kansas team has averaged better than third place.

In judging dairy products, teams from this college in the last four years have been first once, second twice, and seventh once, in the Students' National Contest in Judging Dairy Products.

This department owns equipment valued at \$33,778. This figure includes live stock to the value of \$14,675.

## COURSES IN DAIRY HUSBANDRY

### FOR UNDERGRADUATE CREDIT

101. ELEMENTS OF DAIRYING. 3(2-3); I and II. Mr. Cave, Mr. Martin, Mr. Riddell, and Mr. Caulfield.

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; the use of the lactometer; and butter making on the farm.

*Laboratory.*—A brief study of the methods used in the selection of dairy cattle, the production and manufacture of dairy products, and the common tests used in connection with dairy products. Charge, \$2.50.

104. DAIRY CATTLE JUDGING. 1(0-3); I and II. Mr. Riddell and Mr. Cave. Judging dairy stock from the standpoint of economical production and breed type.

106. DAIRY INSPECTION I. 2(1-3); I. Prerequisite: 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.

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.

*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. To be taught concurrently with Bact. 235. Charge, \$3.

116A. MARKET MILK. 3(2-3); II. Prerequisites: Dairy Husb. 101 and Bact. 211. Mr. Martin.

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.

*Laboratory.*—Actual practice in all the steps in the production of market milk and cream in the College milk plant. Charge, \$3.

119. DAIRY INSPECTION II. 2(1-3); II. Mr. Caulfield and Mr. Riddell.

The composition and properties of milk; principles and practices of clean milk production on the farm; study of suitable state and city ordinances governing the handling and sale of milk and dairy products.

*Laboratory.*—The testing of milk and dairy products; quality tests; preparation and testing of chemical disinfectants; the inspection and scoring of dairy farms and milk plants. Charge, \$3.

120. ADVANCED DAIRY CATTLE JUDGING. 1(0-3); II. Mr. Cave.

Continuation of Dairy Husb. 104; visits to the best farms of the state; opportunity to judge stock kept by the most successful breeders.

127. CONDENSED AND POWDERED MILK. 2(1-3); I. Prerequisites: Dairy Husb. 116 and Bact. 211. Offered in 1933-'34, and alternate years thereafter. Mr. Martin.

The history of milk condensing, methods of manufacture, condensing machinery, and the powdered-milk industry.

*Laboratory.*—Condensing milk in the college plant. Charge, \$3.

130. ICE CREAM MAKING. 3(2-3); II. Prerequisites: Dairy Husb. 106 and 116. Offered in 1932-'33, and alternate years thereafter. Mr. Martin and Mr. Caulfield.

A thorough study of the science and practice of the commercial manufacture of ice cream and ices.

*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. Offered in 1933-'34, and alternate years thereafter. 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.

140. DAIRY PRODUCTS JUDGING. 1(0-3); I. Prerequisite: Dairy Husb. 101. Mr. Martin.

Inspection of dairy products for quality; score card grading of ice cream, butter, cheese, and market milk; practice judging in preparing for the dairy products judging team. Charge, \$2.

#### 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. Charge, \$1.

212. DAIRY CATTLE BREEDING AND SELECTION. 2(1-3); I. Prerequisite: Dairy Husb. 108. Offered in 1933-'34, and alternate years thereafter. Mr. Riddell.

An advanced course giving consideration to (1) the history and development of the different breeds and families of dairy cattle; (2) reproduction; (3) inheritance of milk secretion; (4) bull indexes; (5) age correction factors; (6) selection of the herd sire; (7) systems of breeding.

*Laboratory.*—Brief study of the herd books of different dairy breeds and practice in pedigree writing and analysis; practice judging on the basis of type, pedigree, and production standard.

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 and Mr. Caulfield.

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. Offered in 1932-'33, and alternate years thereafter. Mr. Martin.

An advanced course in creamery management for students specializing in dairy manufacturing.

#### FOR GRADUATE CREDIT

301. RESEARCH IN DAIRY HUSBANDRY. 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.

305. ANIMAL NUTRITION SEMINAR. 1(1-0); I and II. Prerequisite: Consult instructors. Mr. Fitch and Mr. Riddell.

Study and criticism of experimental work in animal nutrition, of the methods employed, and of the validity of conclusions drawn.

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## General Agriculture

Dean CALL  
Assistant Dean DURHAM

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. Charge, 75 cents.

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 BARNETT  
 Professor QUINLAN  
 Associate Professor PICKETT

Associate Professor BALCH  
 Assistant Professor FILINGER  
 Assistant Professor REITZ

Instruction offered in the Department of Horticulture covers pomology, vegetable gardening, greenhouse practice, forestry, and landscape gardening.

The horticultural farm consists of eighty acres of land devoted exclusively to work in horticulture and forestry. 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 the 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 in Agriculture With Special Training in Landscape Gardening.")

The value of the equipment belonging to this department is \$6,523.

### COURSES IN HORTICULTURE

#### FOR UNDERGRADUATE CREDIT

105. SYSTEMATIC POMOLOGY. 4(2-6); I. Prerequisite: Hort. 107. Dr. Filinger.

Technical study of fruit varieties, including varietal relationships; principles underlying pomological nomenclature, variety description, and artificial and natural systems of variety classifications.

*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, Dr. Filinger, 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.

*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. Dr. Filinger.

Growing, harvesting, and marketing small fruits; management of home and commercial plantations.

114. FARM FORESTRY. 3(2-3); I. Prerequisite: Bot. 105. Mr. Pickett.

A study of the growing of forest trees on the farm; methods of planting, care, and harvesting; utilization of woodlot products; value of windbreaks and shelterbelts, their establishment and management. Charge, \$1.

119. SILVICULTURE. 3(2-3); I. Prerequisite: Bot. 105. Mr. Pickett.

A study of the influence of site factors on forest trees; theory and practice of germination, seeding and planting of forest trees in the nursery and in the field. Charge, \$1.

125. LANDSCAPE GARDENING I. 3(3-0); I and SS. Mr. Quinlan.

An introductory course in the fundamental principles of landscape gardening.

128. GREENHOUSE CONSTRUCTION AND MANAGEMENT. 3(3-0); I. Mr. Balch.

Principles of greenhouse construction and methods of greenhouse management; conservatories and commercial greenhouses.

129. FLORAL ARRANGEMENT. 2(1-3); I. Mr. Balch.

The use of flowers and floral pieces for the home and the store.

*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.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. PRACTICAL POMOLOGY. 3(2-3); II. Prerequisite: Hort. 105. Dr. Filinger.

Fruit geography, orchard locations, financing the orchard, orchard equipment, orchard economies, 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. Offered in 1931-'32, and alternate years thereafter. Mr. Barnett.

The geography and methods of production of the principal subtropical fruits grown in the United States. Lectures and assigned readings.

205. ADVANCED POMOLOGY. 3(2-3); I. Prerequisite: Hort. 105. Mr. Pickett.

A course on the fundamentals of orcharding.

*Laboratory.*—Advanced apple judging; production and marketing studies. Charge, \$1.

207. SPRAYING. 3(2-3); II. Prerequisite: Chem. 110. Mr. Pickett and Dr. Filinger.

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.

208. LITERATURE OF HORTICULTURE. 2(2-0); II. Prerequisite: Hort. 105. Offered in 1933-'34, and alternate years thereafter. Dr. Filinger.

Books, journals, and serials relating to horticulture are reviewed and classified; biographies of leading horticulturists are studied, and bibliographies are prepared.

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 costs per acre of growing various garden crops; harvesting, storing, and marketing vegetables.

*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.

223. CIVIC ART. 3(1-6); II. Prerequisite: Hort. 243. Offered in 1931-'32, and alternate years thereafter. 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.

224. PLANT MATERIALS I. 3(2-3); I. Prerequisite: Bot. 105. Mr. Quinlan.

Study and identification of perennials and annuals for general ornamental planting; planting plans.

226. PLANT MATERIALS II. 3(2-3); II. Prerequisite: Hort. 224. Mr. Quinlan.

Study and identification of trees, shrubs, and vines for general ornamental planting. Planting plans, sketches, and written reports are required.

227. **LANDSCAPE CONSTRUCTION.** 3(2-3); I. Prerequisite: Civil Engr. 111. Offered in 1932-'33, and alternate years thereafter. 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. Charge, \$1.

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.

243. **THEORY OF LANDSCAPE DESIGN.** 2(2-0); I. Prerequisite: Hort. 125. Offered in 1933-'34, and alternate years thereafter. Mr. Quinlan.

The economic and æsthetic theory of design; taste, character, historic styles, composition; natural elements in design; and planting design.

244. **HORTICULTURAL PROBLEMS.** 1 to 6 credits; I, II, and SS. Prerequisites: Consult instructor. Mr. Barnett, Mr. Quinlan, Mr. Pickett, Mr. Balch, and Dr. Filinger.

Investigations in pomology, olericulture, floriculture or landscape gardening are undertaken by advanced or graduate students. Conferences and reports required.

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

301. **RESEARCH IN HORTICULTURE.** 1 to 10 credits; I, II, and SS. Prerequisites: Consult instructor. Mr. Barnett, Mr. Balch, Mr. Pickett, Mr. Quinlan, and Dr. Filinger.

Any feasible problem relating to the student's major line of graduate study—pomology, olericulture, floriculture, or landscape gardening. Data collected may form basis for a master's thesis.

## Milling Industry

Professor SWANSON  
Associate Professor WORKING

Instructor PENCE  
Assistant ANDERSON

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 \$28,381.

## COURSES IN MILLING INDUSTRY

### FOR UNDERGRADUATE CREDIT

104. PRINCIPLES OF MILLING I. 2(1-3); I. Dr. Swanson and Mr. Pence. 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.

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. Anderson.

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. Prerequisites: Mill. Ind. 109. Mr. Pence and Mr. Anderson.

Relation of roll and bolting surfaces, flour blending, redressing, principles of bleaching, belt management, lubrications, spout construction, methods of checking mill operations. Charge, \$2.

### 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.

203. FLOUR MILL CONSTRUCTION. 3(0-9); I. Prerequisites: Mach. Des. 111 and 121. To be assigned concurrently or after Strength of Materials (Ap. Mech. 216). Mr. Pence.

A study of the design and construction of modern flour mills, the making of flow sheets, and the selection and placing of machinery.

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. Deposits, \$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, \$5.

210. ADVANCED WHEAT AND FLOUR TESTING. 1 to 5 semester hours; I and II. Prerequisites: Mill. Ind. 205 and other courses; consult instructor. Dr. Working.

Physiochemical and other methods used in testing wheat and flour. Deposit, \$2.50 per hour.

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 semester hours; I, II, and SS. Prerequisites: Mill. Ind. 212, or such other courses as are necessary for the problem selected. Dr. Swanson, Dr. Working, Mr. Pence, and Mr. Anderson. Charge, \$2.50 per hour.

218. **MILLING INDUSTRY SEMINAR.** R( $\frac{1}{2}$ -0); I and II.

All students who major in milling industry meet with the instructors twice each month to discuss problems of general interest to students in milling industry. Programs are furnished by both students and instructors.

#### FOR GRADUATE CREDIT

301. **RESEARCH IN MILLING INDUSTRY.** 1 to 10 credits; I, II, and SS. Prerequisites: Consult instructors. 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 thesis presented in partial fulfillment of the requirements for the degree of master of science.

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## Poultry Husbandry

Professor PAYNE  
Professor WARREN

Associate Professor SCOTT  
Farm Superintendent FEIGHT

The poultry plant, occupying twenty-four acres and situated just north of the northeast corner of the College campus, is devoted to the breeding and rearing of the stock used for class and experimental work. It is equipped with various types of houses, runs, incubators and brooders, and with flocks of the leading breeds of fowls.

There is in the government and state experiment stations and in schools and colleges an increasing demand for men with experience and systematic training in handling poultry. There is likewise a growing demand for men to enter poultry-packing houses and for men capable of managing poultry-farming enterprises of considerable proportions.

The department owns equipment valued at \$10,104.

### COURSES IN POULTRY HUSBANDRY

#### FOR UNDERGRADUATE CREDIT

101. **FARM POULTRY PRODUCTION.** 2(1-3); I and II. Mr. Payne and Mr. Scott.

Problems of poultry management on the general farm. Charge, \$2.

104. **PRACTICE IN POULTRY FEEDING.** 1(3 times a day, 7 days a week, for 3 weeks, at hours outside the regular schedule); II. Prerequisite: Poult. Husb. 101. Offered in 1933-'34, and alternate years thereafter. 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 comparison; judging hens for egg production on the basis of their trap-nest records. Charge, \$2.

116. **MARKET POULTRY AND EGGS.** 4(2-6); I. Prerequisite: Poult. Husb. 101. Offered in 1933-'34, and alternate years thereafter. Mr. Payne.



Methods of handling market eggs and live and dressed poultry.

*Laboratory.*—Candling and grading eggs; crate-feeding, killing, dressing, grading, and packing market poultry. Charge, \$2.

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. Prerequisites: Poult. Husb. 101 and Zoöl. 105. Mr. Scott.

The development of the chick; metabolism; survey of the literature on incubation and brooding; actual care of an incubator throughout the incubation period; bringing off the hatch; care of chicks in brooder for 3 weeks. Charge, \$2.

125. ADVANCED INCUBATION. 1(0-3) (laboratory 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. Offered 1933-'34, and alternate years thereafter. Mr. Scott.

Study of the baby chick industry; operation of a Mammoth incubator; packing and shipping of baby chicks. Charge, \$2.

FOR GRADUATE AND UNDERGRADUATE CREDIT

204. POULTRY GENETICS. 3(3-0); II. Prerequisite: An. Husb. 221. Dr. Warren.

A study of the literature on inheritance in poultry with special reference to its bearing on practical breeding problems.

POULTRY FARM ORGANIZATION. See Advanced Farm Organization (Ag. Ec. 206A).

POULTRY BACTERIOLOGY. See Poultry Bacteriology (Bact. 216).

POULTRY ANATOMY. See Special Anatomy (Anat. 202).

206. POULTRY PROBLEMS. 1 to 5 credits; I, II, and SS. Prerequisites: Poult. Husb. 101, 104, and such other courses as required. Mr. Payne and Mr. Scott.

A definite investigation covering some phase of poultry work, to be continued into the next semester if necessary.

210. GENETICS SEMINAR. 1(1-0); I and II. Prerequisites: Consult instructors. Dr. Nabours, Dr. Ibsen, Dr. Warren, Dr. Parker, and Dr. Brunson.

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

216. POULTRY MANAGEMENT. 3(3-0); 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.

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. RESEARCH IN POULTRY HUSBANDRY. 1 to 8 credits; I, II, and SS. Prerequisites: Poult. Husb. 101, 104, 109, 116, 120, or their equivalent, and such other courses as required. Consult instructors. Dr. Warren, Mr. Payne, and Mr. Scott.

A definite line of investigation in poultry genetics, management, or incubation, which may form the basis of a master's thesis.

305. ANIMAL NUTRITION SEMINAR. 1(1-0); I and II. Prerequisite: Consult instructors. Mr. Payne and Mr. Scott.

Study and criticism of experimental work in animal nutrition, of the methods employed, and of the validity of conclusions drawn.

# The Division of Engineering

ROY ANDREW SEATON, *Dean*

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The Division of Engineering offers curricula in agricultural engineering, architectural engineering, architecture, chemical engineering, civil engineering, electrical 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. 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 curriculum 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.

## STATE TEACHER'S CERTIFICATE

By substituting nine specified credit hours of work in the Department of Education for elective or required courses in a curriculum in engineering and taking in addition six specified and three elective hours 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 other public school in Kansas. A student desiring to qualify for teaching should begin his professional preparation by taking psychology in his junior year or earlier.

## ENGINEERING IN THE SUMMER SCHOOL

The Division offers summer courses in free-hand and mechanical drawing, water-color and oil painting, manual training, and shop practice for high-school and grade-school 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.

## **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 positions as advisers, consulting engineers, or architects in connection with agricultural development.

The work for 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 student 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 archi-

tectural 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, 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, research, 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 com-

pleted by several courses extending through the junior and senior years. The curriculum provides, in addition, elective work, giving the student ample opportunity for the selection of extra work along cultural, economic, or technical lines.

An opportunity for contact with the field of electrical engineering is offered by special lectures and by inspection trips. The student is aided in securing professional experience during the summer vacation periods.

### **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, including factory engineering, power production, and aeronautical 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. Des. 106..	2(0-6)
Agric. Mach. & Con., Agr. Engr. 122,	2(1-3)	Elements An. Husb., An. Husb. 125..	3(2-4)
Extempore Speech I, Pub. Spk. 106..	2(2-0)	Forging, 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. Education M, Phys. Ed. 103..	R(0-2)	Phys. Education 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 Analytical Geom., Math. 110..	4(4-0)	Calculus I, Math. 205.....	5(5-0)
Metallurgy, Shop 165.....	2(2-0)	General Geology, Geol. 103.....	3(3-0)
Mechanism, Mach. Design 121.....	3(3-0)	Mach. Draw. I, Mach. Design 111... 2(0-6)	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. Education M., Phys. Ed. 105..	R(0-2)	Phys. Education M, Phys. Ed. 106..	R(0-2)
Total.....	17	Total.....	18

## JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Applied Mechanics, Ap. Mech. 202... 4(4-0)	4(4-0)	Strength of Mat., Ap. Mech. 211, 220,	6(5-3)
Calculus II, Math. 206.....	3(3-0)	American Industrial Hist., Hist. 105..	3(3-0)
Fld. & Power Mach., Agr. Engr. 111..	4(2-6)	Farm Crops, Agronomy 101.....	4(2-6)
Carpentry,   Shop 149.....	2(0-6)	Farm Motors, Agric. Engr. 225.....	4(2-6)
Machine Tool Work I, Shop 170.....	2(0-6)	Foundry Production, Shop 161.....	1(0-3)
Law for Engineers,   Hist. 167.....	2(2-0)	Seminar, Gen. Engr. 105.....	R
Seminar, Gen. Engr. 105.....	R	Total.....	18
Total.....	17	Total.....	18

## SENIORS§

FIRST SEMESTER		SECOND SEMESTER	
Economics I, Econ. 101.....	3(3-0)	Farm Organization, Agric. Econ. 106,	3(2-3)
Farm Structures, Agric. Engr. 203... 4(2-6)	4(2-6)	Land Reclamation, Agric. Engr. 250,	3(2-3)
Highway Engr. I,   Civ. Engr. 231... 2(2-0)	2(2-0)	Elec. Engr. C, Elec. Engr. 102, 106... 3(2-2, 1)	3(2-2, 1)
Hydraulics, Ap. Mech. 230, 235.....	4(3-3)	Heat. & Ventil. A,   Mech. Engr. 135,	3(3-0)
Highway Mat. Lab.,   Ap. Mech. 250,	1(0-3)	Modern Farm and Home Equipment,	
Soils, Agron. 130.....	4(3-3)	Agric. Engr. 210.....	3(2-3)
Seminar, Gen. Engr. 105.....	R	Elective‡   .....	2( - )
Total.....	18	Seminar, Gen. Engr. 105.....	R
Total.....	18	Total.....	17

Number of hours required for graduation, 139.

\* The number before the parenthesis indicates the number of 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.

‡ 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.

|| Omitted by students taking Advanced Course, Coast Artillery.

## Curriculum in Architectural 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. 105.....	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)
Desc. Geom. A, Mach. Design 107...	3(0-9)	Shades and Shadows, and Perspective, Mach. Design 108.....	3(0-9)
El. of Arch. I, Arch. 106A.....	3(0-9)	El. of Architecture II, Arch. 107A...	3(0-9)
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. Education M, Phys. Ed. 103..	R(0-2)	Phys. Education M, Phys. Ed. 104..	R(0-2)
<b>Total.....</b>	<b>17</b>	<b>Total.....</b>	<b>17</b>

### SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
Engr. Physics I, Phys. 145.....	5(4-3)	Engr. Physics II, Phys. 150.....	5(4-3)
Hist. of Arch. I, Arch. 154A.....	2(2-0)	Hist. of Arch. II, Arch. 157A.....	2(2-0)
Plane Analytical Geom., Math. 110..	4(4-0)	Calculus I, Math. 205.....	5(5-0)
Object Drawing I, Arch. 111.....	2(0-6)	Object Drawing II, Arch. 114.....	2(0-6)
Extem. Speech I, Pub. Spk. 106.....	2(2-0)	Illumination A, Elect. Engr. 116....	2(2-0)
Surveying I, Civ. Engr. 102.....	2(0-6)	Artillery IV, Mil. Tr. 116A.....	1(0-3)
Artillery III, Mil. Tr. 115A.....	1(0-3)	Seminar, Gen. Engr. 105.....	R
Seminar, Gen. Engr. 105.....	R	Phys. Education M, Phys. Ed. 106..	R(0-2)
Phys. Education M, Phys. Ed. 105..	R(0-2)	<b>Total.....</b>	<b>17</b>
<b>Total.....</b>	<b>18</b>		

### JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Applied Mechanics, Ap. Mech. 202..	4(4-0)	Str. of Mat., Ap. Mech. 211, 220...	6(5-3)
Calculus II, Math. 206.....	3(3-0)	Work. Draw. and Speci., Arch. 191..	3(0-9)
Hist. of Arch. III, Arch. 158A.....	2(2-0)	Hist. of Arch. IV, Arch. 160A.....	2(2-0)
Masonry & Found., Civ. Engr. 120...	2(2-0)	Design II, Arch. 144.....	3(0-9)
Design I, Arch. 142.....	3(0-9)	Water Color I, Arch. 118.....	2(0-6)
Pencil Rend. & Sketch., Arch. 116...	2(0-6)	Elective†   .....	2(- )
Elective†   .....	2(- )	Seminar, Gen. Engr. 105.....	R
Seminar, Gen. Engr. 105.....	R	<b>Total.....</b>	<b>18</b>
<b>Total.....</b>	<b>18</b>		

### 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)	Concrete Design, 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)	Heating and Ventilation A, Mechani- cal Engr. 135.....	3(3-0)
Economics I, Econ. 101.....	3(3-0)	Business Management,    Econ. 126...	2(2-0)
Law for Engineers, Hist. 167.....	2(2-0)	Seminar, Gen. Engr. 105.....	R
Seminar, Gen. Engr. 105.....	R	<b>Total.....</b>	<b>16</b>
Inspection Trip, Arch. 199.....	R		
<b>Total.....</b>	<b>18</b>		

Number of hours required for graduation, 139.

\* 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.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

|| Omitted by students taking Advanced Course, Coast Artillery.

## Curriculum in Architecture

## FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
College 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)
College Rhetoric I, Engl. 101.....	3(3-0)	College Rhetoric II, Engl. 104.....	3(3-0)
Desc. Geom. A, Mach. Des. 107.....	3(0-9)	Shd. & 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 (men)....	1(0-3)	Artillery II, Mil. Tr. 114A (men)....	1(0-3)
Phys. Education M, Phys. Ed. 103..	R(0-2)or	Phys. Education M, Phys. Ed. 104..	R(0-2)or
Phys. Education W, Phys. Ed. 151A,	R(0-3)	Phys. Education W, Phys. Ed. 152A,	R(0-3)
Engr. Lectures, Gen. Engr. 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, Phys. 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 (men)...	1(0-3)	Artillery IV, Mil. Tr. 116A (men)...	1(0-3)
Seminar, Gen. Engr. 105.....	R	Seminar, Gen. Engr. 105.....	R
Phys. Education M, Phys. Ed. 105..	R(0-2)or	Phys. Education M, Phys. Ed. 106..	R(0-2)or
Phys. Education W, Phys. Ed. 153..	R(0-3)	Phys. Education W, Phys. Ed. 154..	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)	Extem. Speech I, Pub. Spk. 106.....	2(2-0)
Economics I, Econ. 101.....	3(3-0)	Law for Engineers, Hist. 167.....	2(2-0)
Hist. of Paint. and Sculp., Arch. 179,	3(3-0)	Elective†  .....	2(-)
Seminar, Gen. Engr. 105.....	R	Seminar, Gen. Engr. 105.....	R
Total.....	18	Total.....	17

## 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†  .....	3(-)	Elective†  .....	2(-)
Seminar, Gen. Engr. 105.....	R	Seminar, Gen. Engr. 105.....	R
Inspection Trip, Arch. 199.....	R		
Total.....	17	Total.....	17

Number of hours required for graduation: Men, 139; women, 135.

\* 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.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

|| Omitted by students taking Advanced Course, Coast Artillery.



## Curriculum in Chemical Engineering

### FRESHMAN

#### FIRST SEMESTER

Chemistry I, Chem. 101.....	5(3-6)
College Algebra,* Math. 104.....	3(3-0)
College Rhetoric I, Engl. 101.....	3(3-0)
Engr. Drawing, Mach. Des. 101.....	2(0-6)
German I, Mod. Lang. 101.....	3(3-0)
Artillery I, Mil. Tr. 113A.....	1(0-3)
Engr. Lectures, Gen. Engr. 101.....	R
Phys. Education M, Phys. Ed. 103..	R(0-2)

#### SECOND SEMESTER

Chemistry II, Chem. 102.....	5(3-6)
Plane Trigonometry, Math. 101.....	3(3-0)
College Rhetoric II, Engl. 104.....	3(3-0)
Des. Geometry, Mach. Des. 106.....	2(0-6)
German II, Mod. Lang. 102.....	3(3-0)
Artillery II, Mil. Tr. 114A.....	1(0-3)
Engr. Lectures, Gen. Engr. 101.....	R
Phys. Education M, Phys. Ed. 104..	R(0-2)

Total..... 17

Total..... 17

### SOPHOMORE

#### FIRST SEMESTER

Engr. Physics I, Phys. 145.....	5(4-3)
Plane Analytical Geom., Math. 110..	4(4-0)
Adv. Inorganic Chem., Chem. 207...	3(3-0)
Mechanism, Mach. Des. 121.....	3(3-0)
Mach. Drawing I, Mach. Des. 111...	2(0-6)
Artillery III, Mil. Tr. 115A.....	1(0-3)
Seminar, Gen. Engr. 105.....	R
Phys. Education M, Phys. Ed. 105..	R(0-2)

#### SECOND SEMESTER

Engr. Physics II, Phys. 150.....	5(4-3)
Calculus I, Math. 205.....	5(5-0)
Quantitative Analysis, Chem. 241...	5(1-12)
Metallurgy, Shops 165.....	2(2-0)
Artillery IV, Mil. Tr. 116A.....	1(0-3)
Seminar, Gen. Engr. 105.....	R
Phys. Education M, Phys. Ed. 106..	R(0-2)

Total..... 18

Total..... 18

### JUNIOR

#### FIRST SEMESTER

Calculus II, Math. 206.....	3(3-0)
Ap. Mech., Ap. Mech. 202.....	4(4-0)
Steam and Gas Engineering I, Mech. Engr. 201, 202.....	5(4-3)
Organic Chemistry I, Chem. 218....	4(2-6)
Electives†  .....	2(-)
Seminar, Gen. Engr. 105.....	R

#### SECOND SEMESTER

Str. of Mat. E, Ap. Mech. 216, 220..	4(3-3)
Steam and Gas Engineering II, Mech. Engr. 204, 205.....	4(3-3)
Organic Chem. II, Chem. 219.....	4(2-6)
Elec. Engr. C, Elec. Engr. 102, 106..	3(2-2, 1)
Economics I, Econ. 101.....	3(3-0)
Seminar, Gen. Engr. 105.....	R

Total..... 18

Total..... 18

### SENIOR

#### FIRST SEMESTER

Industrial Chem. I, Chem. 203.....	5(3-6)
El. of Chem. Engr. I, Chem. 278....	4(3-3)
Phys. Chem. I, Chem. 206.....	5(3-6)
Electives†  .....	2(-)
Seminar, Gen. Engr. 105.....	R
Inspection Trip, Chem. 130.....	R

#### SECOND SEMESTER

Industrial Chem. II, Chem. 204.....	5(3-6)
El. of Chem. Engr. II, Chem. 279...	4(3-3)
Chem. Engr. Prin.,   Chem. 281.....	2(2-0)
Chem. Engr. Prob.,   Chem. 268....	3(0-9)
Phys. Chem. II,   Chem. 272.....	3(3-0)
Seminar, Gen. Engr. 105.....	R

Total..... 16

Total..... 17

Number of hours required for graduation, 139.

\* 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.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

|| Omitted by students taking Advanced Course, Coast Artillery.

## Curriculum in Civil Engineering

## FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
Chemistry E-I, Chem. 107.....	4(3-3)	Chemistry E-II, Chem. 108.....	4(3-3)
Plane Trigonometry,* Math. 101....	3(3-0)	College Algebra,* Math. 104.....	3(3-0)
College Rhetoric I, Engl. 101.....	3(3-0)	College Rhetoric II, Engl. 104.....	3(3-0)
Engr. Drawing, Mach. Des. 101.....	2(0-6)	Des. Geometry, Mach. Des. 106.....	2(0-6)
Surveying I, Civ. Engr. 102.....	2(0-6)	Surveying II, Civ. Engr. 111.....	2(0-6)
Extem. Speech I, Pub. Spk. 106.....	2(2-0)	Metallurgy, Shop 165.....	2(2-0)
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. Education M, Phys. Ed. 103..	R(0-2)	Phys. Education 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 Analytical Geom., Math. 110..	4(4-0)	Calculus I, Math. 205.....	5(5-0)
Amer. Industrial Hist., Hist. 105....	3(3-0)	Law for Engineers, Hist. 167.....	2(2-0)
Surveying III, Civ. Engr. 151, 155...	3(2-3)	Surveying IV, Civ. Engr. 156, 157...	3(2-3)
Mach. Drawing I, Mach. Des. 111....	2(0-6)	C. E. Drawing I, Civ. Engr. 125....	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. Education M, Phys. Ed. 105..	R(0-2)	Phys. Education M, Phys. Ed. 106..	R(0-2)
Total.....	18	Total.....	18

## JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Ap. Mech., Ap. Mech. 202.....	4(4-0)	Str. of Mat., Ap. Mech. 211, 220....	6(5-3)
Calculus II, Math. 206.....	3(3-0)	Hydraulics, Ap. Mech. 230, 235....	4(3-3)
Highway Engr. I, Civ. Engr. 231....	2(2-0)	Ry. Engr. I, Civ. Engr. 145.....	2(2-0)
Engr. Geology, Geol. 102.....	4(3-3)	Drain. & Irrig. I, Civ. Engr. 161....	2(2-0)
Masonry & Found., Civ. Engr. 120..	2(2-0)	Steam and Gas Engineering C, Mech.	
Water & Sewage Bact., Bact. 125....	2(0-6)	Engr. 120, 125.....	3(2-3)
Seminar, Gen. Engr. 105.....	R	Seminar, Gen. Engr. 105.....	R
Total.....	17	Total.....	17

## SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Str. in Fr. Struc., Civ. Engr. 201....	4(4-0)	Des. of Fr. Struc., Civ. Engr. 246....	3(0-9)
C. E. Drawing II, Civ. Engr. 205....	2(0-6)	Elec. Engr. C, Elec. Engr. 102, 106..	3(2-2, 1)
Water Supply, Civ. Engr. 220.....	2(2-0)	Con. Design, Civ. Engr. 250, 255....	3(2-3)
Sewerage, Civ. Engr. 225.....	2(2-0)	Electives†  .....	8(-)
Highway Mat. Lab., Ap. Mech. 250..	1(0-3)	Seminar, Gen. Engr. 105.....	R
Economics I, Econ. 101.....	3(3-0)		
Astron. & Geod.,   Civ. Engr. 211, 216,	4(2-6)		
Seminar, Gen. Engr. 105.....	R		
Inspection Trip, Civ. Engr. 180.....	R		
Total.....	18	Total.....	17

Number of hours required for graduation, 139.

\* Students who offer but one unit of algebra for admission take a five-hour 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.

|| Omitted by students taking Advanced Course, Coast Artillery.

## Curriculum in Electrical 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. Drawing, Mach. Des. 101.....	2(0-6)	Desc. Geometry, Mach. Des. 106.....	2(0-6)
Foundry Production, Shop 161.....	1(0-3)and	Metallurgy, Shop 165.....	2(2-0)
Forging, Shop 150.....	1(0-3)or	Foundry Production, Shop 161.....	1(0-3)and
Elec. Mach. & Con., Elec. Engr. 112..	2(0-6)	Forging, Shop 150.....	1(0-3)or
Extm. Speech I, Pub. Spk. 106.....	2(2-0)	Elec. Mach. & Con., Elec. Engr. 112..	2(0-6)
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. Education M, Phys. Ed. 103..	R(0-2)	Phys. Education 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 Analytical Geom., Math. 110..	4(4-0)	Calculus I, Math. 205.....	5(5-0)
Mechanism, Mach. Des. 121.....	3(3-0)	Amer. Indus. History, Hist. 105.....	3(3-0)
Mach. Draw. I, Mach. Des. 111.....	2(0-6)	Mach. Draw. E-II, Mach. Des. 117..	2(0-6)
Surveying I, Civ. Engr. 102.....	2(0-6)	Prin. Elec. Engr., Elec. Engr. 120....	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. Education M, Phys. Ed. 105..	R(0-2)	Phys. Education M, Phys. Ed. 106..	R(0-2)
Total.....	17	Total.....	18

### JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Direct-cur. Mach. I, Elec. Engr. 203..	3(3-0)	Dir.-cur. Mch. II, Elec. Engr. 206, 208,	4(2-4, 2)
Elec. Meas., Elec. Engr. 227, 229....	4(2-4, 2)	Alt.-cur. Mach. I, Elec. Engr. 209...	4(4-0)
Applied Mech., Ap. Mech. 202.....	4(4-0)	Elec. Mach. Des., Elec. Engr. 270...	1(0-3)
Calculus IIA, Math. 206A.....	4(4-0)	Str. of Mat. E, Ap. Mech. 216, 220...	4(3-3)
Machine Tool Work I, Shop 170....	2(0-6)	Economics I, Econ. 101.....	3(3-0)
Seminar, Gen. Engr. 105.....	R	Elective†  .....	2(-)
		Seminar, Gen. Engr. 105.....	R
Total.....	17	Total.....	18

### SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Alt.-cur. Mch. II, Elec. Engr. 214, 215,	5(3-4, 2)	Alternating-current Machines III,	
Elec. Comun. I, Elec. Engr. 217, 218,	3(2-2, 1)or	Elec. Engr. 224, 225.....	5(3-4, 2)
Pub. Util. Mangt., Elec. Engr. 290...	3(3-0)	Steam and Gas Engineering II, Mech.	
Steam and Gas Engineering I, Mech.		Engr. 204, 205.....	4(3-3)
Engr. 201, 202.....	5(4-3)	Bus. English & Sales,    Engl. 125...	3(3-0)
Hydraulics Rec., Ap. Mech. 230.....	3(3-0)	Elective†  .....	5(5-0)
Corp. Organiz. & Fin.,    Econ. 219...	2(2-0)	Seminar, Gen. Engr. 105.....	R
Seminar, Gen. Engr. 105.....	R		
Inspection Trip, Elec. Engr. 190....	R		
Total.....	18	Total.....	17

Number of hours required for graduation, 139.

\* Students who offer but one unit of algebra for admission take a five-hour course in College Algebra, Math. 107, the first semester, postponing Extempore Speech until the second semester, junior year.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

|| Omitted by students taking Advanced Course, Coast Artillery.

## Curriculum in Landscape Architecture

## FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
Plane Trigonometry,* Math. 101....	3(3-0)	College Algebra,* Math. 104.....	3(3-0)
College Rhetoric I, Engl. 101.....	3(3-0)	College Rhetoric II, Engl. 104.....	3(3-0)
General Botany I, Bot. 101.....	3(1-4, 2)	Gen. Botany II, Bot. 105.....	3(1-4, 2)
Des. 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)
Surveying I, Civ. Engr. 102.....	2(0-6)	Surveying II, Civ. Engr. 111.....	2(0-6)
Artillery I, Mil. Tr. 113A (men)....	1(0-3)	Artillery II, Mil. Tr. 114A (men)....	1(0-3)
Phys. Education M, Phys. Ed. 103..	R(0-2)or	Phys. Education M, Phys. Ed. 104..	R(0-2)or
Phys. Education W, Phys. Ed. 151A,	R(0-3)	Phys. Education W, Phys. Ed. 152A,	R(0-3)
Engr. Lectures, Gen. Engr. 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	
Hist. of Arch. I, Arch. 154A.....	2(2-0)	Hist. of Arch. II, Arch. 157A.....	2(2-0)
El. of Arch. I, Arch. 106A.....	3(0-9)	El. of Arch. II, Arch. 107A.....	3(0-9)
Surveying III, Civ. Engr. 151, 155..	3(2-3)	Water Color I, Arch. 118.....	2(0-6)
General Chem., Chem. 110.....	5(3-6)	Plant Ecology, Bot. 228.....	2(2-0)
Landscape Gardening I, Hort. 125....	3(3-0)	El. of Hort., Hort. 107.....	3(2-3)
Artillery III, Mil. Tr. 115A (men)...	1(0-3)	General Geology, Geol. 103.....	3(3-0)
Phys. Education M, Phys. Ed. 105..	R(0-2)or	Artillery IV, Mil. Tr. 116A (men)...	1(0-3)
Phys. Education W, Phys. Ed. 153..	R(0-3)	Phys. Education M, Phys. Ed. 106..	R(0-2)or
Seminar, Gen. Engr. 105.....	R	Phys. Education W, Phys. Ed. 154..	R(0-3)
Total, men.....	17	Elective†.....	1(-)
Total, women.....	16	Seminar, Gen. Engr. 105.....	R
		Total, men.....	17
		Total, women.....	16

## JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Hist. of Arch. III, Arch. 158A.....	2(2-0)	Hist. of Arch. IV, Arch. 160A.....	2(2-0)
Pencil Rend. and Sketch., Arch. 116..	2(0-6)	Extens. Speech I, Pub. Spk. 106.....	2(2-0)
Design I, Arch. 142.....	3(0-9)	Design II, Arch. 144.....	3(0-9)
Bldg. Mat. & Con., Arch. 187A.....	3(3-0)	Plant Materials II, Hort. 226.....	3(2-3)
Theory of Land. Des., Hort. 243....	2(2-0)	Work. Draw. & Spec., Arch. 191....	3(0-9)
Plant Materials I, Hort. 224.....	3(2-3)	Soils, Agron. 130.....	4(3-3)
Plant Physiology I, Bot. 208.....	3(3-0)	Seminar, Gen. Engr. 105.....	R
Seminar, Gen. Engr. 105.....	R	Total.....	17
Total.....	18	Total.....	17

## SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Landscape Construc., Hort. 227.....	3(2-3)	Civic Art, Hort. 223.....	3(1-6)
Greenhouse Con. & Mngt., Hort. 128,	3(3-0)	Landscape Gardening III, Hort. 246,	3(1-6)
Highway Engr. I, Civ. Engr. 231....	2(2-0)	City Planning, Arch. 249.....	3(0-9)
Highway Mats. Lab., Ap. Mech. 250,	1(0-3)	Economics I, Econ. 101.....	3(3-0)
Silviculture, Hort. 119.....	3(2-3)	Seminar, Gen. Engr. 105.....	R
Landscape Gardening II, Hort. 238..	3(1-6)	Elective†  .....	6(-)
Plant Pathology I, Bot. 205.....	3(1-4, 2)	Total.....	18
Seminar, Gen. Engr. 105.....	R	Total.....	18
Inspection Trip, Arch. 199.....	R		
Total.....	18		

Number of hours required for graduation: Men, 139; women, 135.

\* Students who offer but one unit of algebra for admission take a five-hour 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.

|| Omitted by students taking Advanced Course, Coast Artillery.

## Curriculum in Mechanical 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. Drawing, Mach. Des. 101.....	2(0-6)	Des. Geom., Mach. Des. 106.....	2(0-6)
Extem. Speech I, Pub. Spk. 106.....	2(2-0)	Surveying I, Civ. Engr. 102.....	2(0-6)
{ Engr. Woodwork, Shop 101.....	1(0-3) }	Elements of Steam and Gas Power,	
} Forging, Shop 150.....	1(0-3) } or	Mech. Engr. 130.....	2(0-6) or
Elements of Steam and Gas Power,		Engr. Woodwork, Shop 101.....	1(0-3) }
Mech. Engr. 130.....	2(0-6)	} Forging, 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. Education M, Phys. Ed. 103..	R(0-2)	Phys. Education M, Phys. Ed. 104..	R(0-2)
<b>Total.....</b>	<b>17</b>	<b>Total.....</b>	<b>17</b>

### SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
Engr. Physics I, Phys. 145.....	5(4-3)	Engr. Physics II, Phys. 150.....	5(4-3)
Plane Analyt. Geom., Math. 110.....	4(4-0)	Calculus I, Math. 205.....	5(5-0)
Mechanism, Mach. Des. 121.....	3(3-0)	American Indus. Hist., Hist. 105....	3(3-0)
Mach. Draw. I, Mach. Des. 111.....	2(0-6)	Mach. Draw. II, Mach. Des. 116....	3(0-9)
Metallurgy, Shop 165.....	2(2-0)	Foundry Production, Shop 161.....	1(0-3)
Metallography I, Shop 167.....	1(0-3)	Artillery IV, Mil. Tr. 116A.....	1(0-3)
Artillery III, Mil. Tr. 115A.....	1(0-3)	Seminar, Gen. Engr. 105.....	R
Seminar, Gen. Engr. 105.....	R	Phys. Education M, Phys. Ed. 106..	R(0-2)
Phys. Education M, Phys. Ed. 105..	R(0-2)	<b>Total.....</b>	<b>18</b>
<b>Total.....</b>	<b>18</b>	<b>Total.....</b>	<b>18</b>

### JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Ap. Mech., Ap. Mech. 202.....	4(4-0)	Str. of Mat., Ap. Mech. 211, 220....	6(5-3)
Calculus II, Math. 206.....	3(3-0)	Graphic Statics, Ap. Mech. 225....	1(0-3)
Steam and Gas Engineering I, Mech.		Steam and Gas Engineering II, Mech.	
Engr. 201, 202.....	5(4-3)	Engr. 204, 205.....	4(3-3)
Machine Tool Work I, Shop 170....	2(0-6)	Machine Tool Work II, Shop 192....	2(0-6)
Economics I, Econ. 101.....	3(3-0)	Nontechnical Elective†  .....	4( - )
Seminar, Gen. Engr. 105.....	R	Seminar, Gen. Engr. 105.....	R
<b>Total.....</b>	<b>17</b>	<b>Total.....</b>	<b>17</b>

### SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Elec. Engr. M-I, Elec. Engr. 230, 231,	4(3-2, 1)	Elec. Engr. M-II, Elec. Engr. 242, 243	4(3-2, 1)
Power Plant Engr., Mech. Engr. 207,	3(1-6)	Heat. & Vent., Mech. Engr. 210, 215,	3(2-3)
Mach. Design I, Mach. Des. 204, 205,	5(3-6)	Machine Design II, Mach. Des. 210..	2(0-6)
Hydraulics, Ap. Mech. 230, 235.....	4(3-3)	Commercial Engr.,   Elec. Engr. 250,	2(2-0)
<i>Factory Option:</i>		<i>Factory Option:</i>	
Factory Engr., Shop 245.....	2(2-0)	Factory Design, Shop 255.....	2(0-6)
<i>Power Option:</i>		Machine Tool Work III, Shop 193,	1(0-3)
Ad. Thermody., Mech. Engr. 230,	2(2-0)	Elective†.....	3( - )
Seminar, Gen. Engr. 105.....	R	<i>Power Option</i>	
Inspection Trip, Mech. Engr. 180....	R	Steam Turb., Mech. Engr. 235....	2(2-0)
<b>Total.....</b>	<b>18</b>	Elective†.....	4( - )
		Seminar, Gen. Engr. 105.....	R
<b>Total.....</b>	<b>18</b>	<b>Total.....</b>	<b>17</b>

Number of hours required for graduation, 139.

\* 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.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

|| Omitted by students taking Advanced Course, Coast Artillery.

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## Agricultural Engineering

Professor FENTON  
Associate Professor ZINK

Assistant Professor LOGAN  
Instructor BARGER

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 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 engines is arranged to cover thoroughly the construction, operation, and repair of the numerous modern tractors which are part of the regular equipment; draft 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 \$10,256.

### COURSES IN AGRICULTURAL ENGINEERING

#### FOR UNDERGRADUATE CREDIT

101. FARM BUILDINGS 3(2-3)\*; II. Mr. Fenton and Mr. Barger.

Requirements, details of arrangements, and materials of construction for barns and storage, and work buildings for the farm; preparation of plans and specifications, bills of material, and estimates of costs.

108. FARM MACHINERY. 3(2-3); I and II. Mr. Logan and assistants.

Construction, operation, adjustment, power, requirements, tests, and use of tillage, seeding, harvesting, feed processing and miscellaneous machines both field and belt operated. (For agricultural students.) Charge, \$2.

111. FIELD AND POWER MACHINERY. 4(2-6); I. Prerequisites: Mechanism (Mach. Des. 121.) Engineering Physics II (Phys. 150.) Mr. Logan and assistants.

Development, design, and utilization of tillage, seeding, harvesting and crop processing machinery for all forms of farm power. Charge, \$2.

122. AGRICULTURAL MACHINES AND CONSTRUCTION. 2(1-3); I. Mr. Barger.

Introductory principles of mechanics and physics as applied to the construction and operation of farm machinery. (For freshman agricultural engineers.) Charge, \$1.

130. GAS ENGINES AND TRACTORS. 3(2-3); I, II, and SS. Mr. Barger and assistants.

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\* 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.

Principles and application of the internal-combustion engine; engine mechanisms, carburetion, valve timing, ignition, cooling, lubrication and fuels. Selection and use of tractors in agriculture. (For agricultural students.) Charge, \$2.

## FOR GRADUATE AND UNDERGRADUATE CREDIT

201. POWER AND MACHINERY IN AGRICULTURE. 2(-0); I, II and SS. Prerequisite: Junior or senior classification. Mr. Fenton and Mr. Zink.

History and development of machinery in agriculture. The application, selection, management, and cost of machines; future development. A survey course dealing with the mechanization of agriculture. Open to all students who have not taken Ag. Engr. 108 or Ag. Engr. 130.

203. FARM STRUCTURES. 4(2-6); I. Prerequisite: Applied Mechanics (Ap. Mech. 202.) Mr. Fenton and assistants.

Design of farm structures, details and materials of construction; specifications and estimates.

205. AGRICULTURAL ENGINEERING PROBLEMS. 2(0-6) to 5(0-15). Prerequisite: Permission of instructors. Mr. Fenton and Mr. Zink.

Problems in the design, construction or application of machinery or power in agriculture, structures, modern conveniences, rural electrification.

210. MODERN FARM AND HOME EQUIPMENT. 3(2-3); II. Prerequisite: Hydraulics (Ap. Mech. 230, 235.) Mr. Logan.

Water supply, sewage disposal, lighting, heating, and ventilation of farm buildings; refrigeration; and rural electrification. Charge, \$1.

215. TRACTOR RESEARCH. 2(0-6) to 5(0-15); I. Prerequisite: Farm Motors (Ag. Engr. 225) or its equivalent. Mr. Zink and Mr. Barger.

Research studies relating to tractor construction and operation.

225. FARM MOTORS. 4(2-6); II. Prerequisites: Engineering Physics II (Phys. 150) and Calculus I (Math. 205). Mr. Zink and Mr. Barger.

Theory, design, operation, adjustment and application of the internal combustion engine in agriculture, special emphasis on tractors; study of manual, animal, wind and electric power. Charge, \$3.

240. DRAINAGE, EROSION CONTROL AND IRRIGATION. 3(2-3); I and II. Prerequisite: Soils (Agron. 130). Mr. Fenton.

Principles and practices of land improvement by terracing and other methods of erosion control; drainage, irrigation, and land clearing; use of explosives in agriculture. (For agricultural students.) Charge, \$1.

250. LAND RECLAMATION. 3(2-3); II. Prerequisites: Hydraulics Recitation (App. Mech. 230) and Soils (Agron. 130). Mr. Fenton and assistants.

Principles and methods of bringing waste lands into production by drainage, irrigation, terracing, and land clearing. Charge, \$1.

## FOR GRADUATE CREDIT

301. RESEARCH IN AGRICULTURAL ENGINEERING. 1 to 10 semester hours; I, II, and SS. Prerequisites: Soils (Agron. 130) and Engineering Physics II (Phys. 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  
 Professor DAWLEY  
 Associate Professor CHEEK

Instructor KOENITZER  
 Instructor PICKETT  
 Instructor TAYLOR

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 Department.

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 Venturi meters. 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 \$34,971.

### 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 stress 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. Prerequisite: Applied Mechanics A. Mr. Robert and Mr. Cheek.

A study of various testing machines; tension, compression, shear, and bending 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.

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 I. Mr. Robert, Mr. Dawley, and Mr. Pickett.

Composition, resolution, and conditions of equilibrium of concurrent and nonconcurrent forces; center of gravity; fraction; 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.

211. STRENGTH OF MATERIALS RECITATION. 5(5-0); I, II, and SS. Prerequisite: Applied Mechanics. Mr. Scholer, Mr. Robert, and Mr. Koenitzer.

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.

216. STRENGTH OF MATERIALS E RECITATION. 3(3-0); I, II, and SS. Prerequisite: Applied Mechanics. Mr. Robert, Mr. Dawley, and Mr. Pickett. Similar to course 211, but much less time given to study of continuous girders and of reinforced concrete.

220. STRENGTH OF MATERIALS LABORATORY. 1(0-3); I, II, and SS. Must accompany or follow course 211 or 216. Mr. Robert, Mr. Dawley, and Mr. Pickett.

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. 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.

230. HYDRAULICS RECITATION. 3(3-0); I, II, and SS. Prerequisite: Applied Mechanics. Mr. Robert, Mr. Dawley, and Mr. Pickett.

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.

235. HYDRAULICS LABORATORY. 1(0-3); I, II, and SS. Prerequisite: Applied Mechanics. Mr. Robert, Mr. Dawley, and Mr. Pickett.

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 meter. Charge, \$1.

250. HIGHWAY MATERIALS LABORATORY. 1(0-3); I. Prerequisite: Strength of Materials Laboratory. Mr. Scholer and Mr. Koenitzer.

A comprehensive course in the examination and testing of road materials. Charge, \$1.50.

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. ADVANCED HIGHWAY MATERIALS. 2(1-3); II. Prerequisite: Highway Materials Laboratory. Mr. Scholer.

An advanced course in the properties and testing of the various materials used in road construction.

276. DESIGN OF CONCRETE MIXTURES. 3(1-6); I and II. Prerequisite: Strength of Materials Laboratory. Mr. Scholer and Mr. Dawley.

Practical applications of the fundamental principles of concrete making, using various kinds of cement and placing special emphasis on the proper designing, mixing and placing of concrete mixtures to meet certain strength and durability requirements. Charge, \$2.50.

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 and Mr. Robert.

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, II, and SS. For prerequisites, consult instructors. Mr. Scholer, Mr. Robert, and Mr. Dawley.

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.

305. SOIL MECHANICS. 3(1-6); I. Prerequisite: Highway Materials Laboratory (App. Mech. 250). Mr. Scholer.

The physical properties of soil which govern its behavior as a material for highway surfaces or foundations; the behavior of soil when used as a material of construction in fills and dams.

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## Architecture

Professor WEIGEL  
Associate Professor CHEEK  
Associate Professor HELM

Assistant Professor WICHERS  
Assistant Professor SMITH  
Instructor WARE

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 \$20,288.

## COURSES IN ARCHITECTURE

### FOR UNDERGRADUATE CREDIT

106A. ELEMENTS OF ARCHITECTURE I. 3(0-9); I and II. Mr. Ware.

A thorough treatment of the orders and fundamental elements of architectural forms; special attention to the development of high standard of lettering and draftsmanship. Charge, \$1.

107A. ELEMENTS OF ARCHITECTURE II. 3(0-9); I and II. Prerequisite: Elements of Architecture I. Mr. Ware.

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); I, II, and SS. Prerequisite: Object Drawing I. Mr. Helm and Mr. Wichers.

An application and expansion of the principles taught in Object Drawing I.

116. PENCIL RENDERING AND SKETCHING. 2(0-6); I, II, 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); I, 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 and SS. Prerequisite: Arch. 118. Mr. Helm. Drawing from the living model in charcoal. Deposit, \$5.

123. LIFE DRAWING II. 2(0-6); II and SS. Prerequisite: Arch. 121. Mr. Helm. A continuation of Life Drawing I. Deposit, \$5.

124. DOMESTIC ARCHITECTURE. 2(2-0); 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.

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 and Mr. Ware.

A study of the technique and drawing of fragments, casts, still life, etc., in this medium, also outdoor sketching.

135. PEN AND INK DRAWING II. 2(0-6); I, II, and SS. Prerequisite: Arch. 134. Mr. Helm and Mr. Ware.

A continuation of Pen and Ink Drawing I (Arch. 134).

137. BLOCK PRINTS. 2(0-6); I and SS. Prerequisite: Arch. 114 or approval of instructor. Mr. Helm.

A study of the carving of original compositions in linoleum and wood blocks. Charge, \$1.

142, 144. DESIGN I AND II. 3(0-9) each; I and II each. Prerequisites: For I, Arch. 107A and 114; for II, Arch. 142. Mr. Smith, and Mr. Ware.

An analysis of architectural composition and rendering. Charge, \$1 for each course.

145, 147. DESIGN III AND IV. 5(0-15) each; I and II each. Prerequisites: For III, Arch. 117 and 144; for IV, Arch. 145. Mr. Weigel, Mr. Smith, and Mr. Ware.

Continuation of Design II; time problems and rapid design sketches required, at frequent intervals. 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.

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.

163, 164. HISTORIC ORNAMENT I AND II. 2(1-3) each; I and II respectively. Prerequisites: Arch. 118 and Arch. 160A. Mr. Weigel and 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, II, and SS, each. Mr. Helm.

The principles of advertising arrangements; making various types of advertising 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.

179. HISTORY OF PAINTING AND SCULPTURE. 3(3-0); I. Mr. Smith.

A study of development of painting, sculpture, furniture and the minor arts to the fifteenth 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.

199. INSPECTION TRIP. R; I. Prerequisite: Senior classification. Mr. Weigel and assistants.

An inspection trip is made to one of the larger cities of the Middle West by the senior students in Architectural Engineering, Architecture, and Landscape Architecture. The inspection party is under the charge of one or more faculty members of the Department of Architecture. Time allotted to the trip is from three days to one week. Cost to each student for trip, including meals, lodging and transportation, approximately \$50.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

201, 206. ADVANCED FREE-HAND DRAWING I AND II. 2(0-6) each; I, II and SS, each. 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, II, and SS, each. Prerequisites: Arch. 117 and Arch. 134. Mr. Helm.

Instruction is given in the technical principles of etching on copper and zinc plate. Charge, \$1 for each course.

221. PROBLEMS IN ARCHITECTURAL DEVELOPMENT. 1 to 10 credits; I, II, and SS. Mr. Weigel.

Under direct supervision of some member of the departmental staff, study of problems in architectural development.

230, 235. OIL PAINTING I AND II. 2(0-6) each; I and II each 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 outdoor sketching.

240, 241. LANDSCAPE PAINTING I AND II. 1(0-3) each; SS only. Prerequisite: Arch. 118 or Arch. 230, or equivalent. Mr. Helm.

Outdoor sketching and painting in oil or water color.

244. GENERAL HISTORY OF ARCHITECTURE. 3(3-0); II. Mr. Smith.

The historic architectural styles of the world studied and analyzed; written papers, with sketches, required of each student. (Elective for nonarchitectural students.)

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 each. Prerequisites: For V, Arch. 118 and 147; for VI, Arch. 253. Mr. Weigel.

Continuation of Design IV; special training in interior design and decoration. Charge, \$1 for each course.

296, 298. 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 CREDIT

301, 304. ADVANCED DESIGN I AND II. 3(0-9) to 10(0-30) each; I, II, and SS, each. 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, II, and SS.

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.

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## Civil Engineering

Professor CONRAD  
Professor FRAZIER  
Professor FURR

Associate Professor WHITE  
Instructor CRAWFORD  
Instructor MORSE

The purpose of the instruction in the Department of Civil Engineering is to give the student a thorough knowledge of the fundamental principles of engineering and to develop his ability to analyze engineering problems, and thus prepare the graduate to enter any one of the many special fields which are usually included under the title of civil engineering.

In addition to the laboratory equipment of the other engineering departments, which is available to civil-engineering students, the Department of Civil Engineering possesses a good assortment of transits, levels, plane tables, compasses, tapes, and chains. It also owns a precise level, a direction theodolite, a repeating theodolite, four different kinds of solar attachments, and a base-line outfit. Recently a Beggs deformer set has been added to the equipment of the department.

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 \$22,711.

### COURSES IN CIVIL ENGINEERING

#### FOR UNDERGRADUATE CREDIT

102. SURVEYING I. 2(0-6); I and II. Prerequisite or parallel: Plane Trigonometry (Math. 101). Mr. White, Mr. Crawford, and Mr. Morse.

The use and care of engineer's surveying instruments, and plane surveying practice. Charge, \$1.

111. SURVEYING II. 2(0-6); I and II. Prerequisite: Surveying I. Mr. White and Mr. Morse.

Land surveying, the U. S. system of public land surveys, route surveying, the legal survey, the stadia survey, and calculations of areas and boundaries. Charge, \$1.

120. MASONRY AND FOUNDATIONS. 2(2-0); I. 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.

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; copy-  
ing working drawings of engineering structures.

145. RAILWAY ENGINEERING I. 2(2-0); II. Prerequisite: Surveying IV (Civ. Engr. 156 and 157). Mr. Frazier.

Railway engineering based on Wellington's economic theory; study of track construction and maintenance; design of yards and terminals.

151, 155.\* SURVEYING III. 3(2-3); I and II. Prerequisite: Surveying II. Mr. White and Mr. Crawford.

Topographic, municipal and underground surveying; the celestial sphere; elements of horizontal and vertical curves and earthwork.

*Laboratory.*—Topographic surveying and topographic mapping.

156, 157. SURVEYING IV. 3(2-3); I and II. Prerequisite: Surveying III. Mr. Furr.

Field engineering; various problems in curve selection and location; including pertinent curve, spiral and earthwork computations; railway track and cross-over exercises.

161. DRAINAGE AND IRRIGATION I. 2(2-0); II. Prerequisite or parallel: Hydraulics (Ap. Mech. 230, 235). Mr. Furr and Mr. White.

Design and construction of drainage and irrigation works.

170. THESIS. 1(0-3), I; and 2(0-6), II, respectively. Mr. Conrad.

A report on a proposed design and 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.

180. INSPECTION TRIP. R; I. Prerequisite: Senior classification. Mr. Conrad and assistants.

A trip of three to four days to Kansas City and other nearby industrial centers for the purpose of inspecting industrial plants and projects of special interest to civil engineers. The plants inspected are carefully selected to exemplify various engineering applications in practice.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

201. STRESSES IN FRAMED STRUCTURES. 4(4-0); I, II, and SS. Prerequisite: Strength of Materials (Ap. Mech. 211). Mr. Conrad and Mr. Morse.

Computation of stresses in bridges and buildings.

205. CIVIL ENGINEERING DRAWING II. 2(0-6); I and SS. Prerequisite or parallel: Stresses in Framed Structures. Mr. Conrad and Mr. Morse.

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.

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\* 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.

*Laboratory.*—Astronomical observations, principally for determining true meridian and latitude; base-line measurements and triangulation work.

220. WATER SUPPLY. 2(2-0); I and SS. 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 and SS. Prerequisite: Hydraulics (Ap. Mech. 230). Mr. Crawford.

A study of sewer systems and sewage treatment.

228. SANITARY ENGINEERING DESIGN. 2(0-6); II. Prerequisites: Water Supply (Civ. Engr. 220) and Sewerage (Civ. Engr. 225). Mr. Frazier.

Design of water purification plants, sewage treatment plants, water distribution systems and sewage collecting systems. Estimates of cost and methods of financing.

231. HIGHWAY ENGINEERING I. 2(2-0); I and SS. Prerequisite: Surveying II (Civ. Engr. 111). Mr. Furr.

Fundamental principles, location, design, construction, and maintenance of roads and pavements.

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.

247. ECONOMICS OF DESIGN AND CONSTRUCTION. 4(4-0); II. Prerequisites: Highway Engineering I and Stresses in Framed Structures. Mr. Conrad.

Primarily a study of methods, equipment, construction costs, and economy in design.

250, 255. CONCRETE DESIGN. 3(2-3); II and SS. Prerequisite: Strength of Materials (Ap. Mech. 211). Mr. Frazier.

Design of reinforced concrete retaining walls, dams, slab bridges, and girder 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.

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.

*Laboratory.*—A reconnaissance and survey for a highway a few miles long; making maps, profiles, and estimates from the survey.

276. HIGHWAY ECONOMICS. 3(3-0); I. Prerequisite: Highway Engineering I. Mr. Furr.

Economic concepts, highway transport, design, and construction problems as affected by recent findings of research agencies.

280, 285. DRAINAGE AND IRRIGATION II. 4(2-6); II. Prerequisites: 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. **RESEARCH IN CIVIL ENGINEERING.** 3 to 10 credits; I, II, and SS. For prerequisites, consult instructors. 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.

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## Electrical Engineering

Professor KLOEFFLER  
 Professor BRENNEMAN  
 Associate Professor KERCHNER  
 Assistant Professor HUNT

Assistant Professor JORGENSEN  
 Instructor SRTZ  
 Instructor PASLAY  
 Instructor SCHUMANN

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 are accompanied by extended courses in the laboratories.

The main dynamo laboratory contains examples of many 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.

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, instrument transformers, watt-hour meters, and rotating standards.

There are three 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. A short-wave laboratory is equipped with a short-wave transmitter and receiver for experimental broadcasting and reception of short-wave communications.

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 concealed knob and tube, conduit, and conduit construction which provides students with actual practice in wiring buildings.

Two special laboratories are provided for the research conducted by the electrical engineering staff and for television and other special investigations made by graduate students. One of the laboratories contains the television broadcasting station W9XAK of the Kansas State College.

The equipment belonging to the department is valued at \$56,478.

## COURSES IN ELECTRICAL ENGINEERING

### FOR UNDERGRADUATE CREDIT

102, 106. ELECTRICAL ENGINEERING C. 3(2-2, 1); II and SS. Prerequisite: Engineering Physics II (Physics 150). Mr. Jorgenson and Mr. Sitz.

The fundamental principles of direct-current and alternating-current electricity, with emphasis upon proper installation and operation of different classes of machines.

*Laboratory.*—Practice to give a knowledge of the most important commercial tests; proper use of electrical instruments; a written report of each test. Charge, \$1.50.

112. ELECTRICAL MACHINERY AND CONSTRUCTION. 2(0-6); I and II. 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. Charge, \$3.

116. ILLUMINATION A. 2(2-0); II. Prerequisite: Engineering Physics II (Phys. 150) or General Physics II (Phys. 140). Mr. Hunt.

The various methods used for interior wiring; methods of calculating the necessary number and size of electric circuits in a building; wiring specifications; and fundamental principles of illumination. For architects and architectural engineers.

120. PRINCIPLES OF ELECTRICAL ENGINEERING. 2(2-0); I and II. Prerequisites: Chemistry EI and EII (Chem. 107 and 108) and Trigonometry (Math. 101). Mr. Kloeffler and Mr. Schumann.

The fundamental principles of electronics.

190. INSPECTION TRIP. R; I. Prerequisite: Senior classification. Mr. Kloeffler and assistants.

A trip of four to six days to Kansas City, St. Louis, and other cities for the purpose of making inspections of power plants and various industries illustrating the application of electrical engineering principles.

195. THESIS. 1(0-3), I; and 2(0-6), II. Mr. Kloeffler, Mr. Brenneman, Mr. Kerchner, Mr. Hunt, Mr. Schumann, and Mr. Paslay.

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. DIRECT-CURRENT MACHINES I. 3(3-0); I, II, and SS. Prerequisites: Calculus I (Math. 205) and Engineering Physics II (Physics 150). Mr. Brenneman, Mr. Hunt, 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.

206, 208. DIRECT-CURRENT MACHINES II. 4(2-4, 2); I, II, and SS. Prerequisite: 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.*—A series of experiments to show the fundamental principles, characteristics and operation of direct-current machines. Charge, \$3.

209. ALTERNATING-CURRENT MACHINES I. 4(4-0); I, II, and SS. Prerequisites: Calculus IIA (Math. 206A) and Direct-current Machines I (Elec. Engr. 203). Mr. Kerchner, Mr. Hunt, and Mr. Jorgenson.

A mathematical treatment of alternating-current phenomena.

214, 215. ALTERNATING-CURRENT MACHINES II. 5(3-4, 2); I, II, and SS. Prerequisite: Alternating-current Machines I. Mr. Kerchner, Mr. Hunt, and Mr. Jorgenson.

Principles of design, construction, and operation of transformers and alternating-current generators.

*Laboratory.*—A series of experiments illustrating the characteristics of alternating-current circuits, transformers, and alternating-current generators. Charge, \$3.

217, 218. ELECTRICAL COMMUNICATION I. 3(2-2, 1); I. Prerequisite: Alternating-current Machines I (Elec. Engr. 209). Mr. Kloeffer and Mr. Schumann.

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.

*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). Mr. Schumann.

The production, measurement, and control of high-frequency alternating currents and electromagnetic 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(3-4, 2); I, II, and SS. Prerequisite: Alternating-current Machines II. Mr. Kerchner, Mr. Hunt, Mr. Jorgenson, and Mr. Paslay.

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. (Elec. Engr. 215.) Tests on machines listed in Elect. Engr. 224. Charge, \$2.

227, 229. ELECTRICAL MEASUREMENTS. 4(2-4, 2); I and II. Prerequisites: Calculus I (Math. 205) and Engineering Physics II (Physics 150). Mr. Brenne- man and Mr. Schumann.

Methods for electric and magnetic measurements; resistance, quantity, current, electromotive force, capacity, inductance.

*Laboratory.*—Characteristics of electron tubes; measurement of resistance, inductance, and capacity. Charge, \$3.

230, 231. ELECTRICAL ENGINEERING M-I. 4(3-2); 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; and introduction to alternating-current circuits.

*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. Schumann.

Transmission problems, telephonic efficiencies, telephone repeaters, wave filters, and carrier currents.

*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. Hunt.

Photometry, light standards, principles of illumination, and illumination design.

*Laboratory.*—Photometric measurements of light intensity, luminous flux, brightness, and illumination; the determination of light distribution about various illuminants. Charge, \$1.50.

242, 243. ELECTRICAL ENGINEERING M-II. 4(3-2, 1); II. Prerequisite: Electrical Engineering M-I (Elec. Engr. 230, 231). Mr. Hunt.

The important principles of alternating-current machinery of primary importance to mechanical engineers.

*Laboratory.*—Standard tests of alternators, motors, and transformers, and methods of operating the different types of alternating-current machinery. Charge, \$1.50.

250. COMMERCIAL ENGINEERING. 2(2-0); II. Prerequisite: Economics (Econ. 101). Mr. Kloeffler.

The relation of the engineer to commercial life; salesmanship; humanics.

270. ELECTRICAL MACHINE DESIGN. 1(0-3); I and II. Prerequisite: Direct-current Machines I (Elec. Engr. 203). Mr. Brenneman and Mr. Hunt.

The principles of electrical design; each student makes calculation for electromagnets and a direct-current motor.

280. TRANSMISSION AND DISTRIBUTION OF ELECTRICAL ENERGY. 3(3-0); II. Prerequisite: Elec. Engr. 214. Mr. Brenneman.

Transmission line design, economic and technical features; and properties of cables and insulators.

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.

287. ADVANCED ILLUMINATING ENGINEERING. 3(3-0); II. Prerequisites: Engineering Physics II (Phys. 150) and Calculus IIA (Math. 206A). Mr. Hunt.

The various theories on the property of light, the theoretical distribution curves from light sources of various shapes, psychological and physiological phases of lighting, daylight illumination in buildings, and spectrophotometry.

288. ELECTRON TUBES. 3(3-0); I and SS. Prerequisites: Principles of Electrical Engineering (Elect. Engr. 120) and Alternating-current Machines I (Elect. Engr. 209). Mr. Schumann.

An advanced study of the characteristics, theory of operation, and the applications of electron tubes and photo-electric cells.

290. PUBLIC UTILITY MANAGEMENT. 3(3-0); II. Prerequisites: Economics (Econ. 101). Mr. Kloeffler.

The problems of depreciation, finance, rates, and public regulation in gas, electric, and telephone properties.

## FOR GRADUATE CREDIT

301. **ELECTRIC CIRCUITS I.** 3(3-0); I. Prerequisite: Alternating-current Machines III (Elec. Engr. 224). Mr. Kerchner.

Methods of determining short-circuit currents in networks; equivalent impedances of multicircuit transformers; symmetrical components for analysis of unbalanced polyphase circuits and analysis of induction motor performance on unbalanced voltages; short transmission lines in steady state.

304. **ELECTRIC CIRCUITS II.** 3(3-0); II. Prerequisite: Electric Circuits I (Elec. Engr. 301). Mr. Kerchner.

Long transmission lines in steady state with various terminal conditions; transmission charts; harmonics in circuits; general circuit constants; transmission problems involving synchronous machines.

307. **OPERATIONAL CIRCUIT ANALYSIS.** 3(3-0); I or II. Prerequisite: Alternating-current Machines I (Elec. Engr. 209). Mr. Brenneman and Mr. Paslay. Heaviside's Operational Calculus applied to electric circuit theory.

312. **HIGH FREQUENCY ALTERNATING CURRENTS.** 3(3-0); II. Prerequisites: Alternating-current Machines I (Elec. Engr. 209) and Radio Communication (Elec. Engr. 219), or equivalent. Mr. Paslay.

An advanced study of high-frequency currents in coupled and resonant circuits; the analytical treatment of vacuum tubes as used for amplification, modulation, and detection.

316. **ADVANCED ELECTRICAL THEORY.** 2 to 6 credits; I and II. Prerequisite: Alternating-current Machines III (Elec. Engr. 224). Mr. Kloeffler.

An advanced course in electrical theory designed to meet the needs of graduate students.

336. **RESEARCH IN ELECTRICAL ENGINEERING.** 1 to 10 credits; I or II. Prerequisite: Alternating-current Machines II (Elec. Engr. 214). Mr. Kloeffler, Mr. Brenneman, Mr. Kerchner, and Mr. Paslay.

Special investigations adapted to the needs of individual students; may be used as the basis of a master's thesis. The laboratory work is correlated with the work of the Engineering Experiment Station.

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## General Engineering

Dean SEATON  
Assistant Dean DURLAND

101. **ENGINEERING LECTURES.** R(1-0); entire freshman year. Dean Seaton, other members of the engineering faculty, and visiting practicing engineers.

Designed to acquaint freshman 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. Charge, 75 cents.

## Machine Design

Professor PEARCE  
 Professor DURLAND  
 Associate Professor SMUTZ

Associate 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 particular reference to commercial drafting-room methods. The object of these courses is primarily to develop this graphical language as a tool to be used in all future engineering work.

The courses in machine design deal with mechanical transmission of power, analysis of the action of machine parts, and design of machine elements and of complete machines with careful regard to strength, stiffness, and general operating efficiency. They consider also aerodynamic forces and airplane structures.

The department owns equipment valued at \$7,808.

### COURSES IN DRAWING AND MACHINE DESIGN

#### FOR UNDERGRADUATE CREDIT

101. ENGINEERING DRAWING. 2(0-6); I, II, and SS. Mr. Smutz, Mr. Gingrich, 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.

106. DESCRIPTIVE GEOMETRY. 2(0-6); I, II, and SS. Prerequisites: Engineering Drawing (Mach. Design 101) and Solid Geometry. Mr. Smutz, Mr. Gingrich, 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.

107. DESCRIPTIVE GEOMETRY A. 3(0-9); I and II. Prerequisite: Solid Geometry. Mr. Smutz and Mr. Gingrich.

This course is primarily for architectural students, and its problems are all related to their work.

108. SHADES AND SHADOWS, AND PERSPECTIVE. 3(0-9); I and II. Prerequisites: Descriptive Geometry A (Mach. Design 107) and Elements of Architecture I (Arch. 106A). Mr. Smutz.

Conventional shades and shadows of common geometrical solids and solids of revolution; simple architectural problems; the theory of perspective as applied to the same simple solids and to problems from architectural practice. Charge, \$1.50.

111. MACHINE DRAWING I. 2(0-6); I, II, and SS. Prerequisite: Descriptive Geometry (Mach. Design 106). Mr. Olsen 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.

116. MACHINE DRAWING II. 3(0-9); I, II, and SS. Prerequisite: Machine Drawing I (Mach. Design 111). Mechanism (Mach. Design 121) must precede or accompany this course. Mr. Olsen and Mr. Branigan.

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.

117. MACHINE DRAWING E-II. 2(0-6); I, II, and SS. Prerequisite: Machine Drawing I (Mach. Design 111). 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.

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.

126. THESIS. 1(0-3), I, and 2(0-6), II, respectively. Mr. Pearce and Mr. Durland.

Excellent material for thesis study is furnished by projects in machine design, or aërodynamics; subject of the investigation is 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 and II. Prerequisites: Strength of Materials (Ap. Mech. 211), Machine Drawing II (Mach. Design 116), and Steam and Gas Engineering II (Mech. Eng. 204, 205). Mr. Pearce, Mr. Durland, and Mr. Olsen.

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.

*Laboratory.*—Riveted joints 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); I and II. Prerequisite: Mach. Design 204, 205. Mr. Pearce, Mr. Durland, and Mr. Olsen.

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.

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.

250, 251. AÉRODYNAMICS. 4(3-3); I. Prerequisite: Applied Mechanics (Ap. Mech. 202). Mr. Pearce and Mr. Durland.

A general introduction into aërodynamics, particularly as regards action of air foils, effects of parasite drag, prediction of performance, and analysis of stability and control.

*Laboratory.*—Determination of performance curves and the stability of an airplane.

255. AIRPLANE DESIGN. 2(0-6); II. Prerequisites: Aërodynamics (Mach. Design 250, 251) and Strength of Materials (App. Mech. 211, 220). Mr. Pearce and Mr. Durland.

A general presentation of the problems involved in the design and stress analysis of an airplane structure, particularly as regards the requirements of the United States Department of Commerce.

#### FOR GRADUATE CREDIT

301. ADVANCED MACHINE DESIGN. 1 to 10 credits; I or II. For prerequisites, consult instructors. Mr. Pearce and Mr. Durland.

At the option of the student this course may include (a) the design of a

machine, (b) 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, or (c) a study of some phase of aërodynamics.

310. RESEARCH IN DESIGN. 1 to 10 semester hours; I, II, and SS. For prerequisites, consult instructors. Mr. Pearce and Mr. Durland.

Original investigation in the analysis, design, or test of machines and machine elements, or into some phase of aërodynamics. This work may furnish material for the master's thesis.

## Mechanical Engineering

Professor CALDERWOOD  
Professor MACK

Associate Professor BRAINARD  
Instructor FLINNER

The object of the instruction in this department is to give to the student the fundamental principles underlying the design, construction, selections, 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, fuel, lubricants, airplane motors, 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 \$45,553.

### COURSES IN MECHANICAL ENGINEERING

#### FOR UNDERGRADUATE CREDIT

120, 125. STEAM AND GAS ENGINEERING C. 3(2-3); I and II. Prerequisites: Engineering Physics II and Calculus I. Mr. Flinner.

Steam boilers, steam engines, steam turbines, gas and oil engines, including the various auxiliaries.

*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, \$1.50.

130. ELEMENTS OF STEAM AND GAS POWER. 2(0-6); I and II. Mr. Calderwood and Mr. Brainard.

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.

135. HEATING AND VENTILATION A. 3(3-0); II. Prerequisite: Engineering Physics I or General Physics I. Mr. Mack.

Fundamental principles of heating and ventilation; heat transmission of materials; furnace, steam, hot-water, and fan systems of heating.

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.

180. INSPECTION TRIP. R; I. Prerequisite: Senior classification. Mr. Calderwood and assistants.

A trip of three to four days to Kansas City and other near-by industrial centers for the purpose of inspecting industrial plants of special interest to mechanical engineering students. The plants inspected are carefully selected to exemplify various engineering applications in practice.

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

201, 202. STEAM AND GAS ENGINEERING I. 5(4-3); I and II. Prerequisites: Mechanism (Mach. Design 121) and Calculus I (Math. 205). Mr. Calderwood, Mr. Mack, Mr. Brainard, and Mr. Flinner.

Heat-power engineering, including valve gears and thermodynamics, with special stress upon the thermodynamics of gases and vapors, and gas and vapor cycles.

*Laboratory.*—Study and calibration of steam gauges, indicators, and planimeters; valve-setting and steam-engine operation; study of calorimeters, flow meters, and feed-water heaters; determination of the indicated and brake horsepower, mechanical efficiency and steam consumption of high-speed automatic cut-off, Corliss, simple and compound engines; tests of DeLaval, Kerr, and Terry steam turbines. Charge, \$1.50.

204, 205. STEAM AND GAS ENGINEERING II. 4(3-3); I and II. Prerequisite: Course 201. Mr. Calderwood, Mr. Mack, Mr. Brainard, and Mr. Flinner.

A detailed study of steam engines, steam boilers, steam turbines, internal-combustion engines, fuels and combustion, gas producers, and other power-plant equipment.

*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.

207. POWER-PLANT ENGINEERING. 3(1-6); I and II. Prerequisite: Mech. Eng. 204. Mr. Mack, Mr. Brainard, and Mr. Flinner.

Complete power-plant testing; special investigations of steam-engine performance; 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. HEATING AND VENTILATION. 3(2-3); II. Prerequisite: Mech. Engr. 204. Mr. Mack.

Fundamental principles of heating and ventilation; study of heat losses from buildings, different methods of heating, layout of piping and duct systems, temperature control, air conditioning, and artificial cooling.

*Laboratory.*—Tests of fans, blowers, radiators, house-heating boilers, and automatic ventilators; the design of heating and ventilating systems for buildings. Charge, \$1.

221. REFRIGERATION. 2(2-0); I. Prerequisite: Mech. Eng. 201. Mr. Mack. Thermodynamics of refrigeration; systems of refrigeration and their opera-

tion, application of refrigeration to ice making, cold storage, and the cooling of gases, liquids, and solids.

230. **ADVANCED THERMODYNAMICS.** 2(2-0); I. Prerequisite: Mech. Eng. 201. 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. Prerequisite: Mech. Eng. 204. Mr. Calderwood and Mr. Flinner.

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.

240. **INTERNAL COMBUSTION ENGINES.** 2(2-0); II. Prerequisite: Mech. Engr. 201. Mr. Flinner.

General principles of the internal combustion engine with special reference to its use as an airplane motor; study of cycles of operation, fuels, carburetors, ignition systems, engine requirements, altitude performance, reliability, and types of airplane engines.

#### FOR GRADUATE CREDIT

305. **RESEARCH IN MECHANICAL ENGINEERING.** 1 to 10 credits; I, II, and SS. For prerequisites, consult instructors. Mr. Calderwood and Mr. Mack.

The laboratory work is correlated with the work of the Engineering Experiment Station. Investigations of 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.

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## Shop Practice

Professor CARLSON  
 Professor SELLERS  
 Associate Professor GRAHAM  
 Assistant Professor JONES  
 Assistant Professor LYNCH

Assistant Professor AIMAN  
 Instructor GRANT  
 Instructor GREELEY  
 Instructor MCCOLLUM

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 farm shop, 65 by 75 feet, is equipped for handling farm-shop projects. The machine shop, 40 by 170 feet, is well equipped with the necessary machines. The blacksmith shop is 50 by 100 feet and is equipped with twenty down-draft forges, arc and oxyacetylene welding outfits, and other important equipment. The iron and brass foundries are 27 by 100 and 24 by 34 feet, respectively. The metallography laboratory occupies 3,200 square feet of floor space and is well equipped for class and research work.

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 \$39,620.

## COURSES IN SHOP PRACTICE

### FOR UNDERGRADUATE CREDIT

101. **ENGINEERING WOODWORK.** 1(0-3); I and II. Mr. Aiman.  
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.
117. **MANUAL TRAINING FOR PRIMARY GRADES.** 2(0-6); I, II, and 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. Mr. Aiman.  
Exercises with reed and art fiber in constructing commercial articles; special instruction in methods of teaching this work. Charge, \$2.50.
120. **WOODWORKING FOR GRAMMAR GRADES.** 2(0-6); I, II, and SS. Mr. Aiman.  
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. Aiman.  
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. Aiman.  
Advanced work in cabinet construction by the use of woodworking machinery, and such bench work as is necessary; both quantity and quality are emphasized, in order that proper use may 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); I, II, and SS. Mr. Aiman.  
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. Aiman.  
An opportunity to specialize in wood finishing, cabinet work, or some other work of special interest to the student. Charge, \$2.50.
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.
149. **CARPENTRY.** 2(0-6); I. Mr. Graham.  
Discussions, demonstrations, and practice in connection with tools and materials used in carpenter work on the farm. For students in agricultural engineering. Charge, \$2.50.
150. **FORGING.** 1(0-3); I and II. Mr. Lynch and Mr. Greeley.  
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. 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 and II. Mr. Grant and Mr. Greeley.

(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 and II. 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 I. 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.

168. AIRPLANE FABRICATION. 1(0-3); I and II. Prerequisites: Shop 150 and 167. Mr. Greeley.

Demonstrations, discussions, and practice in the construction and testing of welded airplane parts. Consideration is also given to welding equipment used in the construction of the airplane. Charge, \$2.50.

170. MACHINE TOOL WORK I. 2(0-6); I, II, and SS. Prerequisite: Shop 161. Mr. Jones and Mr. McCollum.

Practice in chipping, filing, shaper and planer work; scraping, drilling, and turning on the lathe. Charge, \$5.

173. SHEET METAL WORK. 2(0-6); I, II, and SS. Prerequisite: Engineering Drawing or equivalent. Mr. Graham.

Covers developments, the use of templets, practice in soldering, brazing, folding, wiring, flanging, seaming, rolling, and the more common operations on sheet metal. Charge, \$2.50.

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.

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. McCollum.

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. 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

245. **FACTORY ENGINEERING.** 2(2-0); I. 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 245) is used in the design of a factory.

261. **ADVANCED SHOP PRACTICE.** 1 to 10 credits; I, II, and SS. Mr. Carlson and assistants.

Continuation of courses Shop 101, 135, 140, 147, 150, 158, 161, 175, 193, 255 or 265. Opportunity is also offered to specialize to a limited degree along certain lines of shop practice, such as heat treatment of steel, oxyacetylene and electric welding, jig fixtures and die work, patternmaking and any shop work that may be of special interest to the student. All assignments must be approved by the head of the Department of Shop Practice. Charge varies with subject matter.

264. **STRUCTURE AND PROPERTIES OF METALS.** 3(2-3); I, II, and SS. Not open to students who have credit in Shop 165 or Shop 167. Prerequisite: Chemistry E-I and E-II or may be taken with Chemistry E-II. Mr. Sellers.

A study of the structure and properties of the more common metals and alloys. Charge, \$2.50.

265. **METALLOGRAPHY II.** 2(0-6); I and II. Prerequisite: Shop 167. Mr. Sellers.

A continuation of course 167, with work in brass, bronze and aluminum, and advanced work in steel. Charge, \$5.

286. **SHOP PRACTICE TEACHING.** 1 to 6 credits; I, II, and SS. For prerequisites, consult instructor. Mr. Carlson and assistants.

Actual laboratory teaching experience under the supervision of an instructor. Work covers the outlining, preparation and presentation of assignments and the supervision of the work; procurement of materials and equipment, shop layouts and upkeep, and general considerations. In so far as possible the course is adapted to the particular needs of the student. All assignments must be approved by the head of the department.

## FOR GRADUATE CREDIT

301. **RESEARCH IN SHOP PRACTICE.** 1 to 10 credits; I, II, and SS. For prerequisites, consult instructors. Mr. Carlson, Mr. Sellers, and assistants.

The problems related to shop practice offer a broad field for research. Authoritative data are needed by industry in many fields dealing with metallurgy, metallography, foundry, blacksmithing, woodworking, machine-shop practice, the farm shop and the automobile. The results of such investigations, if suitable, may be incorporated in bulletins of the Engineering Experiment Station; this work may furnish material for the master's thesis. All assignments must be approved by the head of the Department of Shop Practice.

# The Division of General Science

RODNEY WHITTEMORE BABCOCK, *Dean*

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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 this institution. Nine 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 the 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.

A four-year curriculum is offered in applied music, preparing the student with a major in voice, piano, violin, organ, or other instrument, and with a minor in another of these subjects. Students completing this curriculum are awarded the degree of Bachelor of Music. If the required subjects in Education have been elected, they are eligible to receive a three-year special state certificate in music renewable for three-year terms.

A four-year curriculum in music education is also offered, with specialization in voice, instrument, or public-school band or orchestra. Students completing this curriculum are awarded the degree of Bachelor of Science in Music Education, and are eligible to receive a special state certificate to teach music and permission to teach any nonmusic subject in which they have completed fifteen or more college hours; students completing this curriculum with sufficient extra hours so that not more than forty hours in music are submitted to the State Board of Education are eligible to receive the state three-year, renewable-for-life certificate.

## 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 the 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 teaching 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.

## CURRICULA 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 knowl-



edge 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.

The curriculum in commerce with special training in accounting furnishes a course of study for those who wish preparation in this important activity of business and government. The basic subjects of the four-year curriculum in commerce are included, and a sequence of courses in accounting extends through the last three years. Modern tax laws have made accounting imperative in all branches of industry, and the graduate from this curriculum is prepared to take a place in this part of the commercial relations of the world.

### **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, and 36 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

## FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
College Rhetoric I, Engl. 101.....	*3(3-0)	College Rhetoric II, Engl. 104.....	3(3-0)
Chemistry I, Chem. 101.....	5(3-6)	Chemistry II, Chem. 102.....	5(3-6)
College Algebra, † Math. 104.....	3(3-0)	Plane Trigonometry, Math. 101.....	3(3-0)
General Botany I, Bot. 101.....	3(1-4, 2)	General Botany II, Bot. 105.....	3(1-4, 2)
Library Methods, Lib. Ec. 101.....	1(1-0)	Current History, Hist. 126.....	1(1-0)
Infantry I, Mil. Tr. 101A (men)....	1(0-3)	Infantry II, Mil. Tr. 102A (men)....	1(0-3)
Phys. Education M, Phys. Ed. 103..	R(0-2)or	Phys. Education M, Phys. Ed. 104..	R(0-2)or
Phys. Education W, Phys. Ed. 151A,	R(0-3)	Phys. Education W, Phys. Ed. 152A,	R(0-3)
Total.....	15 or 16	Total.....	15 or 16

## SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
English Literature, Engl. 172.....	3(3-0)	American Literature, Engl. 175.....	3(3-0)
English History, Hist. 121.....	3(3-0)	Modern Europe II, Hist. 223.....	3(3-0)
General Physics I, Phys. 135.....	4(3-3)	General Physics II, Phys. 140.....	4(3-3)
General Zoölogy, Zoöl. 105.....	5(3-6)	General Psychology, Educ. 184.....	3(3-0)
Infantry III, Mil. Tr. 103A (men)...	1(0-3)	Elective †.....	2(-)
Phys. Education M, Phys. Ed. 105..	R(0-2)or	Infantry IV, Mil. Tr. 104A (men)...	1(0-3)
Phys. Education W, Phys. Ed. 153..	R(0-3)	Phys. Education M, Phys. Ed. 106..	R(0-2)or
Total.....	15 or 16	Phys. Education W, Phys. Ed. 154..	R(0-3)
		Total.....	15 or 16

## JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Hist. of Engl. Literature, Engl. 181..	3(3-0)	American History I, Hist. 201.....	3(3-0)
Amer. Govt., Hist. 151, 152 or 153..	3(3-0)	Economics I, Econ. 101.....	3(3-0)
Current History, Hist. 126.....	1(1-0)	Gen. Microbiology, Bact. 101.....	3(1-6)
Extm. Speech I, Public Spk. 106...	2(2-0)	Elective †.....	6(-)
Elective †.....	6(-)	Total.....	15
Total.....	15	Total.....	15

## SENIOR

FIRST SEMESTER	SECOND SEMESTER
Elective †.....	Elective †.....
15(-)	15(-)

*Summary.*—Men: Physical education, two years, required; military science, 4 hours; other prescribed subjects, 76 hours; elective, 44 hours; total, 124 hours. Women: The same, except no military science. Total, 120 hours.

## Pre-Medical and Pre-Pharmaceutical Adaptation of Curriculum in General Science

The following arrangement of required and elective subjects is prepared for students who wish to enter medical school at the end of two years. Students wishing to enter a school of pharmacy must elect German, and in the sophomore year substitute Botany I and Botany II for General Zoölogy and Comparative Anatomy, and General Microbiology for English Literature. At least 60 hours must be completed in the two years.

\* The number before the parenthesis indicates the number of 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 additional hours are applied against electives.

‡ Electives are to be chosen, with the advice and approval of the dean, in groups of not less than eight hours, or in courses which extend fields already entered in the required work.

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)
French I, Mod. Lang. 151.....	3(3-0)or
German I, Mod. Lang. 101.....	3(3-0)
Library Methods, Lib. Econ. 101....	1(1-0)
Infantry I, Mil. Tr. 101A (men)....	1(0-3)
Phys. Education M, Phys. Ed. 103..	R(0-2)or
Phys. Education W, Phys. Ed. 151A,	R(0-3)

Total..... 15 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)
Modern Language (cont.).....	3(3-0)
Current History, Hist. 126.....	1(1-0)
Infantry II, Mil. Tr. 102A (men)....	1(0-3)
Phys. Education M, Phys. Ed. 104..	R(0-2)or
Phys. Education W, Phys. Ed. 152A,	R(0-3)

Total..... 15 or 16

SOPHOMORE

FIRST SEMESTER

Modern Language (cont.).....	3(3-0)
Organic Chemistry I, Chem. 218....	4(2-6)
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. Education M, Phys. Ed. 105..	R(0-2)or
Phys. Education W, Phys. Ed. 153..	R(0-3)

Total..... 16 or 17

SECOND SEMESTER

English Literature, Engl. 172.....	3(3-0)
Organic Chemistry II, Chem. 219....	4(2-6)
General Physics II, Physics 140.....	4(3-3)
Comp. Anat. of Vertebr., Zoöl. 246..	4(2-6)
Infantry IV, Mil. Tr. 104A (men)...	1(0-3)
Phys. Education M, Phys. Ed. 106..	R(0-2)or
Phys. Education W, Phys. Ed. 154..	R(0-3)

Total..... 15 or 16

Curriculum in Industrial Chemistry

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. Education M, Phys. Ed. 103..	R(0-2)or
Phys. Education W, Phys. Ed. 151A,	R(0-3)

Total..... 16 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. 111,	2(0-6)
Library Methods, Lib. Ec. 101.....	1(1-0)
Infantry II, Mil. Tr. 102A (men)....	1(0-3)
Phys. Education M, Phys. Ed. 104..	R(0-2)or
Phys. Education W, Phys. Ed. 152A,	R(0-3)

Total..... 16 or 17

SOPHOMORE

FIRST SEMESTER

Inorg. Preparations, Chem. 202.....	2(0-6)
Plane Anal. Geometry, Math. 110...	4(4-0)
Engr. Physics I, Physics 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. Education M, Phys. Ed. 105..	R(0-2)or
Phys. Education W, Phys. Ed. 153..	R(0-3)

Total..... 15 or 16

SECOND SEMESTER

Quant. Analysis, Chem. 241.....	5(1-12)
Calculus I, Math. 205.....	5(5-0)
Engr. Physics II, Physics 150.....	5(4-3)
Infantry IV, Mil. Tr. 104A (men)...	1(0-3)
Phys. Education M, Phys. Ed. 106..	R(0-2)or
Phys. Education W, Phys. Ed. 154..	R(0-3)

Total..... 15 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)
Elec. Engr. C, Elec. Engr. 102, 106...	3(2-2, 1)
History of Chemistry, Chem. 208....	1(1-0)
Electives†.....	3(-)

Total..... 17

†Electives are to be chosen, with the advice and approval of the dean, in groups of not less than eight semester hours, or in courses which extend fields already entered in the required work.

SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Amer. Govt., Hist. 151, 152, or 153..	3(3-0)	Economics I, Econ. 101.....	3(3-0)
Indust. Chemistry I, Chem. 203.....	5(3-6)	Indust. Chemistry II, Chem. 204.....	5(3-6)
Scientific German, Mod. Lang. 237..	4(4-0)	Chemistry Problems, Chem. 270.....	3(0-9)
Inspection Trip, Chem. 130.....	R		
Electives†.....	5( - )	Electives†.....	5( - )
<b>Total.....</b>	<b>17</b>	<b>Total.....</b>	<b>16</b>

*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 hours. Women: The same, except no military science. Total, 129 hours.

Curriculum in Industrial Journalism

FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
College Rhetoric I, Engl. 101.....	3(3-0)	College Rhetoric II, Engl. 104.....	3(3-0)
General Chemistry, Chem. 110.....	5(3-6)	General Geology, Geol. 103.....	3(3-0)
Modern Language I*.....	3(3-0)	Modern Language II*.....	3(3-0)
Library Methods, Lib. Ec. 101.....	1(1-0)	Journalistic Vocations, Ind. Jour. 140,	2(2-0)
Option related to an Industry or to Applied Science*.....	3( - )	Option related to an Industry or to Applied Science*.....	4( - )
Infantry I, Mil. Tr. 101A (men)....	1(0-3)	Infantry II, Mil. Tr. 102A (men)....	1(0-3)
Industrial Journalism Lecture.....	R	Industrial Journalism Lecture.....	R
Phys. Education M, Phys. Ed. 103..	R(0-2)or	Phys. Education M, Phys. Ed. 104..	R(0-2)or
Phys. Education W, Phys. Ed. 151A,	R(0-3)	Phys. Education W, Phys. Ed. 152A,	R(0-3)
<b>Total.....</b>	<b>15 or 16</b>	<b>Total.....</b>	<b>15 or 1</b>

SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
El. Journalism, Ind. Jour. 151.....	2(2-0)	Industrial Writing, Ind. Jour. 161... ..	2(2-0)
Prin. of Typography, Ind. Jour. 101..	3(2-3)	English Literature, Engl. 172.....	3(3-0)
General Zoology, Zoöl. 105.....	5(3-6)or	General Botany II, Bot. 105.....	3(1-4, 2)or
General Botany I, Bot. 101.....	3(1-4, 2)	General Microbiology, Bact. 101... ..	3(1-6)if
Modern Language Readings*.....	3(3-0)	General Botany I is chosen the first semester.	
Option related to an Industry or to Applied Science*.....	2 or 4( - )	General Psychology, Educ. 184.....	3(3-0)
Industrial Journalism Lecture.....	R	Option related to an Industry or to Ap. Science or Social Science*..	7 or 4( - )
Infantry III, Mil. Tr. 103A (men)...	1(0-3)	Industrial Journalism Lecture.....	R
Phys. Education M, Phys. Ed. 105..	R(0-2)or	Infantry IV, Mil. Tr. 104A (men)...	1(0-3)
Phys. Education W, Phys. Ed. 153..	R(0-3)	Phys. Education M, Phys. Ed. 106..	R(0-2)or
		Phys. Education W, Phys. Ed. 154..	R(0-3)
<b>Total.....</b>	<b>15 or 16</b>	<b>Total.....</b>	<b>15 or 16</b>

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Advanced Reporting, Ind. Jour. 163..	3(3-0)	Jour. for Women, Ind. Jour. 172... ..	2(2-0)or
Ind. Feature Writing, Ind. Jour. 167,	2(2-0)	The Rural Press, Ind. Jour. 181.....	2(2-0)or
Prin. of Adv., Ind. Jour. 178.....	4(4-0)	Adv. Practice, Ind. Jour. 225.....	2(2-0)
American Literature, Engl. 175.....	3(3-0)	Copy Reading, Ind. Jour. 254.....	2(0-6)
Option related to an Industry or to Ap. Science or Social Science*....	3( - )	History of English Lit., Engl. 181....	3(3-0)
		Extens. Speech I, Pub. Spk. 106.....	2(2-0)
		Current History, Hist. 126.....	1(1-0)
		Options and Electives*.....	5( - )
Industrial Journalism Lecture.....	R	Industrial Journalism Lecture.....	R
<b>Total.....</b>	<b>15</b>	<b>Total.....</b>	<b>15</b>

† Electives are to be chosen, with the advice and approval of the dean, in groups of not less than eight semester hours, or in courses which extend fields already entered in the required work.

SENIOR

FIRST SEMESTER

Current History, Hist. 126.....	1(1-0)
Editorial Practice, Ind. Jour. 257....	2(2-0)
Contem. Thought, Ind. Jour. 255....	3(3-0)
Electives and Options*.....	9( - )
Industrial Journalism Lecture.....	R

Total..... 15

SECOND SEMESTER

Hist. & Ethics of Jour., Ind. Jour. 273,	3(3-0)
American Govt., Hist. 151.....	3(3-0)
Electives and Options*.....	9( - )
Industrial Journalism Lecture.....	R

Total..... 15

*Summary.*—Men: Physical education, two years required; military science, 4 hours; industrial journalism, 30 hours; restricted options, 27 hours; modern language, 9 hours; other prescribed subjects, 39 or 40 hours; general electives, 14 or 15 hours; total, 124 hours. Women: The same, excepting no military science, total, 120 hours.

\* The options and electives are chosen with the advice and approval of the dean. The options are in two general groups: (1) fifteen semester hours in courses related to an industry or to applied science, and (2) twelve semester hours in courses in political or social science, 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 following the tabulation of the curricula. The fifteen-hour option related to an industry or to applied science must be selected from one of the following groups: Group 31 (applied science), group 32 (home economics), group 35 (agriculture), group 36 (drawing and art), group 37 (manual and industrial arts), and group 38 (printing). The twelve-hour option in social science may be selected by any combination formed from the following groups: Group 15 (history, government and law), group 16 (economics and sociology), and group 30 (social science).

Proficiency equivalent to nine hours of study in a modern language is required. Each unit of German, French or Spanish offered for entrance reduces this requirement in that language by three hours, an equal amount of additional electives being chosen.

Electives are to be chosen in groups of usually not fewer than eight semester hours, unless they are selected in subjects which extend fields already entered through the required subjects or the options.

## Curriculum in Music Education

Students wishing special training in Band or Orchestra make the following substitution:

Instrument, 16 hours, for Voice, 6 hours, Piano, 2 hours, and Voice or Instrument, 8 hours, and take Chorus, R (1-0), throughout the senior year.

## FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
College Rhetoric I, Engl. 101.....	3(3-0)	College Rhetoric II, Engl. 104.....	3(3-0)
Harmony I, Mus. 101.....	2(2-0)	Harmony II, Mus. 102.....	2(2-0)
Ear Tr. & Sight Singing I, Mus. 105..	2(1-3)	Ear Tr. & Sight Singing II, Mus. 106	2(1-3)
Piano, Mus. 161.....	2(1-6)	Piano, Mus. 161.....	2(1-6)
Voice, Mus. 156.....	2(1-6)	Voice, Mus. 156.....	2(1-6)
Orch. Instruments I, Mus. 151A.....	½(1- )	Orch. Instruments II, Mus. 151B....	½(1- )
Choral Ensemble, Mus. 194.....	½(0-2)	Choral Ensemble, Mus. 194.....	½(0-2)
General Psychology, Educ. 184.....	3(3-0)	Phys. or Biol. Science.....	3( - )
Infantry I, Mil. Tr. 101A (men).....	1(0-3)	Infantry II, Mil. Tr. 102A (men)....	1(0-3)
Phys. Education M, Phys. Ed. 103..	R(0-2)or	Phys. Education M, Phys. Ed. 104..	R(0-2)or
Phys. Education W, Phys. Ed. 151A,	R(0-3)	Phys. Education W, Phys. Ed. 152A,	R(0-3)
Total.....	15 or 16	Total.....	15 or 16

## SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
Harmony III, Mus. 103.....	2(2-0)	Harmony IV, Mus. 104.....	2(2-0)
Ear Tr. & Sight Singing III, Mus. 107,	2(1-3)	Ear Tr. & St. Singing IV, Mus. 108...	2(1-3)
Piano, Mus. 161.....	1(½-6)	Piano, Mus. 161.....	1(½-6)
Voice, Mus. 156.....	1(½-6)	Voice, Mus. 156.....	1(½-6)
Orch. Instr. III, Mus. 151C.....	½(1- )	Orch. Instr. IV, Mus. 151D.....	½(1- )
Choral Ensemble, Mus. 194.....	½(0-2)	Choral Ensemble, Mus. 194.....	½(0-2)
School Music I, Mus. 138.....	2(2-0)	School Music II, Mus. 139.....	2(2-0)
Conducting I, Mus. 117.....	1(1-0)	English Literature, Engl. 172.....	3(3-0)
Phys. or Bio. Science.....	5( - )	Nonmusic elective.....	3( - )
Infantry III, Mil. Tr. 103A (men)...	1(0-3)	Infantry IV, Mil. Tr. 104A (men)...	1(0-3)
Phys. Education M, Phys. Ed. 105..	R(0-2)or	Phys. Education M, Phys. Ed. 106..	R(0-2)or
Phys. Education W, Phys. Ed. 153..	R(0-3)	Phys. Education W, Phys. Ed. 154..	R(0-3)
Total.....	15 or 16	Total.....	15 or 16

## JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Counterpoint, Mus. 108A.....	2(2-0)	Musical Form & Analysis, Mus. 111..	1(1-0)
Hist. & Appre. of Music I, Mus. 112..	3(3-0)	Hist. & Appre. of Music II, Mus. 113,	3(3-0)
Voice or Instrument.....	2(1-6)	Voice or Instrument.....	2(1-6)
Conducting II, Mus. 128.....	1(1-0)	School Music III, Mus. 143.....	2(2-0)
Orch. Instr. V, Mus. 151E.....	½(1- )	Orch. Instr. VI, Mus. 151F.....	½(1- )
Choral Ensemble, Mus. 194.....	½(0-2)	Choral Ensemble, Mus. 194.....	½(0-2)
Educational Psychology, Educ. 109..	3(3-0)	Educ. Admin., Educ. 105.....	3(3-0)
Education Elective.....	3(3-0)	American Literature, Engl. 175.....	3(3-0)
Total.....	15	Total.....	15

## SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Voice or Instrument.....	2(1-6)	Voice or Instrument.....	2(1-6)
Orch. Instr. VII, Mus. 151G.....	½(1- )	Orch. Instr. VIII, Mus. 151H.....	½(1- )
Choral Ensemble, Mus. 194.....	½(0-2)	Choral Ensemble, Mus. 194.....	½(0-2)
Teach. Part. in Grade School, Ed. 129,	3(3-0)		
Instr. & Orches., Mus. 136.....	3(3-0)	Education elective.....	3(3-0)
English elective.....	3(3-0)	Nonmusic electives.....	9( - )
Nonmusic electives.....	3( - )		
Total.....	15	Total.....	15

*Summary.*—Women: Physical education, required; theoretical music, 40 hours; applied music, 24 hours; other prescribed subjects, 35 hours; restricted electives, 6 hours; nonmusic electives, 15 hours. Total, 120 hours. Men: The same, except that military science, 4 hours, is also required. Total, 124 hours.

## Curriculum in Applied Music

Students majoring in piano or pipe organ are required to take Piano Ensemble R(1-0) each semester.

### FRESHMAN

#### FIRST SEMESTER

College Rhetoric I, Engl. 101.....	3(3-0)
Music Major.....	4(1-12)
Ear Tr. & Sight Singing I, Mus. 105..	2(1-3)
Harmony I, Mus. 101.....	2(2-0)
Modern Language.....	3(3-0)
Orch. Instr. I, Mus. 151A.....	½(1- )
Ensemble, Mus. 183.....	½(0-2)
Infantry I, Mil. Tr. 101A (men).....	1(0-3)
Phys. Education M, Phys. Ed. 103..	R(0-2)or
Phys. Education W, Phys. Ed. 151A,	R(0-3)

Total..... 15 or 16

#### SECOND SEMESTER

College Rhetoric II, Engl. 104.....	3(3-0)
Music Major.....	4(1-12)
Ear Tr. & Sight Singing II, Mus. 106,	2(1-3)
Harmony II, Mus. 102.....	2(2-0)
Modern Language.....	3(3-0)
Orch. Instr. II, Mus. 151B.....	½(1- )
Ensemble, Mus. 183.....	½(0-2)
Infantry II, Mil. Tr. 102A (men)....	1(0-3)
Phys. Education M, Phys. Ed. 104..	R(0-2)or
Phys. Education W, Phys. Ed. 152A,	R(0-3)

Total..... 15 or 16

### SOPHOMORE

#### FIRST SEMESTER

Music Major.....	4(1-12)
Music Minor.....	2(1-6)
Harmony III, Mus. 103.....	2(2-0)
Orch. Instr. III, Mus. 151C.....	½(1- )
Ensemble, Mus. 183.....	½(0-2)
Recital I, Mus. 181A.....	R( - )
Hist. & Appre. of Mus. I, Mus. 112..	3(3-0)
Modern Language.....	3(3-0)
Infantry III, Mil. Tr. 103A (men)....	1(0-3)
Phys. Education M, Phys. Ed. 105..	R(0-2)or
Phys. Education W, Phys. Ed. 153..	R(0-3)

Total..... 15 or 16

#### SECOND SEMESTER

Music Major.....	4(1-12)
Music Minor.....	2(1-6)
Harmony IV, Mus. 104.....	2(2-0)
Orch. Instr. IV, Mus. 151D.....	½(1- )
Ensemble, Mus. 183.....	½(0-2)
Recital II, Mus. 181B.....	R( - )
Hist. & Appre. of Music II, Mus. 113	3(3-0)
Modern Language.....	3(3-0)
Infantry IV, Mil. Tr. 104A (men)....	1(0-3)
Phys. Education M, Phys. Ed. 106..	R(0-2)or
Phys. Education W, Phys. Ed. 154..	R(0-3)

Total..... 15 or 16

### JUNIOR

#### FIRST SEMESTER

Music Major.....	4(1-12)
Music Minor.....	2(1-6)
Counterpoint, Mus. 108A.....	2(2-0)
Orch. Instr. V, Mus. 151E.....	½(1- )
Ensemble, Mus. 183.....	½(0-2)
Recital III, Mus. 181C.....	R( - )
Conducting I, Mus. 117.....	1(1-0)
Physics for Musicians I, Phys. 158...	5(4-3)

Total..... 15

#### SECOND SEMESTER

Music Major.....	4(1-12)
Music Minor.....	2(1-6)
Musical Form & Analysis, Mus. 111.	1(1-0)
Orch. Instr. VI, Mus. 151F.....	½(1- )
Ensemble, Mus. 183.....	½(0-2)
Recital IV, Mus. 181D.....	R( - )
General Psychology, Educ. 184.....	3(3-0)
Electives, nonmusic.....	4( - )

Total..... 15

### SENIOR

#### FIRST SEMESTER

Music Major.....	4(1-12)
Orch. Instr. VII, Mus. 151G.....	½(1- )
Ensemble, Mus. 183.....	½(0-2)
Recital V, Mus. 181E.....	R( - )
Methods and Materials for the Studio, Mus. 149.....	1(2-0)
English Literature, Engl. 172.....	3(3-0)
Electives, nonmusic.....	6( - )

Total..... 15

#### SECOND SEMESTER

Music Major.....	4(1-12)
Orch. Instr. VIII, Mus. 151H.....	½(1- )
Ensemble, Mus. 183.....	½(0-2)
Recital VI, Mus. 181F.....	R( - )
Instr. & Orches., Mus. 136.....	3(3-0)
Practice Teach. of Music, Mus. 187..	R(1- )
American Literature, Engl. 175.....	3(3-0)
Electives, nonmusic.....	4( - )

Total..... 15

*Summary.*—Women: Physical education, required; theoretical music, 26 hours; applied music, 48 hours; other prescribed subjects, 32 hours; nonmusic electives, 14 hours. Total, 120 hours. Men: The same, except that military science, 4 hours, is also required. Total, 124 hours.

## Curriculum in Physical Education for Men

## FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
Gymnastics I, Phys. Ed. 115A.....	2(1-3)	Gymnastics II, Phys. Ed. 117A.....	2(0-6)
Football I, Phys. Ed. 126A.....	2(1-3)	Track and Field Spts., Phys. Ed. 140A.	2(1-3)
Basket Ball, Phys. Ed. 130A.....	2(1-3)	General Zoölogy, Zoöl. 105.....	5(3-6)
College Rhetoric I, Engl. 101.....	3(3-0)	College Rhetoric II, Engl. 104.....	3(3-0)
General Chemistry, Chem. 110.....	5(3-6)	El. Org. Chemistry, Chem. 123.....	3(2-3)
Extm. Spk. I, Pub. Spk. 106.....	2(2-0)	Library Methods, Lib. Ec. 101.....	1(1-0)
Infantry I, Mil. Tr. 101A.....	1(0-3)	Infantry II, Mil. Tr. 102A.....	1(0-3)
Phys. Education M, Phys. Ed. 103..	R(0-2)	Phys. Education M, Phys. Ed. 104..	R(0-2)
Total.....	17	Total.....	17

## SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
Apparatus, Phys. Ed. 109.....	1(0-3)	Boxing, Phys. Ed. 132.....	1(0-3)
Football II, Phys. Ed. 127.....	2(1-3)	Personal Hygiene, Phys. Ed. 119....	2(2-0)
Swimming M I, Phys. Ed. 121.....	1(0-3)	Swimming M II, Phys. Ed. 122.....	1(0-3)
Human Anatomy, Zoöl. 123A.....	5(3-6)	Kinesiology M, Phys. Ed. 141B.....	3(3-0)
Embryology A, Zoöl. 135.....	3(2-3)	Physiology, Zoöl. 130.....	4(3-3)
General Psychology, Educ. 184.....	3(3-0)	History and Principles of Phys. Educ., Phys. Ed. 192.....	3(3-0)
Current History, Hist. 126.....	1(1-0)	Playground Management and Games M, Phys. Ed. 145A.....	2(2-0)
Infantry III, Mil. Tr. 103A.....	1(0-3)	Infantry IV, Mil. Tr. 104A.....	1(0-3)
Phys. Education M, Phys. Ed. 105..	R(0-2)	Phys. Education M, Phys. Ed. 106..	R(0-2)
Total.....	17	Total.....	17

## JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Extm. Speech II, Pub. Spk. 108....	2(2-0)	Sociology, Econ. 151.....	3(3-0)
School Hygiene, Phys. Ed. 148.....	3(3-0)	Baseball, Phys. Ed. 133.....	2(1-3)
Wrestling, Phys. Ed. 128.....	1(0-3)	Psych. Chld. and Adol., Educ. 250...	3(3-0)
First Aid and Mas., Phys. Ed. 113A..	3(3-0)	Educ. Admin., Educ. 105.....	3(3-0)
Org. and Admin. of Phys. Educ. M, Phys. Ed. 146B.....	2(2-0)	Practice Teaching in Phys. Educ. II, Phys. Ed. 136B.....	2(0-6)
Practice Teaching in Phys. Educ. I, Phys. Ed. 135.....	1(0-3)	Elective†.....	3( - )
El. Jour., Ind. Jour. 151.....	2(2-0)	Total.....	16
Elective†.....	3( - )	Total.....	17
Total.....	17	Total.....	16

## SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Phys. Diagnosis and Prescript., Phys. Ed. 124A.....	3(3-0)	Physiol. of Exercise, Phys. Ed. 123..	2(2-0)
Practice Teaching in Phys. Educ. III, Phys. Ed. 136C.....	2(0-6)	Teach. Partic. in H. S., Educ. 163...	3(3-0)
Educ. Psychology, Educ. 109.....	3(3-0)	Educ. Sociology, Educ. 239.....	3(3-0)
Gen. Microbiology, Bact. 101.....	3(1-6)	Public-school Program in Phys. Educ., Phys. Ed. 142.....	2(2-0)
Elective†.....	4( - )	Elective†.....	5( - )
Total.....	15	Total.....	15

*Summary.*—Military science, 4 hours; physical education, 49 hours; professional education, 18 hours; other prescribed subjects, 45 hours; general electives, 15 hours. Total, 131 hours.

† Electives are to be chosen with the advice and approval of the dean, in groups of not less than eight hours, and from departments other than physical education.



Curriculum in Physical Education for Women

FRESHMAN

FIRST SEMESTER

College Rhetoric I, Engl. 101.....	3(3-0)
General Chemistry, Chem. 110.....	5(3-6)
Extem. Speech I, Pub. Spk. 106.....	2(2-0)
Library Methods, Lib. Econ. 101.....	1(1-0)
Personal Health, Child Welfare 101..	2(2-0)
Phys. Educ. W, Phys. Ed. 151A.....	R(0-3)
Gen. Technic I, Phys. Ed. 157A.....	2(1-3)

SECOND SEMESTER

College Rhetoric II, Engl. 104.....	3(3-0)
El. Org. Chemistry, Chem. 123.....	3(2-3)
Extem. Speech II, Pub. Spk. 108.....	2(2-0)
General Zoölogy, Zoöl. 105.....	5(3-6)
Phys. Educ. W, Phys. Ed. 152A.....	R(0-3)
Gen. Technic II, Phys. Ed. 157B.....	2(1-3)

Total..... 15

Total..... 15

SOPHOMORE

FIRST SEMESTER

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. Educ. W, Phys. Ed. 153.....	R(0-3)
Gen. Technic III, Phys. Ed. 157C...	2(1-3)

SECOND SEMESTER

General Psychology, Educ. 184.....	3(3-0)
Kinesiology W, Phys. Ed. 184.....	2(2-0)
Physiology, Zoöl. 130.....	4(3-3)
History and Prin. of Phys. Ed., Phys. Ed. 192.....	3(3-0)
Current History, Hist. 126.....	1(1-0)
Phys. Educ. W, Phys. Ed. 154.....	R(0-3)
Gen. Technic IV, Phys. Ed. 157D...	2(1-3)

Total..... 15

Total..... 15

JUNIOR

FIRST SEMESTER

School Hygiene, Phys. Ed. 148.....	3(3-0)
General Microbiology, Bact. 101...	3(1-6)
Phys. Diagnosis W, Phys. Ed. 170...	3(3-0)
Folk Dancing I, Phys. Ed. 160.....	1(0-3)
Phys. Educ. W, Phys. Ed. 151A.....	R(0-3)
Gen. Technic V, Phys. Ed. 157E....	2(1-3)
Elective†.....	3( - )

SECOND SEMESTER

American Literature, Engl. 175.....	3(3-0)
Educ. Admin., Educ. 105.....	3(3-0)
Psych. of Chld. and Adol., Educ. 250,	3(3-0)
Therap. and Mas., Phys. Ed. 173....	3(2-3)
Folk Dancing II, Phys. Ed. 161.....	1(0-3)
Phys. Educ. W, Phys. Ed. 152A.....	R(0-3)
Gen. Technic VI, Phys. Ed. 157F....	2(1-3)

Total..... 15

Total..... 15

SENIOR

FIRST SEMESTER

Amer. Hist. Survey, Hist. 104.....	3(3-0)
Educ. Psychology, Educ. 109.....	3(3-0)
Ap. Nutrition, Food & Nutri. 121...	2(2-0)
Teach. and Adapt. of Phys. Educ., Phys. Ed. 188.....	3(3-0)
Phys. Educ. W, Phys. Ed. 153.....	R(0-3)
Gen. Technic VII, Phys. Ed. 157G...	2(1-3)
Elective†.....	2( - )

SECOND SEMESTER

Educ. Sociology, Educ. 239.....	3(3-0)
Organization and Administration of Phys. Educ. W, Phys. Ed. 176...	2(2-0)
Teach. Partic. in H. S., Educ. 163...	3(3-0)
Phys. Educ. W, Phys. Ed. 154.....	R(0-3)
Gen. Technic VIII, Phys. Ed. 157H...	2(1-3)
Elective†.....	5( - )

Total..... 15

Total..... 15

*Summary.*—Physical education, 41 hours; professional education, 18 hours; other pre-scribed subjects, 51 hours; general electives, 10 hours. Total, 120 hours.

† Electives are to be chosen with the advice and approval of the dean, in groups of not less than eight hours, and from departments other than physical education.

## Curriculum in Commerce

## FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
College Rhetoric I, Engl. 101.....	3(3-0)	College Rhetoric II, Engl. 104.....	3(3-0)
Phys. or Bio. Science*.....	3(-)	Phys. or Bio. Science*.....	5(-)
Modern Language*.....	3(3-0)	Modern Language*.....	3(3-0)
Current History, Hist. 126.....	1(1-0)	Current History, Hist. 126.....	1(1-0)
Extm. Speech I, Pub. Spk. 106.....	2(2-0)	American Ind. History, Hist. 105....	3(3-0)or
College Algebra, Math. 104.....	3(3-0)	Hist. of Commerce & Ind., Hist. 110..	3(3-0)
Infantry I, Mil. Tr. 101A (men)....	1(0-3)	Infantry II, Mil. Tr. 102A (men)....	1(0-3)
Phys. Educ. M, Phys. Ed. 103.....	R(0-2)or	Phys. Educ. M, Phys. Ed. 104.....	R(0-2)or
Phys. Educ. W, Phys. Ed. 151A.....	R(0-3)	Phys. Educ. W, Phys. Ed. 152A.....	R(0-3)
Total.....	15 or 16	Total.....	15 or 16

## SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
Coml. Correspondence, Engl. 122....	3(3-0)	General Psychology, Educ. 184.....	3(3-0)
Accounting I, Econ. 133.....	3(2-3)	Accounting II, Econ. 134.....	3(2-3)
Modern Language.....	3(3-0)	English Literature, Engl. 172.....	3(3-0)
Economics I, Econ. 101.....	3(3-0)	Economics II, Econ. 104.....	3(3-0)
History Elective.....	3(-)	Amer. Govt., Hist. 151, 152 or 153... 3(3-0)	
Infantry III, Mil. Tr. 103A (men)...	1(0-3)	Infantry IV, Mil. Tr. 104A (men)...	1(0-3)
Phys. Educ. M, Phys. Ed. 105.....	R(0-2)or	Phys. Educ. M, Phys. Ed. 106.....	R(0-2)or
Phys. Educ. W, Phys. Ed. 153.....	R(0-3)	Phys. Educ. W, Phys. Ed. 154.....	R(0-3)
Total.....	15 or 16	Total.....	15 or 16

## JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Elements of Statistics, Math. 126....	3(3-0)	Investments, Econ. 222.....	3(3-0)
Business Management, Econ. 126....	2(2-0)	Sociology, Econ. 151.....	3(3-0)
Money & Banking, Econ. 116.....	3(3-0)		
Marketing, Econ. 246.....	3(3-0)	Electives†.....	9(-)
Electives†.....	4(-)	Total.....	15
Total.....	15	Total.....	15

## SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Business Law I, Hist. 163.....	3(3-0)	Business Law II, Hist. 164.....	3(3-0)
Public Finance, Econ. 214.....	3(3-0)	Business Finance, Econ. 217.....	3(3-0)
Electives†.....	9(-)	Electives†.....	9(-)
Total.....	15	Total.....	15

*Summary.*—Men: Physical education, required; military science, 4 hours; commerce courses, 44 hours; other prescribed courses, 45 hours; special and general electives, 31 hours. Total, 124 hours. Women: The same except military science, 4 hours, not required. Total, 120 hours.

\* Eight hours of physical or biological science are to be elected in this curriculum, if possible in the freshman year. Subject to any prerequisites, chemistry, physics, botany, zoölogy, and geology are available. If Chemistry I is taken, Chemistry II is required also. Proficiency equivalent to nine hours of study in a modern language is required. Each unit of German, French, or Spanish offered for entrance reduces this requirement in that language by three hours, an equal amount of additional electives being chosen. 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.

† Twelve hours of special electives must be chosen from the following group: Economics 223, Credits and Collections; 229, Transportation Problems; 233, Labor Problems; 242, Property Insurance; 244, Life Insurance; 248, Economic Problems; 251, Advanced Economics; 257, Social Problems; 280, Advanced Accounting I; 281, Advanced Accounting II; 282, Income Tax Accounting; 283, Accounting Systems; 284, Institutional Accounting; 285, Auditing; 287, Cost Accounting; 289, Government Accounting; Education 265, Psychology of Advertising and Selling; 273, Psychology and Personnel Management; English 123, Written and Oral Salesmanship; 223, Advanced Problems in Commercial Correspondence; History and Government 260, Government Regulation of Business; Industrial Journalism 178, Principles of Advertising; and Mathematics 150, Mathematics of Investment.

## Curriculum in Commerce with Special Training in Accounting

### FRESHMAN

FIRST SEMESTER

College Rhetoric I, Engl. 101.....	3(3-0)
Phys. or Bio. Science*.....	3(-)
Modern Language*.....	3(3-0)
Current History, Hist. 126.....	1(1-0)
College Algebra, Math. 104.....	3(3-0)
Extm. Speech I, Pub. Spk. 106.....	2(2-0)
Infantry I, Mil. Tr. 101A (men)....	1(0-3)
Phys. Educ. M, Phys. Ed. 103.....	R(0-2)or
Phys. Educ. W, Phys. Ed. 151A.....	R(0-3)

Total..... 15 or 16

SECOND SEMESTER

College Rhetoric II, Engl. 104.....	3(3-0)
Phys. or Bio. Science*.....	5(-)
Modern Language*.....	3(3-0)
Current History, Hist. 126.....	1(1-0)
American Ind. History, Hist. 105....	3(3-0)or
Hist. of Com. & Indus., Hist. 110....	3(3-0)
Infantry II, Mil. Tr. 102A (men)....	1(0-3)
Phys. Educ. M, Phys. Ed. 104.....	R(0-2)or
Phys. Educ. W, Phys. Ed. 152A.....	R(0-3)

Total..... 15 or 16

### SOPHOMORE

FIRST SEMESTER

Accounting I, Econ. 133.....	3(2-3)
Modern Language*.....	3(3-0)
Economics I, Econ. 101.....	3(3-0)
Coml. Correspondence, Engl. 122....	3(3-0)
Math. of Investments, Math. 150....	3(3-0)
Infantry III, Mil. Tr. 103A (men)....	1(0-3)
Phys. Educ. M, Phys. Ed. 105.....	R(0-2)or
Phys. Educ. W, Phys. Ed. 153.....	R(0-3)

Total..... 15 or 16

SECOND SEMESTER

Accounting II, Econ. 134.....	3(2-3)
Economics II, Econ. 104.....	3(3-0)
Amer. Govt., Hist. 151, 152, or 153..	3(3-0)
English Literature, Engl. 172.....	3(3-0)
General Psychology, Educ. 184.....	3(3-0)
Infantry IV, Mil. Tr. 104A (men)....	1(0-3)
Phys. Educ. M, Phys. Ed. 106.....	R(0-2)or
Phys. Educ. W, Phys. Ed. 154.....	R(0-3)

Total..... 15 or 16

### JUNIOR

FIRST SEMESTER

Adv. Accounting I, Econ. 280.....	3(3-0)
Elements of Statistics, Math. 126....	3(3-0)
Money & Banking, Econ. 116.....	3(3-0)
Business Management, Econ. 126....	2(2-0)
Electives†.....	4(-)

Total..... 15

SECOND SEMESTER

Cost Accounting, Econ. 287.....	3(3-0)
Income Tax Accounting, Econ. 282..	2(2-0)or
Accounting Systems, Econ. 283.....	2(2-0)
Business Finance, Econ. 217.....	3(3-0)
Electives†.....	7(-)

Total..... 15

### SENIOR

FIRST SEMESTER

Auditing, Econ. 285.....	3(3-0)
Govt. Accounting, Econ. 289.....	2(2-0)
Public Finance, Econ. 214.....	3(3-0)
Business Law I, Hist. 163.....	3(3-0)
Electives†.....	4(-)

Total..... 15

SECOND SEMESTER

Adv. Accounting II, Econ. 281.....	3(3-0)
Income Tax Accounting, Econ. 282..	2(2-0)or
Accounting Systems, Econ. 283.....	2(2-0)
Business Law II, Hist. 164.....	3(3-0)
Electives†.....	7(-)

Total..... 15

*Summary.*—Men: Physical education, required; military science, 4 hours; commerce courses, 56 hours; other prescribed courses, 42 hours; electives, 22 hours. Total, 124 hours. Women: The same except military science, 4 hours, not required. Total, 120 hours.

\* Eight hours of physical or biological science are to be elected in this curriculum, if possible in the freshman year. Subject to any prerequisites, chemistry, physics, botany, zoölogy, and geology are available. If Chemistry I is taken, Chemistry II is required also. Proficiency equivalent to nine hours of study in a modern language is required. Each unit of German, French, or Spanish offered for entrance reduces this requirement in that language by three hours, an equal amount of additional electives being chosen. Students who have had only one year of high-school algebra are assigned to a five-hour 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.

†Attention is called to the list of special electives for the curriculum in Commerce (p. 178).

## 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 hours 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 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 114 and 117, 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.

Adv Composition I, Engl. 114.....	3(3-0)	Adv. Composition II, Engl. 117.....	3(3-0)
Coml. Correspondence, Engl. 122....	3(3-0)	Writ. & Oral Salesmanship, Engl. 123,	3(3-0)
Oral English, Engl. 128.....	3(3-0)	The Short Story II, Engl. 230.....	3(3-0)
The Short Story I, Engl. 228.....	3(3-0)	Technical Writing, Engl. 207.....	2(2-0)
Engineering English, Engl. 110.....	2(2-0)	Adv. Problems in Coml. Corres.,	
Agricultural English, Engl. 137.....	3(3-0)	Engl. 223.....	3(3-0)

### 2. English Literature

Chaucer, Engl. 260.....	3(3-0)	Milton and the Puritan Revolt,	
The English Bible, Engl. 271.....	3(3-0)	Engl. 262.....	3(3-0)
Shakespearean Drama I, Engl. 273..	3(3-0)	American Survey, Engl. 265.....	2(2-0)
Wordsworth, Shelley, & Keats,		Shakespearean Drama II, Engl. 274..	3(3-0)
Engl. 278.....	3(3-0)	English Essayists of the Eighteenth	
World Classics I, Engl. 280.....	3(3-0)	and Nineteenth Cent., Engl. 276..	3(3-0)
Contemporary Fiction, Engl. 283....	3(3-0)	World Classics II, Engl. 281.....	3(3-0)
The Novel I, Engl. 286.....	3(3-0)	Contemporary Drama, Engl. 284....	3(3-0)
English Survey I, Engl. 288.....	2(2-0)	The Novel II, Engl. 287.....	3(3-0)
American Literature, Engl. 175.....	3(3-0)	English Survey II, Engl. 290.....	2(2-0)
The Literature of the Middle West,		Browning and Tennyson, Engl. 293..	3(3-0)
Engl. 268.....	3(3-0)	Contemporary Poetry, Engl. 297....	3(3-0)

### 3. German

German I, Mod. Lang. 101.....	3(3-0)	German II, Mod. Lang. 102.....	3(3-0)
German Readings, Mod. Lang. 111..	3(3-0)	German Sht. Stories, Mod. Lang. 201,	3(3-0)
Scientific German, Mod. Lang. 237..	4(4-0)	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, and 261, and, if they expect to teach French, course 270; in Spanish, courses 176, 177, 180, 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.

French I, Mod. Lang. 151.....	3(3-0)	French II, Mod. Lang. 152.....	3(3-0)
French Readings, Mod. Lang. 161...	3(3-0)	French Sht. Stories, Mod. Lang. 251,	3(3-0)
French Drama I, Mod. Lang. 257....	3(3-0)	French Drama II, Mod. Lang. 258...	3(3-0)
		French Comp. & Conv., Mod. Lang. 261,	3(3-0)
Spanish I, Mod. Lang. 176.....	3(3-0)	Spanish II, Mod. Lang. 177.....	3(3-0)
Spanish Readings, Mod. Lang. 180...	3(3-0)	Spanish Sht. Stories, Mod. Lang. 272,	3(3-0)
The Spanish Novel, Mod. Lang. 275,	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.

Plane Analy. Geometry, Math. 110,	4(4-0)	Calculus I, Math. 205.....	5(5-0)
Calculus II, Math. 206.....	3(3-0)		
Differential Equations, Math. 201...	3(3-0)	Advanced Calculus I, Math. 210....	3(3-0)
Advanced Calculus II, Math. 213....	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.

Adv. Inorg. Chemistry, Chem. 207...	3(3-0)	Ind. Electrochem., Chem. 205.....	2(2-0)
Industrial Chemistry I, Chem. 203...	5(3-6)	Industrial Chem. II, Chem. 204....	5(3-6)
Physical Chemistry I, Chem. 206....	5(3-6)	Physical Chem. II, Chem. 272.....	3(3-0)
Surf. Tension and Related Phenomena, Chem. 209.....	2(2-0)	Colloidal Chem., Chem. 213.....	2(2-0)
		Chemical Thermodyn., Chem. 215...	3(3-0)
		Theoret. Electrochem., Chem. 216...	3(3-0)
		Electrochemistry Lab., Chem. 217...	2(0-6)
		Selected Topics in Inorg. Chemistry, Chem. 271.....	2(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 121A.

Organic Chemistry I, Chem. 218....	4(2-6)	Organic Chemistry II, Chem. 219....	4(2-6)
		Stereoisomeric and Tautomeric Com- pounds, Chem. 225.....	2(2-0)
Organic Preparations, Chem. 223....	5(0-15)	Carbocyclic and Heterocyclic Com- pounds, Chem. 226.....	2(2-0)
Physiological Chem., Chem. 231....	5(3-6)	Qual. Org. Analysis, Chem. 224....	2(0-6)
Pathological Chem., Chem. 235....	2(2-0)	Laboratory Technique in Animal Nutrition, Chem. 239.....	2(0-6)
Biochemical Analysis, Chem. 237....	2(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.

Adv. Qual. Analysis, Chem. 240....	3(1-6)	Quan. Analysis, Chem. 241.....	5(1-12)
Quan. Analysis A, Chem. 250.....	3(1-6)	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. Students who wish to major in physics may, with the advice of the major instructor, choose from courses 219, 222, 230, 232, 234, 252, 254, 257, 258, 259, and 260. Math. 110, 205, and 206 are desirable or necessary for the more advanced courses. Physics 110, 120, 133, and 155 are available for commerce or journalism students.

Household Physics, Phys. 101.....	4(3-3)	Spectroscopy, Phys. 229.....	3(2-3)
Descriptive Physics, Phys. 110.....	3(3-0)	Light, Phys. 230.....	3(3-0)
Photography, Phys. 120.....	2(1-3)	Light Laboratory, Phys. 232.....	1(0-3)
General Radio, Phys. 131.....	2(2-0)	Electron Theory, Phys. 234.....	3(3-0)
Meteorology, Phys. 133.....	3(3-0)	Radio Measurements, Phys. 245....	2(1-3)
Descriptive Astronomy, Phys. 155...	3(3-0)	History of Physics, Phys. 247.....	2(2-0)
Architectural Acoustics, Phys. 214...	1(1-0)	Modern Physics, Phys. 249.....	3(3-0)
Theoretical Astronomy, Phys. 216...	3(3-0)	Advanced Mechanics Laboratory, Phys. 252.....	1(0-3) or 2(0-6)
Heat, Phys. 219.....	3(3-0)	Elec. and Magnetism, Phys. 257....	2(2-0)
Heat Laboratory, Phys. 222.....	1(0-3)	Elec. Lab., Phys. 259.....	1(0-3) or 2(0-6)
X-Rays, Phys. 226.....	3(2-3)	Probs. in Physics, PAYS. 261...	1(0-3) or 2(0-6)

### 10. Microbiology

Courses 101, 106 or 121 may be followed in order by 202, 204, 211 and 206.

Gen. Microbiology, Bact. 101.....	3(1-6)	Household Micro., Bact. 121.....	3(1-6)
Agric. Microbiology, Bact. 106.....	3(1-6)	Soil Micro., Bact. 202.....	3(3-0)
Hyg. Bacteriology, Bact. 206.....	4(2-6)	Soil Micro. Lab., Bact. 204.....	2(0-6)
Patho. Bacteriology II, Bact. 116....	4(2-6)	Pathogenic Bact. I, Bact. 111.....	4(2-6)
		Dairy Bact., Bact. 211.....	3(1-6)
		Poultry Bact., Bact. 216.....	3(1-6)

### 11. Botany

Courses 101 and 105 are prerequisite to all other courses, except 110. Students specializing in plant diseases should take, in order, courses 205, 202, 240 and 232; those in plant physiology, courses 208, 210 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.

General Botany I, Bot. 101.....	3(1-4, 2)	General Botany II, Bot. 105.....	3(1-4, 2)
Plant Pathology I, Bot. 205.....	3(1-4, 2)	Nat. and Dev. of Plants, Bot. 110...	3(3-0)
Morph. of the Fungi, Bot. 206.....	3(1-6)	Plant Histology, Bot. 216.....	3(1-6)
Plant Physiology I, Bot. 208.....	3(3-0)	Plant Physiology II, Bot. 210.....	3(1-4, 2)
Fruit Crop Diseases, Bot. 202.....	2(1-2, 1)	Plant Ecology, Bot. 228.....	2(2-0)
Botanical Problems, Bot. 232.....	1 to 5(-)	Field Crop Diseases, Bot. 241.....	3(1-6)
Taxonomic Botany of the Flowering Plants, Bot. 225.....	3(1-4, 2)	Botanical Problems, Bot. 232.....	1 to 5(-)
Literature of Botany, Bot. 266.....	2(2-0)	Plant Cytology, Bot. 268.....	3(1-6)

### 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.

Human Physiology, Zoöl. 235.....	4(3-3)	Comp. Anat. of Vertebs., Zoöl. 246..	4(2-6)
Cytology, Zoöl. 214.....	4(2-6)	Evol. & Heredity, Zoöl. 217... 3(2-3)[or]	4(2-6)
Parasitology, Zoöl. 208.....	3(2-3)	Embryology B, Zoöl. 219A.....	4(3-3)
Comp. & Human Neur., Zoöl. 250...	3(2-3)	Adv. Embryology, Zoöl. 220.....	4(2-6)
Taxonomy of Parasites, Zoöl. 240....	2(1-3)	Human Parasitology, Zoöl. 218.....	3(3-0)
Field Zoölogy, Zoöl. 205.....	3(1-6)	Zoölogy Technic, Zoöl. 206.....	1 or 2(-)
Heredity and Eugenics, Zoöl. 216....	2(2-0)	Zoöl. and Ent. Seminar, Zoöl. 225...	1(1-0)
Zoölogy Problems, Zoöl. 203.....	1 or 2(-)	Research in Zoölogy, Zoöl. 301.....	1 to 8 cr.
Genetics Seminar, Zoöl. 227.....	1(1-0)		
Research in Zoölogy, Zoöl. 301....	1 to 8 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.

Engineering Geology, Geol. 102.....	4(3-3)	General Geology, Geol. 103.....	3(3-0)
Economic Geology, Geol. 207.....	4(3-3)	Historical Geology, Geol. 203.....	4(3-3)
Crystal. and Mineralogy, Geol. 209..	4(2-6)	Physiographic Geol., Geol. 110.....	3(3-0)
Invert. Paleontology, Geol. 220.....	4(3-3)	Structural Geology, Geol. 215.....	4(3-3)
		Vert. Paleontology, Geol. 255.....	3(3-0)

### 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.

Gen. Entomology, Ent. 101.....	3(3-0)	Prin. of Taxonomy, Ent. 216.....	1(1-0)
Gen. Econ. Entomology, Ent. 203...	3(2-3)	Taxonomy of Insects I, Ent. 217...	2(0-6)
Extl. Insect Morphology, Ent. 211...	3(1-6)	Taxonomy of Insects II, Ent. 218...	3(0-9)
Intl. Insect Morphology, Ent. 212...	3(0-9)	Adv. Gen. Entomology, Ent. 221....	3(3-0)
Ent. & Zoöl. Literature, Ent. 231....	2(2-0)	Staple Crop Entomology, Ent. 206...	3(2-3)
Medical Entomology, Ent. 226.....	3(2-3)	Entom. Problems, Ent. 238.....	2 to 4 hrs.
Advanced Apiculture, Ent. 229.....	3(2-3)	General Apiculture, Ent. 208.....	3(2-3)
		Insect Physiology, Ent. 241.....	2(2-0)

### 15. History, Government, and Law

To prepare for teaching history in high school the student should have at least ten 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.

Ancient Civilizations, Hist. 101.....	3(3-0)	Medieval Europe, Hist. 102.....	3(3-0)
English History, Hist. 121.....	3(3-0)	Current History, Hist. 126.....	1(1-0)
American History I, Hist. 201.....	3(3-0)	Am. Indust. History, Hist. 105.....	3(3-0)
American History II, Hist. 202.....	3(3-0)	American History III, Hist. 203.....	3(3-0)
American Agr'l History, Hist. 204...	3(3-0)	Latin America, Hist. 208.....	3(3-0)
Modern Europe I, Hist. 115.....	3(3-0)	Modern Europe II, Hist. 223.....	3(3-0)
The Far East, Hist. 229.....	2(2-0)	20th Century Europe, Hist. 224.....	2(2-0)
Hist. of Com. & Ind., Hist. 110.....	3(3-0)	The British Empire, Hist. 226.....	2(2-0)
Am. Political Parties, Hist. 206.....	2(2-0)	History of the Home, Hist. 225.....	3(3-0)
Immig. & Intern'l Rel., Hist. 228.....	2(2-0)	International Law, Hist. 256.....	2(2-0)
Am. Government, Hist. 151.....	3(3-0)	Gov't Regulation of Bus., Hist. 260..	2(2-0)
Am. Nat'l Government, Hist. 152...	3(3-0)	Am. State Government, Hist. 153...	3(3-0)
Comp. Government, Hist. 252.....	2(2-0)	History of Religions, Hist. 231.....	2(2-0)
Farm Law, Hist. 175.....	2(2-0)	Commercial Law, Hist. 160.....	1(1-0)
Business Law I, Hist. 163.....	3(3-0)	Business Law II, Hist. 164.....	3(3-0)
Land Law, Hist. 276.....	2(2-0)	International Law, Hist. 256.....	2(2-0)

### 16. Economics and Sociology

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.

Economics I, Econ. 101.....	3(3-0)	Money and Banking, Econ. 116.....	3(3-0)
Public Finance, Econ. 214.....	3(3-0)	Business Finance, Econ. 217.....	3(3-0)
Labor Problems, Econ. 233.....	2(2-0)	Transportation Probs., Econ. 229....	2(2-0)
Marketing, Econ. 246.....	3(3-0)	Business Management, Econ. 126....	2(2-0)
Advanced Economics, Econ. 251.....	3(3-0)	Economic Problems, Econ. 248.....	( - )
Sociology, Econ. 151.....	3(3-0)	Com. Organization, Econ. 267.....	3(3-0)
Rural Sociology, Econ. 156.....	3(3-0)	Adv. Sociology, Econ. 273.....	3( - )
Social Problems, Econ. 257.....	2(2-0)	Adv. Rural Sociology, Econ. 270....	3( - )
Property Insurance, Econ. 242.....	2(2-0)	Investments, Econ. 222.....	3(3-0)
		Life Insurance, Econ. 244.....	2(2-0)

### 17. Accounting

Accounting I, Econ. 133.....	3(2-3)	Accounting Systems, Econ. 283.....	2(2-0)
Accounting II, Econ. 134.....	3(2-3)	Institutional Accounting, Econ. 284..	2(2-0)
Adv. Accounting I, Econ. 280.....	3(3-0)	Auditing, Econ. 285.....	3(3-0)
Adv. Accounting II, Econ. 281.....	3(3-0)	Cost Accounting, Econ. 287.....	3(3-0)
Income Tax Accounting, Econ. 282..	2(2-0)	Governmental Accounting, Econ. 289,	2(2-0)

### 18. Education and Psychology

Students desiring to qualify for the state teacher's certificate based on sixty hours of college work should take course 184 in Psychology, and courses 107, 111, and 129 in Education. Those desiring to qualify for the certificate based on graduation from a four-year curriculum should take course 184 in Psychology, and courses 105, 109, and 163 in Education. Advice should be obtained from the head of the Department of Education in respect to additional courses necessary. See, also, "Education" in this catalogue for information concerning certificates.

Gen. Psychology, Educ. 184.....	3(3-0)	Educ. Measurements, Educ. 212.....	3(3-0)
Educ. Administration, Educ. 105....	3(3-0)	Statis. Meth. Applied to Education,	
School Management, Educ. 107.....	3(3-0)	Educ. 223.....	3(3-0)
Educational Psychology, Educ. 109..	3(3-0)	Principles of Secondary Education,	
Methods of Teaching, Educ. 111....	3(3-0)	Educ. 236.....	3(3-0)
Teach. Participation in Grade School,		Educ. Psychology, Educ. 239.....	3(3-0)
Educ. 129.....	1(1-0) to 4(4-0)	The Psychology of Childhood and	
Meth. of Teach. Home Economics,		Adolescence, Educ. 250.....	3(3-0)
Educ. 132.....	3(3-0)	Abnormal Psychology, Educ. 254....	3(3-0)
Meth. of Teach. Agric., Educ. 136...	3(3-0)	Adv. Gen. Psychology, Educ. 257....	3(3-0)
Teach. Participation in High School,		Experimental Psychology, Educ. 259,	3(3-0)
Educ. 163.....	1(1-0) to 4(4-0)	Mental Tests, Educ. 260.....	3(3-0)
Animal Psychology, Educ. 188.....	3(3-0)	Psyc. of Excep. Children, Educ. 266..	3(3-0)
Rural Life and Educ., Educ. 201....	3(3-0)	Social Psychology, Educ. 270.....	3(3-0)
Extracur. Activities, Educ. 202.....	3(3-0)	Psychology of Art, Educ. 276.....	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.

Journalistic Voca., Ind. Jour. 140...	2(2-0)	Industrial Writing, Ind. Jour. 161...	2(2-0)
El. Journalism, Ind. Jour. 151.....	2(2-0)	Jour. for Women, Ind. Jour. 172....	2(2-0)
Ind. Feature Writ., Ind. Jour. 167...	2(2-0)	Magazine Features, Ind. Jour. 270...	2(2-0)
Materials of Jour., Ind. Jour. 265...	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.

### APPLIED MUSIC

Instrument, Mus. 153.....	0-4 hours	Double Bass, Mus. 167.....	0-4 hours
Voice, Mus. 156.....	0-4 hours	Organ, Mus. 172.....	0-4 hours
Violin, Mus. 158.....	0-4 hours	Choral Ensemble, Mus. 194.....	½(0-2)
Piano, Mus. 161.....	0-4 hours	Orchestra, Mus. 195.....	½(0-2)
Violoncello, Mus. 163.....	0-4 hours	Band, Mus. 198.....	½(0-2)

### THEORETICAL MUSIC

Harmony I, Mus. 101.....	2(2-0)	Harmony II, Mus. 102.....	2(2-0)
Harmony III, Mus. 103.....	2(2-0)	Harmony IV, Mus. 104.....	2(2-0)
Counterpoint, Mus. 108A.....	2(2-0)	Mus. Form & Analysis, Mus. 111....	1(1-0)
Hist. & Appre. of Music I, Mus. 112..	3(3-0)	Hist. & Ap. of Music II, Mus. 113...	3(3-0)
School Music I, Mus. 138.....	2(2-0)	School Music II, Mus. 139.....	2(2-0)
Instrn. & Orchestrn., Mus. 136.....	3(3-0)	School Music III, Mus. 143.....	2(2-0)

## 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.

Infantry V, Mil. Tr. 109.....	3(2-3)	Infantry VI, Mil. Tr. 110.....	3(2-3)
Infantry VII, Mil. Tr. 111.....	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 forty hours are required. The courses listed below, and others on the advice of the head of the department, are available.

### FOR MEN

Gymnastics I, Phys. Ed. 115A.....	2(1-3)	Gymnastics II, Phys. Ed. 117A.....	2(0-6)
Football I, Phys. Ed. 126A.....	2(1-3)	Track & Field Spts., Phys. Ed. 140A.	2(1-3)
Football II, Phys. Ed. 127.....	2(1-3)	Baseball, Phys. Ed. 133.....	2(1-3)
Basket Ball, Phys. Ed. 130A.....	2(1-3)	Wrestling, Phys. Ed. 128.....	1(0-3)
Swimming M I, Phys. Ed. 121.....	1(0-3)	Swimming M II, Phys. Ed. 122....	1(0-3)
Boxing, Phys. Ed. 132.....	1(0-3)	Playground Management and Games	
School Hygiene, Phys. Ed. 148.....	3(3-0)	M, Phys. Ed. 145A.....	2(2-0)
Apparatus, Phys. Ed. 109.....	1(0-3)	Personal Hygiene, Phys. Ed. 119....	2(2-0)
First Aid and Mas., Phys. Ed. 113A..	3(3-0)		

### FOR WOMEN

The following courses are available after completing the two years of required work:

Folk Dancing I, Phys. Ed. 160.....	1(0-3)	Folk Dancing II, Phys. Ed. 161.....	1(0-3)
Playground Management and Games		Gen. Technic IV, Phys. Ed. 157D...	2(1-3)
W, Phys. Ed. 182A.....	2(1-3)	Gen. Technic VI, Phys. Ed. 157F....	2(1-3)
Gen. Technic III, Phys. Ed. 157C...	2(1-3)	Prin. Health Education W, Phys.	
Gen. Technic V, Phys. Ed. 157E....	2(1-3)	Educ. 163.....	3(3-0)

## 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.

Extm. Speech I, Pub. Spk. 106.....	2(2-0)	Extm. Speech II, Pub. Spk. 108....	2(2-0)
Oral Interpretation, Pub. Spk. 101...	2(2-0)	Dramatic Reading, Pub. Spk. 102...	2(2-0)
Parli. Proceed., Pub. Spk. 126.....	1(1-0)	Lecture Recital, Pub. Spk. 115.....	2(2-0)
Dramatic Produc. I, Pub. Spk. 130...	2(2-0)	Dramatic Produc. II, Pub. Spk. 135.	2(2-0)
Argum. and Debate, Pub. Spk. 121...	2(2-0)	Advanced Debate, Pub. Spk. 222....	2(2-0)
Pageantry, Pub. Spk. 205.....	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 twelve 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 and 16.

American History I, Hist. 201.....	3(3-0)	Am. Hist. II or III, Hist. 202 or 203..	3(3-0)
American Government, Hist. 151....	3(3-0)	Am. State Government, Hist. 153 ...	3(3-0)
Am. Natl. Government, Hist. 152....	3(3-0)	Modern Europe I, Hist. 115.....	3(3-0)
Latin America, Hist. 208.....	3(3-0)	Modern Europe II, Hist. 223.....	3(3-0)
Agric. Economics, Agric. Ec. 101....	3(3-0)	English History, Hist. 121.....	3(3-0)
Money and Banking, Econ. 116.....	3(3-0)	Economics I, Econ. 101.....	3(3-0)
Business Finance, Econ. 217.....	3(3-0)	Public Finance, Econ. 214.....	3(3-0)
Mrkt. of Farm Prod., Agric. Ec. 202..	3(3-0)	Labor Problems, Econ. 233.....	2(2-0)
Agric. Land Probs., Agric. Ec. 218....	3(3-0)	Sociology, Econ. 151.....	3(3-0)

### 31. Applied Science

Students in the curriculum of 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.

General Botany I, Bot. 101.....	3(1-4, 2)	General Botany II, Bot. 105.....	3(1-4, 2)
Plant Pathology I, Bot. 205.....	3(1-4, 2)	Field Crop Diseases, Bot. 241.....	3(1-6)
Fruit Crop Diseases, Bot. 202.....	2(1-2, 1)	Plant Ecology, Bot. 228.....	2(2-0)
Farm Forestry, Hort. 114.....	3(2-3)	Nature & Dev. of Plants, Bot. 110....	3(3-0)
Seed Iden. & Weed Cont., Agron. 105,	2(1-3)	El. of Horticulture, Hort. 107.....	3(2-3)
General Zoölogy, Zoöl. 105.....	5(3-6)	Small Fruits, Hort. 110.....	2(2-0)
Parasitology, Zoöl. 208.....	3(2-3)	General Microbiology, Bact. 101....	3(1-6)
Landscape Gardening I, Hort. 125....	3(3-0)	Staple Crop Ent., Ent. 206.....	3(2-3)
Hygienic Bacteriology, Bact. 206....	4(2-6)	General Apiculture, Ent. 208.....	3(2-3)
Gen. Entomology, Entom. 101.....	3(3-0)	Ap. Nutrition, Food & Nutr. 121....	2(2-0)
Gen. Economic Entom., Ent. 203.....	3(2-3)	General Geology, Geol. 103.....	3(3-0)
Hort. Entomology, Ent. 201.....	2(2-0)	Historical Geology, Geol. 203.....	4(3-3)
El. Org. Chemistry, Chem. 123.....	3(2-3)	Meteorology, Physics 133.....	3(3-0)
Dairy Chemistry, Chem. 254.....	3(1-6)	Household Physics, Physics 101....	4(3-3)
Economic Geology, Geol. 207.....	4(3-3)	Photography, Physics 120.....	2(1-3)
Human Nutrition, Food & Nutr. 112,	3(3-0)	Descriptive Physics, Physics 110....	3(3-0)

### 32. Home Economics

This group is suggested for 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 fifteen 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.

Household Physics, Phys. 101.....	4(3-3)	Household Microbiology, Bact. 121..	3(1-6)
Gen. Org. Chemistry, Chem. 122....	5(3-6)	Clothing for the Individual, Clo. &	
Foods I, Food & Nutr. 102.....	5(3-6)	Text. 103.....	4(1-9)
Foods II, Food & Nutr. 107.....	3(1-6)	Elem. Design I, Art 101A.....	2(0-6)
Human Nutrition, Food & Nutr. 112,	3(3-0)	Elem. Design II, Art 101B.....	2(0-6)
Dietetics, Food & Nutr. 202.....	4(3-3)	Intermediate Design, Art 103.....	2(0-6)
Ap. Nutrition, Food & Nutr. 121....	2(2-0)	Interior Decoration I, Art 113.....	2(0-6)
Child Care & Trn. I, Child Welf. 201,	3(1-6)	Principles of Art I, Art 124.....	3(3-0)
Child Care & Trn. II, Child Welf. 206,	3(3-0)	Advanced Design A, Art 105.....	2(0-6)
The Family, Child Welf. 216.....	2(2-0)	Costume Design I, Art 130.....	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 also acceptable. See the expositions of the work of the several departments in the Division of Agriculture.

General Botany I, Bot. 101.....	3(1-4, 2)	General Botany II, Bot. 105.....	3(1-4, 2)
El. of An. Husb., An. Husb. 125.....	3(2-4)	El. of Horticulture, Hort. 107.....	3(2-3)
El. of Dairying, Dairy Husb. 101....	3(2-3)	Dairy Cattle Judg., Dairy Husb. 104,	1(0-3)
El. Org. Chemistry, Chem. 123.....	3(2-3)	Prin. of Feeding, An. Husb. 152....	3(3-0)
Plant Pathology I, Bot. 205.....	3(1-4, 2)	Field Crop Diseases, Bot. 241.....	3(1-6)
Soils, Agron. 130.....	4(3-3)	Farm Crops, Agron. 101.....	4(2-6)
Farm Poultry Prod., Poul. Husb. 101,	2(1-2, 1)	Genetics, An. Husb. 221.....	3(3-0)

### 36. Drawing and Art

Students in industrial journalism, with due regard for prerequisites, may elect fifteen hours from this group in order to fulfill the requirement in respect to subjects related to an industry.

Object Drawing I, Arch. 111.....	2(0-6)	Object Drawing II, Arch. 114.....	2(0-6)
Design I, Arch. 142.....	3(0-9)	Design II, Arch. 144.....	3(0-9)
Coml. Illustration I, Arch. 165.....	2(0-6)	Coml. Illustration II, Arch. 170.....	2(0-6)
General Hist. of Arch., Arch. 244....	3(3-0)	Domestic Arch., Arch. 124.....	2(2-0)
Pencil Rend. & Sketch., Arch. 116...	2(0-6)	Pen and Ink Drawing I, Arch. 134...	2(0-6)
Water Color I, Arch. 118.....	2(0-6)	Water Color II, Arch. 119.....	2(0-6)
Still-Life Drawing, Arch. 117.....	2(0-6)	Life Drawing I, Arch. 121.....	2(0-6)
Clay Modeling, Arch. 133.....	2(0-6)	Life Drawing II, Arch. 123.....	2(0-6)
Adv. Free-hand Draw. I, Arch. 201..	2(0-6)	Adv. Free-hand Draw. II, Arch. 206,	2(0-6)
Etching I, Arch. 217.....	2(0-6)	Etching II, Arch. 218.....	2(0-6)
Oil Painting I, Arch. 230.....	2(0-6)	Oil Painting II, Arch. 235.....	2(0-6)
Hist. of Paint. & Sculp., Arch. 179...	3(3-0)	Block Prints, Arch. 137.....	2(0-6)

### 37. Manual and Industrial Arts

Fifteen 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 forty hours in that line. Prerequisites must be observed.

Engr. Drawing, Mach. Des. 101.....	2(0-6)	Engr. Woodwork, Shop. 101.....	1(0-3)
Descr. Geom., Mach. Des. 106.....	2(0-6)	Manual Training for Primary Grades, Shop 117.....	2(0-6)
Woodworking for Grammar Grades, Shop 120.....	2(0-6)	Woodworking I for High Schools, Shop 125.....	2(0-6)
Woodworking II for High Schools, Shop 130.....	2(0-6)	Wood Turning, Shop 135.....	2(0-6)
Forging, Shop 150.....	1(0-3)	Farm Carpentry I, Shop 147.....	3(1-6)
Machine Tool Work I, Shop 170....	2(0-6)	Machine Tool Work II, Shop 192....	2(0-6)
Machine Tool Work III, Shop 193...	1(0-3)	Metallurgy, Shop 165.....	2(2-0)
Gas Engines and Tractors, Agric. Engr. 130.....	3(2-3)	Farm Buildings, Agric. Engr. 101....	3(2-3)
Machine Drawing I, Mach. Des. 111,	2(0-6)	Surveying I, Civ. Engr. 102.....	2(0-6)
Reed Furn. Construction, Shop 119..	2(0-6)	Farm Shop Methods, Shop 175.....	3(1-6)
Foundry Production, Shop 161.....	1(0-3)	Metallography I, Shop 167.....	1(0-3)
Adv. Shop Practice, Shop 261.....	1 to 5 hrs.	Advanced Woodwork, Shop 140....	2(0-6)
Farm Blacksmithing I, Shop 157....	1(0-3)	Sheet Metal Work, Shop 173.....	2(0-6)
Farm Blacksmithing II, Shop 158...	1(0-3)	Farm Machinery, Agric. Engr. 108...	3(2-3)

### 38. Printing

Students in industrial journalism may elect fifteen hours from this group in order to fulfill the requirement in respect to subjects related to an industry, or they may elect courses in this group to satisfy elective requirements, choosing not fewer than eight credits.

Ad. Composition I, Ind. Jour. 108...	2(0-6)	Ad. Composition II, Ind. Jour. 111..	2(0-6)
Ad. Composition III, Ind. Jour. 112..	2(0-6)	Job Composition I, Ind. Jour. 114...	2(0-6)
Job Composition II, Ind. Jour. 118...	2(0-6)	Job Composition III, Ind. Jour. 120..	2(0-6)
Press Work I, Ind. Jour. 122.....	2(0-6)	Press Work II, Ind. Jour. 126.....	2(0-6)

### 45. Milling Industry

Students in general science or industrial chemistry may elect work in milling industry for which they have taken the prerequisites.

Milling Practice I, Mill. Ind. 109....	3(1-6)	Prin. of Milling I, Mill. Ind. 104....	2(1-3)
Wheat and Flour Testing, Mill. Ind. 205.....	3(0-9)	Prin. of Milling II, Mill. Ind. 106...	1(0-3)
Advanced Wheat and Flour Testing, Mill. Ind. 210.....	1 to 5(-)	Milling Practice II, Mill. Ind. 111...	3(1-6)
Farm Crops, Agron. 101.....	4(2-6)	Mill. Qual. of Wheat, Mill. Ind. 212..	3(3-0)
Grain Marketing, Ag. Ec. 203.....	3(3-0)	Exptl. Baking, Mill. Ind. 206.....	3(1-6)
Quantitative Analysis A, Chem. 250,	3(1-6)	Grain Grad. and Judging, Ag. 108...	2(0-6)
El. Org. Chemistry, Chem. 123.....	3(2-3)	Quant. Analysis B, Chem. 251.....	3(1-6)
Milling Technology I, Mill. Ind. 201,	2(0-6)	The Chem. of Proteins, Chem. 236A,	3(2-3)
Mill. Ind. Problems, Mill. Ind. 214...1 to 5 cr.		Milling Technology II, Mill. Ind. 202,	2(0-6)
		Colloidal Chemistry, Chem. 213.....	2(2-0)

## Bacteriology

Professor BUSHNELL  
 Professor GAINNEY  
 Associate Professor FAY

Assistant Professor BRANDLY  
 Assistant Professor FOLTZ

The Department of Bacteriology occupies part 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, electric refrigerators, 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 \$20,677.

### COURSES IN BACTERIOLOGY

#### FOR UNDERGRADUATE CREDIT

101. GENERAL MICROBIOLOGY. 3(1-6); I, II, and SS.\* Not open to students who have credit in Bact. 106 or 121. Prerequisite: Chemistry II, or General Chemistry. Dr. Gainey and Mr. Foltz.

Morphological and biological characters, classifications 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, \$8.

106. AGRICULTURAL MICROBIOLOGY. 3(1-6); I and II. Not open to students who have credit in Bact. 101 and 121. Prerequisite: Chem. 122, Gen. Org. Chemistry. Dr. Gainey and Dr. 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, \$8.

111, 116. PATHOGENIC BACTERIOLOGY I and II. 4(2-6) each; II and I, respectively. Prerequisite: Chem. 123, El. Org. Chemistry. Dr. Bushnell and Dr. Brandly.

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\* The number before the parenthesis indicates the number of 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.

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; 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 antitoxins, agglutinins, precipitins, and cytolytins, etc. Deposit, \$8 for each course.

121. HOUSEHOLD MICROBIOLOGY. 3(1-6); I, II and SS. Not open to students who have credit in Bact. 101 or 106. Prerequisite: Chem. 122, General Organic Chemistry. Dr. Fay and Mr. Foltz.

Classification, distribution, and relative importance of bacteria, morphological and biochemical characters of microorganisms; factors necessary for 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, \$8.

125. WATER AND SEWAGE BACTERIOLOGY. 2(0-6); I. Prerequisite: Chemistry E-II. Dr. Gainey.

A course designed to acquaint the student of engineering with the fundamentals of water purification and sewage disposal, as affected by the action of microorganisms; quantitative and qualitative analysis of water supplies; laboratory study of some of the important microbial changes involved in the disposal of sewage. Deposit, \$5.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

202. SOIL MICROBIOLOGY. 3(3-0); II. Prerequisite: Course 101 or 106. Offered in 1932-'33 and alternate years thereafter. 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 are recommended as reference books.

204. SOIL MICROBIOLOGY LABORATORY. 2(0-6); II. Prerequisite: Course 101 or 106. Offered in 1932-'33 and alternate years thereafter. 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, \$8.

206. HYGIENIC BACTERIOLOGY. 4(2-6); I. Prerequisite: Course 101, 106, or 121. Offered in 1933-'34 and alternate years thereafter. 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, technic involved in the diagnosis of various infectious diseases; culture of pathogenic anaërobic bacteria; the isolation and identification of pathogenic bacteria; and other practical studies of theories discussed in the classroom. Deposit, \$8.

211. DAIRY BACTERIOLOGY. 3(1-6); II. Prerequisite: Course 101, 106 or 121. Dr. 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, \$8.

216. POULTRY BACTERIOLOGY. 3(1-6); II. Prerequisites: Course 101, 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, \$8.

217. POULTRY DISEASES. 2(2-0); II. Prerequisites: Courses 111 and 116, and Therapeutics (Surg. and Med. 163). Dr. Brandly.

Anatomy of the fowl; poultry sanitation and hygiene; a complete systematic 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.

222. PHYSIOLOGY OF MICROORGANISMS. 3(3-0); I. Prerequisite: Course 101, 106, 116, or 121. Offered in 1934-'35 and alternate years thereafter. Dr. Fay.

A general survey of the chemistry and physics of microbial processes. Textbook and other assigned readings.

225. BACTERIOLOGICAL TECHNIC. 3(0-9); II. Prerequisite: Course 101, 106, 116, or 121. Offered in 1934-'35 and alternate years thereafter. Dr. Gainey.

Advanced training in the technic of laboratory manipulation; fundamental experiments and special experiments selected according to the interest of the student. Printed outlines furnished. Deposit, \$5.

229. ADVANCED SEROLOGY. 5(3-6); II. Prerequisite: Course 116 or 206. Offered in 1934-'35 and alternate years thereafter. Dr. Bushnell.

Theories of immunity and immunization; preparation, purification, and standardization of the various biological products used in human and veterinary medicine. Laboratory arranged according to the material available. Textbook and other assigned readings. Deposit, \$8.

235. BACTERIOLOGY OF BUTTER CULTURES. 1(0-3); II. Prerequisite: Course 211. Dr. Fay.

The bacteriological and chemical aspects of butter cultures.

270. BACTERIOLOGICAL PROBLEMS. 1 to 4 credits; I, II and SS. Prerequisite: Course 101, 106, 116, or 121. Dr. Bushnell, Dr. Gainey, Dr. Fay, Dr. Brandly, and Mr. Foltz.

Special problems assigned, credit depending upon the amount and quality of work done. Deposit, \$3 per credit hour.

275. 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 by making proper arrangements.

FOR GRADUATE CREDIT

301. RESEARCH IN BACTERIOLOGY. 1 to 10 credits; I, II and SS. Prerequisites: At least two courses in this department. Dr. Bushnell, Dr. Gainey, Dr. Fay, Dr. Brandly, and Mr. Foltz.

Properly qualified advanced students admitted to this course upon approval of the department head; supervision by a faculty member of the department, and subjects 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 or doctor's degree. Deposit, \$3 per credit hour.

## Botany and Plant Pathology

Professor MELCHERS  
 Professor MILLER  
 Professor DAVIS  
 Professor HAYMAKER  
 Professor GATES  
 Assistant Professor ELMER  
 Assistant Professor LEFEBVRE

Instructor HORN  
 Instructor NEWCOMB†  
 Associate Pathologist JOHNSTON\*  
 Associate Pathologist FELLOWS\*  
 Junior Pathologist FICKE\*  
 Graduate Assistant BOWMAN

The instruction given in the Department of Botany and Plant Pathology has a three-fold 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 \$50,846.

### 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, Dr. Lefebvre, Miss Horn, and 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.

II: The significance of plant morphology to the allied branches of botany, such as plant physiology, taxonomy and ecology; the economic importance of

\* In cooperation with the U. S. Department of Agriculture.

† Absent on leave, year 1933-'34.

the fungi and other pathogenic plants; the evolution of plants, as developed by morphological criteria.

*Laboratory.*—I: A series of typical experiments followed out in the laboratory and in the greenhouse. Charge, \$3.75.

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, \$3.75.

110. NATURE AND DEVELOPMENT OF PLANTS. 3(3-0); II. Dr. Haymaker.

A general survey of the plant kingdom emphasizing structure, life processes, identification, classification, evolutionary development, geographical distribution, economic importance, etc.

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. Charges, \$2.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. FRUIT CROP DISEASES. 2(1-2, 1); I. Prerequisite: Course 205. Offered in 1933-'34 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.

*Laboratory.*—A detailed study of each disease affecting the major fruit crops; a detailed microscopic study of the organism causing the disease. Charge, \$2.

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 and Dr. Haymaker.

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 pathogens which cause them. Charge, \$2.

206. MORPHOLOGY OF THE FUNGI. 3(1-6); I. Prerequisite: Course 205. Offered in 1934-'35 and in alternate years thereafter. Dr. Lefebvre.

Structure of slime molds, moldlike bacteria, and fungi studied to determine taxonomic relationships; especial attention to organisms capable of causing disease in plants.

208. PLANT PHYSIOLOGY I. 3(3-0); I. Prerequisites: Courses 101 and 105, and Chemistry 101 and 102 or 110. Dr. Miller.

A detailed study of the plant cell, solutions and membranes in relation to the cell, root systems, intake of water, intake of solutes, elements used, and loss of water.

210. PLANT PHYSIOLOGY II. 3(1-6); II. Prerequisite: Course 208. Dr. Miller.

Methods used in obtaining experimental data in regard to the more common functions of plants. Charge, \$5.

211. PLANT PHYSIOLOGY III. 3(3-0); II. Prerequisite: Course 208. Dr. Miller.

A continuation of course 208, including a detailed study of photosynthesis, nitrogen metabolism, fat metabolism, digestion, translocation, respiration, and growth.

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; technic in presenting botany to high school and college students. Charge, \$2.

216. PLANT HISTOLOGY. 3(1-6); II. Prerequisite: Course 101 or 105. Offered in 1933-'34 and in alternate years thereafter. Miss Newcomb.

A thorough training in the principles and practice of microtechnical methods in botany, including the study of anatomy of the higher plants. Charge, \$4.

218. FIELD BOTANY. 3 credits; SS. Prerequisites: Courses 101 and 105. Dr. Haymaker.

A study of the technical terms used in different keys and texts for the identification of various plants; the different systems of classification and nomenclature considered from historical and utilitarian standpoints; history of the higher plants from an evolutionary viewpoint.

*Laboratory.*—Study and identification of the vegetation of near-by 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. Charge, \$2.

220. BOTANICAL SEMINAR. 1(1-0); I and II. Prerequisite: 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. Additional credit in ecology may be secured by arranging for additional work and by registering for Botanical Problems, course 232.

232. BOTANICAL PROBLEMS. 1 to 5 credits; I, II, and SS. Prerequisites: Courses 101 and 105, and approval of the head of the department. Mr. Melchers, Dr. Miller, Mr. Davis, Dr. Haymaker, Dr. Gates, Dr. Lefebvre, Dr. Elmer, Miss Horn, and Miss Newcomb.

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.

241. FIELD-CROP DISEASES. 3(1-6); II. Prerequisite: Course 205. Offered in 1933-'34 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.

250. MORPHOLOGY AND ANATOMY OF THE HIGHER PLANTS. 3(1-6); II. Prerequisites: Courses 101 and 105. Offered in 1934-'35 and in alternate years thereafter. Dr. Lefebvre.



A study of the structure and development of the various tissues and organs of the seed plants. Charge, \$4.

266. LITERATURE OF BOTANY. 2(2-0); I. Prerequisites: Courses 101, 105, and 205. Miss Horn.

Aims of the course: (1) A general survey of the field of botanical literature, with special reference to the foundational works and authors that students of botany should know. (2) To study current botanical publications and review works of modern botanists appearing in the current serials. (3) To learn the use of keys to botanical literature and standard methods for preparation of special bibliographies and papers. (4) To gain some knowledge of the more important botanical classics and biographies.

268. PLANT CYTOLOGY. 3(1-6); II. Prerequisite: Course 101 or Zoölogy 105. Offered in 1934-'35 and in alternate years thereafter. Miss Newcomb.

The structure, development, and functions of the plant cell with special reference to chromosome behavior and its bearing upon genetic results. Charge, \$3.

#### FOR GRADUATE CREDIT

301. PLANT PATHOLOGY III. 3(1-4, 2); I. Prerequisite: Course 205. Offered in 1934-'35 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 10 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, Dr. Elmer, and Dr. Lefebvre.

*Plant Physiology.* Mr. Davis and Dr. Miller.

*Taxonomy and Ecology.* Dr. Gates and Miss Horn.

*Histology, Cytology, and Anatomy.* Miss Newcomb, and Dr. Lefebvre.

## Chemistry

Professor KING  
 Professor HUGHES  
 Professor BRUBAKER  
 Professor COLVER  
 Professor TAGUE\*  
 Associate Professor KEITH  
 Associate Professor VAN WINKLE  
 Associate Professor BARHAM  
 Associate Professor PERKINS  
 Assistant Professor HALL  
 Assistant Professor HARRISS  
 Assistant Professor WHITNAH  
 Assistant Professor LASH

Assistant Professor MARLOW  
 Assistant Professor SMITS  
 Assistant Professor FAITH  
 Instructor ANDREWS  
 Instructor McDOWELL  
 Instructor REED  
 Instructor BENNE  
 Instructor SHENK  
 Graduate Assistant HOSTETTER  
 Graduate Assistant DORF  
 Graduate Assistant MCGHEE  
 Graduate Assistant CALDWELL

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

\* Deceased.

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 judgment 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 1,700 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 \$76,450.

## 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. 107, 108 or 110. Prerequisite: For II, Chemistry I. Dr. King, Dr. Keith, Miss Harriss, Dr. Lash, Dr. Marlow, Mr. McDowell, Mr. Benne, Mr. Shenk, Mr. Dorf, and Mr. McGehee.

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.

II: Completion of the study of general chemistry; general principles of 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.

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. Van Winkle, Mr. Andrews, and Mr. Hostetter.

I: General chemistry; fundamental principles of chemistry which have a special bearing upon engineering and engineering material.

II: General chemistry and qualitative analysis.

*Laboratory.*—I: Experimental work on the topics considered in the classroom. 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. 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, Dr. Lash, Miss Harriss, Dr. Marlow, Mr. Benne, Mr. Shenk, Mr. McDowell, Mr. Dorf, and Mr. McGehee.

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.

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. 110. Dr. Colver, Dr. Barham, Dr. Marlow, Mr. Shenk, and Mr. Reed.

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.

*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. Miss Harriss and Mr. Reed.

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 toxicological and physiological properties.

*Laboratory.*—Preparation of a few organic compounds and the study of their physical and chemical properties. Deposit, \$7.50.

130. INSPECTION TRIP. No credit hours. Dr. Faith.

A large number of manufacturing plants of chemical and chemical engineering nature are visited. Different types of plants are selected, only one of each type being visited. An effort is made to vary the trip from year to year and to include such manufacturing centers as Kansas City, St. Louis and Chicago. The cost of the trip varies from about \$30 to not more than \$50, depending on the places visited.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

202. INORGANIC PREPARATIONS. 1 credit for each 3 hours 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. Faith and Mr. Caldwell.

The fundamental 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 application of chemistry and engineering to a selected number of chemical industries.

*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. Faith.

The principles of voltameters, electrochemical methods and 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.

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, ionization, electrical nature of matter, 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.

208. HISTORY OF CHEMISTRY. 1(1-0); II. Prerequisite: Chem. 206. Dr. Van Winkle.

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 adsorption; and colloidal formation.

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.

Suspensoids and emulsoids, optical and electrical properties of colloids, Brownian movement, action of electrolytes on colloids, adsorption and surface phenomena, and 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 activity.

216. THEORETICAL ELECTROCHEMISTRY. 3(3-0); I, 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. Deposit, \$10.

218, 219. ORGANIC CHEMISTRY I and II. 4(2-6) each; I and II, respectively. Prerequisite: Chemistry II. Dr. Colver and Mr. Reed.

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.

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. Deposit, \$10.

220. ORGANIC CHEMISTRY. 5(3-6); I and II. Prerequisite: Chemistry II. Dr. Colver.

The more important classes of organic compounds, particularly the aliphatic hydrocarbons, alcohols, aldehydes, ketones, acids and esters, the fats, proteins and carbohydrates, and such carbocyclic compounds as the hydrocarbons, phenols, acids and esters that have a general interest.

*Laboratory.*—Preparation and study of the chemical and physical properties of one or more representative examples of the classes of compounds studied in the classroom. 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. 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 sugars; geometrical isomerism; and keto-enol 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); I, 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. Prerequisite: An acceptable course in organic chemistry. Dr. Hughes and Dr. Marlow.

The synthetic and analytical chemical changes that accompany the physiological processes of animals and plants.

*Laboratory.*—Practical work with the compounds and processes discussed in the classroom. Deposit, \$10.

234. **BIOCHEMICAL PREPARATIONS.** 5(0-15); II. Prerequisites: Organic Chemistry II, and Physiological Chemistry. 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, isolation, 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.

238A. **CATALYSIS IN ORGANIC CHEMISTRY.** 3(3-0); I. Prerequisites: Organic Chemistry II and Physical Chemistry. Dr. Barham.

The theories of catalysis and its applications along with some of the most recent developments in that field.

239. **LABORATORY TECHNIQUE IN ANIMAL NUTRITION.** 2(0-6); I and II. Prerequisite: An acceptable course in nutrition or physiological chemistry. Dr. Hughes.

Preparation 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. Van Winkle.

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 and SS. Prerequisite: Chemistry II or equivalent. Dr. Brubaker.

Practically the same as courses 250 and 251. Deposit, \$10.

242. **FIRE ASSAYING.** 2(0-6); I. Prerequisite: Course 241. Dr. Faith.

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. Faith.

Use of standard apparatus in analysis of gases; analysis of air, flue and furnace gases, and illuminating gas. Deposit, \$7.50.

245. **CHEMICAL MICROSCOPY.** 1(0-3); I, II, and SS, 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, and SS. Prerequisites: For A, Chemistry II; for B, course A. Dr. Brubaker.

Course A: General procedure of gravimetric analysis; chemical theory as applied to quantitative reactions. Deposit, \$10.

Course B: General procedures in volumetric analysis; preparation of standard solutions and their uses. 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 investigation 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. Whitnah.

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. Dr. King.

The manufacture of spray materials; the chemistry involved in mixing, and the theory of their toxic actions.

257. FOOD ANALYSIS. 3(0-9); II and SS, 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 hours 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.

265. THE CHEMISTRY OF THE CARBOHYDRATES. 2(2-0); I or II, when requested by a sufficient number. Prerequisite: An approved course in organic chemistry. Dr. Whitnah.

The occurrence, structure, reactions, synthesis, and uses of the more important carbohydrates.

268. CHEMICAL ENGINEERING PROBLEMS. 1 to 5 hours; I and II. Dr. Faith. An introduction to chemical engineering research. 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, chemistry, and industrial curricula. Deposit, \$10.

271. SELECTED TOPICS IN INORGANIC CHEMISTRY. 2(2-0); II. Prerequisite: A course in physical chemistry. Dr. Lash.

Material from such topics as thermal analysis, temperature measurements, atomic hydrogen, the hydrides, the halogens, solutions, and the ammonia system.

272. PHYSICAL CHEMISTRY II. 3(3-0); II. Prerequisite: A beginning course in physical chemistry and calculus. Dr. King.

A continuation of the general principles of physical chemistry, with partic-

ular attention given to the elementary principle of thermodynamics, chemical kinetics, homogeneous and heterogeneous equilibrium, electromotive force, photochemistry.

275. CHEMISTRY SEMINAR. Twice a month, throughout the year, the officers of the department, with the more advanced students and such others as wish to, meet for papers and discussions upon topics representing the progress of chemical science, chiefly as found in the current journals. The preparation of subjects for presentation at these meetings may be made a part of the credit work of advanced students.

277. CHEMICAL LITERATURE. 1(1-0); I or II, when requested by a sufficient number. Prerequisite: Organic Chemistry II. Mr. Reed.

A course designed to train the student to make efficient use of chemical literature, and to give him the necessary procedure to follow in collecting available information in our library.

278. ELEMENTS OF CHEMICAL ENGINEERING I. 4(3-3); I. Prerequisites: Calculus II and Physical Chemistry I. Physical Chemistry may be taken concurrently. Dr. Faith.

Fundamentals of chemical engineering operations, with emphasis on flow of fluids and flow of heat; application of these principles to equipment design.

*Laboratory.*—Development of fundamental chemical engineering generalizations by experimental methods. Deposit, \$10.

279. ELEMENTS OF CHEMICAL ENGINEERING II. 4(3-3); II. Prerequisite: Elements of Chemical Engineering I. Dr. Faith.

A study of unit processes including filtration, evaporation, humidification and drying, absorption, distillation and crystallization.

*Laboratory.*—Testing and operation of plant equipment. Deposit, \$10.

281. CHEMICAL ENGINEERING PRINCIPLES. 2(2-0); II. Prerequisites: Same as for Elements of Chemical Engineering. Dr. Faith.

The principles of plant location, plant layout 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.

287. CORROSION. 3(3-0); I. Prerequisites: Organic Chemistry, and Physical Chemistry or concurrent registration. Dr. Van Winkle.

The theories and various factors involved in the corrosion of iron, steel and nonferrous metals; methods of testing for and preventing corrosion.

290. BIOCHEMISTRY OF INTERNAL SECRETIONS. 2(2-0); I or II, when requested by a sufficient number. Prerequisite: Chemistry 231. Dr. Marlow.

The chemistry of the glands of internal secretions.

#### FOR GRADUATE CREDIT

301. RESEARCH IN CHEMISTRY. Excellent opportunities are offered students to undertake research work in chemistry. Such work is being constantly conducted in the laboratories of the department in connection with the Agricultural and Engineering Experiment Stations. The State Food Laboratory and the laboratories for analysis of feeds and fertilizers are also accessible to students desiring research along such lines. Much emphasis is placed upon research in the department, and all graduate students whose training is adequate are encouraged to participate. Students working out a thesis in the Department of Chemistry are assigned to this course. Work is offered in the following lines:

*Agricultural Chemistry.* Dr. King and Dr. Perkins.

*Industrial and Engineering Chemistry.* Dr. Faith and Dr. Van Winkle.

*Analytical Chemistry.* Dr. Brubaker and Dr. Perkins.

*Organic Chemistry.* Dr. Colver, Dr. Barham, and Dr. Whitnah.

*Biochemistry.* Dr. Hughes, Dr. Tague, Dr. Whitnah, and Dr. Marlow.



*General and Physical Chemistry.* Dr. King, Dr. Hall, Dr. Keith, and Dr. Lash.

305. ANIMAL NUTRITION SEMINAR. 1(1-0); I and II. For prerequisites, consult instructor. Dr. Hughes, Dr. McCampbell, Dr. Lienhardt, Dr. Burt, Dr. Kramer, Mr. Payne, and Mr. Fitch.

Experiments in nutrition, the methods employed, and validity of conclusions drawn.

## Economics and Sociology

Professor KAMMEYER  
Associate Professor HILL  
Assistant Professor STEWART  
Assistant Professor THOMPSON

Assistant Professor HOLTZ  
Assistant Professor BEALS  
Instructor MURPHY

Some of the courses offered by this department are either required or elective in most of the curricula of the several divisions of the College. In the curriculum in commerce more than thirty-three per cent of the required courses are given by this department; and of the sixteen special electives recommended for students in this curriculum, eleven are courses offered by this department. This shows a wide distribution of courses among the curricula and a concentration of courses in the curriculum in commerce. While special emphasis is placed on the relation of these courses to commerce and industry, their cultural advantage is not neglected. Vocational training is essential and important to students in their preparation for occupational activity, but the state also needs men and women trained for citizenship. It is the purpose of this department to plan and direct its work with these ends in view.

The department has equipment valued at \$1,337.

### CERTIFICATE OF CERTIFIED PUBLIC ACCOUNTANT

By act of the Kansas legislature passed March 24, 1915, provision is made for the examination for the certificate of Certified Public Accountant. Applicants must be citizens of the United States or must have declared their intention to become citizens. They must be at least twenty-one years of age; must have good moral character; must have a high-school education or the equivalent thereof; must have four years of experience and study in accountancy, at least three of which must have been in the office of a public accountant or on their own account; and must pass an examination in auditing, accounting, and business law given by the State Board of Examiners.

Examination questions are prepared and graded by the American Institute of Accountants and examinations are held in May and November of each year.

### COURSES IN ECONOMICS

#### FOR UNDERGRADUATE CREDIT

101. ECONOMICS I. 3(3-0); I, II, and SS. Not open to students who have credit in Agricultural Economics. Dr. Kammeyer, Mr. Stewart, Mr. Thompson, and Mr. Beals.

An introductory study of the fundamental facts, concepts, and principles pertaining to modern economic phenomena; a foundation course for all specialized studies in economics.

104. ECONOMICS II. 3(3-0); II and SS. Prerequisite: Economics I or Ag. Econ. 101. Dr. Kammeyer, Mr. Stewart, Mr. Thompson and Mr. Beals.

The most urgent contemporary economic problems in the light of generally accepted economic principles; critical examination of the problems and the various proposed remedies; the solutions which seem to offer the greatest promise of successful operation.

116. MONEY AND BANKING. 3(3-0); I, II, and SS. Prerequisite: Economics I. Dr. Kammeyer and Mr. Thompson.

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; savings banks, trust companies, building and loan associations and other institutional forms of credit.

126. BUSINESS MANAGEMENT. 2(2-0); I, II, and SS. Prerequisite: Economics I, or may be taken concurrently. Dr. Kammeyer.

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.

FOR GRADUATE AND UNDERGRADUATE CREDIT

214. PUBLIC FINANCE. 3(3-0); I. Prerequisite: Economics I. Mr. Thompson.

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. Not open to students taking Taxation and Land Ownership (Ag. Ec. 219).

217. BUSINESS FINANCE. 3(3-0); II. Prerequisites: Money and Banking (Econ. 116) and Accounting II (Econ. 134). Mr. Thompson.

Those problems of business finance which actually arise from day to day in the average industrial concern, including both manufacturing and trading enterprises; the relationship of these financial problems to the problems of original construction, purchase, production, distribution, and consumption of goods; analysis of the most recent financial developments.

219. CORPORATION ORGANIZATION AND FINANCE. 2(2-0); I. Prerequisite: Economics I (Econ. 101). Open only to engineering students. Mr. Thompson.

The organization and classification of business enterprises, their financial structure, and internal management; the principal forms of corporate stocks and bonds, underwriting procedure, marketing securities, and other processes of financial management.

222. INVESTMENTS. 3(3-0); II and SS. Prerequisite: Money and Banking (Econ. 116). Mr. Stewart.

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.

223. CREDITS AND COLLECTIONS. 2(2-0); II. Prerequisite: Economics I (Econ. 101). Dr. Kammeyer and Mr. Thompson.

The fundamental principles of credits and collections with special attention given to mercantile credits, credit instruments, the sources of credit information, credit department organization and management, technical and legal aspect of collections, and credit and collection control.

229. TRANSPORTATION PROBLEMS. 2(2-0); II. Prerequisite: Economics I. Mr. Thompson.

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.

233. LABOR PROBLEMS. 2(2-0); I and II. Prerequisite: Economics I 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.

242. PROPERTY INSURANCE. 2(2-0); I, SS. Prerequisite: Economics I. Mr. Stewart.

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, aviation, etc.

244. LIFE INSURANCE. 2(2-0); II, SS. Prerequisite: Economics I. Mr. Stewart.

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.

246. MARKETING. 3(3-0); I and SS. Prerequisite: Economics I. Mr. Murphy.

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.

248. ECONOMIC PROBLEMS. Credits and hours arranged by consultation with the head of the department. Prerequisites: Economics I and a two-hour course in advanced economics. Dr. Kammeyer.

251. ADVANCED ECONOMICS. 3(3-0); I and SS. Open only to seniors and graduates. Dr. Kammeyer or Mr. Thompson.

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.

#### 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 and Mr. Thompson.

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. Dr. Hill.

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.

156. RURAL SOCIOLOGY. 3(3-0); I. Preferably a course in sociology should precede this. Dr. Hill.

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.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

257. SOCIAL PROBLEMS. 2(2-0); I, II, and SS. Prerequisite: Sociology. Dr. Hill.

The social phases of population movement, dealing with the problems of quantity and quality; charity and reform organization and technique; professional social work.

267. COMMUNITY ORGANIZATION. 3(3-0); II and SS. Prerequisite: Sociology. Dr. Hill.

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. II. Prerequisite: Rural Sociology. Dr. Hill.

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. I. Prerequisite: Course 151 (Sociology). Dr. Hill.

A continuation of Sociology, with the view of examining critically the sociological theories of recent writers, and of laying a foundation for a constructive theory of social life.

277. **HISTORY OF SOCIAL THOUGHT.** 3(3-0); I. Prerequisite: Sociology. Dr. Holtz.

The development of social thought from ancient civilization to the present—the social philosophies of Plato, Aristotle, St. Augustine, Thomas Aquinas, Machiavelli, Hobbes, Locke, Hume, Montesquieu, Condorcet; and the sociological systems of Comte, Spencer, Gumplowicz, Ratzenhofer, Tarde, Ward, and others.

279. **SOCIOLOGY SEMINAR.** I, II, and SS. Prerequisite: Sociology. Credits to be arranged in consultation. Dr. Hill.

Selected literature and investigation of social problems.

#### FOR GRADUATE CREDIT

351. **RESEARCH IN SOCIOLOGY.** 1 to 10 credits; I, II, and SS. Prerequisites: Such courses as the problem undertaken may require. Dr. Hill.

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

133, 134. **ACCOUNTING I AND II.** 3(2-3) each; I, II, and SS. Prerequisite: For 134, course 133. Mr. Beals and Mr. Murphy.

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.

II: Partnership and corporation accounting and problems peculiar to them; valuation of balance-sheet items with special references to depreciation, inventories, and intangibles; and several other topics.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

280, 281. **ADVANCED ACCOUNTING I AND II.** 3(3-0) each; I, II, and SS. Prerequisite: For 280, course 134; for 281, course 280; or Cost Accounting, course 287. Mr. Beals.

I: Advanced course in accounting theory with special emphasis upon content and analysis of accounting statements and the preparation of special reports, such as statements of affairs, and realization and liquidation statements.

II: Special consideration of problems of valuation, consolidated statements for holding companies and such special subjects as estate accounting, funds and related reserves, and foreign exchange.

282. **INCOME-TAX ACCOUNTING.** 2(2-0); II. Given in 1933-'34 and alternate years thereafter. Prerequisite: Advanced Accounting I or Cost Accounting. Mr. Beals.

Preparation of federal income-tax returns, and a study of accounting problems arising in connection with them.

283. ACCOUNTING SYSTEMS. 2(2-0); II. Given 1934-'35 and alternate years thereafter. Prerequisite: Advanced Accounting I or Cost Accounting. Mr. Beals.

The construction and installation of accounting systems for commercial enterprises.

284. INSTITUTIONAL ACCOUNTING. 2(2-0); II. Mr. Stewart.

A study of accounting principles and their application to cafeteria, lunch and tea rooms, restaurants, dormitories, clubs, and other institutions.

285. AUDITING. 3(3-0); I. Prerequisite: Advanced Accounting I or Cost Accounting. Mr. Beals.

Auditing accounts of commercial enterprises; attention to balance sheet and detail audits with study of both principles and practice.

287. COST ACCOUNTING. 3(3-0); II and SS. Prerequisite: Course 134. Mr. Beals.

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.

289. GOVERNMENTAL ACCOUNTING. 2(2-0); I. Prerequisite: Advanced Accounting I or Cost Accounting. Mr. Stewart.

Federal, state, and municipal accounts, and accounts for certain public institutions.

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## Education

Professor HOLTON ✓  
 Professor PETERSON ✓  
 Professor WILLIAMS ✓  
 Professor STRICKLAND ✓  
 Professor RUST  
 Professor DAVIDSON  
 Professor ALM

Assistant Professor HALL ✓  
 Assistant Professor QUINLAN ✓  
 Assistant Professor LANGFORD ✓  
 Instructor BAXTER  
 Instructor LYNESS  
 Instructor MOGGIE  
 Assistant QUIST

The courses in this department have been organized with the following objectives in view: (1) to meet the requirements of the Kansas State Board of Education in education and psychology for state certificates for teachers; (2) to give general information in the fields of psychology and public education; (3) to meet the requirements for a major in graduate work for the degree of Master of Science. The department has a well-equipped shop and laboratories for carrying on research in psychology and education. The equipment of this department is valued at \$5,096.

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 hours in General Psychology, three in Educational Administration, three in Educational Psychology, and three in Teaching Participation in High School.
    - (2) Six hours elected from the following courses in the Department of Education: Rural Life and Education, Extracurricular Activities, Educational Measurements, The Curriculum, Statistical Methods Applied to Education, Vocational Guidance, Educational Sociology, Vocational Education, History of Education, Psychology of Childhood and Adolescence, Abnormal Psychology, Mental Tests, The Technic of Mental Testing, Social Psychology, Psychology of Art, and Psychology of Exceptional Children.

- c. Valid in any elementary or high school in Kansas.
2. Three-year Certificates Renewable for Three-year Periods.
- a. Complete at least sixty hours of college work, including three hours in General Psychology, three in School Management, three in Methods of Teaching, and three in Teaching Participation in Grade Schools.  
Not more than fifteen hours in any one department will be accepted on transcripts showing only sixty hours of credit, and not more than twenty hours credit presented from correspondence courses will be accepted.
- b. Valid in any elementary school.
3. Certificates for Teachers of Vocational Agriculture.
- a. Complete four years of college work with degree, including the following:
- (1) Not less than fifty hours in technical or practical agriculture.
  - (2) Not less than twenty-one hours of science related to agriculture.
  - (3) Eighteen hours in the Department of Education: viz., three in General Psychology, three in Educational Administration, or in Principles of Secondary Education, three in Educational Psychology, three in Vocational Education, three in Methods in Agriculture, and three in Teaching Participation in Agriculture.
  - (4) Eighteen hours in mechanical lines related to farm-shop problems.
- b. Valid for three years and may be renewed for life.
4. Certificate for Teachers of Vocational Home-making.
- a. Complete four years of college work with degree, including the following:
- (1) Thirty-four hours in technical home economics, as required in the curriculum in Home Economics, three in Child Welfare, and three in Practice Work in Household Management.
  - (2) Eighteen hours in the Department of Education: viz., three in General Psychology, three in Educational Administration or three in Principles of Secondary Education, three in Educational Psychology, three in Vocational Education, three in Methods in Home Economics, and three in Teaching Participation in Home Economics.
- b. Valid for three years and may be renewed for life.
5. To comply with the regulations of the State Board of Education regarding teachers' certificates based on four years of college work, the student must complete at least twenty-four of the last thirty semester hours or fifty of the last sixty semester hours, in residence at the college granting the degree.

## COURSES IN EDUCATION

### FOR UNDERGRADUATE CREDIT

105. EDUCATIONAL ADMINISTRATION. 3(3-0); I, II, and SS. Dr. Strickland. The organization of state, city, and county school systems; organization of school systems in Kansas, both rural and city; the school laws of Kansas.

107. SCHOOL MANAGEMENT. 3(3-0); I, II, and SS. Limited to freshmen and sophomores. Mr. Davidson.

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, II, and SS. Prerequisites: General Psychology and junior or senior standing. Mr. Moggie.

The native equipment of human beings which serves as a basis for education, individual differences, and psychology of learning.

111. METHODS OF TEACHING. 3(3-0); I, II, and SS. Prerequisite: General Psychology. Open to freshmen and sophomores only. Mr. Moggie.

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.

129. TEACHING PARTICIPATION IN GRADE SCHOOL. 1 to 4 hours. I, II, and SS. Prerequisites: General Psychology, Methods of Teaching, and School Management. Not open to students below sophomore standing. Dr. Strickland.

The work in this course is done in an elementary school of Manhattan. Appointment must be made at the time of registration for the semester during which it is done.

132. METHODS OF TEACHING HOME ECONOMICS. 3(3-0); I, II, and SS. Prerequisites: Foods I and II, Clothing I and II, and General Psychology. Mrs. Rust and Mrs. Baxter.

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. METHODS OF TEACHING AGRICULTURE. 3(3-0); I, II, and SS. Prerequisite: General 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 studied, as well as the problem of coördinating farm mechanics work.

160. TEACHING PARTICIPATION IN HOME ECONOMICS. 3 hours. I, II, and SS. Prerequisites: Foods I and II, and Clothing I and II. Prerequisite or parallel: Educ. 132. Mrs. Rust and Mrs. Baxter.

Supervised teaching carried on in the home economics classes of the Manhattan high school.

161. TEACHING PARTICIPATION IN AGRICULTURE. 3 hours. I and II. Prerequisites: Courses 109 and 136. Mr. Davidson.

Three weeks of observation and practice teaching in vocational agriculture classes in Manhattan high school and other high schools by arrangement; group study of classroom problems; lesson plans and presentation criticized by the College instructor and the vocational teacher in the practice department.

163. TEACHING PARTICIPATION IN HIGH SCHOOL. 1 to 4 hours. I, II, and SS. Prerequisites: Educational Psychology, and senior standing. Dr. Strickland, Miss Hartman, Mr. Washburn, and Miss Saum.

Work is done in classes in the Manhattan high school, and special appointment must be made at the time of registration for the semester in which it is done. The work may be elected in biology, English, mathematics, modern languages, physical science, social science, art, physical education, and music.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

201. RURAL LIFE AND EDUCATION. 3(3-0); I, II, and SS. 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. **EXTRACURRICULAR ACTIVITIES.** 3(3-0); I, II, and SS. Prerequisite: Educational Administration. Dr. Holton and visiting instructors.

A careful survey of the extracurricular activities of 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.

206. **PHILOSOPHY OF EDUCATION.** 3(3-0); II and SS. Prerequisite: Educational Psychology. Dr. Holton.

A critical study of the controlling and unifying philosophy of the American public school system and its European background.

212. **EDUCATIONAL MEASUREMENTS.** 3(3-0); I, II, and SS. Prerequisites: General Psychology and Educational Psychology. Dr. Strickland.

The scientific measurement of achievement as distinguished from intelligence testing.

219. **THE CURRICULUM.** 3(3-0); SS. Prerequisites: Six hours in education, and junior standing. Dr. Holton.

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.

220. **INTRODUCTION TO PHILOSOPHY.** 3(3-0). Prerequisite: Junior standing or better. Not offered in 1934-'35.

A study of the more important interpretations of experience and an examination of the bases of values in modern life.

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. Mr. Moggie.

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.

230A. **VOCATIONAL GUIDANCE.** 3(3-0); I, II, and SS. Prerequisites: Educational Administration and General Psychology. 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.

232. **TEACHING SUBJECTS RELATED TO HOME ECONOMICS.** 1 to 3 hours; I, II, and SS. Prerequisites: General Psychology and 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 related to vocational home-making required in the Smith-Hughes high-school courses.)

234. **METHODS IN ADULT HOME-MAKING CLASSES.** 1 to 3 hours; SS. Prerequisites: General Psychology and Methods of Teaching Home Economics, or their equivalent.

The principles of teaching applied to adult classes and a demonstration class in one or more phases of home making.

236. **PRINCIPLES OF SECONDARY EDUCATION.** 3(3-0); I, II, and SS. Prerequisites: General Psychology and junior or senior standing. Dr. Williams.

A brief historical study of secondary education following the origin and development of present-day principles in the field of secondary education; objectives of junior and senior high-school organization, administration, and



supervision; curriculum and methods of organizing and conducting secondary education; field problems in junior and senior high school. A limited amount of field work is required.

239. EDUCATIONAL SOCIOLOGY. 3(3-0); I, II, and SS. Prerequisites: General Psychology and junior or senior standing. Dr. Holton.

The group activities of the school in relation to personality traits; psychology of personality; the school's responsibility in the development of socialized personality traits.

241. VOCATIONAL EDUCATION. 3(3-0); I, II, and SS. Prerequisites: Educational Administration or Principles of Secondary Education, and junior or senior standing. 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 is to fit the student to plan, teach, and administer or supervise vocational work, especially in high schools.

244. HISTORY OF EDUCATION. 3(3-0); SS. Dr. Williams.

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.

#### FOR GRADUATE CREDIT

306. ADVANCED EDUCATIONAL ADMINISTRATION. 3(3-0); SS. Prerequisite: Educational Administration or its equivalent. Dr. Strickland.

The constitutional and legal basis of public-school administration, study of judicial decisions in order to discover the legal principles involved. Major topics: Creation of school districts; rules and authority of boards of education; control of school property; management of funds; liability of districts and district officers; taxation; employment and dismissal of teachers; rights and duties of parents and pupils; discipline and punishment; curriculum and textbooks. Intended primarily for school executives.

309. PROBLEMS IN EDUCATIONAL PSYCHOLOGY. 1 to 3 hours; I, II, and SS. Prerequisites: General Psychology and Educational Psychology. Mr. Moggie.

A study of problems, recent experimentations, and applications of the principles of educational psychology.

311. PROBLEMS IN EDUCATIONAL MEASUREMENT. 1 to 3 hours; I, II, and SS. Prerequisites: Educational Psychology and Educational Measurement. Dr. Strickland.

Problems in refining educational measurement and using its results.

312. PROBLEMS IN TEACHING METHODS. 1 to 3 hours; I, II, and SS. Prerequisites: Educational Psychology and senior or graduate standing. Dr. Strickland.

Individual problems in development and definition of effective teaching procedure.

313. RESEARCH IN ORGANIZATION AND PRESENTATION OF HOME ECONOMICS. 1 to 10 hours; I, II, and SS. Prerequisite: Graduate standing. Dr. Justin, dean of the Division of Home Economics, 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.

314. PROBLEMS IN ORGANIZATION AND PRESENTATION OF HOME ECONOMICS. 1 to 5 hours; I, II, and SS. Prerequisite: Senior or graduate standing. Dr. Justin, dean of the Division of Home Economics, and Mrs. Rust.

This course permits opportunity for study of problems of organization and administration in this field.

315. SUPERVISION IN HOME ECONOMICS. 2 hours; I, II, and SS, by appointment. Prerequisites: General Psychology, Methods of 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.

317. PROBLEMS IN EDUCATIONAL ADMINISTRATION. 3(3-0); I, II, and SS. Prerequisites: Educational Administration and one year of teaching experience. Dr. Strickland.

Two types of problems are considered: (1) The income of the public schools; taxation inequalities and equalization devices; the state and federal unit; possible solutions of revenue problems; (2) The administration of the teaching staff, including training, certification, recruiting, placement, promotion, training in service, tenure, rating, teaching load, salary schedules, professional ethics, legal and social status, professional organizations, health and leisure, retirement and the organization of the teaching staff. The course is primarily for school executives.

322. PROBLEMS IN STATISTICAL METHODS APPLIED TO EDUCATION. 1 to 3 hours; I, II, and SS. Prerequisites: Course 223 or equivalent, 12 hours of college mathematics, and full graduate standing. Mr. Moggie.

The solution of some statistical problem in research or thesis preparation; the theory of statistics from a more advanced point of view; regression curves and various methods of correlation; the literature of statistics.

325. RESEARCH IN EDUCATION. 1 to 10 hours; 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.

333. PROBLEMS IN EDUCATIONAL SOCIOLOGY. 1 to 3 hours; I, II, and SS. Prerequisites: General Psychology, Educational Psychology, and graduate standing. Dr. Holton.

Research problems in the social organization of the school and the social inheritance of school populations, with special reference to the development of desirable personality traits.

337. PROBLEMS IN VOCATIONAL EDUCATION. 1 to 3 hours; I, II, and SS. Prerequisites: Vocational Education, and Educational Administration or Principles of Secondary Education. Dr. Williams.

The solution of some vocational education problem in research or in thesis preparation. Problems in administration, supervision, or curriculum building in the varied vocational fields to meet community needs.

## COURSES IN PSYCHOLOGY

### FOR UNDERGRADUATE CREDIT

184. GENERAL PSYCHOLOGY. 3(3-0); I, II, and SS. Dr. Peterson, Dr. Alm, 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.

188. ANIMAL PSYCHOLOGY. 3(3-0); I. Not to be substituted for General Psychology. Dr. Alm.

Animal behavior from the standpoint of sensory capacities, perception,

adaptive behavior, learning, insight and higher functions. A comprehensive survey of psychological apparatus and the better experimental contributions to animal psychology.

## FOR GRADUATE AND UNDERGRADUATE CREDIT

250. THE PSYCHOLOGY OF CHILDHOOD AND ADOLESCENCE. 3(3-0); I, II, and SS. Prerequisite: General Psychology. Dr. Alm.

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.

254. ABNORMAL PSYCHOLOGY. 3(3-0); II. Prerequisite: General Psychology. Dr. Alm.

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.

257. ADVANCED GENERAL PSYCHOLOGY. 3(3-0); II. Prerequisite: General Psychology. Mr. Langford.

Fundamental problems, methods, and interpretations of general psychology.

259. EXPERIMENTAL PSYCHOLOGY. 3(3-0); I or II. Prerequisite: General Psychology. Dr. Peterson.

A few representative experiments in animal and sensorimotor learning, as an introduction to the types of problems encountered and to the basis 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.

260. MENTAL TESTS. 3(3-0); I. Prerequisite: General Psychology. Dr. Peterson.

Current mental tests involving the selection of the best tests for particular purposes at various age and school levels; approved methods of conducting and scoring tests and of utilizing test results.

261. THE TECHNIC OF MENTAL TESTING. 3(1-6); I or II. Prerequisites or parallels: Courses 223 and 260. 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.

265. PSYCHOLOGY OF ADVERTISING AND SELLING. 3(3-0); II. Prerequisite: General Psychology. Dr. Peterson.

Psychological factors underlying effective selling and advertising, including a survey of experimental results and of present advertising and selling practices in the light of the principles of psychology.

266. PSYCHOLOGY OF EXCEPTIONAL CHILDREN. 3(3-0); I and SS. Prerequisite: General Psychology. Dr. Alm.

Mental giftedness, mental subnormality, speech disorder, handedness, psychoneurotic and psychopathic personality trends and delinquency in children, with emphasis on causes, diagnostic tests, and behavioral adjustments.

270. SOCIAL PSYCHOLOGY. 3(3-0); II. Prerequisite: General Psychology. Mr. Langford.

The individual as a member of the group, including results of experiments upon and observations of the individual in the group situation.

273. PSYCHOLOGY AND PERSONNEL MANAGEMENT. 3(3-0); I. Prerequisites: A grade above C in General Psychology, and consent of the instructor.

Scientific principles and procedures involved in employment; promotion, motivation of work, measurement and reward of achievements, etc.

276. **PSYCHOLOGY OF ART.** 3(3-0); II. Prerequisite: General Psychology. Mr. Langford.

Brief introduction to the philosophy of art; interpretation of psychological principles used in production and appreciation of art; review of experimental æsthetics; pictorial art and music, with special emphasis on the former.

FOR GRADUATE CREDIT

370. **PROBLEMS IN PSYCHOLOGY.** 1 to 3 hours; I, II, and SS, by appointment. Prerequisite: Consult instructor. Dr. Peterson, Dr. Alm, and Mr. Langford.

Each student studies an individual problem appropriate to his degree of advancement in the field of psychology. A written report is required. The amount of credit depends upon the work done. Enrollment by recommendation of the instructor not later than mid-semester.

373. **PSYCHOLOGY OF TEACHING AND LEARNING.** 3(3-0); I or II. Prerequisite: General Psychology. 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.

376. **RESEARCH IN PSYCHOLOGY.** 1 to 10 hours. I, II, and SS. Members of graduate faculty.

Individual research problems in the field of psychology.

**COURSES FOR FOUR-WEEK SESSION OF SUMMER SCHOOL**

FOR GRADUATE AND UNDERGRADUATE CREDIT

283. **ADMINISTRATION AND SUPERVISION OF SECONDARY SCHOOLS.** 2(2-0); four-week session. Prerequisites: General Psychology, Educational Administration, and Educational Psychology. Dr. Williams.

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.)

285. **THE PROJECT METHOD IN AGRICULTURAL EDUCATION.** 2(2-0); four-week session. Prerequisites: Education 136 and 161. Mr. Davidson or Mr. Hall.

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.

287. **ORGANIZATION AND CONDUCT OF CLASS PROJECTS.** 2 semester hours; four-week session. Prerequisites: Education 236 and 241. Mr. Davidson or Mr. Hall.

Fundamentals and principles on which productive class projects should be organized. Research and field work in class project study will be undertaken.

289. **ADMINISTRATION AND SUPERVISION OF VOCATIONAL EDUCATION.** 2(2-0); four-week session. Prerequisites: Educational Administration, General 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.

291. **COMMUNITY PROBLEMS IN VOCATIONAL AGRICULTURE.** 2 semester hours; four-week session. Dr. Williams or Mr. Davidson.

Methods, organization, and conduct of club work, junior project work, class projects, and community projects in general—a course conducted on the prob-

lem basis and designed specifically for teachers, supervisors, and directors of agricultural work.

293. PROBLEMS IN EVENING SCHOOL CLASSES. Class, 2 hours, daily; 2 semester hours; four-week session. Open to college graduates who have taught one year of vocational agriculture. Mr. Davidson or Mr. Hall.

Problems of organization, curriculum, and methods of teaching evening schools and classes sponsored by the national vocational education act. Designed for teachers in service.

295. ORGANIZATION PROBLEMS IN TEACHING FARM MECHANICS. Class, 2 hours, daily; 2 semester hours; four-week session. Prerequisites: Educ. 136 and 161. Mr. Davidson or Mr. Hall.

An analysis of the farm mechanics' course of study; needs and interests of boys, learning difficulties, skills and technical knowledge required. Correlation with agriculture. Application of laws of learning to the teaching process. Determining objectives.

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## English

Professor DAVIS  
 Professor CONOVER  
 Professor ROCKEY  
 Professor MATTHEWS  
 Professor RICE  
 Professor FAULKNER  
 Associate Professor STURMER  
 Associate Professor ELCOCK

Associate Professor BREEDEN  
 Associate Professor CALLAHAN  
 Assistant Professor GARVEY  
 Assistant Professor PARKER  
 Instructor BOWER  
 Instructor ABERLE  
 Instructor 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 \$2,053.

### COURSES IN ENGLISH LANGUAGE

#### FOR UNDERGRADUATE CREDIT

101. COLLEGE RHETORIC I. 3(3-0); I, II, and SS. Prerequisites: Three units of high-school English. Mr. Davis, Mr. Conover, Mr. Rockey, Mr. Matthews, Miss Rice, Mr. Faulkner, Miss Sturmer, Miss Elcock, Mr. Breedon, Mr. Callahan, Miss Garvey, Mrs. Parker, Miss Bower, Miss Aberle, and Miss Scott.

The improvement of students' written and spoken English by reviewing the principles 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.

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, Miss Sturmer, Miss Elcock, Mr. Breedon, Mr. Callahan, Miss Garvey, Mrs. Parker, Miss Bower, Miss Aberle, 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.

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.

114. ADVANCED COMPOSITION I. 3(3-0); I. Prerequisite: College Rhetoric II. Mr. Davis, 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.

117. ADVANCED COMPOSITION II. 3(3-0); II. Prerequisite: College Rhetoric II. Mr. Davis, Mr. Conover, and Mr. Matthews.

Narrative writing both in its relation to the other forms of composition and as an independent form; practical forms of the narrative; special attention to the short story.

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.

123. WRITTEN AND ORAL SALESMANSHIP. 3(3-0); I and II. Prerequisite: College Rhetoric II. Mr. Faulkner.

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.

125. BUSINESS ENGLISH AND SALESMANSHIP. 3(3-0); II. Prerequisite: College Rhetoric II. Mr. Callahan.

The basic principles of business letter writing and salesmanship as they apply in the field of engineering, with practice in the writing of different kinds of business letters and the preparation of sales material, both oral and written.

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.

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.

140. LITERATURE FROM THE READERS. 3(3-0); SS. Miss Bower, Miss Aberle, and Mrs. Parker.

Reading considered both as a fundamental means of acquiring knowledge and as a stepping stone to the appreciation of literature. (Planned to meet the needs of teachers of rural and graded schools.)

143. ADVANCED GRAMMAR. 3(3-0); II and SS. Miss Bower, Miss Aberle, and Mrs. Parker.

A systematic study of grammar with emphasis on English etymology, inflections, syntax, and modern usage in both England and America. Those details of grammar closely related to the use of English as a tool are stressed.

FOR GRADUATE AND UNDERGRADUATE CREDIT

207. **TECHNICAL WRITING.** 2(2-0); II. Prerequisite: College Rhetoric II. 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.

228, 230. **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.

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, Miss Sturmer, Miss Elcock, Mr. Breeden, Mr. Callahan, Miss Garvey, Mrs. Parker, Miss Bower, Miss Aberle, 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.

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, Miss Sturmer, Miss Elcock, Mr. Breeden, Mr. Callahan, Miss Garvey, Mrs. Parker, Miss Bower, Miss Aberle, 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.

181. **HISTORY OF ENGLISH LITERATURE.** 3(3-0); I, II, and SS. 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 prospective of the field of English letters, and to study the works of authors in relation to their own periods.

FOR GRADUATE AND UNDERGRADUATE CREDIT

255. **CULTURAL READINGS.** 3(3-0); I and II. Not open to students having credit in English 172, 175, or 181. Prerequisite: College Rhetoric II. Mr. Conover, Mr. Davis, and Mr. Matthews.

A reading course in English and American literature, designed for students in agriculture, engineering, and other technical curricula. Lectures on literature of general cultural value, and reports on assigned readings of especial interest to the technically trained man.

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.

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.

265. AMERICAN SURVEY. 2(2-0); II. Prerequisites: 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.

268. THE LITERATURE OF THE MIDDLE WEST. 3(3-0); I. Prerequisite: English Literature. Mr. Callahan.

A study of the literature produced in that section of America known as the Middle West, particularly Kansas and the surrounding territory; its backgrounds, authors, and literature since the close of the Civil War.

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.

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.

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.

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.

278. WORDSWORTH, SHELLEY, AND KEATS. 3(3-0); I. Prerequisite: English Literature. Mr. Rockey.

A study of the chief works of Wordsworth, Shelley, Keats, Coleridge, and Byron, with some consideration of the period as a revival of romanticism.

280, 281. WORLD CLASSICS I AND II. 3(3-0) each; I and II, respectively. Prerequisite for each: English Literature. Mr. Faulkner.

I: The literary masterpieces (in translation) of early times, particular attention being paid to Greek and Latin classics.

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.

283. CONTEMPORARY FICTION. 3(3-0); I and SS. Prerequisite: English Literature. Mr. Conover.

The more important British and American fiction since Hardy.

284. CONTEMPORARY DRAMA. 3(3-0); II. Prerequisite: English Literature. Mr. Conover.

Development of the drama since Ibsen; types of modern drama; works of important English, Irish, and American dramatists.

286, 287. THE NOVEL I AND II. 3(3-0) each; I and II, respectively. Prerequisite: English Literature. Mr. Breeden.

I: The English novel, its historical 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.

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. Prerequisite: English Literature. Mr. Davis, Mr. Conover, and Mr. Breedon.

I: An advanced study in the history of English literature from Anglo-Saxon times down to the close of the Elizabethan period.

II: The rise of Puritanism and its influence on English literature; the classical movement emphasized; romanticism and its development.

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.

297. CONTEMPORARY POETRY. 3(3-0); II and SS. Prerequisite: English Literature. Mr. Davis and Mr. Conover.

A study of representative contemporary poetry.

299. RESEARCH IN ENGLISH. 1 to 8 hours; I, II, and SS. Prerequisites: Consult head of department and instructors concerned.

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.

#### 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 and Miss Sturmer.

I: The origin and development of the English language, with special stress on Old English.

II: A continuation of course 301, with special emphasis on Middle English and Modern English.

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 SMITH  
 Professor PARKER

Associate Professor PAINTER  
 Assistant Professor BRYSON  
 Assistant Professor WILBUR

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 whenever possible the same form is studied simultaneously in laboratory and class. The student is led to integrate his classroom knowledge with local animal life by means of frequent and carefully planned field excursions and by the free use of vivaria in laboratory and museum. The courses offered are intended to awaken in the student a keen appreciation of the general principles underlying insect life, of the life economy of the more beneficial as well as the more injurious species, and of the general principles governing methods for their control.

Standard anatomical charts, a representative collection (especially of local species), a high-grade lantern for the projection of lantern and microscope slides, a large and excellent series of lantern slides (many of them colored), and a series of microscope slides are available for illustration. Compound and dissecting microscopes sufficient for the needs of laboratory classes have been provided.

Facilities for advanced work are provided for graduate students and others who expect to pursue the subject professionally. An advanced laboratory is equipped with individual desks, binocular microscopes, compound microscopes, rotary microtome, imbedding ovens, drawing apparatus, and a supply of glassware and reagents, sufficient for histological work and for research. A well-equipped insectary is available for training in insectary methods. The department has a well-classified library containing the frequently used books and bulletins in the various courses. Two acres of experimental plots and field stations with all the necessary equipment provide means for the study of insects under normal field conditions. The department owns equipment valued at \$30,196.

### COURSES IN ENTOMOLOGY

#### FOR UNDERGRADUATE CREDIT

101. GENERAL ENTOMOLOGY. 3(3-0) or 4(3-3); I. Dr. Smith.

A popular, general course dealing with insects and related arthropods in their varied relations to plants and animals, including man. The subject matter is given a biological emphasis and is particularly selected to fill a place in the general cultural education of all classes of students and of prospective teachers and writers in the field of biology who will, in most cases, take only this one course in entomology.

Students expecting to use this course as a prerequisite to other courses in entomology should register also for the laboratory, which is the same as for course 203. General Zoölogy is a prerequisite for all other courses in entomology, except Milling Entomology. Charge, when the laboratory is elected, \$1.

116. MILLING ENTOMOLOGY. 1(1-0); I. Offered 1934-'35 and alternate years thereafter. 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 Economic Entomology, or General Entomology with the laboratory and General Zoölogy. Dr. Parker.

The most important insect pests of orchard, garden, and forest, and standard methods of controlling their ravages.

203. GENERAL ECONOMIC ENTOMOLOGY. 3(2-3); I and 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. STAPLE CROP ENTOMOLOGY. 3(2-3); II. Prerequisite: General Economic Entomology, or General Entomology with the laboratory and General Zoölogy. Mr. Dean and Mr. Wilbur.

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.

208. GENERAL APICULTURE. 3(2-3); I and II. Prerequisite: General Economic 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, \$1.

211. EXTERNAL INSECT MORPHOLOGY. 3(1-6); I. Prerequisite: General Economic Entomology. Mr. Wilbur.

The external anatomy of representative insects belonging to a number of orders, the types studied being selected to represent 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, \$1.50.

212. INTERNAL INSECT MORPHOLOGY. 3(0-9); II. Prerequisite: Course 211. Dr. Painter.

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. TAXONOMY OF INSECTS I. 2(0-6); II. Prerequisites: General Economic Entomology and External Insect Morphology; Principles of Taxonomy must be taken with the course. Dr. Painter.

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.

218. TAXONOMY OF INSECTS II. 3(0-9); II. Prerequisite: Taxonomy of Insects I. Dr. Painter, or other specialist.

A group is selected, and intensive study of the insects and literature of the group is made so that the student may become proficient in their determination. Charge, \$1.

221. **ADVANCED GENERAL ENTOMOLOGY.** 3(3-0); II. Prerequisite: General Economic Entomology, or General Entomology with the laboratory and General Zoölogy. 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 Economic Entomology or General Entomology with the laboratory and General Zoölogy. Dr. Smith.

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.

229. **ADVANCED APICULTURE.** 3(2-3); I and II. Prerequisite: General Apiculture. Dr. Parker.

A continuation of General Apiculture. The principles of bee behavior in relation to the production of a honey crop and good beekeeping practices; swarm-control methods and increase; queen rearing; 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, \$1.

231. **ENTOMOLOGICAL AND ZOÖLOGICAL LITERATURE.** 2(2-0); I. Prerequisite: Introductory courses in zoölogy and entomology or in biology. Dr. Smith.

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.

233. **INSECT ECOLOGY.** 2(2-0); II. Prerequisite: General Economic Entomology, or General Entomology with the laboratory and General Zoölogy. Field Entomology recommended. Mr. Bryson.

Environment and adaptations of animals, with special reference to insects. The influence of light, temperature, pressure, moisture, evaporation, air movements, food relations, biotic and other conditions of soil and atmosphere.

235. **FIELD ENTOMOLOGY.** 2(0-6); I. Prerequisite: General Economic Entomology. Dr. Painter.

Study of insects in the field, methods of collecting, mounting, preserving, and rearing; identification of some of the commoner insects in the field; ecological phases stressed, especially with regard to communities and apparatus for measuring factors. It is recommended that students taking this course follow it with Insect Ecology, course 233. Charge, \$1.

236. **ZOÖLOGY 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 hours; I, II, and SS. For prerequisites, consult instructors. Mr. Dean, Dr. Smith, 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 de-

partmental 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.

241. INSECT PHYSIOLOGY. 2(2-0); II. Prerequisite: External Insect Morphology. Dr. Parker.

An elementary study of the more important physiological processes in insects with emphasis on the relation of form and function in the life of these animals. Lectures and assignment readings.

#### FOR GRADUATE CREDIT

305. ADVANCED INSECT PHYSIOLOGY. 2(2-0); II. Offered 1934-'35 and alternate years thereafter. Prerequisites: Internal Insect Morphology, 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. Assigned readings and reports.

316. RESEARCH IN ENTOMOLOGY. 2 to 4 semester hours; I, II, and SS. 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, Dr. Smith, 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 entomological problems.

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## Geology

Professor SPERRY  
Instructor BYRNE

The courses offered in geology are designed to meet the needs of three kinds of students: The technical student in agriculture, civil engineering or chemistry, 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 110, or equivalent. Mr. Sperry and Mr. Byrne.

The general principles of geology and their application to engineering problems.

*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. Mr. Sperry and Mr. Byrne.

The structural and dynamic features of the earth; the rock-forming minerals; the rocks and their decay; a short history of the earth. Charge, \$1.50.

110. PHYSIOGRAPHIC GEOLOGY. 3(3-0); II. Prerequisite: Course 102 or 103. Mr. Sperry and Mr. Byrne.

The topography of the earth and the forces that have produced it. Stress is laid on the origin of the topographic features of North America. Charge, \$1.50.

FOR GRADUATE AND UNDERGRADUATE CREDIT

203. HISTORICAL GEOLOGY. 4(3-3); I and II. Prerequisite: Course 102 or 103. Mr. Sperry and Mr. Byrne.

The procession of physical and biological events through which the earth has gone, with stress on the philosophical side of earth history.

*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. Prerequisites: Course 102 or 103, and General Chemistry. Mr. Sperry.

The origin and mode of occurrence of nonmetallic minerals, including coal and petroleum, and of metallic mineral deposits.

*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. Prerequisite: General Chemistry. Mr. Sperry and Mr. Byrne.

The fundamentals of crystallography and mineralogy.

*Laboratory.*—The measurements 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.

215. STRUCTURAL GEOLOGY. 4(3-3); II. Prerequisites: Courses 102 or 103, and 203. Mr. Sperry.

The mechanics of the earth's crust. The aim is to give a means of interpreting the structures found in the earth.

*Laboratory.*—Study of joints, faults, and folds produced artificially; a few field trips for the purpose of observing the structures found near Manhattan. Charge, \$1.50.

220. INVERTEBRATE PALEONTOLOGY. 4(3-3); I. Prerequisites: Courses 102 or 103, and 203. Mr. Byrne.

Evolution and geologic history of the invertebrate animals.

*Laboratory.*—The classification and identification of invertebrate fossils. Charge, \$1.50.

230. FIELD METHODS IN GEOLOGY. 3(1-6); II. Prerequisites: Courses 103 and 203. Mr. Byrne.

The construction of geologic maps, including a complete map of the Manhattan area; the application of field methods to the problems of geology. Charge, \$1.50.

235. OPTICAL MINERALOGY. 4(2-6); II. Prerequisite: Course 209. Mr. Sperry.

The use of the polarizing microscope in identifying crystal fragments, powders, sediments, and thin sections; optical methods of microscopic research. Charge, \$1.50.

240. PRINCIPLES OF GEOGRAPHY. 3(3-0); I. Mr. Byrne.

An introductory course in college geography, emphasizing the relationships between human activities and the geologic environment. Charge, \$1.50.

255. VERTEBRATE PALEONTOLOGY. 3(3-0); II. Prerequisites: Course 203 or ten hours of zoölogy. Mr. Byrne.

The evolution, geologic history, and classification of the vertebrates. Charge, \$1.50.

275. GEOLOGIC PROBLEMS. 1 to 3 hours; I, II, and SS. Mr. Sperry and Mr. Byrne.

An individual problem in a particular phase of geology investigated under the guidance of an instructor.

#### 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 \$1,670 is owned by this department.

### COURSES IN HISTORY

#### FOR UNDERGRADUATE STUDY

101. ANCIENT CIVILIZATIONS. 3(3-0); I and SS. Mr. Parrish.

The beginnings and growth of western culture; early civilizations of the Near East and Mediterranean regions, from the rise of Egypt and Babylonia to the decline of the Roman Empire (395 A. D.). Special attention is given to the achievements of the Greeks and Romans.

102. MEDIEVAL EUROPE. 3(3-0); II and SS. Mr. Parrish.

The development of civilization in Europe, from the decline of the Roman Empire (395 A. D.) to the discovery of the new world (1500 A. D.). Changes which laid the foundation for modern Europe: Interaction of forces of Roman Empire, organized Christianity, barbarians, Islam, Arabic and Byzantine culture; monasticism, feudalism; beginnings of modern states; universities and cathedrals; towns and trade; the intellectual awakening and a new world.

104. AMERICAN HISTORY SURVEY. 3(3-0); I, II, and SS. Not open for credit to students who have credit in courses 105, 201, or 202. Mr. Price.

A survey of American history and institutions from the newer viewpoint.

Based on lectures, with special library studies of assigned topics. Combines constitutional, political, diplomatic, economics and social phases of the growth of our republic, with background and interpretation. Charge, \$1.

105. AMERICAN INDUSTRIAL HISTORY. 3(3-0); I, II, and SS. Not open for credit to students who have credit in courses 104 or 203. Dr. Shannon, Mr. Correll, and Miss Alsop.

History of American agriculture, manufactures, and commerce with related activities from their colonial beginnings to the present; survey of the physical basis of 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.

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.

121. ENGLISH HISTORY. 3(3-0); I, II, and SS. 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.

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.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

201. AMERICAN HISTORY I. 3(3-0); I, II, and SS. Not open for credit to students who have credit in course 104. Prerequisite, when taken for graduate credit: Six hours of college history. Mr. Price.

Beginning of the American nation: The origin and development of American nationality and democracy to 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. Charge, \$1.

202. AMERICAN HISTORY II. 3(3-0); I, II, and SS. Prerequisite, when taken for graduate credit: Six hours 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 War of 1812 to the Civil War. Charge, \$1.

203. AMERICAN HISTORY III. 3(3-0); II and SS. Prerequisite, when taken for graduate credit: Course 104, 105, 201, or 202. Mr. Price, Mr. Iles, or Dr. Shannon.

The new industrial age: Review of the industrial conditions in America just before the Civil War; the effects of that war; the political and governmental activities of the period since 1860 in the light of the industrial conditions and developments of that period.



204. AMERICAN AGRICULTURAL HISTORY. 3(3-0); I. Prerequisite, when taken for graduate credit: Six hours 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.

206. AMERICAN POLITICAL PARTIES. 2(2-0); I. Offered in 1934-'35 and alternate years thereafter. Prerequisite, when taken for graduate credit: Six hours 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. This course is intended to supplement course 105 or 204.

208. LATIN AMERICA. 3(3-0); I, II, and SS. Prerequisite, when taken for graduate credit: Six hours of college history. Mr. James.

European background, discovery, exploration, and settlement of Spanish and Portuguese colonies in America; development of the Spanish administrative system; Spanish-American wars for independence; liberation of Brazil; rise of the Hispanic-American republics; their relations with each other and with the United States; social and economic conditions; present-day problems of the republican period.

223. MODERN EUROPE II. 3(3-0); I, II, and SS. Prerequisite, when taken for graduate credit: Course 115 or equivalent. Mr. Parrish.

European adjustments following the period of the industrial revolution, the French revolution, and the fall of the Napoleonic Empire; the rising tide of nationalism and democracy; political and social reforms; progress of science; social and economic movements; expansion of European influence in Asia and Africa; the World War, and the new Europe.

224. TWENTIETH CENTURY EUROPE. 2(2-0); I, II, and SS. Prerequisite, when taken for graduate credit: Course 223, or equivalent. 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, the new nations and international relations.

225. HISTORY OF THE HOME. 3(3-0); II. Prerequisite, when taken for graduate credit: Six hours 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 since 1485; the American colonial home; the industrial revolution and its effects upon family life; the family during the nineteenth century; the present situation and tendencies.

226. THE BRITISH EMPIRE. 2(2-0); II and SS. Prerequisite, when taken for graduate credit: Six hours of college history. Mr. James.

The English phases 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: Six hours of college history. Mr. Price and Mr. James.

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 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.

229. **THE FAR EAST.** 2(2-0); II and SS. Prerequisite, when taken for graduate credit: Six hours of college history. Mr. Parrish.

Rise, development and spread of Chinese civilization in the Far East; achievements in politics, economics, philosophy, science, art, literature; impact of the modern West, including the United States; especial attention is given to China's economic, social and diplomatic problems since 1840; rise of Japan; partial dismemberment of China under the Manchus, and rise of the republic; new rôle of China and Japan in world commerce, trade, and politics.

231. **HISTORY OF RELIGIONS.** 2(2-0); I or II, and SS. Prerequisite, when taken for graduate credit: Six hours 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.

250. **SEMINAR IN HISTORY AND GOVERNMENT.** 2 to 5 credits; I, II, and SS. Prerequisite: Six hours 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 given 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.

290. **HISTORICAL METHOD AND BIBLIOGRAPHY.** 2(2-0); I, II, and SS. Prerequisite, when taken for graduate credit: Six hours of college history. Dr. Shannon, assisted by other teachers of the department.

A study of historians and of historical works, together with instruction as to methods employed in the writing of history or of historical articles or theses. Required of all graduates majoring in history, and recommended to undergraduates majoring in history.

#### FOR GRADUATE CREDIT

301. **RESEARCH IN HISTORY.** 1 to 8 credits; I, II, and SS. Prerequisite or contemporary: Course 290, and consult instructors. 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. 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.

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.

160. **COMMERCIAL LAW.** 1(1-0); I. Mr. Williams.

The elementary principles of contracts, agency, sales, and negotiable instruments. Business Law I may be substituted for Commercial Law, where the requirements of the curricula permit, and the extra credit used as an elective.

163, 164. **BUSINESS LAW I AND II.** 3(3-0) each; I and II. Prerequisite for II: Course 163 or 167. Mr. Williams.

I: Contracts, agency, and sales.

II: Negotiable instruments, partnership, and corporations.

167. **LAW FOR ENGINEERS.** 2(2-0); I and II. Mr. Williams.

A study, chiefly through cases, of such rules of law as will prove most useful to engineers and architects, with special emphasis on the law of contracts.

175. **FARM LAW.** 2(2-0); I. Offered 1931-'32 and alternate years thereafter. Not open to students having credit in course 160, 163, or 167. 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.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

252. **COMPARATIVE GOVERNMENT.** 2(2-0); I or II, and SS. Offered 1934-'35 and alternate years thereafter. Mr. Iles or Mr. Williams.

The leading features, especially with regard to administration, of certain European governments, such as England, France, and Germany, and a comparison of essential features with government in the United States. (A supplement to the course in American Government.)

256. **INTERNATIONAL LAW.** 2(2-0); I. 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.

260. **GOVERNMENT REGULATION OF BUSINESS.** 2(2-0); II. Prerequisite, when taken for graduate credit: Course 151, 160, 163, or 167. 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  
 Associate Professor CHARLES

Assistant Professor AMOS  
 Assistant Professor HOSTETTER  
 Assistant Professor 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. 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, which is 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 \$11,396.

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 other students who take Journalism Lectures or courses designated "Journalism fee charged," pay a charge of \$1.50 a semester. Only one journalism fee is charged a student in a given semester.

### COURSES IN PRINTING

#### FOR UNDERGRADUATE CREDIT

101. PRINCIPLES OF TYPOGRAPHY. 3(2-3); I and II. Mr. Amos.

The case, the point system, and the measurement of type and stock; the history of printing; development of the various typographical styles; practice in setting straight matter, with emphasis on accuracy. The type faces and the typography of advertisements and head display; principles of effective make-up. Journalism fee charged.

102. PRINTING PRACTICE. 2(0-6); SS. Mr. Amos.

A study of general printing-shop practice, including cost finding—a course intended particularly for high-school teachers of printing and for those who expect to have editorial supervision of publications, including high-school papers.

108, 111, 112. AD COMPOSITION I, II, AND III. 2(0-6) each; I and II each. Prerequisites: For I, course 101; 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. Journalism fee charged.

II and III: Course 108 continued; more complicated work studied. Journalism fee charged.

114, 118, 120. JOB COMPOSITION I, II, AND III. 2(0-6) each; I and II each. Prerequisites: For I, course 101; 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. Journalism fee charged.

II and III: Color work, tabular forms, and other complicated kinds of job work. Journalism fee charged.

122, 126. 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. Journalism fee charged.

II: I continued, with more advanced work in mixing inks and in color work. Journalism fee charged.

## COURSES IN INDUSTRIAL JOURNALISM

### FOR UNDERGRADUATE CREDIT

140. JOURNALISTIC VOCATIONS. 2(2-0); II. Mr. Rogers.

The publishing field, daily and weekly newspapers, news agencies and syndicates, trade and business press, agricultural press, women in journalism, the field of advertising, circulation, magazines, free-lance writing, publicity, photography and art, the labor press, and religious journalism. Journalism fee charged.

151. ELEMENTARY JOURNALISM. 2(2-0); I, II, and SS. Prerequisite: Course 140. Mr. Thackrey and Miss Hostetter.

Methods of obtaining news of various types, the writing of the lead, and the general styles of the news story. Journalism fee charged.

153. KANSAS STATE COLLEGIAN JOURNALISM. 1(0-3); I, II, and SS. Prerequisite: Permission of instructor. Mr. Thackrey.

The gathering and writing of news, or advertising practice, on *The Kansas State Collegian* under the supervision of the instructor.

160. AGRICULTURAL JOURNALISM. 3(2-3); I and II. Mr. Charles.

The course is intended to supply sufficient knowledge of the principles of news writing as applied to agriculture to enable students in agriculture to become occasional contributors to newspapers and farm journals, and to give them an understanding of the needs and problems of editors. Much practice given in agricultural writing. Journalism fee charged.

161. INDUSTRIAL WRITING. 2(2-0); I and II. Prerequisite: Course 151. Mr. Thackrey and Miss Hostetter.

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. Journalism fee charged.

163. ADVANCED REPORTING. 3(3-0); I. Prerequisite: Course 161. Mr. Thackrey.

Recitation and practice covering the work of the reporter in connection with local, state, and national government; the reporting of conventions, exhibitions, and large public gatherings. Special assignments in connection with industrial and scientific news. (For students who are familiar with the fundamentals of news reporting.) Journalism fee charged.

167. INDUSTRIAL FEATURE WRITING. 2(2-0); I and SS. Prerequisite: Course 161. Mr. Rogers.

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; agricultural journals, trade journals, and other publications of highly specialized character; actual writing for publications of these types and submission of material to editors. Journalism fee charged.

172. JOURNALISM FOR WOMEN. 2(2-0); II. Prerequisite: Course 167. Miss Hostetter.

A course for women students in news and feature writing for women's pages and women's magazines and consideration of specialized fields for the woman writer. Journalism fee charged.

175. INDUSTRIAL, TRADE, AND BUSINESS PUBLICATIONS. 3(2-3); II. Mr. Rogers.

Survey of that field of journalism which concerns itself with the subject matter and the specialized interests of industry, trade, and business; practice writing for papers in this field.

178. PRINCIPLES OF ADVERTISING. 4(4-0); I and II. Prerequisites: For industrial journalism students, course 161; for commerce students, Written and Oral Salesmanship. Mr. Keith.

Study of goods to be advertised, analysis of the market, psychology of advertising, preparation of advertising copy, and other important matters; application of the principles involved; building up of circulation of periodical publications; soliciting advertising; premiums and other plans for increasing circulation; the advertising agency, circulation analysis and fixing of advertising rates. Journalism fee charged.

181. THE RURAL PRESS. 2(2-0); 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. Journalism fee charged.

183. NEWS BUREAU METHODS. 2(2-0); I. Prerequisite: Course 151. 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. Journalism fee charged.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

225. ADVERTISING PRACTICE. 2(2-0); II. Prerequisite: Course 178. 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; the making of layouts and consideration of such advertising production methods as art work, typography, engraving processes.

254. COPY READING. 2(0-6); II. Prerequisite: Course 163. Mr. Thackrey.

Practice in the work required of a copy reader, whether on a newspaper, an agricultural journal, or some other publication. Journalism fee charged.

255. CONTEMPORARY THOUGHT. 3(3-0); I. Prerequisite: For Industrial Journalism students, course 254; for others, Economics I 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); I. Prerequisite: Course 254. Miss Hostetter.

The writing of editorials suitable for farm papers, trade papers, and newspapers; the shaping of editorial policies. Journalism fee charged.

265. MATERIALS OF JOURNALISM. 2(2-0); I. Prerequisite: Copy Reading. Mr. Thackrey.

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: For Industrial Journalism students, course 167; for others, Engl. 104. Mr. Rogers and Mr. Charles.

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. Journalism fee charged.

273. **HISTORY AND ETHICS OF JOURNALISM.** 3(3-0); II. Prerequisite: Course 255. Mr. Thackrey.

The history of journalism from its beginning and the history of printing as far as this is concerned with periodical publications. 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.

278. **JOURNALISM SURVEYS.** 2(0-6); II. Prerequisite: Ind. Jour. 254 or equivalent. Mr. Rogers and Miss Hostetter.

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. Prerequisite: Engl. 104. Mr. Davis, of the Department of English.

The conducting of the so-called column, humorous or semi-serious; writing paragraphs, light verse, and similar material, with stress on practice in writing humor.

287. **CURRENT PERIODICALS.** 3(3-0); II. Prerequisite: Engl. 104. Miss Hostetter.

The material contained in 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.

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## Library Economics

Librarian SMITH  
Associate Librarian DERBY  
Reference Librarian DAVIS  
Loan Librarian CAMP

Reference Assistant SWENSON  
Documents Librarian 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 tends to increase largely his efficiency in study throughout the entire course.

The books and pamphlets in the library are valued at \$309,225; other equipment has a value of \$75,964.

## COURSES IN LIBRARY ECONOMICS

FOR UNDERGRADUATE CREDIT

101. LIBRARY METHODS. 1(1-0); I and II. Miss Derby, Miss Hoff, Miss Davis, 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 works 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  
Assistant Professor HOLROYD  
Assistant Professor DAUGHERTY

In an institution that stands as an exponent of the industrial type of education, mathematics should occupy an important place. Training in this 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 \$824.

## COURSES IN MATHEMATICS

FOR UNDERGRADUATE CREDIT

101. PLANE TRIGONOMETRY. 3(3-0); I, II, and SS. Prerequisites: Plane Geometry and one and one-half years of high-school algebra. Dr. Stratton, Miss Hyde, Mr. Lewis, Mr. Lyons, Miss Holroyd, Mr. Janes, Miss Mossman, and Mr. Daugherty.

Functions of acute right triangles, goniometry, oblique triangles, practical problems.

102. SOLID GEOMETRY. 2(2-0); I, II, and SS. Prerequisites: Plane Geometry and one year of high-school algebra. Mr. Lewis, Mr. Janes, Miss Holroyd, and Mr. Daugherty.

Principal theorems, numerical exercises, and mensurational problems.

104. COLLEGE ALGEBRA. 3(3-0); I, II, and SS. Duplicates latter part of Math. 107. Prerequisites: Plane geometry and one and one-half years of high-school algebra. Dr. Stratton, Miss Hyde, Mr. Lewis, Mr. Lyons, Miss Holroyd, Mr. Janes, Miss Mossman, and Mr. Daugherty.

Elementary topics, functions and their graphs, and quadratic equations rapidly reviewed; complex numbers, theory of equations, permutations and combinations, partial fractions, logarithms, and determinants.

107. COLLEGE ALGEBRA A. 5(5-0); I, II, and SS. Includes Math. 104. Prerequisite: Plane geometry and one year of high-school algebra. Dr. Stratton,



Miss Hyde, Mr. Lewis, Mr. Lyons, Miss Holroyd, Mr. Janes, Miss Mossman, and Mr. Daugherty.

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.

110. PLANE ANALYTICAL GEOMETRY. 4(4-0); I, II, and SS. Prerequisites: Plane Trigonometry and College Algebra. Mr. White, Dr. Stratton, Miss Hyde, Mr. Lyons, Mr. Lewis, Mr. Janes, Miss Mossman, and Miss Holroyd.

Coordinate systems, projections, loci, straight line conics, parametric and empirical equations, with a discussion of the general equation of the second degree.

126. ELEMENTS OF STATISTICS. 3(3-0); I and II. 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 secondary principles used in analysis of statistical data.

150. MATHEMATICS OF INVESTMENT. 3(3-0); I and II. Prerequisite: Accounting I (Econ. 133). Mr. Janes.

Problems relating to interest, annuities, sinking funds, amortization and valuation of bonds, depreciation, building and loan, and life insurance.

#### 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.

202. HIGHER ALGEBRA. 3(3-0); I, II, and SS. Prerequisite: Plane Analytical Geometry. Dr. Stratton, Miss Hyde, Mr. Lewis, Mr. Lyons, Mr. Janes, Miss Mossman, Miss Holroyd, and Mr. Daugherty.

Probability, partial fractions, binomial theorem for any exponent, transcendental and parametric equations, determinants, and introduction to limits and infinite series.

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.

205. CALCULUS I. 5(5-0); I, II, and SS. Prerequisite: Plane Analytical Geometry. Mr. Remick, Mr. White, Dr. Stratton, Miss Hyde, Mr. Lewis, Mr. Lyons, Mr. Janes, and Miss Mossman.

The usual topics of differential calculus, with integration of standard forms, definite integrals, rational fractions, and integration by parts.

206A. CALCULUS IIA. 4(4-0); I and II. Prerequisite: Calculus I. Mr. Remick, Mr. White, Dr. Stratton, Miss Hyde, Mr. Lewis, Mr. Lyons, Mr. Janes, and Miss Mossman.

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; series.

206A. CALCULUS IIA. 4(4-0); I and II. Prerequisite: Calculus I. Mr. Remick, Mr. White, Miss Hyde, Mr. Lewis, Mr. Lyons, and Mr. Janes.

Similar to course 206, with the addition of a brief treatment of some of the more common types of differential equations likely to be met in engineering applications.

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.

210. **ADVANCED CALCULUS I.** 3(3-0); I. Prerequisite: Calculus II. Mr. White.

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.

213. **ADVANCED CALCULUS II.** 3(3-0); II. Prerequisite: Course 210. Mr. White.

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.

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.

221. **HISTORY OF MATHEMATICS.** 3(3-0); I, II, and SS. Prerequisite: Plane Analytical Geometry. Dr. Stratton, Miss Hyde, Mr. Lewis, Mr. Janes, Miss Holroyd, and Mr. Daugherty.

Historical development of elementary mathematics through the calculus.

223. **FOURIER'S SERIES AND PARTIAL DIFFERENTIAL EQUATIONS.** 3(3-0); II. Prerequisite: Differential Equations. Mr. White.

An introduction to Fourier's integrals and series with applications to problems in physics involving partial differential equations.

225. **MODERN PLANE GEOMETRY.** 3(3-0); II. Prerequisite: Plane Analytical Geometry. Dr. Stratton.

Properties of a triangle and its circles, harmonic ranges and pencils, inversion, poles and polars, etc.

230. **VECTOR ANALYSIS.** 3(3-0); I or II. Prerequisite: Calculus II. Dr. Babcock.

An introduction to the methods of vector algebra and geometry, with applications, and to the elements of tensors.

#### 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. Dr. Stratton.

Mechanics in its relation to mathematical analysis.

312. **HIGHER GEOMETRY.** 3(3-0); II. Prerequisite: Modern Plane Geometry. Dr. Stratton.

Linear dependence, homogeneous coördinates, cross ratio, properties of conics, elements of projective geometry.

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.

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. RESEARCH IN MATHEMATICS. 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 SULLIVAN, Lieut. Colonel, Inf., U. S. A.  
 Associate Professor VAN TUYL, Major, V. C., U. S. A.  
 Associate Professor LOHMANN, Major, C. A. C., U. S. A.  
 Associate Professor SWIFT, Captain, Inf., U. S. A.  
 Assistant Professor YOUNG, Captain, C. A. C., U. S. A.  
 Assistant Professor REHM, Captain, Inf., U. S. A.  
 Assistant Professor RYDER, Captain, Inf., U. S. A.  
 Assistant Professor MYRAH, 1st Lieut., C. A. C., U. S. A.  
 Military Property Custodian CLAEREN, Major U. S. A., retired.  
 Instructor LARSON, Staff Sergeant, D. E. M. L., U. S. A.  
 Instructor WILLIAMS, Staff Sergeant, D. E. M. L., U. S. A.  
 Instructor McDONALD, Sergeant, D. E. M. L., U. S. A.  
 Instructor WILSON, Sergeant, D. E. M. L., 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 who are citizens of the United States, and 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.

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 make it up later.

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 year of training at a high school or government-aided school; provided there is stationed at these schools a regular officer of the United States Army; and provided further, that no credit will be given beyond the basic course, which comprises the first four semesters of the College curricula (freshman and sophomore years). (See "Advanced Credits.")

The act of congress of June 3, 1916, known as the national defense act, provides for the establishment in civil institutions of a Reserve Officers' Training Corps (R. O. T. C.).

The object of this provision is stated as follows:

"The primary object of establishing units of the Reserve Officers' Training Corps is to qualify, by systematic and standard methods of training, students at civil institutions for reserve officers. The system of instruction, herein prescribed, presents to these students a standard measure of that military training which is necessary in order to prepare them to perform intelligently the duties of commissioned officers in the military forces of the United States, and it enables them to be thus trained with the least practicable interference with their civil careers.

"Units of the senior division may be organized at civil institutions which require four years of collegiate study for a degree, including state universities

and those state institutions that are required to provide instruction in military tactics under the provisions of the act of congress approved July 2, 1862, donating lands for the establishment of colleges where the leading object shall be practical instruction in agriculture and the mechanic arts, including military tactics.

"Units of the junior division may be organized at any other public or private educational institution."

An infantry unit, a coast artillery unit, and a veterinary unit of the Reserve Officers' Training Corps have been established in this College.

Members of the R. O. T. C. will receive the benefits mentioned below:

1. SENIOR DIVISION, BASIC COURSE (freshmen, sophomores). Each student of these classes will be furnished with complete uniform, and equipment for his use during the course. The articles remain the property of the United States and must be accounted for and turned in by each student at the close of each college year 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.

Any article of uniform clothing requiring repairs because of improper use or manifest lack of care will be repaired at the expense of the student concerned. Any such article damaged sufficiently to make reissue undesirable will be paid for by the student concerned. In either instance the extent and cause of the damage will be determined by the commandant or by a member of the regular military faculty designated by him.

As the proper care and prompt return of uniform clothing and other government property is considered an important part of military training, no course in that subject will be regarded as completed by any student who is indebted to the College for loss of, or damage to, government property.

A laboratory fee of 50 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 \$3,197. 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. Capt. Swift, Capt. Ryder, and Capt. Rehm.

(a) *Practical.* Leadership, infantry drill, ceremonies, rifle marksmanship.

(b) *Theoretical.* Leadership, infantry drill, National Defense Act and reserve officers' training corps, obligations of citizenship, military history and policy, current international situation, military discipline, courtesies and customs of the service, and military organization.

102A. INFANTRY II. 1(0-3); II. Prerequisite: Course 101A. Capt. Swift, Capt. Ryder, and Capt. Rehm.

(a) *Practical.* Leadership, infantry drill, ceremonies, map reading, rifle marksmanship, and first aid.

(b) *Theoretical.* Leadership, military sanitation, first aid, military organization, map reading, and rifle marksmanship.

103A. INFANTRY III. 1(0-3); I. Prerequisite: Course 102A. Capt. Rehm.

*Practical.* Leadership, infantry drill, ceremonies, and combat training.

*Theoretical.* Leadership, infantry drill, military history, and combat training.

104A. INFANTRY IV. 1(0-3); II. Prerequisite: Course 103A. Capt. Rehm.

*Practical.* Leadership, infantry drill, weapons, and combat training.

*Theoretical.* Leadership, weapons, and combat training.

##### ADVANCED COURSE, INFANTRY

109. INFANTRY V. 3(2-3); I. Prerequisite: Infantry IV. Capt. Ryder.

(a) *Practical.* Leadership, infantry drill, ceremonies, aerial photograph reading, and combat training.

(b) *Theoretical.* Leadership, infantry drill, ceremonies, aerial photograph reading, and combat training.

110. INFANTRY VI. 3(2-3); II. Prerequisite: Infantry V. Capt. Ryder.

(a) *Practical.* Leadership, infantry drill, ceremonies, weapons, and combat training.

(b) *Theoretical.* Leadership, infantry drill, weapons, and combat training.

111. INFANTRY VII. 3(2-3); I. Prerequisite: Infantry VI. Capt. Swift.

(a) *Practical.* Leadership, infantry drill, ceremonies, and combat training.

(b) *Theoretical.* Leadership, infantry drill, ceremonies, military law, company administration and supply, combat training, and military history and policy.

112. INFANTRY VIII. 3(2-3); II. Prerequisite: Infantry VII. Capt. Swift.

(a) *Practical.* Leadership, infantry drill, ceremonies, and combat training.

(b) *Theoretical*. Leadership, combat training, tanks, mechanization, and officers' reserve corps regulations.

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 and II. Maj. Lohmann, Capt. Young and Lieut. Myrah.

(a) *Practical*. First aid, rifle marksmanship, mechanical maneuvers, close-order infantry and artillery drill.

(b) *Theoretical*. Military fundamentals, organization of the army, organization of the coast artillery corps, military discipline, courtesies and customs of the service, military sanitation and first aid, military history and policy, National Defense Act and R. O. T. C., military obligations of citizenship and the current international situation; leadership, the theory of close-order drill, including the platoon; and primary coast artillery instruction, rifle marksmanship, coast artillery ammunition, weapons and materiel.

114A. ARTILLERY II. 1(0-3); I and II. Prerequisite: Artillery I or Infantry I. Maj. Lohmann, Capt. Young and Lieut. Myrah.

(a) *Practical*. Continuation of Artillery I.

(b) *Theoretical*. Continuation of Artillery I.

115A. ARTILLERY III. 1(0-3); I and II. Prerequisite: Artillery II. Lieut. Myrah.

(a) *Practical*. Close-order infantry drill and artillery drill.

(b) *Theoretical*. Leadership, a review of Artillery I and II and coast artillery instruction, including fire control and position finding for seacoast and antiaircraft artillery, identification of aircraft and characteristics of naval targets.

116A. ARTILLERY IV. 1(0-3); I and II. Prerequisite: Artillery III. Lieut. Myrah.

(a) *Practical*. Continuation of Artillery III.

(b) *Theoretical*. Continuation of Artillery III.

#### ADVANCED COURSE, COAST ARTILLERY

(For students of the Division of Engineering only.)

117. ARTILLERY V. 3(2-3); I. Prerequisite: Artillery IV. Capt. Young.

(a) *Practical*. Formulation of orders, map problems, orientation, calculation of firing data for antiaircraft and machine guns, map reading, basic gunnery, close-order infantry and artillery drill.

(b) *Theoretical*. Leadership, a review of Artillery I to IV, inclusive, and principles of instructional methods, map and aerial photograph reading, combat orders and the solution of problems, and coast artillery instruction, basic gunnery, fire control and position finding for seacoast and antiaircraft artillery.

118. ARTILLERY VI. 3(2-3); II. Prerequisite: Artillery V. Capt. Young.

(a) *Practical*. Continuation of Artillery V.

(b) *Theoretical*. Continuation of Artillery V.

119. ARTILLERY VII. 3(2-3); I. Prerequisite: Artillery VI. Maj. Lohmann.

(a) *Practical*. Military law, leadership, infantry drill, ceremonies, artillery drill, orientation, and motor transportation.

(b) *Theoretical*. Military law and administration, military history and policy of the United States, leadership, principles of and instructional methods, military motor transportation, and coast artillery instruction, artillery tactics, orientation, materiel and field engineering.

120. ARTILLERY VIII. 3(2-3); II. Prerequisite: Artillery VII. Maj. Lohmann.

(a) *Practical*. Continuation of Artillery VII.

(b) *Theoretical*. Continuation of Artillery VII.

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 Sheridan, Ill.

#### BASIC COURSES, VETERINARY CORPS

(For students in the Division of Veterinary Medicine only.)

121A. MILITARY SCIENCE (VET.) I. 1(0-3); I. Major Van Tuyl.

(a) *Practical*. Same as course 101A (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 121A. Major Van Tuyl.

(a) *Practical*. Same as course 102A (Infantry II).

(b) *Theoretical*. Organization and administration, sanitation, logistics, first aid.

123A. MILITARY SCIENCE (VET.) III. 1(0-3); I. Prerequisite: Course 122A. Major Van Tuyl.

(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 123A. Major Van Tuyl.

(a) *Practical*. Same as courses 102A (infantry) and 123A.

(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 124A. Maj. Van Tuyl.

(a) *Practical*. Duties of junior officers demonstrated.

(b) *Theoretical*. Organization and administration, sanitation, animal management, supply and mess management, emergency procurement and funds.

130A. MILITARY SCIENCE (VET.) VI. 1(1-0); II. Prerequisite: Course 129A. Maj. Van Tuyl.

(a) *Practical*. Continuation of (a), Course 129A.

(b) *Theoretical*. Sanitation, including inspection of meat and food products.

131A. MILITARY SCIENCE (VET.) VII. 1(1-0); I. Prerequisite: Course 130A. Maj. Van Tuyl.

(a) *Practical*. Continuation of (a), Course 129A.

(b) *Theoretical*. Hospitals, hospitalization, sanitation, military law, and reserve corps regulations.

132A. MILITARY SCIENCE (VET.) VIII. 1(1-0); II. Prerequisite: Course 131A. Maj. Van Tuyl.

(a) *Practical*. Continuation of (a), course 129A.

(b) *Theoretical*. Communicable diseases, foreign inspections, organization and administration, medical service of large forces (Corps and Army), rules of land warfare.

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  
 Associate 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 \$605.

### 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 Dr. Limper.

Introductory course; grammar completed.

111. GERMAN READINGS. 3(3-0); I. Prerequisite: German II or equivalent. Dr. Cortelyou and Dr. Limper.

Readings of fairly easy, idiomatic selections from modern authors; grammatical drill; sight readings; German conversation based on the text.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

201. GERMAN SHORT STORIES. 3(3-0); II, when requested by a sufficient number. Prerequisite: German Readings or the equivalent. Dr. Cortelyou and Dr. Limper.

Interesting short stories by modern authors.

206. GERMAN COMEDIES. 3(3-0); II. Prerequisite: German Readings or the equivalent. Dr. Cortelyou and Dr. Limper.

Recent one-act comedies of literary merit and of a realistic, lively, and cleanly humorous nature; conversation and composition based on the text.

237. SCIENTIFIC GERMAN. 4(4-0); I. Prerequisite: German II. Dr. Cortelyou.

An introduction to the vast field of scientific publications appearing in German; miscellaneous scientific articles, especially those dealing with chemistry and physics.

### COURSES IN FRENCH

#### FOR UNDERGRADUATE CREDIT

151, 152. FRENCH I AND II. 3(3-0) each; I, II, and SS, each. Prerequisite: For II, I or one year of high-school French. Dr. Limper and Miss Pettis.

The fundamentals of French grammar; reading and conversation.

161. FRENCH READINGS. 3(3-0); I and SS. Prerequisite: French II or equivalent. Dr. Limper and Miss Pettis.

Primarily a reading course; grammar reviewed; conversation.



## 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. Dr. Limper and Miss Pettis.  
Modern short stories by such writers as Daudet, Maupassant, and Zola.

257. FRENCH DRAMA I. 3(3-0); I or II. Prerequisite: 12 hours of college French or the equivalent. Dr. Limper and Miss Pettis.  
French classic drama—Corneille, Molière, Racine, Marivaux, and others.

258. FRENCH DRAMA II. 3(3-0); I or II. Prerequisite: 12 hours of college French or the equivalent. Dr. Limper and Miss Pettis.  
Modern French drama—Brieux, Hervieu, Maeterlinck, Rostand, and others.

261. FRENCH COMPOSITION AND CONVERSATION. 3(3-0); II, when requested by a sufficient number. Prerequisite: 12 hours of college French, or equivalent. Miss Pettis.

Class period devoted to practice in speaking French; written themes required as preparation for each recitation.

263. THE FRENCH NOVEL. 3(3-0); I, II, and SS, by appointment. Prerequisites: Courses 257 and 258, or the equivalent. Dr. Limper and Miss Pettis.

A panoramic view of the French novel in the various periods of literary production.

## 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.

180. SPANISH READINGS. 3(3-0); I, II, and SS. Prerequisite: Spanish II, or equivalent. Miss Crittenden and Miss Burns.

Readings from such representative Spanish authors as Alarcón, Padre Isla, and Martinez Sierra.

194. SPANISH COMPOSITION AND CONVERSATION I. 3(3-0); I. Prerequisite: Spanish Readings or equivalent. Miss Crittenden.

Written composition with review of Spanish grammar; practice in taking Spanish dictation and in speaking Spanish.

197. SPANISH COMPOSITION AND CONVERSATION II. 3(3-0); II. Prerequisite: Course 194 or its equivalent. Miss Crittenden.

A continuation of course 194 with written themes, giving the student an opportunity to express his own ideas in Spanish.

## FOR GRADUATE AND UNDERGRADUATE CREDIT

272. SPANISH SHORT STORIES. 3(3-0); I and II, by appointment. 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.

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  
 Assistant Professor HARTMAN  
 Assistant Professor PAINTER  
 Assistant Professor SAYRE  
 Assistant Professor JEFFERSON  
 Assistant Professor DOWNEY

Assistant Professor MARTIN  
 Assistant Professor STRATTON  
 Assistant Professor TORDOFF\*  
 Assistant Professor PELTON  
 Assistant Professor JESSON  
 Assistant Professor GROSSMANN

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 \$27,788.

### 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 substitutions in music, with the approval of the dean, may be made in the Division of Engineering, as follows: For Voice or some instrument, two hours each semester; for 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, one hour each semester; for Orchestra or Band, one-half hour each semester; for School Music methods, two hours each semester. Any student having a full assignment may, upon recommendation of the director of the Department 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 a 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.

### PRELIMINARY MUSICAL TRAINING

Preliminary training in music is undertaken by two classes of students. The first class consists of college students not able to meet the college entrance requirements for freshman standing in the four-year music curricula. The second consists of grade-school and high-school students whose parents desire

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\* Absent on leave, year 1933-'34.

to secure for their children the kind of "conservatory" instruction that the Department of Music is in a position to offer.

Special training is given in rhythm, ear training, sight reading, scale building, melody writing, 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.

Applicants for freshman standing in the four-year music curricula must pass an examination over certain requirements, which are as follows:

#### CURRICULUM IN APPLIED MUSIC

*Voice majors:* A voice of superior quality, ability to sing in time and in tune, and a practical knowledge of musical notation.

*Piano and Organ majors:* A considerable degree of proficiency in the fundamentals of piano technic and in the playing of the easier classics.

*Other instrumental majors:* A practicable knowledge of the fundamental technique of playing the instrument in the study of which the student desires to major, and a considerable degree of proficiency in the playing of the easier classics written for that instrument.

#### CURRICULUM IN MUSIC EDUCATION

*School Music majors:* A practicable degree of proficiency in the fundamentals of piano technique and sight reading, and the ability to sing in time and in tune.

*Band and Orchestra majors:* A practicable degree of proficiency in the fundamentals of piano technic.

A list of examination material may be had by writing the director of the Department of Music.

#### COURSES IN THE THEORY OF 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, II, and SS. Prerequisite: Music Fundamentals or equivalent. Mr. Stratton and Mr. Jesson.

I: A study 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.

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, and SS. Prerequisite: Harmony II. Mr. Stratton and Mr. Jesson.

III: Modulation completed; altered and mixed chords; embellishments.

IV: 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(1-3) 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 rythmical forms.

108A. COUNTERPOINT. 2(2-0); I, II, and SS. 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.

111. MUSICAL FORM AND ANALYSIS. 1(1-0); I, II, and SS. Prerequisites: Harmony IV and Counterpoint. Mr. Jesson.

The various forms used in composition; the music of Bach, Haydn, Mozart, Beethoven, Schumann, Chopin, Brahms, Wagner, and others.

112, 113. HISTORY AND APPRECIATION OF MUSIC I AND II. 3(3-0) each; I and II, respectively. Mr. Lindquist.

Aim of this course: To give definite knowledge of each of the musical periods, the style of music peculiar to each, and musical contact with the great personalities in music.

114. HISTORY AND APPRECIATION OF MUSIC. 3(3-0); SS.

A condensation of courses 112 and 113.

116. MUSIC FUNDAMENTALS. 1(2-0); I, II, and SS. Mr. Sayre.

Class singing, study of note values, rhythm, scales, intervals, key signatures, etc.; and the application of this knowledge to the singing of part songs.

117. CONDUCTING I. 1(1-0); I, II, and SS. Mr. Lindquist.

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.

128. CONDUCTING II. 1(1-0); I, II, and SS. Prerequisites: Harmony I to IV, and Conducting I. Mr. Downey.

A continuation of Conducting I, course 117.

136. INSTRUMENTATION AND ORCHESTRATION. 3(3-0); I, II, and SS. Prerequisites: Harmony I to IV, and Counterpoint. Mr. Downey.

All of the instruments of the band and orchestra studied with relation to tone color, range and function; simple and familiar compositions scored for all forms of ensemble, including full orchestra.

138, 139. SCHOOL MUSIC I AND II. 2(2-0) each; I and II, respectively, and SS. Prerequisites: Ear Training and Sight Singing I and II. Miss Hartman.

I: Methods and materials for teaching music in kindergarten and the primary grades.

II: Methods and materials for teaching music in the elementary grades.

143. SCHOOL MUSIC III. 2(2-0); I, II, and SS. Prerequisites: School Music I and II. Miss Hartman.

Methods and teaching materials suitable for junior and senior high school.

149. METHODS AND MATERIALS FOR THE STUDIO. 1(2-0); I and II. Mr. Lindquist, Miss Tordoff, Mr. Downey, Mr. Martin, and Mr. Jesson.

Methods of teaching fundamental technic, selection of teaching materials, and the outlining of courses of study; discussion of principles and processes involved in the various phases of vocal and instrumental study as a means of music education. Designed for students majoring in voice or some instrument in the Curriculum in Applied Music; taught in separate divisions for voice, piano, organ, violin, etc.

151A to 151H. ORCHESTRAL INSTRUMENTS I TO VIII.  $\frac{1}{2}$ (1-0) each; I, II, and SS. Mr. Downey, Mr. Martin, and assistants.

A course designed to acquaint the student with the methods of tone production of the most important instruments of the orchestra. Fee, \$2.

### COURSES IN APPLIED MUSIC

153. INSTRUMENT. 0 to 4 hours a semester, maximum of 32 hours allowed; I, II, and SS. Offered to students taking work in the Curriculum in Applied Music and to students who desire special training in band or orchestra in the Curriculum in Music Education. Elective in other curricula. Mr. Downey, Mr. Martin, and assistants. For fees, see page 247.

156. VOICE. 0 to 4 hours a semester, maximum of 32 hours allowed; I, II, and SS. For the Curricula in Applied Music and Music Education, and elective in other curricula. Mr. Lindquist, Mr. Sayre, and Miss Grossmann.

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. For fees, see page 247.

158. VIOLIN. 0 to 4 hours a semester, maximum of 32 hours allowed; I, II, and SS. For the Curricula in Applied Music and Music Education, and elective in other curricula. Mr. Martin and assistants. For fees, see page 247.

161. PIANO. 0 to 4 hours a semester, maximum of 32 hours allowed; I, II, and SS. For the Curricula in Applied Music and Music Education, and elective in other curricula. Miss Tordoff, Miss Painter, Miss Jefferson, Mr. Stratton, and Mr. Jesson.

Instruction outlined for each semester is a conservative estimate of what a student of average talent is expected to accomplish. Every two weeks a one-hour auxiliary playing class is held, which all students majoring in piano are required to attend, and which is also open to all piano students recommended for admission by their teachers. Opportunity is given for frequent playing, study of music terminology, discussion of how to study, and acquiring a knowledge of the development of piano literature. For fees, see page 247.

163. VIOLONCELLO. 0 to 4 hours a semester, maximum of 32 hours allowed; I, II, and SS. For the Curricula in Applied Music and Music Education, and elective in other curricula. Mr. Downey. For fees, see page 247.

167. DOUBLE-BASS. 0 to 4 hours a semester, maximum of 32 hours allowed; I, II, and SS. For the Curricula in Applied Music and Music Education, and elective in other curricula. Mr. Downey. For fees, see page 247.

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. Fee, \$2.

172. ORGAN. 0 to 4 hours a semester, maximum of 32 hours allowed; I, II, and SS. For the Curricula in Applied Music and Music Education, and elective in other curricula. Mr. Jesson. For fees, see page 247.

174. VOCAL ENSEMBLE. No credit (0-2); I, II, and SS. Elective for students of superior vocal talent. Mr. Lindquist, Mr. Sayre, Miss Grossmann, and Miss Hartman.

A practical course in the singing of duets, trios, and quartets. Fee, \$2.

176A to 176H. PIANO ENSEMBLE I TO VIII. R(1-0); I (course A, C, E, G) and II (courses B, D, F, H). Required of all students majoring in piano or organ in the Curriculum in Applied Music. 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. Fee, \$2.

181A to 181F. RECITAL I TO VI. R(-); I (courses A, C, and E) and II (courses B, D, and F). Required of all students taking work in the Curriculum in Applied Music. A joint solo recital appearance in course IV, and an entire solo recital in course VI.

183. ENSEMBLE.  $\frac{1}{2}$ (0-2) each semester. For the curricula in Applied Music and Music Education, and elective in other curricula. Mr. Lindquist, Miss Hartman, Mr. Sayre, and Mr. Downey.

Required ensemble work may be taken in Choral Ensemble (course 194), Orchestra (course 195), or Band (course 198).

187. PRACTICE TEACHING OF MUSIC. R(1-0); II. Mr. Lindquist, Mr. Downey, Mr. Martin, Miss Tordoff, and Mr. Jesson.

Practice teaching in private classes for students in the curriculum in applied music.

194. CHORAL ENSEMBLE.  $\frac{1}{2}$ (0-2) each semester. Weekly rehearsals, all special rehearsals, and public performances. Prerequisites: A voice of good quality, a knowledge of musical notation, and the ability to sing in time and in tune. Mr. Lindquist, Miss Hartman, Mr. Sayre, and Miss Grossmann.

Membership in both the College Chorus and the Men's Glee Club or the College Chorus and the Women's Glee Club.

### 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.

191. CHORUS. Weekly rehearsals, all special rehearsals, and public performances; I and II. Prerequisites: Ability to read musical notation and to sing in time and in tune. Membership is open to the entire student body, and to others who may qualify. Approval of the head of the department of music must be obtained. Mr. Lindquist.

The College Chorus presents two or more standard cantatas or oratorios each year.

THE MEN'S GLEE CLUB. The Men's Glee Club is composed of about forty-five of the best male voices in the College. Membership is open to the entire student body, including graduate students, and vacancies in the club are filled by competitive tryouts. 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. Two separate divisions are maintained: the Study Club, the membership of which is selected by competitive tryouts, and the Concert Club, to which members of the Study Club may be elected after one year's service. Membership is open to the entire student body, including graduate students, and vacancies in the club are filled by competitive trial. This organization is also available for a limited number of concert engagements throughout the state. Miss Hartman and Mr. Sayre.

195. ORCHESTRA.  $\frac{1}{2}$ (0-2) each semester. Weekly rehearsals, all special rehearsals, and public performances. Mr. Downey.

The College Orchestra, composed of about fifty players, maintains a correct and well-balanced instrumentation, including all of the instruments of the modern symphony orchestra; and, in the preparation of programs of symphonic music, opera and oratorio accompaniments, offers the actual routine experience necessary for the development of efficient orchestra playing. Vacancies are filled by competitive tryouts, and membership is open to the entire student body and to others who may qualify.

198. BAND.  $\frac{1}{2}$ (0-2) each semester. Weekly rehearsals, all special rehearsals, and public performances. Mr. Downey and Mr. Martin.

The College Band plays for all military functions and major athletic events, and makes several concert appearances on the campus during the year. It is also available for a limited number of concert engagements throughout the state. Membership is open to the entire student body, and vacancies are filled by competitive trial.

FEES IN MUSIC

COURSE	GRADATION OF TEACHERS							
	1	2	3	4	5	6	7	8
Two lessons each week for a semester:								
Voice .....	\$38	\$36	..	\$32	..	\$30*	\$24*	\$14†
Piano .....	..	36	\$34	32	..	30*	24*	14†
Organ .....	..	36	..	..	..	30*	24*	14†
Violin .....	..	36	..	..	..	30*	24*	14†
Violoncello .....	..	36	..	..	..	30*	24*	14†
Other orchestral instruments .....	..	..	..	..	\$30	30*	24*	14†
One lesson each week for a semester:								
Voice .....	21	20	..	18	..	17*	14*	9†
Piano .....	..	20	19	18	..	17*	14*	9†
Organ .....	..	20	..	..	..	17*	14*	9†
Violin .....	..	20	..	..	..	17*	14*	9†
Violoncello .....	..	20	..	..	..	17*	14*	9†
Other orchestral instruments .....	..	..	..	..	17	17*	14*	9†
Piano rent, one hour daily—\$4 a semester.								
Piano rent, two hours daily—\$6 a semester.								
Organ rent, one hour weekly—\$3 a semester.								

Physical Education and Athletics

Professor AHEARN  
 Professor McMILLIN  
 Professor SAUM  
 Professor WASHBURN  
 Assistant Professor ROOT  
 Instructor GEYER

Instructor HAYLETT  
 Instructor MOLL  
 Instructor MAYTUM  
 Assistant MYERS  
 Assistant PATTERSON  
 Assistant WOOD

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 hygiene 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 locker, plunge baths, shower baths, and other accommodations.

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.

Men taking the physical education course 103, 104, 105, 106 are required to furnish their own uniforms consisting of white sleeveless shirt, short white gym pants, and rubber-soled shoes.

Men majoring in physical education are required to wear a special uniform for their gymnasium class work, which costs approximately \$9.

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. Students entering with 15, 25, 44 or 59 hours of advanced credit are excused from one, two, three or four semesters, respectively, of physical education, no substitution being required.

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 condi-

\*Fees for children.

† Student assistant fees.

tion, and a complete inspection of the whole body is made to detect any weakness or deformity that may exist. Based upon the information thus obtained, advice is given and work 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. The department owns equipment valued at \$8,902.

## COURSES IN PHYSICAL EDUCATION

### FOR UNDERGRADUATE CREDIT—MEN

A deposit of \$3 is required of each student enrolled in any course designated "Deposit." Only one deposit is required from any student in a given semester.

103, 104, 105, 106. PHYSICAL EDUCATION M. R(0-2) each semester of freshman and sophomore years. Mr. Washburn, Mr. Root, Mr. Moll, and Mr. Patterson.

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.

109. APPARATUS. 1(0-3); I. Prerequisites: Gymnastics I and II. Mr. Moll.

Carefully selected and graded exercises on the various pieces of apparatus, fundamental apparatus stunts, mat exercises and tumbling. Deposit.

113A. FIRST AID AND MASSAGE. 3(3-0); I and SS. Prerequisite: Human Anatomy. Mr. Moll.

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, and SS. Mr. Washburn and Mr. Moll.

I: Theory and practice of marching and calisthenics; principles of the gymnastic lesson; nomenclature and arrangement of exercises; light apparatus; games. Deposit.

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.

119. PERSONAL HYGIENE. 2(2-0); II and SS. 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, and SS. Swimming M-I is a prerequisite for Swimming M-II. Mr. Patterson and Mr. Moll.

I: Instruction and practice of breast, back and crawl strokes, of diving, treading water, and floating, land exercises and methods of breathing. Deposit.

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.

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; I and SS. 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 systems of offensive and defensive football. Deposit.

128. WRESTLING. 1(0-3); I. Mr. Patterson.

Rules, and the method of attack and defense in catch-as-catch-can wrestling; theories of wrestling, and wrestling psychology. Deposit.

130A. BASKET BALL. 2(1-3); I and SS. Mr. Root.

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.

132. BOXING. 1(0-3); II. Mr. Patterson.

Instruction in various modes of attack and defense; discussion of training, wrestling and boxing tournaments, and related topics. Deposit.

133. BASEBALL. 2(1-3); II and SS. Mr. Ahearn.

Theory and technic, each position being studied separately; rules, schedules, equipment, strategy, signals, team organization, plays, and players. Deposit.

135, 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, and intramural teams, and officiate in intramural games. The theory of teaching and officiating is also discussed. Deposit.

136C. PRACTICE TEACHING IN PHYSICAL EDUCATION III. 2(0-6). Mr. Washburn. Continuation of courses 135 and 136B. Deposit.

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.

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.

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.

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.

148. 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.

FOR UNDERGRADUATE CREDIT—WOMEN

151A, 152A, 153, 154. PHYSICAL EDUCATION W. R(0-3) each; I, II, and SS. Miss Saum, Miss Patterson, Miss Geyer, and Miss Maytum.

Natural dancing, swimming and corrective gymnastics offered throughout the year; hockey, field ball, soccer, volley ball, tennis, basket ball, archery, baseball, track and field sports given in season. Deposit, \$2.50 each semester. A refund of 50 cents, each semester, is made upon return of key.

Recreational swimming hour. There is an open hour in the pool, on Tuesdays and Thursday at 4 o'clock. No instruction is given. This hour is open to those who have registered in the College and paid the necessary fees. Swimming fee, \$1 each semester.

157A. GENERAL TECHNIC I. 2(1-3); I. Miss Maytum.

Theory and practice of child rhythms and folk dancing. Deposit, \$2.50.

157B. GENERAL TECHNIC II. 2(1-3); II. Miss Geyer.

Theory and practice of advanced gymnastics. Deposit, \$2.50.

157C. GENERAL TECHNIC III. 2(1-3); I. Miss Geyer.

Theory and practice of hockey, soccer, and volley ball. Deposit, \$2.50.

157D. GENERAL TECHNIC IV. 2(1-3); II. Miss Geyer.

Theory and practice of baseball, and field and track. Deposit, \$2.50.

157E. GENERAL TECHNIC V. 2(1-3); I. Miss Saum and Miss Maytum.

Theory and practice of archery, pyramids, stunts, and tumbling. Deposit, \$2.50.

157F. GENERAL TECHNIC VI. 2(1-3); II. Miss Geyer.

Methods of teaching basket ball, gymnastics, and tennis. Deposit, \$2.50.

157G. GENERAL TECHNIC VII. 2(1-3); I. Miss Maytum.

Methods of teaching natural dancing. Deposit, \$2.50.

157H. GENERAL TECHNIC VIII. 2(1-3); II. Miss Saum.

Methods of teaching swimming. Deposit, \$2.50.

158. FIRST-AID. 1(1-0); SS.

The prevention of accidents and the treatment of injuries in an emergency.

160. FOLK DANCING I. 1(0-3); I. Prerequisites: Courses 151A to 154. Miss Maytum.

Singing games for gymnasium, classroom, and playground; selected and graded list of simple folk dances. Material adapted for use in elementary schools. Deposit, \$2.50.

161. FOLK DANCING II. 1(0-3); II. Prerequisite: Course 160. Miss Maytum.

A selected list of folk dances and clog dances for use in junior and senior high schools. Deposit, \$2.50.

163. PRINCIPLES OF HEALTH EDUCATION W. 3(3-0); I and SS. Prerequisite: Personal Health. Miss Geyer.

General program of health work; daily health inspection; health examinations; and evaluation of health education material for grades and high schools.

164. CLOG AND CHARACTER DANCING W. 1(0-3); SS.

Principles of teaching clog and character dancing; lectures and practical work; a notebook is required.

165. TUMBLING, PYRAMIDS AND STUNTS W. 1(0-3); SS.

Instruction in tumbling, pyramids and stunts in line with the ability of the class. Material presented may be used in grades and high school.

166. INTRAMURAL ATHLETICS FOR WOMEN. 1(1-0); SS.

This course is offered for teachers who direct intramural activities. Types and methods of conducting intramural athletics in high schools will be considered.

167. CAMP CRAFT W. 1(0-3); SS.

Fire building, outdoor cooking, day and overnight trips, and handicraft. Lectures, reports and practical work.

170. PHYSICAL DIAGNOSIS W. 3(3-0); I. Prerequisites: Anatomy, Kinesiology, and Physiology. Miss Maytum.

Causes and symptoms of common diseases, deformities, and other abnormal conditions; methods of giving physical examinations.

173. THERAPEUTICS AND MASSAGE. 3(2-3); II. Prerequisites: Anatomy, Kinesiology, and Physical Diagnosis. Miss Maytum.

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, \$2.50.

176. ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION W. 2(2-0); II. Prerequisites: Courses 157A to 157H, 182A, 186 and 188. Miss Saum.

Administrative policies of physical education departments: the staff, activities, basic principles. Construction, equipment, and care of plant.

178. FOLK DANCING. 1(0-3); SS. Miss Maytum.

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. Deposit, \$2.50.

182A. PLAYGROUND MANAGEMENT AND GAMES W. 2(1-3); I, and SS. Prerequisite: Courses 151A and 152A. Miss Maytum.

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. Deposit, \$2.50.

184. KINESIOLOGY W. 2(2-0); II. 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.

187A. TECHNIC OF BASKET BALL, BASEBALL, AND VOLLEY BALL. 1(0-3); SS.

Rules, duties of officials, organization of squads and teams, equipment. Methods of coaching and conducting of tournaments. Deposit, \$2.50.

188. TEACHING AND ADAPTATION OF PHYSICAL EDUCATION. 3(3-0); I. Prerequisites: Courses 161, 157A to 157F, 168 and 182A. Miss Maytum.

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.

FOR UNDERGRADUATE CREDIT—MEN AND WOMEN

192. HISTORY AND PRINCIPLES OF PHYSICAL EDUCATION. 3(3-0); II. Prerequisite: Sophomore standing. Miss Wood.

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.

## Physics

Professor HAMILTON  
 Professor RABURN  
 Professor FLOYD  
 Associate Professor BRACKETT  
 Associate Professor LYON

Associate Professor CHAPIN  
 Assistant Professor HARTEL  
 Assistant Professor MAXWELL\*  
 Assistant Professor AVERY  
 Assistant Professor HUDIBURG

The inventions derived from physics are intimately involved in modern life. The principles of physics underlie the sciences and philosophy, and are widely applied in the curricula in which physics is required. Educated men and women require acquaintance with physics for its cultural value, as well as for its practical uses. The physics courses provide instruction in theory and its laboratory applications. Courses marked SS are available every summer. Many other courses are offered every second or third summer as demand arises. The equipment owned by this department has a value of \$35,984.

### COURSES IN PHYSICS

#### FOR UNDERGRADUATE CREDIT

101. HOUSEHOLD PHYSICS. 4(3-3); I, II, and SS. Mr. Hamilton, Mr. Floyd, and Miss Avery.

Lectures and demonstrations in which the laws and principles involved in household appliances are explained and illustrated. Charge, \$3.

110. DESCRIPTIVE PHYSICS. 3(3-0); I, II, and SS. Mr. Brackett, Mr. Hartel, Mr. Lyon, and Mr. Maxwell.

Nonmathematical explanations and experimental demonstrations of selected principles in physics, with attention directed to the contribution of physics to man's progress; adapted to the needs of students of journalism, commerce, and physical education. Not for credit if following Physics 135, 140 or 145, 150.

120. PHOTOGRAPHY. 2(1-3); II. Mr. Hamilton and Mr. Hudiburg.

Chemical and physical principles involved in photography; practice in making good negatives and prints. Charge, \$3.

131. GENERAL RADIO. 2(2-0); I. Alternate years. Mr. Lyon.  
 Elementary, nonmathematical explanation of radio.

133. METEOROLOGY. 3(3-0); I. Mr. Hamilton and Mr. Raburn.

Weather phenomena and principles of forecasting; climatic factors; relation of weather studies to agriculture, general science, and physiography.

134. AGRICULTURAL PHYSICS. 3(3-0); II. Mr. Brackett.

Fundamental principles as related to agriculture. Required of students in agriculture who enter without high-school physics.

135, 140. GENERAL PHYSICS I AND II. 4(3-3) each; I, II, and SS each. Not open for full credit to students who have credit in Physics 101, or in 145 or 150. Prerequisite: Plane Trigonometry. Mr. Floyd, Mr. Brackett, Mr. Lyon, Mr. Chapin, and Mr. Hartel.

I: General principles involved in mechanics, heat, and sound.

II: General principles involved in magnetism, electricity, and light. Charge, \$3 for each course.

145, 150. ENGINEERING PHYSICS I AND II. 5(4-3) each; I, II, and SS each. Prerequisites: For I, Plane Trigonometry; for II, Physics 145. Not open for full credit to students who have credit in Physics 101, 135, or 140. Mr. Hamilton, Mr. Raburn, Mr. Brackett, Mr. Lyon, Mr. Chapin, Mr. Maxwell, and Mr. Hudiburg.

I: Principles of mechanics, heat, and sound for technical students.

II: Principles of magnetism, electricity, and light for technical students. Charge, \$3 for each course.

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\* Absent on leave, 1933-'34.

155. DESCRIPTIVE ASTRONOMY. 3(3-0); II. Mr. Hartel.

Introductory course. Constellation studies and observations with the five-inch refracting telescope.

158. PHYSICS FOR MUSICIANS I. 5(4-3); I. Prerequisites: Harmony I and II. Mr. Floyd and Mr. Chapin.

Laws and principles necessary to an understanding of the physics of scales, chords, and musical instruments, including the human voice. Charge, \$3.

159. PHYSICS FOR MUSICIANS II. 3(3-0); II. Prerequisites: Physics 158 or 135 or 145. Mr. Floyd and Mr. Chapin.

Lectures and demonstrations dealing with the applications of the material presented in Physics 158 to scales, chords, and musical instruments, including the human voice.

FOR GRADUATE AND UNDERGRADUATE CREDIT

204. APPARATUS DESIGN, CONSTRUCTION AND CALIBRATION. 1(0-3) or 2(0-6); I, II, and SS. Prerequisite: Physics 140 or 150. Mr. Floyd, Mr. Brackett, and Mr. Hudiburg.

A course in the design, construction and calibration of apparatus, open to students to whom research problems have been assigned in any department of the college, to teachers of science, and to others. Deposit, \$3.

214. ARCHITECTURAL ACOUSTICS. 1(1-0); II. Prerequisite: Physics 140 or 150. Mr. Floyd and Mr. Chapin.

Prediction of acoustic properties of buildings in advance of construction and the correction of acoustic defects.

216. THEORETICAL ASTRONOMY. 3(3-0); I. Prerequisites: Physics 155 and Mathematics 101. Mr. Hartel.

Calculations concerning distances and motions of bodies in the solar system and of the stars, and applications of laws of gravitation leading to the study of celestial mechanics.

219. HEAT. 3(3-0); I. Prerequisites: Physics 140 or 150 and Mathematics 205. Mr. Floyd, Mr. Raburn, and Mr. Chapin.

A critical study of the general field of heat.

222. HEAT LABORATORY. 1(0-3); I. Physics 219 is prerequisite or concurrent. Mr. Floyd and Mr. Chapin. Charge, \$3.

226. X-RAYS. 3(2-3); I or II. Prerequisites: Physics 101, 140, 150 or equivalent. Mr. Hamilton.

Radiology, theory of short waves and of the equipment used in their production in various types of X-ray tubes. Laboratory work involving the use and operation of X-ray equipment, and making exposures and development of X-ray plates and films. Charge, \$3.

229. SPECTROSCOPY. 3(2-3); I. Prerequisites: Physics 140 or 150 and Chemistry 102 or 110. Mr. Hamilton and Mr. Raburn.

Theory and use of the spectrometer for identification of elements and compounds.

*Laboratory.*—Calibration of prisms and gratings and the measurement of wave lengths. Charge, \$3.

230. LIGHT. 3(3-0); II. Prerequisites: Physics 140 or 150 and Mathematics 205. Mr. Hamilton, Mr. Floyd, and Mr. Chapin.

A critical study of the general field of light from the wave point of view.

232. LIGHT LABORATORY. 1(0-3); II. Physics 230 is prerequisite or concurrent. Mr. Floyd and Mr. Chapin.

234. ELECTRON THEORY. 3(3-0); II. Prerequisites: Physics 140 or 150, Chemistry 102 or 110 and Mathematics 205. Mr. Raburn, Mr. Brackett, and Mr. Lyon.

An interpretation of matter, radioactivity, and electricity in terms of the electron.

245. RADIO MEASUREMENTS. 2(1-3); I or II. Prerequisites: Physics 140 or 150 and adequate knowledge of radio. Mr. Lyon and Mr. Hudiburg.

Tube characteristics, inductance, capacity, and use of wave meter and decimeter.

247. HISTORY OF PHYSICS. 2(2-0); II. Prerequisite: One course in physics. Mr. Brackett and Mr. Lyon.

Development of physics, and interactions of physical science and philosophy; the influence of modern physics and its effect on contemporary thought.

249. MODERN PHYSICS. 3(3-0); I. Prerequisites: Course in physics and chemistry. It is recommended but not required that Physics 247 be taken first. Mr. Brackett and Mr. Lyon.

Theories involved in recent advances in physics reviews critically; each member of the class is assigned to read selections from different texts and articles and to report and discuss his findings.

252. ADVANCED MECHANICS LABORATORY. 1(0-3) or 2(0-6); I. Prerequisite: Physics 140 or 150. Mr. Hamilton and Mr. Hartel.

Surface tension, viscosity, simple harmonic motion, torsion, pendulum, flexure, moment of inertia, and rigidity.

257. ELECTRICITY AND MAGNETISM. 2(2-0); I or II. Prerequisites: Physics 140 or 150 and Mathematics 206. Mr. Lyon and Mr. Hudiburg.

Electricity and magnetism discussed in terms of calculus.

259. ELECTRICITY LABORATORY. 1(0-3) or 2(0-6); I or II. Prerequisite: Physics 140 or 150. Mr. Hudiburg, Mr. Lyon, and Mr. Maxwell.

Experiments selected to meet the needs of the student.

261. PROBLEMS IN PHYSICS. 1(0-3) to 3(0-9); I, II, and SS. Prerequisite: Physics 140 or 150. Mr. Hamilton, Mr. Floyd, Mr. Brackett, Mr. Lyon, and Mr. Chapin.

#### COURSES AVAILABLE BY APPOINTMENT

275. ELECTRIC OSCILLATIONS AND ELECTRIC WAVES. 3(3-0). Prerequisites: Physics 140 or 150, Mathematics 201, and adequate knowledge of radio. Mr. Lyon.

278. KINETIC THEORY OF GASES. 3(3-0). Prerequisites: Physics 219 and Mathematics 201. Mr. Floyd and Mr. Raburn.

280. QUANTUM THEORY AND WAVE MECHANICS. 3(3-0). Prerequisites: Physics 140 or 150, and Mathematics 201. Mr. Lyon and Mr. Chapin.

285. GENERAL THERMODYNAMICS. 3(3-0). Prerequisites: Physics 219 and Mathematics 201. Mr. Floyd and Mr. Chapin.

#### FOR GRADUATE CREDIT

301. RESEARCH IN PHYSICS. 1 to 8 credits. I, II, and SS. Prerequisite: Consent of instructor. The staff.

315. VECTOR MECHANICS. 3(3-0). Prerequisite: Mathematics 230. Dr. Babcock.

## Public Speaking

Professor HILL  
Professor SUMMERS

Associate Professor HEBERER  
Associate Professor GIVEN

It is the constant effort of the Department of Public Speaking to relate the training in public speaking to the work of all other departments of the College and to harmonize it with the spirit of the College. With this object in view, students are trained in the presentation and discussion of the valuable ideas acquired in their various fields of study. The method pursued in this training is that of actual practice on the platform before an audience.

The department seeks to place itself at the service of those various organizations of the College which desire or need its assistance, and at the service of the communities of the state. In addition to its regular courses, it aims to make itself available as far as possible for individual rehearsals. It trains the orators of the College, coaches and directs college plays, and prepares intercollegiate debating teams. Students are urged to ally themselves with the organizations representing those various activities.

The equipment of this department has a value of \$241.

### COURSES IN PUBLIC SPEAKING

FOR UNDERGRADUATE CREDIT

101. ORAL INTERPRETATION. 2(2-0); I and II. Mr. Given.

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. Mr. Given.

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. Summers, Mr. Heberer, Mr. Given.

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. ARGUMENTATION AND DEBATE. 2(2-0); II. Prerequisite: Course 106, or by arrangement with instructor. Dr. Summers.

Fundamentals of argumentation as applied to debate, with special attention to the making of outlines, collection and organization of material, structure and style of the debate speech, and methods of refutation. Opportunity will be given to participate in a number of classroom debates for criticism.

123, 124. INTERCOLLEGIATE DEBATE I AND II. 2 credits each. Prerequisite for I: Course 121; for II: Course 122, and permission of the head of the department. Dr. Summers.

I: Practical experience in intercollegiate contest debating.

II: Practical experience in intercollegiate debates of the discussion type.

126. PARLIAMENTARY PROCEDURE. 1(1-0); II. Dr. 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.

130, 135. DRAMATIC PRODUCTION I AND II. 2(2-0) each; I, II, and SS each. Prerequisite 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.

138. PUBLIC SPEAKING FOR TEACHERS. 1(1-0); SS. Dr. Hill and Mr. Heberer.

A course designed to give the teacher training in the art of reading and speaking from the public platform, and a knowledge of the principles of public speaking as they apply to pedagogy. Practice work predominates.

142. ORATORICAL CONTEST. 2(-); II. Prerequisite: Course 101 or the permission of the head of the department.

Practical experience in modern types of intercollegiate and recognized intersociety contest oratory. Limit of credits for contest participation, four hours.

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.

160. RADIO SPEAKING AND ANNOUNCING. 2(1-3); I and II. Prerequisites: Course 106 and permission of the instructor. Dr. Summers.

The essentials of radio speaking voice, preparation of material for broadcast, announcing, and customary studio regulations. Offered by the department of Public Speaking in conjunction with the staff of the College radio station. The equipment of the College broadcasting station is used for laboratory work.

164. THE RADIO PROGRAM. 2(2-0); II. Prerequisite: Course 160, or permission of instructor. Dr. Summers, Mr. Heberer, and Miss Hostetter.\*

Analysis of program types, with particular attention to educational, dramatic, and advertising programs; experience in the planning of programs and in the construction and presentation of original features.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

201. PHONETICS. 4(3-3); I. Prerequisites: Courses 101, 106, and 108.

The science of speech sounds with special emphasis upon the formation of sounds by the human voice mechanism.

205. PAGEANTRY. 3(3-0); I and II. Prerequisites: English Literature and Extempore Speech I. Offered in 1934-'35 and alternate years.

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.

222. ADVANCED DEBATE. 2(2-0); I. Prerequisite: Course 121, or by arrangement with the instructor. Dr. Summers.

Practical application of debate theory in public discussion, with particular attention to the use of various methods of persuasion. Opportunity to participate in classroom discussion debates for criticism.

#### FOR GRADUATE CREDIT

301. RESEARCH IN SPEECH. 1 to 8 credits; I, II, and SS. Prerequisite: Consult instructor. Dr. Hill and Mr. Given.

Individual research problems in the general field of speech and in the fields of the drama and pageantry, speech defects, speech psychology, speech types, lecture recital and lecture.

\* Of the Department of Industrial Journalism and Printing.



305. CLINICAL PROBLEMS OF DEFECTIVE SPEAKING. 4(2-6); II. Prerequisites: Courses 101, 106, 108, and 201.

A study of corrective methods. Practical problems assigned when defective cases are available.

## Zoölogy

Professor NABOURS

Professor ACKERT

Professor HARMAN

Professor JOHNSON

Assistant Professor WIMMER

Assistant Professor HARBAUGH

Instructor GOODRICH

Instructor DOBROVOLNY

Assistant STEBBINS

Graduate Research Assistant EISENBRANDT

Graduate Research Assistant BAKER

Graduate Research Assistant PRATT

Graduate Research Assistant TABOR

Graduate Research Assistant WILMOTH

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.

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 technique. The equipment belonging to the department is valued at \$48,670.

### COURSES IN ZOOLOGY

#### FOR UNDERGRADUATE CREDIT

105. GENERAL ZOOLOGY. 5(3-6); I, II, and SS. Dr. Nabours, Dr. Ackert, Dr. Johnson, Mr. Harbaugh, and Mr. Goodrich.

Structures, functions, relations and evolution of types of both invertebrates and vertebrates in the class, laboratory and in nature. Charge, \$3.

123A. HUMAN ANATOMY. 5(3-6); I. Prerequisite: General Zoölogy (Zoöl. 105) or equivalent. Dr. Wimmer.

Special attention to the human skeleton, musculature, and organs; study of dissectible models, skeletons, and charts. Charge, \$3.

130. PHYSIOLOGY. 4(3-3); I, II, and SS. Prerequisites: Zoöl. 105, or equivalent, and General Chemistry, or equivalent. Dr. Wimmer.

A general study of the functions of the organs and organ systems of the body and their relationship and coördinations. Charge, \$3.

135. EMBRYOLOGY A. 3(2-3); I and SS. Prerequisite: 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, \$3.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

203. ZOOLOGICAL PROBLEMS. 1 or 2 credits; I, II, and SS. Dr. Nabours, Dr. Ackert, Dr. Harman, Dr. Johnson, Dr. Wimmer, Mr. Harbaugh, and Mr. Goodrich.

Individual problems in heredity, parasitology, physiology, cytology, embryology, protozoölogy, ecology, orinthology, endocrinology, and neurology assigned by the instructors in charge.

205. FIELD ZOOLOGY. 2(1-3) or 3(1-6); I and SS. Prerequisite: Zoöl. 105 or equivalent. Mr. Harbaugh.

A general survey of the animal kingdom with emphasis on local forms; notes on their life histories, distribution, and relationship. Charge, \$3.

206. ZOOLOGICAL TECHNIC. 1(0-3) or 2(0-6); II. Prerequisite: General Zoölogy, or equivalent. Dr. Nabours and Mr. Dobrovolny.

Methods of killing, fixing, imbedding, using microtome, staining, dehydrating, and other processes in preparation of microscopical slides, principles of photomicrography. Charge, \$3.

208. PARASITOLOGY. 3(2-3); I. Prerequisite: Zoöl. 105, or equivalent. Dr. Ackert.

A study of the biology, pathology, and prophylaxis of the principal external and internal parasites of the domestic animals. Charge, \$2.

212. INVERTEBRATE ZOOLOGY. 4(2-6); I. Prerequisite: Zoöl. 105 or equivalent. Mr. Goodrich.

The main groups of invertebrates, with emphasis on anatomy and biological principles. Charge, \$3.

214. CYTOLOGY. 4(2-6); I. Prerequisite: Zoöl. 105, or equivalent. Dr. Harman.

Methods of preparing material for cytological 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 nature 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 principal 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 or II. Prerequisites: Zoöl. 105 and 201 or 135, 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. ZOOLOGY 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(1-0); I and II. 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.

231. ENDOCRINOLOGY. 2(2-0); I and SS. Prerequisites: Zoöl. 105 and 130, 135, or 246; consult instructor. Dr. Johnson.

The biology of the ductless glands, with emphasis on the recent work on the functions and interrelations of the pituitary, adrenal, thyroid and sex glands in higher vertebrates, including man.

235. HUMAN PHYSIOLOGY. 4(3-3); I. Prerequisites: Zoöl. 105 and Organic Chemistry. For upperclassmen, with the consent of the instructor, and graduate students. Dr. Wimmer.

Similar to Physiology (Zoöl. 130) in treatment but more intensive. Charge, \$3.

240. TAXONOMY OF PARASITES. 2(1-3); I. Prerequisites: Zoöl. 105 and 208 or 218. Dr. Ackert and Mr. Goodrich.

Structure of animal parasites; relation of certain animal groups; principles of classification; identification of parasites of man and of domestic animals.

244. ORNITHOLOGY. 2(1-3) or 3(1-6); II and SS. Prerequisite: Zoöl. 105, or equivalent. Mr. Goodrich.

Recitation, field and laboratory study of bird anatomy, adaptations, and habits. Charge, \$2.

246. COMPARATIVE ANATOMY OF VERTEBRATES. 4(2-6); 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 8 credits; I, II, and SS. Prerequisite: Consult instructor. Dr. Nabours, Dr. Ackert, Dr. Harman, Dr. Johnson, Dr. Wimmer, Mr. Harbaugh, Mr. Goodrich, and Mr. Dobrovoly.

Individual research problems are assigned in the fields of heredity and experimental evolution, parasitology, cytology, embryology, ecology, physiology, neurology, endocrinology, and protozoölogy.

# The Division of Home Economics

MARGARET M. JUSTIN, *Dean*

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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, and to cultivate an attitude of economic and social responsibility.

The curricula as outlined below are 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. The training given is as varied as it is broad. It includes a knowledge of the laws of health; an understanding of the sanitary requirements of the home; the study of values, both absolute and relative, of the various articles used in the home; the wise expenditure of money, time, and energy; the scientific principles underlying the selection and preparation of food; the right care of children; and the ability to secure efficient service from others. Instruction is methodical and thorough, and is suited to the circumstances of the students. Experience shows that such training teaches contentment, industry, order, and cleanliness, and fosters a woman's independence and feeling of responsibility.

The work in home economics includes:

A four-year curriculum leading to the degree of Bachelor of Science.

A four-year curriculum leading to the degree of Bachelor of Science with special training in art.

A four-year curriculum leading to the degree of Bachelor of Science with special training in dietetics and institutional management.

A four-year curriculum leading to the degree of Bachelor of Science with special training in journalism.

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.

## THE CURRICULUM 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, 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. This choice of electives will be made during the second semester of the sophomore year.

This curriculum is recommended for all who desire general training in home economics or who have not yet determined the special field in which they wish to major. It is the curriculum to be chosen by those who wish to teach home economics or to engage in home demonstration work.

### **THE CURRICULUM IN HOME ECONOMICS AND ART**

The four-year curriculum offering special training in art is designed to meet the need of students especially interested in this field. The courses give background for professional work in the art field, for teaching of art and for the general culture afforded by art study.

### **THE CURRICULUM IN HOME ECONOMICS AND INSTITUTIONAL ECONOMICS AND DIETETICS**

This curriculum is designed to meet the needs of the student who wishes to become a dietitian or director of food services in college dormitory, cafeteria, tea room, or hotel. It meets the requirements set by the American Dietetic Association for entrance to accredited hospitals and at the same time provides practical training for the management of the food unit of various types of institutions. As a part of the training received, residence in the college dormitory for one semester will be required. Usually after graduation the student serves an apprenticeship in a recommended establishment to round out her training and experience.

### **THE CURRICULUM IN HOME ECONOMICS AND JOURNALISM**

This curriculum is planned for those students having special aptitude and interest in writing as a vocation. The broad field of home economics and its intimate bearing on the daily lives of people makes the combination of home economics subject matter with technical training in journalism peculiarly desirable for the woman journalist. The basic courses in home economics supply assurance in their knowledge and approach to the subject and the journalism courses assist in the successful, popular presentation of the facts. In the business world, in foods, textiles, and in household equipment, persons having received such training are in demand for many varied positions.

### **THE CURRICULUM IN HOME ECONOMICS AND NURSING**

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.

### CERTIFICATE FOR TEACHING HOME ECONOMICS

The student who, in addition to securing the Bachelor of Science degree, is desirous of qualifying 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, should elect certain courses in the Department of Education and other technical courses which are deemed essential for vocational home economics and desirable for all teaching of home economics. These courses are as follows:

EDUCATIONAL SUBJECTS		TECHNICAL SUBJECTS	
Educ. Psychology, Educ. 109 . . . . .	3(3-0)	Child Care and Training I, Child	
Prin. of Secondary Educ., Educ. 236,	3(3-0)	Welf. 201 . . . . .	3(1-6)
Vocational Educ., Educ. 241 . . . . .	3(3-0)	Home Managt., Hshld. Econ. 116 . . .	3(1-6)
Methods of Teach. Home Economics,		Adv. Clothing, Clo. and Text. 123 . . .	4(1-9)
Educ. 132 . . . . .	3(3-0)		
Teach. Particip. in Home Economics,			
Educ. 160 . . . . .	3( - )		

### 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.

Curriculum in Home Economics

FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
College Rhetoric I, Engl. 101.....	*3(3-0)	College Rhetoric II, Engl. 104.....	3(3-0)
Gen. Chemistry, Chem. 110.....	5(3-6)	Gen. Organic Chemistry, Chem. 122,	5(3-6)
Elementary Design I, Art 101A.....	2(0-6)	Elementary Design II, Art 101B....	2(0-6)
Foods I, Food & Nutr. 102.....	5(3-6) <i>or</i>	Gen. Psychology, Educ. 184.....	3(3-0) <i>and</i>
Gen. Psychology, Educ. 184.....	3(3-0) <i>and</i>	Personal Health, Child Welf. 101....	2(2-0) <i>or</i>
Personal Health, Child Welf. 101....	2(2-0)	Foods I, Food & Nutr. 102.....	5(3-6)
H. E. Fr. Lectures, Gen. H. E. 101..	R(1-0)	Phys. Educ. W, Phys. Ed. 152A.....	R(0-3)
Phys. Educ. W, Phys. Ed. 151A.....	R(0-3)		
<b>Total.....</b>	<b>15</b>	<b>Total.....</b>	<b>15</b>

SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
English Literature, Engl. 172.....	3(3-0)	American Literature, Engl. 175.....	3(3-0)
General Zoölogy, Zoöl. 105.....	5(3-6)	Embryology B, Zoöl. 219A.....	4(3-3) <i>or</i>
Costume Design I, Art 130.....	2(0-6)	Physiology, Zoöl. 130.....	4(3-3)
Foods II, Food & Nutr. 107.....	3(1-6)	Clothing for the Individual, Clo. and	
Economics I, Econ. 101.....	3(3-0)	Text. 103.....	4(1-9)
Phys. Educ. W, Phys. Ed. 153.....	R(0-3)	Household Physics,† Physics 101....	4(3-3)
		Phys. Educ. W, Phys. Ed. 154.....	R(0-3)
<b>Total.....</b>	<b>16</b>	<b>Total.....</b>	<b>15</b>

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
German I and II,‡ Mod. Lang. 101		German Readings,§ Mod. Lang. 111,	3(3-0) <i>or</i>
and 102.....	6(6-0) <i>or</i>	French Readings, Mod. Lang. 161...	3(3-0)
French I and II, Mod. Lang. 151 and		Textiles, Clo. & Text. 116.....	3(2-3)
152.....	6(6-0)	Household Microb., Bact. 121.....	3(1-6)
Human Nutr., Food & Nutr. 112....	3(3-0)	American History I,§ Hist. 201.....	3(3-0)
The House, Househld. Econ. 107....	3(2-3)	Elective  .....	4( - )
Current History, Hist. 126.....	1(1-0)		
Interior Decoration I, Art 113.....	2(0-6)	<b>Total.....</b>	<b>16</b>
<b>Total.....</b>	<b>15</b>		

SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Dietetics, Food & Nutr. 202.....	4(3-3)	Am. Govt.,§ Hist. 151, 152, or 153...	3(3-0)
The Family, Child Welf. 216.....	2(2-0)	Family Health, Child Welf. 211.....	3(3-0)
Elective  .....	10( - )	H. E. Sr. Lectures, Gen. H. E. 151..	R(1-0)
		Elective  .....	10( - )
<b>Total.....</b>	<b>16</b>	<b>Total.....</b>	<b>16</b>

Total requirements for degree of Bachelor of Science in Home Economics, 124 hours.

\* The number before the parenthesis indicates the number of 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.

† General Physics may be substituted if a student plans to pursue research later.

‡ Students in the Division of Home Economics take a minimum of nine hours of French or German unless they have had one or more years of either language in high school. In case one year of language has been taken in high school, the student will be held for six hours of the same language in advance of the previous work; if two years of language have been taken in high school, the student will be held for three hours of the same language. The requirement of three or six hours of language not taken because of language study in high school may be met by advanced language courses or by electives chosen with the approval of the dean.

§ An option of equivalent hours in the fields of mathematics, chemistry, physics, botany, zoölogy, economics or agricultural economics may be taken instead of the course marked, with the advice and approval of the dean.

|| Electives are chosen with the approval of the dean during the sophomore year. They give opportunity for special training in the various fields. If the teaching of home economics is elected, certain educational and technical subjects are required as given under "Certification for Teaching Home Economics."

## Curriculum in Home Economics With Special Training in Art

### FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
College Rhetoric I, Engl. 101.....	3(3-0)	College Rhetoric II, Engl. 104.....	3(3-0)
Gen. Chemistry, Chem. 110.....	5(3-6)	Gen. Org. Chemistry, Chem. 122.....	5(3-6)
Elementary Design I, Art 101A.....	2(0-6)	Elementary Design II, Art 101B.....	2(0-6)
Foods I, Food & Nutr. 102.....	5(3-6) <i>or</i>	Gen. Psychology, Educ. 184.....	3(3-0) <i>and</i>
Gen. Psychology, Educ. 184.....	3(3-0) <i>and</i>	Personal Health, Child Welf. 101.....	2(2-0) <i>or</i>
Personal Health, Child Welf. 101.....	2(2-0)	Foods I, Food & Nutr. 102.....	5(3-6)
H. E. Fr. Lectures, Gen. H. E. 101..	R(1-0)	Phys. Educ. W, Phys. Ed. 152A.....	R(0-3)
Phys. Educ. W, Phys. Ed. 151A.....	R(0-3)		
Total.....	15	Total.....	15

### SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
English Literature, Engl. 172.....	3(3-0)	American Literature, Engl. 175.....	3(3-0)
General Zoölogy,* Zoöl. 105.....	5(3-6)	Foods II, Food & Nutr. 107.....	3(1-6)
Ancient Civilizations, Hist. 101.....	3(3-0)	Clothing for the Individual, Clo. and Text. 103.....	4(1-9)
Intermediate Design, Art 103.....	2(0-6)	Current History, Hist. 126.....	1(1-0)
Costume Design I, Art 130.....	2(0-6)	Advanced Design A, Art 105.....	2(0-6)
Phys. Educ. W, Phys. Ed. 153.....	R(0-3)	Drawing I, Art 120.....	2(0-6)
		Phys. Educ. W, Phys. Ed. 154.....	R(0-3)
Total.....	15	Total.....	15

### JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
German I and II, <sup>1</sup> Mod. Lang. 101 and 102.....	6(6-0) <i>or</i>	German Readings, <sup>1</sup> Mod. Lang. 111..	3(3-0) <i>or</i>
French I and II, <sup>1</sup> Mod. Lang. 151 and 152.....	6(6-0)	French Readings, <sup>1</sup> Mod. Lang. 161..	3(3-0)
Human Nutr., Food & Nutr. 112....	3(3-0) <i>or</i>	Medieval Europe, Hist. 102.....	3(3-0)
Applied Nutr., Food & Nutr. 121....	2(2-0)	Costume Design III, Art 138.....	2(0-6)
Hist. & Ap. of Music I, Mus. 112....	3(3-0)	Interior Decoration I, Art 113.....	2(0-6)
Costume Design II, Art 134.....	2(0-6)	Elective.....	6( - )
Elective.....	2 <i>or</i> 3( - )		
Total.....	16	Total.....	16

### SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Child Care and Train. I, Ch. Welf. 201,	3(1-6)	American History I, <sup>1</sup> Hist. 201.....	3(3-0)
Extm. Speech I, Pub. Spk. 106.....	2(2-0)	Principles of Art II, Art 126.....	3(3-0)
Principles of Art I, Art 124.....	3(3-0)	Interior Decoration III, Art 117.....	2(0-6)
Interior Decoration II, Art 115.....	2(0-6)	H. E. Sr. Lectures, Gen. H. E. 151..	R(1-0)
Elective.....	6( - )	Elective.....	8( - )
Total.....	16	Total.....	16

Number of hours required for graduation, 124.

\* General Botany I and II may be taken as an option for General Zoölogy and the necessary adjustment made in providing the required number of hours each semester and in lessening the electives one hour if the option is desired.

1. See respective footnote under Curriculum in Home Economics.



## Curriculum in Home Economics With Special Training in Institutional Economics and Dietetics

### FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
College Rhetoric I, Engl. 101 . . . . .	3(3-0)	College Rhetoric II, Engl. 104 . . . . .	3(3-0)
Gen. Chemistry, Chem. 110 . . . . .	5(3-6)	Gen. Org. Chemistry, Chem. 122 . . . . .	5(3-6)
Elementary Design I, Art 101A . . . . .	2(0-6)	Elementary Design II, Art 101B . . . . .	2(0-6)
Foods I, Food & Nutr. 102 . . . . .	5(3-6) <i>or</i>	Gen. Psychology, Educ. 184 . . . . .	3(3-0) <i>and</i>
Gen. Psychology, Educ. 184 . . . . .	3(3-0) <i>and</i>	Personal Health, Child Welf. 101 . . . . .	2(2-0) <i>or</i>
Personal Health, Child Welf. 101 . . . . .	2(2-0)	Foods I, Food & Nutr. 102 . . . . .	5(3-6)
H. E. Fr. Lectures, Gen. H. E. 101 . . . . .	R(1-0)	Phys. Educ. W, Phys. Ed. 152A . . . . .	R(0-3)
Phys. Educ. W, Phys. Ed. 151A . . . . .	R(0-3)		
Total . . . . .	15	Total . . . . .	15

### SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
English Literature, Engl. 172 . . . . .	3(3-0)	American Literature, Engl. 175 . . . . .	3(3-0)
General Zoölogy, Zoöl. 105 . . . . .	5(3-6)	Embryology B, Zoöl. 219A . . . . .	4(3-3) <i>or</i>
Costume Design I, Art 130 . . . . .	2(0-6)	Physiology, Zoöl. 130 . . . . .	4(3-3)
Household Physics,* Physics 101 . . . . .	4(3-3)	Foods II, Food & Nutr. 107 . . . . .	3(1-6)
Economics I, Econ. 101 . . . . .	3(3-0)	Clothing for the Individual, Clo. and Text. 103 . . . . .	4(1-9)
Phys. Educ. W, Phys. Ed. 153 . . . . .	R(0-3)	Current History, Hist. 126 . . . . .	1(1-0)
		Phys. Educ. W, Phys. Ed. 154 . . . . .	R(0-3)
Total . . . . .	17	Total . . . . .	15

### JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
German I,* Mod. Lang. 101 . . . . .	3(3-0) <i>or</i>	German II,* Mod. Lang. 102 . . . . .	3(3-0) <i>or</i>
French I,* Mod. Lang. 151 . . . . .	3(3-0)	French II,* Mod. Lang. 152 . . . . .	3(3-0)
Human Nutr., Food & Nutr. 112 . . . . .	3(3-0)	Phys. Chemistry, Chem. 231 . . . . .	5(3-6)
Sociology, Econ. 151 . . . . .	3(3-0)	Household Micro., Bact. 121 . . . . .	3(1-6)
Inst. Econ. I, Inst. Econ. 202 . . . . .	4(1-9)	Inst. Econ. II, Inst. Econ. 206 . . . . .	2(2-0)
Inst. Purchasing, Inst. Econ. 215 . . . . .	2(2-0)	Inst. Accounting, Econ. 284 . . . . .	2(2-0)
Inst. Equipment, Inst. Econ. 230 . . . . .	2(2-0)	Meats H. E., An. Husb. 176 . . . . .	1(0-3)
Total . . . . .	17	Total . . . . .	16

### SENIOR

FIRST SEMESTER		SECOND SEMESTER	
German Readings,* Mod. Lang. 111, 3(3-0) <i>or</i>		Dietetics for Abn. Conditions, Food & Nutr. 205 . . . . .	2(1-3) <i>or</i>
French Readings,* Mod. Lang. 161 . . . . .	3(3-0)	Tea Room Managt., Inst. Econ. 225, 3(0-9)	
Dietetics, Food & Nutr. 202 . . . . .	4(3-3)	Field Work in Nutr., Food & Nutr. 215, 3(2-3)	
American History I,* Hist. 201 . . . . .	3(3-0)	Food Econ. & Nutr. Seminar, Food & Nutr. 251 . . . . .	2(2-0)
Meth. of Teaching H. E., Educ. 132 . . . . .	3(3-0)	H. E. Sr. Lectures, Gen. H. E. 151 . . . . .	R(1-0)
Experi. Cookery, Food & Nutr. 255 . . . . .	2(0-6)	Elective . . . . .	6 <i>or</i> 7
Total . . . . .	15	Total . . . . .	14

Number of hours required for graduation, 124.

\* See respective footnote under Curriculum in Home Economics.

## Curriculum in Home Economics With Special Training in Journalism

### FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
College Rhetoric I, Engl. 101.....	3(3-0)	College Rhetoric II, Engl. 104.....	3(3-0)
Gen. Chemistry, Chem. 110.....	5(3-6)	Gen. Org. Chemistry, Chem. 122....	5(3-6)
Elementary Design I, Art 101A....	2(0-6)	Elementary Design II, Art. 101B....	2(0-6)
Foods I, Food & Nutr. 102.....	5(3-6) <i>or</i>	Gen. Psychology, Educ. 184.....	3(3-0) <i>and</i>
Gen. Psychology, Educ. 184.....	3(3-0) <i>and</i>	Personal Health, Child Welf. 101....	2(2-0) <i>or</i>
Personal Health, Child Welf. 101....	2(2-0)	Foods I, Food & Nutr. 102.....	5(3-6)
H. E. Fr. Lectures, Gen. H. E. 101..	R(1-0)	Phys. Educ. W, Phys. Ed. 152A.....	R(0-3)
Phys. Educ. W, Phys. Ed. 151A.....	R(0-3)		
Total.....	15	Total.....	15

### SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
English Literature, Engl. 172.....	3(3-0)	American Literature, Engl. 175.....	3(3-0)
General Zoölogy, Zoöl. 105.....	5(3-6)	Embryology B, Zoöl. 219A.....	4(3-3) <i>or</i>
Costume Design I, Art 130.....	2(0-6)	Physiology, Zoöl. 130.....	4(3-3)
Foods II, Food & Nutr. 107.....	3(1-6)	Clothing for the Individual, Clo. & Text. 103.....	4(1-9)
El. Journalism, Ind. Jour. 151.....	2(2-0)	Jour. for Women, Ind. Jour. 172....	2(2-0)
Phys. Educ. W, Phys. Ed. 153.....	R(0-3)	Interior Decoration I, Art 113.....	2(0-6)
		Phys. Educ. W, Phys. Ed. 154.....	R(0-3)
Total.....	15	Total.....	15

### JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
German I and II,* Mod. Lang. 101 and 102.....	6(6-0) <i>or</i>	German Readings,* Mod. Lang. 111,	3(3-0) <i>or</i>
French I and II,* Mod. Lang. 151 and 152.....	6(6-0)	French Readings,* Mod. Lang. 161,	3(3-0)
Human Nutr., Food & Nutr. 112....	3(3-0)	The House, Hshld. Econ. 107.....	3(2-3)
Household Physics,* Physics 101....	4(3-3)	Prin. of Adv., Ind. Jour. 178.....	4(4-0)
Ind. Feat. Writing, Ind. Jour. 167...	2(2-0)	Current History, Hist. 126.....	1(1-0)
Elective.....	1( - )	Elective.....	5( - )
Total.....	16	Total.....	16

### SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Dietetics, Food & Nutr. 202.....	4(3-3)	American History I,* Hist. 201.....	3(3-0)
Child Care & Train. I, Ch. Welf. 201,	3(1-6)	The Family, Child Welf. 216.....	2(2-0)
Sociology, Econ. 151.....	3(3-0)	H. E. Sr. Lectures, Gen. H. E. 151...	R(1-0)
Am. Gov't,* Hist. 151, 152, or 153...	3(3-0)	Elective.....	11( - )
Elective.....	3( - )		
Total.....	16	Total.....	16

Number of hours required for graduation, 124.

\* See respective footnote under Curriculum in Home Economics.

## Curriculum in Home Economics and Nursing

### FRESHMAN

FIRST SEMESTER		SECOND SEMESTER	
College Rhetoric I, Engl. 101.....	3(3-0)	College Rhetoric II, Engl. 104.....	3(3-0)
Gen. Chemistry, Chem. 110.....	5(3-6)	Gen. Org. Chemistry, Chem. 122....	5(3-6)
Foods I, Food & Nutr. 102.....	5(3-6)	German I and II,* Mod. Lang. 101	
Gen. Psychology, Educ. 184.....	3(3-0)	and 102.....	6(6-0)
H. E. Fr. Lectures, Gen. H. E. 101..	R(1-0)	Current History, Hist. 126.....	1(1-0)
Phys. Educ. W, Phys. Ed. 151A.....	R(0-3)	Phys. Educ. W, Phys. Ed. 152A.....	R(0-3)
Total.....	16	Total.....	15

### SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
English Literature, Engl. 172.....	3(3-0)	American Literature, Engl. 175.....	3(3-0)
General Zoölogy, Zoöl. 105.....	5(3-6)	Embryology B, Zoöl. 219A.....	4(3-3) or
Phys. Chemistry, Chem. 231.....	5(3-6)	Physiology, Zoöl. 130.....	4(3-3)
Foods II, Food & Nutr. 107.....	3(1-6)	Gen. Microbiology, Bact. 101.....	3(1-6)
Phys. Educ. W, Phys. Ed. 153.....	R(0-3)	Am. Gov't,* Hist. 151, 152, or 153..	3(3-0)
Total.....	16	Elective.....	2( - )
		Total.....	15

### JUNIOR

(Replaced by two years at Charlotte Swift Hospital)

Theoretical and practical work during the time includes:

FIRST YEAR	SECOND YEAR
History and Ethics of Nursing.	Surgery and Surgical Nursing and Bandaging.
Hospital Economics.	Obstetrics and Gynecology.
Nursing Methods.	Pediatrics.
Medical Nursing.	Diseases of Eye, Ear, Nose and Throat.
Communicable Diseases.	Nervous and Mental Diseases.
Special Therapeutics and Massage.	Materia Medica.
	Problems in Nursing.

Equivalent to 31 college hours.

### SENIOR

FIRST SEMESTER	SECOND SEMESTER
(Specialized work in affiliated hospitals).	American History I,* Hist. 201.....
Equivalent to 15 college hours.	Dietetics, Food & Nutr. 202.....
	The Family, Child Welf. 216.....
	H. E. Sr. Lectures, Gen. H. E. 151..
	Elective.....
	Total.....
	16

Number of hours required for graduation, 124.

\* See respective footnote under Curriculum in Home Economics.

## 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, in a minimum of six hours.

### Child Care and Training

Sociology, Econ. 151.....	3(3-0)	History of the Home, Hist. 225.....	3(3-0)
Social Problems, Econ. 257.....	2(2-0)	Psyc. of Childhood and Adolescence,	
The Family, Child Welf. 216.....	2(2-0)	Educ. 250.....	3(3-0)
Field Work in Nutr., Food & Nutr. 215,	3(2-3)	Child Care & Train. II, Ch. Welf. 206,	3(3-0)
Heredity & Eugenics, Zoöl. 216.....	2(2-0)	Problems in Child Welfare and Eu-	
Child Care & Train. I, Ch. Welf. 201,	3(1-6)	thenics, Child Welf. 221.....	1 to 5
Seminar in Child Welfare and Eu-			
thenics, Child Welf. 226.....	1 or 2		

### Costuming

Hist. of Costume, Clo. & Text. 225..	2(2-0)	Prin. of Adv., Ind. Jour. 178.....	4(4-0)
Adv. Clothing, Clo. & Text. 123.....	4(1-9)	Prin. of Art I, Art 124.....	3(3-0)
Clothing Econ., Clo. & Text. 201....	3(3-0)	Medieval Europe, Hist. 102.....	3(3-0)
Sociology, Econ. 151.....	3(3-0)	Problems in Clothing & Textiles, Clo.	
Costume Design II, Art 134.....	2(0-6)	& Text. 215.....	1 to 3
Intermediate Design, Art 103.....	2(0-6)	Modern Europe I, Hist. 115.....	3(3-0)

### Food and Nutrition

Physical Chemistry I, Chem. 206....	5(3-6)	College Algebra, Math. 104.....	3(3-0)
Chemical Microscopy, Chem. 245....	1(0-3)	Plane Trigonometry, Math. 101....	3(3-0)
Human Physiology, Zoöl. 235.....	4(3-3)	Phys. Chemistry, Chem. 231.....	5(3-6)
Hygienic Bacteriology, Bact. 206....	4(2-6)	Biochem. Prep., Chem. 234.....	5(0-15)
Problems in Food Econ. & Nutrition,		Quan. Analysis, Chem. 241.....	5(1-12)
Food & Nutr. 248.....	1 to 5	Food Analysis, Chem. 257.....	3(0-9)
Food Econ. & Nutrition Seminar,		Histology I, Path. 102.....	4(2-6)
Food & Nutr. 251.....	1 to 2	Human Parasitology, Zoöl. 218.....	3(3-0)
Field Work in Nutr., Food & Nutr. 215,	3(2-3)	Nutr. of Dev., Food & Nutr. 210....	2(2-0)
Bact. Problems, Bact. 270.....	1 to 4		
Stat. Meth. Ap. to Educ., Educ. 223,	3(3-0)		

### Home Making

Child Care & Train. I, Ch. Welf. 201,	3(1-6)	Child Care & Train. II, Ch. Welf. 206,	3(3-0)
The Family, Child Welf. 216.....	2(2-0)	Principles of Art I, Art 124.....	3(3-0)
Sociology, Econ. 151.....	3(3-0)	Econ. of Hshld., Hshld. Econ. 265....	2(2-0)
Com. Organization, Econ. 267.....	3(3-0)	Adv. Clothing, Clo. & Text. 123....	4(1-9)
Problems in Foods, Food & Nutr. 310,	1 to 3	Meats (HE), An. Husb. 176.....	1(0-3)
Home Managt., Hshld. Econ. 116....	3(1-6)	Hist. of Engl. Lit., Engl. 181.....	3(3-0)
World Classics I, Engl. 280.....	3(3-0)	Psyc. of Childhood and Adolescence,	
The Nutr. of Dev., Food & Nutr. 210,	2(2-0)	Educ. 250.....	3(3-0)

### Lecturing and Demonstrating

Oral English, Engl. 128.....	3(3-0)	Dramatic Reading, Pub. Spk. 102....	2(2-0)
Extm. Speech I, Pub. Spk. 106.....	2(2-0)	Extm. Speech II, Pub. Spk. 108....	2(2-0)
Oral Interp., Pub. Spk. 101.....	2(2-0)	Rural Sociology, Econ. 156.....	3(3-0)
Sociology, Econ. 151.....	3(3-0)	Com. Organization, Econ. 267.....	3(3-0)
Technical Writing, Engl. 207.....	2(2-0)	Ind. Writing, Ind. Jour. 161.....	2(2-0)
Meats (HE), An. Husb. 176.....	1(0-3)		
Ind. Feat. Writing, Ind. Jour. 167....	2(2-0)		

**Social and Welfare Work**

Child Care & Train. I, Ch. Welf. 201,	3(1-6)	Child Care & Train. II, Ch. Welf. 206,	3(3-0)
The Family, Child Welf. 216.....	2(2-0)	Labor Problems, Econ. 233.....	2(2-0)
Econ. of the Hshld., Hshld. Econ. 265,	2(2-0)	Rural Sociology, Econ. 156.....	3(3-0)
Sociology, Econ. 151.....	3(3-0)	Social Problems, Econ. 257.....	2(2-0)
Latin America, Hist. 208.....	3(3-0)	Modern Europe II, Hist. 223.....	3(3-0)
Com. Organization, Econ. 267.....	3(3-0)	Immi. & Int. Rel., Hist. 228.....	2(2-0)
Field Work in Nutrition, Food & Nutr. 215.....	3(2-3)	Prob. in Child Welfare and Euthenics, Child Welf. 221.....	1 to 5

**Textiles**

College Algebra, Math. 104.....	3(3-0)	Physical Chemistry I, Chem. 206....	5(3-6)
General Physics I, Physics 135.....	4(3-3)	Qual. Organ. Analysis, Chem. 224....	2(0-6)
General Physics II, Physics 140.....	4(3-3)	Prob. in Clo. & Text., Clo. & Text. 215,	1 to 3
Plane Trigonometry, Math. 101.....	3(3-0)	Human Physiology, Zoöl. 235.....	4(3-3)
Clothing Econ., Clo. & Text. 201....	3(3-0)	Statis. Meth. Ap. to Educ., Educ. 223,	3(3-0)
Experi. Textiles, Clo. & Text. 312...	2 to 5	Bact. Problems, Bact. 270.....	1 to 4
		Adv. Textiles, Clo. & Text. 205.....	3(1-6)

**Art**

Associate Professor BARFOOT  
Associate Professor EVERHARDY  
Assistant Professor HARRIS

Assistant Professor MORRIS  
Instructor DUTTON  
Assistant DARST

There is an increasing realization of the need for a usable knowledge of art. The curriculum in art is designed to develop the general culture afforded by art study, and to provide an art background for homemaking or other professional work. Depending upon the interests of the students they may specialize in design, interior decoration, costume design, or teaching of art.

This department owns equipment valued at \$11,151.

**COURSES IN ART**

FOR UNDERGRADUATE CREDIT

101A. ELEMENTARY DESIGN I. 2(0-6); I, II, and SS.\* Miss Barfoot, Miss Everhardy, Miss Harris, Miss Morris, Miss Dutton and Miss Darst.

A fundamental course in the study of color and form and the application of their principles to daily living. Charge, 50 cents; deposit, 25 cents.

101B. ELEMENTARY DESIGN II. 2(0-6); I, II, and SS. Prerequisite: Course 101A. Miss Barfoot, Miss Everhardy, Miss Harris, Miss Morris, Miss Dutton and Miss Darst.

A continuation of course 101A incorporating a unit in history and appreciation of art. Charge, 50 cents; deposit, 25 cents.

103. INTERMEDIATE DESIGN. 2(0-6); I, II, and SS. Prerequisite: Course 101B. Miss Barfoot, Miss Everhardy, Miss Harris, and Miss Morris.

A continuation of course 101B with special emphasis on color possibilities and different design media. Charge, 50 cents; deposit, 25 cents.

105. ADVANCED DESIGN A. 2(0-6); I and II. Prerequisite: Course 103. Miss Barfoot, Miss Everhardy, and Miss Morris.

A continuation of course 103, with emphasis on art structure. Charge, 50 cents; deposit, 25 cents.

107. DESIGN FOR CAMP COUNSELORS. 2(0-6); II. Prerequisite: Course 101B. Miss Barfoot, Miss Everhardy, and Miss Harris.

\* The number before the parenthesis indicates the number of 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.

A course to meet the needs of physical education students who are prospective summer-camp directors. Theory and practice in design and processes. Charge, 50 cents; deposit, 25 cents.

110. PUBLIC-SCHOOL ART. 2(1-3); SS. Prerequisite: Course 101B. Miss Barfoot, Miss Everhardy, Miss Harris, Miss Morris, Miss Dutton, and Miss Darst.

Methods and problems in art as aids for the public-school teacher. Charge, 50 cents; deposit, 25 cents.

113. INTERIOR DECORATION I. 2(0-6); I, II, and SS. Prerequisite: Course 101B. Miss Barfoot, Miss Everhardy, Miss Harris, Miss Morris, Miss Dutton, and Miss Darst.

A study of the design of the small modern home. Charge, 50 cents; deposit, 25 cents.

115. INTERIOR DECORATION II. 2(0-6); I. Prerequisite: Course 113. Miss Everhardy, Miss Harris, Miss Morris, and Miss Darst.

A continuation of course 113, with attention paid especially to the relationship between the American home and modern culture and art. Charge, 50 cents; deposit, 25 cents.

117. INTERIOR DECORATION III. 2(0-6); II. Prerequisite: Course 115. Miss Everhardy, Miss Morris, and Miss Harris.

A continuation of course 115 with a study also of the historic background of architecture and furniture. Charge, 50 cents; deposit, 25 cents.

120. DRAWING I. 2(0-6); I and II. Prerequisite: Course 101B. Miss Barfoot, Miss Harris, Miss Morris, and Miss Dutton.

Representative sketching, decorative illustrating, and creative designing in which a variety of mediums and technique is employed. Charge, \$1.50; deposit, 25 cents.

122. DRAWING II. 2(0-6); I and II. Prerequisite: Course 120. Miss Barfoot, Miss Harris, Miss Morris, and Miss Dutton.

A continuation of course 120. Charge, \$1.50; deposit, 25 cents.

124. PRINCIPLES OF ART I. 3(3-0); I. Prerequisite: Course 101B. Miss Barfoot, Miss Harris, and Miss Morris.

A study of color and form with relation to the history of architecture and the minor arts.

126. PRINCIPLES OF ART II. 3(3-0); II. Prerequisite: Course 124. Miss Barfoot, Miss Harris, and Miss Morris.

A continuation of course 124 with emphasis on the history of painting and sculpture.

130. COSTUME DESIGN I. 2(0-6); I, II, and SS. Prerequisite: Course 101B. Miss Barfoot, Miss Everhardy, Miss Harris, Miss Morris, Miss Dutton, and Miss Darst.

Modern dress as a design, consideration of individual requirements, brief survey of historic costume; this course a design basis for garment selection and construction. Charge, 50 cents; deposit, 25 cents.

134. COSTUME DESIGN II. 2(0-6); I and II. Prerequisite: Course 130. Miss Morris, Miss Harris, and Miss Dutton.

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 historic dress design; the Hambidge Theory of Dynamic Symmetry. Charge, 50 cents; deposit, 25 cents.

138. COSTUME DESIGN III. 2(0-6); I and II. Prerequisite: Course 134. Miss Harris, Miss Morris, and Miss Dutton.

A continuation of course 134, particularly in relation to historic costume. Charge, 50 cents; deposit, 25 cents.

## FOR GRADUATE AND UNDERGRADUATE CREDIT

203. **ADVANCED DESIGN B.** 2(0-6); I, II, and SS. Prerequisite: Course 105, 120, or permission of instructor. Miss Barfoot, Miss Everhardy, and Miss Harris.

A continuation of advanced design, emphasizing creative skill and the development of style. Charge, 50 cents; deposit, 25 cents.

207. **COSTUME DESIGN IV.** 2(0-6); I, II, and SS. Prerequisite: Course 138 or permission of the instructor. Miss Harris and Miss Morris.

A course to develop skill and further creative expression in dress design. Charge, 50 cents; deposit, 25 cents.

220. **PROBLEMS IN ELEMENTARY DESIGN.** 1 to 3 credits; I, II, and SS. Prerequisites: 8 credits in art or permission of instructor. Miss Barfoot, Miss Everhardy, Miss Harris, Miss Morris, Miss Dutton, and Miss Darst.

Problems in design planned with the student to meet her particular needs. Charge, 50 cents; deposit, 25 cents.

225. **PROBLEMS IN INTERMEDIATE DESIGN.** 1 to 3 credits; I, II, and SS. Prerequisite: Course 220 or permission of instructor. Miss Barfoot, Miss Everhardy, Miss Harris, and Miss Morris.

Problems in advance of course 220. Charge, 50 cents; deposit, 25 cents.

230. **PROBLEMS IN TEACHING ART.** 3 credits; SS. Prerequisites: Course 101B; and Education, course 132 or its equivalent. Miss Barfoot and Miss Everhardy.

For the high-school teacher who is correlating art with home economics subjects, 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. Charge, 50 cents; deposit, 25 cents.

232. **PROBLEMS IN INTERIOR DECORATION.** 1 to 3 credits; I, II, and SS. Prerequisite: Course 117 or permission of instructor. Miss Harris, Miss Morris, and Miss Darst.

Problems in interior decoration planned with the students to meet their particular needs. Charge, 50 cents; deposit, 25 cents.

235. **PROBLEMS IN COSTUME DESIGN.** 1 to 3 credits; I, II, and SS. Prerequisites: 8 credits in art or permission of instructor. Miss Harris, Miss Morris, and Miss Dutton.

Problems in costume design planned with the student to meet her particular needs. Charge, 50 cents; deposit, 25 cents.

## FOR GRADUATE CREDIT

301. **RESEARCH IN ART.** 2 to 10 credits; I, II, and SS. Prerequisites: Consult instructors. Miss Barfoot, Miss Everhardy, Miss Harris, Miss Morris, Miss Dutton, and Miss Darst.

A problem in art selected from some of the following fields: (a) Historic research; (b) organization of curriculum; (c) methods of teaching; and (d) theoretical aspects of art education.

305. **PROBLEMS IN ADVANCED DESIGN.** 1 to 3 credits; I, II, and SS. For prerequisites, consult instructors. Miss Barfoot, Miss Everhardy, Miss Morris, Miss Harris, Miss Dutton, and Miss Darst.

Problems in advance of course 225 designed primarily for the graduate student. Charge, 50 cents; deposit, 25 cents.

## Child Welfare and Euthenics

Professor FORD  
Associate Professor TRIPLETT  
Instructor KELL

Instructor WILLIAMS  
Assistant FISHER

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 satisfaction 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 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.

This department has equipment valued at \$2,556.

### COURSES IN CHILD WELFARE AND EUTHENICS

#### FOR UNDERGRADUATE CREDIT

101. PERSONAL HEALTH. 2(2-0); I, II. No prerequisite. Miss Williams. Personal hygiene as a means of maintaining and improving health.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

201. CHILD CARE AND TRAINING I. 3(1-6); I, II, and SS. Prerequisites: Embryology or Physiology, Psychology, and Human Nutrition. Dr. Ford, Dr. Triplett, Mrs. Kell, Mrs. Fisher.

Giving children the right start toward obtaining important life objectives.

*Laboratory.*—Directed observations and assisting in the nursery school. Charge, \$1.

206. CHILD CARE AND TRAINING II. 3(3-0); II. Prerequisite: General Psychology. Dr. Ford.

Community and home problems in child welfare.

211. FAMILY HEALTH. 3(3-0); I, II. Prerequisites: Embryology or Physiology, and Household Microbiology. Dr. Ford and Miss Williams.

Physical and mental health of individuals in the family; the importance of preventive medicine; the household as a factor in health conservation; the interrelation of home and community health; simple nursing procedures.

216. THE FAMILY. 2(2-0); I, II, and SS. Prerequisite: General Psychology. Consult instructor. Dr. Ford.

Factors that play a part in successful family life to-day.

221. PROBLEMS IN CHILD WELFARE AND EUTHENICS. 1 to 5 credits; I, II, and SS. Prerequisite: Child Care and Training I. Consult instructors. Dr. Ford, Dr. Triplett, and Mrs. Kell.

Individual investigation of a special problem in some phase of child welfare or euthenics; conferences and reports at appointed hours.

226. SEMINAR IN CHILD WELFARE AND EUTHENICS. 1 or 2 credits; I and II. Prerequisite: Child Care and Training 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 Dr. Triplett.

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

Associate Professor LATZKE  
Associate Professor COWLES  
Associate Professor HESS

Assistant Professor BRUNER  
Assistant Professor QUINLAN  
Assistant GOEHRING

Clothing is an important factor in both the physiological and psychological well-being of the individual and of the family. The wise selection of 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 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 and department stores, and extension workers.

The equipment belonging to this department is valued at \$7,598.

### COURSES IN CLOTHING AND TEXTILES

## FOR UNDERGRADUATE CREDIT

103. CLOTHING FOR THE INDIVIDUAL. 4(1-9); I, II, and SS. Prerequisite or parallel: Costume Design I. Miss Latzke, Miss Cowles, Mrs. Hess, and Miss Bruner.

The factors that influence the individual in the selection and purchase of clothing; self-analysis as a basis of clothing choices; knowledge of clothing fabrics; the use of the clothing budget; knowledge of buying procedures; the care of clothing.

*Laboratory.*—Design and construction of costumes that express individuality through the correct use of line and color. Charge, \$2; deposit, 25 cents.

110. CLOTHING SELECTION. 2(2-0); I and II. Miss Latzke and Miss Quinlan.

A study of the fundamentals of clothing selection; self-analysis as the basis of clothing choices; economic considerations for being suitably and tastefully dressed. Designed for students not majoring in home economics.

116. TEXTILES. 3(2-3); I, II, and SS. Prerequisites: Organic Chemistry and Clothing for the Individual. Mrs. Hess and Miss Bruner.

Fabrics and the factors that influence their wearing qualities and appearance; practical application of this knowledge to the everyday problems of the consumer.

*Laboratory.*—Becoming acquainted with fabrics and their uses; identification of fabrics microscopically and chemically; testing the effect on fabrics of various methods of cleaning. Charge, \$2; deposit, 25 cents.

123. ADVANCED CLOTHING. 4(1-9); I, II, and SS. Prerequisite: Clothing for the Individual. Open to juniors and seniors. Miss Quinlan.

Development of understanding and appreciation of the use of line, form, texture and color by draping a dress or coat to express the mental and physical characteristics of the individual. A study of the social significance of fashion as explained through its origin and function.

*Laboratory.*—Design is worked out first in muslin and then in silk or wool. Charge, \$2.50; deposit, 25 cents.

## FOR GRADUATE AND UNDERGRADUATE CREDIT

201. CLOTHING ECONOMICS. 3(3-0); I and SS. Prerequisites: Clothing for the Individual, Textiles, and Economics. Miss Latzke.

The organization of the textile industries and market, wages and standards of efficiency in workmanship, standardization of fabrics, and legislation concerning textiles. Topics are assigned for reading and investigation in addition to classroom work.

205. ADVANCED TEXTILES. 3(1-6); I and SS. Prerequisites: Textiles and Organic Chemistry. Mrs. Hess and Miss Bruner.

Problems involved in the production of textiles which affect the consumer; approved methods and techniques of fabric analysis; equipment and apparatus used; sources of information concerning persons connected with textiles research and laboratories where work is conducted.

*Laboratory.*—Charge, \$3; deposit, 25 cents.

215. PROBLEMS IN CLOTHING AND TEXTILES. 1 to 3 credits; I, II, and SS. For prerequisites consult instructors. Miss Latzke, Mrs. Hess, Miss Bruner and Miss Quinlan.

An assigned problem in some phase of clothing or textiles. Charge, to be arranged with the instructor.

225. HISTORY OF COSTUME. 2(2-0); I and II. Prerequisite: Hist. 101; consult instructor. Miss Cowles.

History of ancient and modern costume in its various phases of development and in relation to the life of the people and the growth of civilization.

## FOR GRADUATE CREDIT

301. RESEARCH IN CLOTHING AND TEXTILES. 2 to 10 credits; I, II, and SS. For prerequisites consult instructors. Miss Latzke, 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, and other sciences may be chosen as the problem, depending on the courses elected. Charge, to be arranged with the instructor.

304. CLOTHING AND TEXTILES SEMINAR. 1(1-0); II. Prerequisite: Graduate standing. Miss Latzke, Mrs. Hess, Miss Bruner, and Miss Quinlan.

A study of the field of clothing and textiles through assigned readings and discussions; special attention is given recent literature bearing on progress in the field.

312. EXPERIMENTAL TEXTILES. 2 to 5 credits; I, II and SS. Prerequisite: Advanced Textiles. Mrs. Hess and Miss Bruner.

The work covered in this course consists primarily of experimental work with textiles. Written reports of all work done will be required before a student will receive credit for the course. Fee arranged by instructor.

## Food Economics and Nutrition

Professor PITTMAN  
 Professor KRAMER  
 Professor AHLBORN  
 Instructor TUCKER  
 Instructor VAIL

Instructor BROWNING  
 Instructor McMILLAN  
 Technician KUNERTH  
 Grad. Research Asst. \_\_\_\_\_  
 Grad. Research Asst. \_\_\_\_\_

Food is an important factor in 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 the 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 \$18,988.

## COURSES IN FOOD ECONOMICS AND NUTRITION

### FOR UNDERGRADUATE CREDIT

102. **FOODS I.** 5(3-6); I and II. Miss Tucker, Miss Vail, Miss Browning, and Miss McMillan.

A study of fundamentals of elementary nutrition and food economics. Practice in food preparation and meal service. Charge, \$5; deposit, 25 cents.

107. **FOODS II.** 3(1-6); I and II. Prerequisites: Organic Chemistry and Foods I or equivalent.

Practice in testing, formulating, and stating food principles as applied to food preparation. Charge, \$4; deposit, 25 cents.

112. **HUMAN NUTRITION.** 3(3-0); I and II. Prerequisites: Organic Chemistry, Embryology or Physiology, and Foods II.‡ Dr. Kramer.

The chemistry of food and nutrition, with emphasis upon the food nutrients, digestion, and metabolism.

121. **APPLIED NUTRITION.** 2(2-0); I and II. Prerequisite: Organic Chemistry or permission of instructor. Dr. Pittman and Miss Ahlborn.

Practical nutrition for the college student, including food requirements, food selection, and food habits. Designed for men and women students not majoring in home economics.

176. **MEATS HE.** 1(0-3); I and II.

See Department of Animal Husbandry, Division of Agriculture, course 176.

### FOR GRADUATE AND UNDERGRADUATE CREDIT

202. **DIETETICS.** 4(3-3); I, II, and SS. Prerequisite: Human Nutrition. Dr. Pittman, Miss Ahlborn, and Miss Tucker.

Consideration of food requirements in health throughout infancy, childhood, adolescence, adult life, and old age. Practical application of principles of human nutrition.

*Laboratory.*—Studies of weight, measure, and cost of some common food materials; standard portions of foods; charted recipes; weighed portions of proteins and minerals; vitamin exhibits; shares. Ideal diets for infants, children, and adults, individually and in groups. Charge, \$4.50; deposit, 25 cents.

205. **DIETETICS FOR ABNORMAL CONDITIONS.** 2(1-3); II. Prerequisite: Dietetics. Dr. Kramer.

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.*—Demonstrations of special foods used in such conditions, and computation of dietaries. Charge, \$1; deposit, 25 cents.

210. **THE NUTRITION OF DEVELOPMENT.** 2(2-0); II. Prerequisites: Human Nutrition and Dietetics. Dr. Pittman.

Detailed study of nutrition of the mother in pregnancy and lactation. Food requirements of the fetus, infant, and preschool child, and the school child through the period of adolescence.

215. **FIELD WORK IN NUTRITION.** 3(2-3); I and II. Prerequisite: Dietetics. Miss Tucker and Miss Browning.

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‡ Students from other divisions desiring to elect Human Nutrition may substitute an equivalent number of hours in other sciences for Embryology or Physiology, and Foods II.

Survey of field of child nutrition, study of malnutrition, field work with school children, special work with malnourished and normal individuals. Charge to be arranged with instructor.

248. PROBLEMS IN FOOD ECONOMICS AND NUTRITION. 1 to 5 credits; I, II, and SS. Prerequisite: Senior or graduate standing. Dr. Pittman and Dr. Kramer.

Problems dealing with 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 to be arranged with instructor.

251. FOOD ECONOMICS AND NUTRITION SEMINAR. 1 to 2 credits a semester; maximum, 4 credits; I, II, and SS. Prerequisite: Human Nutrition. Dr. Kramer.

Assigned reading and discussion of topics in the fields 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.

255. EXPERIMENTAL COOKERY. 2 credits; I and II. Prerequisite: Household Physics. Prerequisite or parallel: Dietetics. Miss Tucker, Miss Vail, and Miss McMillan.

Presentation of processes of food preparation from the experimental standpoint. Charge, \$1 to \$3.

#### FOR GRADUATE CREDIT

305. RESEARCH IN FOOD ECONOMICS AND NUTRITION. 1 to 10 credits; I, II, and SS. Prerequisites: Consult instructors. Dr. Pittman and Dr. Kramer.

Individual research problems which may form the basis for the thesis submitted for the master's degree. Charge to be arranged with instructor.

306. ANIMAL NUTRITION SEMINAR. 1(1-0) per year; I and II. Prerequisite: Consult instructors. Dr. Pittman and Dr. Kramer.

Reports of experiments in nutrition. Methods employed and validity of conclusions discussed.

310. PROBLEMS IN FOODS. 1 to 3 credits; I, II, and SS. Prerequisites: Consult instructors. Dr. Pittman, Miss Tucker, Miss Vail, and Miss McMillan.

Foods problems are assigned for individual study. Charge to be arranged with instructor.

## General Home Economics

Dean JUSTIN ‡  
Assistant Dean AHLBORN

### COURSES IN GENERAL HOME ECONOMICS

#### FOR UNDERGRADUATE CREDIT

101. HOME ECONOMICS FRESHMAN LECTURES. R(1-0); I. Dean Justin, Assistant Dean Ahlborn, department heads of the 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 LECTURES. 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.

† Of the Department of Education.

‡ Absent on leave, 6 months, 1933-'34.

**COURSES IN HOME ECONOMICS EDUCATION \***

Professor RUST

Instructor BAXTER

## FOR UNDERGRADUATE CREDIT

132. METHODS OF TEACHING HOME ECONOMICS. 3(3-0); I, II, and SS. Mrs. Rust and Mrs. Baxter.

See Department of Education, Division of General Science.

160. TEACHING PARTICIPATION IN HOME ECONOMICS. 3 credits; by appointment. Mrs. Rust and Mrs. Baxter.

See Department of Education, Division of General Science.

## FOR GRADUATE AND UNDERGRADUATE CREDIT

251. TEACHING SUBJECTS RELATED TO HOME ECONOMICS. 1 to 3 credits; I, II, and SS. Prerequisites: Psychology, and Methods of Teaching Home Economics. Mrs. Rust.

See Department of Education, Division of General Science.

## FOR GRADUATE CREDIT

313. RESEARCH IN ORGANIZATION AND PRESENTATION OF HOME ECONOMICS. 1 to 10 credits; I, II, and SS. Prerequisites: Graduate standing and confirmation of Division of Home Economics. Dean Justin and Mrs. Rust.

See Department of Education, Division of General Science.

314. PROBLEMS IN ORGANIZATION AND PRESENTATION OF HOME ECONOMICS. 1 to 5 credits; I, II, and SS. Prerequisite: Senior or graduate standing. Dean Justin and Mrs. Rust.

See Department of Education, Division of General Science.

315. SUPERVISION IN HOME ECONOMICS. 2 credits; I, II, and SS. Prerequisites: Psychology, Methods of Teaching Home Economics, and experience in teaching home economics. Mrs. Rust.

See Department of Education, Division of General Science.

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**Household Economics**

Dean JUSTIN‡  
Assistant Professor GUNSELMAN

Assistant Professor TAYLOR  
Instructor AGAN

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 an opportunity is offered for studying problems in housing, household administration, household equipment, and standards of living.

Those preparing to become directors of residence units, specialists in household management, teachers, or research workers in this field find suitable courses in this department.

The department owns equipment valued at \$4,233.

**COURSES IN HOUSEHOLD ECONOMICS**

## FOR UNDERGRADUATE CREDIT

107. THE HOUSE. 3(2-3); I, II and SS. Prerequisites: Foods I and Household Physics. Miss Taylor and Miss Agan.

Criteria for judging the adequacy of certain types of dwellings in meeting the housing needs of the family; management of time, effort, and income—

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\* The six courses named here are given by the Department of Education for the Division of Home Economics. Professor Rust and Instructor Baxter are appointed coöperatively by that department and the Division of Home Economics.

‡ Absent on leave, 6 months, 1933-'34.

important factors in providing and maintaining family life in the home; choice of equipment.

*Laboratory.*—Selection, care, and operation of certain equipment for the home. Charge, \$1.

116. HOME MANAGEMENT. 3(1-6); I, II, and SS. Prerequisite: Senior standing. Miss Gunselman and Miss Agan.

Offers opportunity and help to the student in the application of the knowledge received in the basic home economics courses to the management of a home; and helps to develop an understanding of the essential attitudes that brings satisfaction in group living and family life.

*Laboratory.*—Residence is required in the management houses for a period of six weeks.

FOR GRADUATE AND UNDERGRADUATE CREDIT

203. HOUSEHOLD EQUIPMENT I. 2(0-6); I, II, and SS. Prerequisite: Household Physics. Miss Taylor.

Practical studies which involve care, construction, operation, and repair of various pieces of equipment used in the home. Charge, \$2.50.

206. HOUSEHOLD EQUIPMENT II. 3(1-6); II. Prerequisite: Household Equipment I or consult instructor. Miss Taylor.

Selection, care, construction, operation and testing of mechanical, electrical, and heat equipment from the standpoint of the physical and chemical principles involved. Charge, \$2.50.

238. PROBLEMS IN HOUSEHOLD EQUIPMENT. 1 to 5 credits. I, II, and SS. Prerequisite: Household Physics or consult instructor. Miss Taylor.

Special problems in selection, care, operation, and testing of household equipment. Charge, \$1.

243. PROBLEMS IN HOUSEHOLD ECONOMICS. 1 to 5 credits; I, II, and SS. Prerequisites: Consult instructors. Dr. Justin, Miss Gunselman, and Miss Agan.

Special problems for individual investigation in standards of living and family expenditures; housing, household equipment, organization and methods of housework; use of home-makers' leisure time or social aspects of the household and of the family.

265. ECONOMICS OF THE HOUSEHOLD. 2(2-0); I, II, and SS. 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. 1 to 10 credits; I, II, and SS. Prerequisites: Consult instructors. Dr. Justin, Miss Gunselman, and Miss Taylor.

An individual research problem in the field of household economics, housing or equipment. This may form the basis for a part or all of a master's thesis.

## Institutional Economics

Professor WEST  
Assistant Professor WOOD  
Assistant HECKLER

Assistant QUIST  
Graduate Assistant MARSH

The successful administration of the institution involves the wise expenditure of time, energy, and money, in order that 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 \$12,508.

### COURSES IN INSTITUTIONAL ECONOMICS

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

201. INSTITUTIONAL ECONOMICS I. 4(1-9); I, II, and SS. Prerequisite: Foods II. Miss Wood and Graduate Assistant Marsh.

Food problems of institutions, including preparation and serving of food in large quantities, menu planning and food costs.

*Laboratory.*—Carried on in College cafeteria where food is prepared and served in large quantities. Charge, \$2.50.

205. INSTITUTIONAL ECONOMICS II. 2(2-0); I and II. Prerequisite: Institutional Economics I. Graduate students may parallel Institutional Economics I and II. Mrs. West.

A study of the organization and administration problems of the food and house department of certain institutions such as the school lunch, dormitories, hospitals, cafeterias; floor plans and equipment of institutional kitchens and dining rooms.

210. PROBLEMS IN INSTITUTIONAL ADMINISTRATION. 1 to 5 credits; I, II, and SS. Prerequisite or parallel: Institutional Economics II. Consult instructor. Mrs. West.

Individual investigation of problems in the field of institutional economics. Conferences are held and reports made at appointed hours.

215. INSTITUTIONAL PURCHASING. 2(2-0); I and II. Prerequisite: Institutional Economics I. Mrs. West.

Study of producing areas, the distribution of food products, and methods of purchasing food in large quantities.

218. SCHOOL LUNCH-ROOM MANAGEMENT. 2(1-3); II and SS. Prerequisite: Foods II. Mrs. West.

Organization, administration, equipment, food purchasing, food costs, and menu planning for the school lunch; banquet service for secondary schools.

225. TEA-ROOM MANAGEMENT. 3(0-9); I, II, and SS. Prerequisites or parallel: Institutional Economics II and Institutional Purchasing. Miss Wood.

Practical experience in the planning, preparation, and serving of food to the public. The College Tea Room serves as a laboratory for this course. Charge, \$2.50.

230. INSTITUTIONAL EQUIPMENT. 2(2-0); I and II. Prerequisite: Foods II. Miss Wood.

A study of the different types of equipment for the house and food departments of institutions, including selection, arrangement, installation, and care.

#### FOR GRADUATE CREDIT

301. RESEARCH IN INSTITUTIONAL ECONOMICS. 2 to 10 credits; I, II, and SS. Prerequisites: Consult instructor. Mrs. West.

# The Division of Veterinary Medicine

RALPH R. DYKSTRA, *Dean*

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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 more than \$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 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 Kansas State College was established to give the young men of this state an opportunity to pursue these studies in an agricultural environment, where the facilities offered by other branches of the College would be at their command. While the instruction in this curriculum is largely technical, enough subjects of a general character are included to give a sound education and a broad outlook. Better to fit the veterinarian to deal wisely with the live-stock problems which he has to meet, he is required to take the work in live-stock feeding, breeding and judging, and in milk inspection, zoölogy, and embryology, in addition to his purely professional work.

The diploma from this school is recognized by the United States Department of Agriculture, by the United States Civil Service 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

### PREVETERINARY OR FIRST YEAR<sup>1</sup>

(Thirty semester credits of approved college or university work, having the following distribution, are required.)

English .....	5 or 6 semester hours
General Inorganic Chemistry .....	5 to 10 semester hours
Zoölogy .....	5 semester hours
Military Science <sup>2</sup> .....	2 semester hours
Optional courses .....	9 to 15 semester hours

Total ..... 30 or 32 semester hours

The optional courses should preferably be selected from a modern language (German or French), physics, and mathematics.

### FRESHMAN OR SECOND YEAR

#### FIRST SEMESTER

Anatomy I, Anat. 104.....	*4(3-3)
Histology I, Path. 102.....	4(2-6)
Gen. Org. Chemistry, Chem. 122.....	5(3-6)
Medical Botany, Bot. 126.....	2(1-3)
Mil. Sci. (Vet.) I, <sup>2</sup> Mil. Tr. 121A.....	1(0-3)
Phys. Educ. M, <sup>3</sup> Phys. Ed. 103.....	R(0-2)

Total..... 16

#### SECOND SEMESTER

Anatomy II, Anat. 110.....	8(4-12)
Histology II, Path. 106.....	3(1-6)
Path. Bact. I, Bact. 111.....	4(2-6)
Mil. Sci. (Vet.) II, <sup>2</sup> Mil. Tr. 122A.....	1(0-3)
Phys. Educ. M, <sup>3</sup> Phys. Ed. 104.....	R(0-2)

Total..... 16

### SOPHOMORE OR THIRD YEAR

#### FIRST SEMESTER

Anatomy III, Anat. 112.....	4(1-9)
Comp. Physiology I, Anat. 222.....	4(3-3)
El. of An. Husb., An. Husb. 125.....	3(2-4)
Path. Bact. II, Bact. 116.....	4(2-6)
Dairy Cattle Judg., Dairy Husb. 104,	1(0-3)
Mil. Sci. (Vet.) III, <sup>4</sup> Mil. Tr. 123A..	1(0-3)
Phys. Educ. M, Phys. Ed. 105.....	R(0-2)

Total..... 16 or 17

#### SECOND SEMESTER

Pathology I, Path. 203.....	5(3-6)
Comp. Physiology II, Anat. 227.....	4(3-3)
Farm Poul. Prod., Poul. Husb. 101... 2	(1-2, 1)
Feeding Live Stock, An. Husb. 172... 3	(3-0)
Dairy Inspec. II, Dairy Husb. 119... 2	(1-3)
Mil. Sci. (Vet.) IV, <sup>4</sup> Mil. Tr. 124A... 1	(0-3)
Phys. Educ. M, Phys. Ed. 106.....	R(0-2)

Total..... 16 or 17

### JUNIOR OR FOURTH YEAR

#### FIRST SEMESTER

Surgery I, Surg. & Med. 102.....	5(5-0)
Materia Medica, Surg. & Med. 158..	4(3-3)
Pathology II, Path. 208.....	4(3-3)
Parasitology, Zoöl. 208.....	3(2-3)
Clinics I, Surg. & Med. 138.....	2(0-6)

Total..... 18

#### SECOND SEMESTER

Surgery II, Surg. & Med. 107.....	5(5-0)
Dis. of Lrg. Ans. I, Surg. & Med. 175,	5(5-0)
Pathology III, Path. 211.....	3(2-3)
Therapeutics, Surg. & Med. 163....	3(3-0)
Clinics II, Surg. & Med. 141.....	2(0-6)

Total..... 18

\* The number before the parenthesis indicates the number of 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. The courses of the preveterinary year may be taken in Kansas State College or in an approved junior college, college, or university.

2. Military Science I, II, III and IV shall be taken during the preveterinary and freshman years, unless the matriculant enrolls in this college as a freshman, in which event they shall be taken during the freshman and sophomore years.

3. The courses in physical education may be taken during the preveterinary and freshman years, unless the matriculant enrolls in this college as a freshman, in which event they shall be taken during the freshman and sophomore years.

4. If basic military science has been completed, it is to be left out of the sophomore year.

SENIOR OR FIFTH YEAR

FIRST SEMESTER		SECOND SEMESTER	
Dis. of Lrg. Ans. II, Surg. & Med. 177,	5(5-0)	Inf. Dis. of Lrg. Ans., Surg. & Med. 181,	5(5-0)
Dis. of Small Ans., Surg. & Med. 186,	2(2-0)	Obst. & Breed. Dis., Surg. & Med. 130,	5(5-0)
Surgical Exercises, Surg. & Med. 112,	1(0-3)	Poultry Diseases, Bact. 217.....	2(2-0)
Meat Hygiene, Path. 217.....	3(3-0)	Med. Econ. & Law, Surg. & Med. 191,	2(2-0)
Pathology IV, Path. 214.....	3(2-3)	Clinics IV, Surg. & Med. 147.....	4(0-12)
Clinics III, Surg. & Med. 144.....	4(0-12)		

Total.....	18	Total.....	18
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Number of hours required in the preveterinary year..... 32 or 30  
 Number of hours required in the freshman, sophomore, junior and senior years.... 132 or 134

Total number of hours required for graduation..... 164

EXTRACURRICULAR ELECTIVES

FIRST SEMESTER		SECOND SEMESTER	
Vaccine Manu. I., Path. 228.....	2(1-3)	Vaccine Manu. II, Path. 231.....	2(1-3)

FIRST OR SECOND SEMESTER

Pathological Technic and Diagnosis I, Path. 222.....	2 to 5( - )
Pathological Technic and Diagnosis II, Path. 223.....	2 to 5( - )
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( - )

## Six-year Curriculum in Animal Husbandry and Veterinary Medicine

### FRESHMAN

Freshman year of the curriculum in Agriculture

#### SOPHOMORE

FIRST SEMESTER		SECOND SEMESTER	
Agric. Econ., Agric. Econ. 101.....	3(3-0)	Feed. Live Stock, An. Husb. 172.....	3(3-0)
Soils, Agron. 130.....	4(3-3)	Farm Crops, Agron. 101.....	4(2-6)
College Rhetoric II, Engl. 104.....	3(3-0)	Genetics, An. Husb. 221.....	3(3-0)
General Zoölogy, Zoöl. 105.....	5(3-6)	Farm Poul. Prod., Pol. Husb. 101... 2	(1-2, 1)
Infantry III, Mil. Tr. 103A.....	1(0-3)	Gen. Econ. Entomol., Ent. 203.....	3(2-3)
Phys. Educ. M, Phys. Ed. 105.....	R(0-2)	Infantry IV, Mil. Tr. 104A.....	1(0-3)
Agric. Seminar, Gen. Agric. 103.....	R	Phys. Educ. M, Phys. Ed. 106.....	R(0-2)
		Agric. Seminar, Gen. Agric. 103.....	R
Total.....	16	Total.....	16

#### JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Anatomy I, Anat. 104.....	4(3-3)	Anatomy II, Anat. 110.....	8(4-12)
Histology I, Path. 102.....	4(2-6)	Histology II, Path. 106.....	3(1-6)
Medical Botany, Bot. 126.....	2(1-3)	Path. Bact. I, Bact. 111.....	4(2-6)
Electives.....	6	Electives.....	1
Agric. Seminar, Gen. Agric. 103.....	R	Agric. Seminar, Gen. Agric. 103.....	R
Total.....	16	Total.....	16

#### SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Anatomy III, Anat. 112.....	4(1-9)	Pathology I, Path. 203.....	5(3-6)
Comp. Physiology I, Anat. 222.....	4(3-3)	Comp. Physiology II, Anat. 227.....	4(3-3)
Path. Bact. II, Bact. 116.....	4(2-6)	Dairy Inspec. II, Dairy Husb. 119...	2(1-3)
Electives.....	4	Electives.....	5
Agric. Seminar, Gen. Agric. 103.....	R	Agric. Seminar, Gen. Agric. 103.....	R
Total.....	16	Total.....	16

#### FIFTH YEAR

Fifth year of the curriculum in Veterinary Medicine

#### SIXTH YEAR

Fifth year of the curriculum in Veterinary Medicine

The work of the first four years leads to the degree Bachelor of Science in Agriculture. The junior and senior electives provided must be officially approved, before assignment, by the dean of the Division of Agriculture and the head of the Department of Animal Husbandry. Upon the completion of the fifth and sixth years the student is eligible for the degree Doctor of Veterinary Medicine.

## Six-year Curriculum in General Science and Veterinary Medicine

### FIRST YEAR

Freshman year of curriculum in General Science, replacing Mil. Sci. (Vet.) I-II, Mil. Tr. 121A, 122A, for Infantry I-II, Mil. Tr. 101A, 102A.

### SECOND YEAR

#### FIRST SEMESTER

English Literature, Engl. 172.....	3(3-0)
Modern Europe II, Hist. 223.....	3(3-0)
Gen. Physics I, Phys. 135.....	4(3-3)
Gen. Org. Chemistry, Chem. 122....	5(3-6)
Mil. Sci. (Vet.) III, Mil. Tr. 123A...	1(0-3)
Phys. Educ. M, Phys. Ed. 105.....	R(0-2)
<b>Total.....</b>	<b>15</b>

#### SECOND SEMESTER

Amer. Literature, Engl. 175.....	3(3-0)
Economics I, Econ. 101.....	3(3-0)
Gen. Physics II, Phys. 140.....	4(3-3)
General Zoölogy, Zoöl. 105.....	5(3-6)
Mil. Sci. (Vet.) IV, Mil. Tr. 124A...	1(0-3)
Phys. Educ. M, Phys. Ed. 106.....	R(0-2)
<b>Total.....</b>	<b>16</b>

### THIRD YEAR

#### FIRST SEMESTER

American History I, Hist. 201.....	3(3-0)
Amer. Gov., Hist. 151, 152, or 153...	3(3-0)
Medical Botany, Bot. 126.....	2(1-3)
Histology I, Path. 102.....	4(2-6)
Anatomy I, Anat. 104.....	4(3-3)
<b>Total.....</b>	<b>16</b>

#### SECOND SEMESTER

Extm. Speech I, Pub. Spk. 106.....	2(2-0)
Path. Bact. I, Bact. 111.....	4(2-6)
Histology II, Path. 106.....	3(1-6)
Anatomy II, Anat. 110.....	8(4-12)
<b>Total.....</b>	<b>17</b>

### FOURTH YEAR

Sophomore year of curriculum in Veterinary Medicine, omitting Mil. Sci. (Vet.) III-IV, Mil. Tr. 123A, 124A, and Physical Education M, Phys. Ed. 105, 106.

### FIFTH YEAR

Fourth year of the curriculum in Veterinary Medicine

### SIXTH YEAR

Fifth year of the curriculum in Veterinary Medicine

Number of hours required for completion of six-year curriculum, 200

The work of the first four years leads to the degree Bachelor of Science. Upon the completion of the fifth and sixth years the student is eligible for the degree Doctor of Veterinary Medicine.

## Anatomy and Physiology

Professor BURT  
Professor McLEOD

This branch of veterinary medicine extends over the freshman year and the first semester of the sophomore year 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.

The department owns equipment valued at \$10,695.

### COURSES IN ANATOMY

#### FOR UNDERGRADUATE CREDIT

104. ANATOMY I.\* 4(3-3); I. Dr. McLeod.

A detailed study of the bones of the horse, and a comparative study of the bones of other animals and of man. Deposit, \$3.

110. ANATOMY II. 8(4-12); II. Prerequisite: Anatomy I. Drs. Burt and McLeod.

Dissection of the trunk and limbs of the horse; study of the nerves, viscera, and joints, and of the blood and nerve supply of the same. Deposit, \$5.

112. ANATOMY III. 4(1-9); I. Prerequisite: Anatomy I. Dr. Burt.

Dissection and study of all structures of the head of the horse with exception of the bones of the head; the comparative anatomy of other domestic animals. Deposit, \$5.

#### FOR GRADUATE AND UNDERGRADUATE CREDIT

202. SPECIAL ANATOMY. 2 to 4 credits; II. Prerequisite: Any course in Anatomy and Physiology (104, 110, 112, 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 III. 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

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\* The number before the parenthesis indicates the number of 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.

understanding of the correlation between the two subjects and of the physiologic relations existing among the various organs of the body. Charge, \$1.

## COURSES IN PHYSIOLOGY

### FOR GRADUATE AND UNDERGRADUATE CREDIT

215. PROBLEMS IN PHYSIOLOGY. 3 to 5 credits; I and II. Prerequisite: Any course in Anatomy and Physiology (131, 222, or 227), or their equivalent. Drs. Burt and McLeod.

Individual investigational problems in the physiology of digestion, reproduction, endocrin glands, etc.

222. COMPARATIVE PHYSIOLOGY I. 4(3-3); 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, respiration, digestion, and absorption.

*Laboratory.*—A practical application of the knowledge derived in the classroom. Laboratory directions furnished the student. Deposit, \$3.

227. COMPARATIVE PHYSIOLOGY II. 4(3-3); II. Prerequisites: Same as for course 222. Drs. Burt and McLeod.

The urine and urinary system, nutrition, animal heat, muscular and nervous systems, locomotion, generation and development, growth and decay. Deposit, \$3.

### FOR GRADUATE CREDIT

301. ANIMAL NUTRITION SEMINAR. 1(1-0); I and II. For prerequisite, consult Dr. Burt.

Study and criticism of experimental work in animal nutrition, of the methods employed, and of validity of conclusions drawn.

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## Pathology

Professor LIENHARDT  
Professor SCOTT  
Professor KITSSELMAN

Assistant Professor LEASURE  
Assistant Professor FARLEY

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 infectious, 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 \$15,174.

## COURSES IN HISTOLOGY

### FOR UNDERGRADUATE CREDIT

102. HISTOLOGY I. 4(2-6); I. Prerequisite: Zoölogy 105. Dr. Leasure.

Care and manipulation of the microscope; microscopical examination and study of the cell, the developing embryo, the specialized tissues, blood-forming organs, the digestive tract, etc. Previously prepared specimens are studied with the microscope and drawn by the student. Deposit, \$3.

106. HISTOLOGY II. 3(1-6); II. Prerequisite: Path. 102. 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. Deposit, \$3.

## COURSES IN PATHOLOGY

### FOR GRADUATE AND UNDERGRADUATE CREDIT

203. PATHOLOGY I. 5(3-6); II. Prerequisite: Anat. 222, Bact. 116, Chem. 122, and Path. 106. Drs. Lienhardt and Leasure.

General pathology, treating of the history of pathology, predisposition, immunity, congenital and inherited disease, etiology, course and termination of disease. Deposit, \$3.

208. PATHOLOGY II. 4(3-3); I. Prerequisites: Path. 203 and Anat. 227. Drs. Lienhardt and Leasure.

Special pathology, study of specific pathological processes occurring in the various organs of the body. Sectioned and mounted specimens of diseased tissues are studied microscopically and drawn by the student. Deposit, \$3.

211. PATHOLOGY III. 3(2-3); II. Prerequisite: Path. 208. Drs. Lienhardt and Leasure.

Special pathology; continuation of Pathology II; also clinical pathology. Deposit, \$3.

214. PATHOLOGY IV. 3(2-3); I. Prerequisite: Path. 211. Dr. Lienhart.

Pathology of the infectious diseases and laboratory diagnosis. Deposit, \$2.50.

217. MEAT HYGIENE. 3(3-0); I. Prerequisite: Path. 211. Dr. Kitselman.

Kinds and classes of stock, traffic and transportation of animals, inspection before and after slaughter, disposition of the condemned from economic and hygienic standpoints; different methods of preservation, adulterations, and sanitary laws and regulations dealing with healthful meat production.

222, 223. PATHOLOGICAL TECHNIC AND DIAGNOSIS I AND II. 2 to 5 credits each; I and II each. Prerequisites: For I, Path. 203; for II, Path. 211 and 222. Drs. Lienhardt and Leasure.

Pathological technic; collecting, fixing, hardening, embedding in celloidin and paraffin, also freezing and sectioning of tissues; methods of preserving gross specimens; practice in post-mortem and laboratory diagnosis. Deposit, \$3 to \$7.50 for each course.

228, 231. VACCINE MANUFACTURE I AND II. 2 to 5 credits 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 anaërobcs, and practical production of blackleg biological products and anti-hog-cholera serum and virus. Deposit, \$3 to \$7.50 for each course.



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 222, Bact. 116, and Chem. 235, or their equivalent. Drs. Lienhardt, Scott, and Leasure.

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, \$1.50 to \$15.

310. ANIMAL NUTRITION SEMINAR. 1(1-0); I and II. For prerequisites, consult Dr. Lienhardt.

Study and criticism of experimental work in animal nutrition, of the methods employed, and of validity of conclusions drawn.

## Surgery and Medicine

Professor DYKSTRA  
Professor FRICK

Assistant Professor FRANK  
Instructor JENNINGS

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 \$6,576.

### COURSES IN SURGERY

FOR UNDERGRADUATE CREDIT

102. SURGERY I. 5(5-0); I. Prerequisite: Junior and senior classification in Veterinary Medicine. Dr. Dykstra.

Lectures, recitations, and demonstrations on the fundamental principles of surgery, methods of restraint, asepsis and antisepsis, anæsthesia, division of tissues, union of tissues, control of hemorrhage, neoplasms, and animal dentistry.

107. SURGERY II. 5(5-0); II. Prerequisite: Surgery I. Dr. Dykstra.

Lectures, recitations, and demonstrations on the surgical diseases of domesticated animals, and including horseshoeing.

112. SURGICAL EXERCISES. 1(0-3); I. Drs. Dykstra, Frank, and Jennings.

Major surgical operations on anæsthetized domesticated animals and on cadavers. Charge, \$5.

FOR GRADUATE CREDIT

301. RESEARCH IN SURGERY. 1 to 10 credits; I and II. Prerequisites: Surgery I and II, Anatomy I, II, and III, and Therapeutics. Dr. Dykstra.

The purpose of this course is to attempt to solve many of the surgical prob-

lems confronting the average veterinary practitioner. Offered especially for graduates in veterinary medicine.

### COURSES IN OBSTETRICS

#### FOR UNDERGRADUATE CREDIT

130. OBSTETRICS AND BREEDING DISEASES. 5(5-0); II. Dr. Frank.

Physiology and reproduction, principles of normal and abnormal parturition, special attention given to handling of reduced fertility.

### COURSES IN CLINICS

#### FOR UNDERGRADUATE CREDIT

138, 141. CLINICS I AND II. 2(0-6) each; I and II, respectively. Drs. Dykstra, Frick, Frank, and Jennings.

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 medical agents. Deposit, \$5 for each course.

144, 147. CLINICS III AND IV. 4(0-12) each; I and II, respectively. Prerequisite: Junior or senior veterinary assignment. Drs. Dykstra, Frick, Frank, and Jennings.

Diagnosis and treatment of hospital patients, including the keeping of clinic records, the administering of all medicines, changing of dressings on surgical wounds, X-ray technique, etc.; assisting clinicians in out-clinic work. Deposit, \$5 for each course.

150. EXTRA CLINICS. 1(0-3); I, II, and SS. Prerequisite: Clinics 141 or 147. Drs. Dykstra, Frick, Frank, and Jennings.

A course in clinics intended for those undergraduate students desiring clinical training in addition to that offered in the curriculum in Veterinary Medicine. Deposit, \$2.50.

### COURSES IN MATERIA MEDICA

#### FOR UNDERGRADUATE CREDIT

158. MATERIA MEDICA. 4(3-3); I. Drs. Frank and Jennings.

A detailed study of important drugs, their origins, properties, and classification; their physiological actions, clinical administration, and dosage; metrology, prescription writing, pharmaceutical processes, and pharmaceutical preparations; compounding of prescriptions. Deposit, \$3.

163. THERAPEUTICS. 3(3-0); II. Prerequisite: Materia Medica. Dr. Jennings.

History of therapeutics; healing methods; types of therapy, including mechanical, chemical, electrical, biological, dietetic, and thermal; general study of toxicology as frequently encountered in veterinary practice.

### COURSES IN MEDICINE

#### FOR UNDERGRADUATE CREDIT

175, 177. DISEASES OF LARGE ANIMALS I AND II. 5(5-0) each; II and I, respectively. Drs. Frick and Frank.

I: Different diagnostic methods employed for the detection of disease; 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 large domestic animals.

186. DISEASES OF SMALL ANIMALS. 2(2-0); I. 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.

191. MEDICAL ECONOMICS AND LAW. 2(2-0); II. The veterinarian's legal responsibilities; national and state live-stock laws, quarantine regulations, fundamental and practical business principles, etc.

FOR GRADUATE CREDIT

310. RESEARCH IN MEDICINE. 1 to 10 credits; I, II, and SS. Prerequisites: *Materia Medica*, *Diseases of Large Animals I and II*, and *Infectious Diseases of Large Animals (Surg. and Med. 158, 175, 177, and 181, respectively)*. Dr. Frick.

An attempted solution of some of the medical and parasitological problems confronting the practitioner of veterinary medicine. Offered especially for graduates in veterinary medicine.

# The Division of College Extension

HARRY UMBERGER, *Dean and Director*

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 who cannot go to college, and it is their wish that this majority also be served. Kansas State 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 in the state.

The development of extension work results from the desire of the people of the state to keep up to date on information pertaining to the essentials in agriculture and home economics, which are being obtained constantly by experiment stations and the United States Department of Agriculture.

In 1914 the federal government felt that the information on practical subjects in agriculture and home economics, as developed by the experiment stations and by the United States Department of Agriculture, and also by the experience of the best farmers and home makers, should be made more readily available to everyone. 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 United States congress passed the Smith-Lever act, 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."

Under this act coöperation of the agricultural colleges and the United States Department of Agriculture is assured and extension work has become a national as well as a state project, and its effectiveness has been greatly increased. During 1933-'34, the following appropriations were available for extension work:

Federal Smith-Lever .....	\$97,695.22
Supplementary Smith-Lever .....	33,662.59
Capper-Ketcham .....	30,652.72
Additional Federal coöperative .....	26,500.00
Federal Coöperative Demonstration Funds.....	8,900.00
State Smith-Lever .....	80,000.00
College Extension .....	12,175.00
County appropriation to support supplementary Smith-Lever, Capper-Ketcham, and additional federal coöperative .....	97,302.50
Total .....	\$386,888.03

The Extension Division is subdivided into six departments, namely: extension schools in agriculture and home economics and the supervision of agricultural extension specialists, county agents, home economics specialists and home demonstration agents, boys' and girls' clubs, rural engineering, and home-study service, each department with its own head and staff. The heads of departments are responsible to the director, who is dean of the Division of College Extension. Through this organization it is possible 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. The authors of these publications are the extension specialists or the specialists in other divisions of the College. The regular pub-

lications of the Agricultural Experiment Station are used extensively in 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 College. Any citizen of the state, on request, may secure copies of individual publications.

While 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 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.

Since 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.

The value of the radio station and equipment is \$27,169.

The value of additional equipment in the administrative office amounts to \$5,858.

## Extension Schools

### In Agriculture and Home Economics and the Supervision of Agricultural Extension Specialists

L. C. WILLIAMS, in Charge

L. C. WILLIAMS, Horticulture  
H. L. LOBENSTEIN, 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  
E. H. LEKER, Plant Pathology

I. N. CHAPMAN, Fieldman, North Central, Farm Bureau-Farm Mgn. Assn.  
JAS. W. LINN, Dairy Husbandry  
DWIGHT M. SEATH, Dairy Husbandry  
L. E. WILLOUGHBY, Crops  
E. B. WELLS, Soils  
E. A. CLEAVINGER, Crops  
VANCE RUCKER, Marketing  
J. H. COOLIDGE, Farm Management

This department has direct supervision over farm and home institute organizations, extension schools in agriculture and home economics, and the work of the extension agricultural specialists. The department also has charge of the program and arrangements for Farm and Home Week, annual state-wide farmers' meetings, and the scheduling of judges for county and local fairs.

### FARM AND HOME INSTITUTES

Each farm and home institute of the state is an association of farmers and farm home makers with regular officers, constitution and by-laws. Some organizations hold six or more monthly meetings during the year, and practically all of them have no less than three, for no institute organization can obtain state aid unless, in addition to the annual meeting, at which representatives of the College must be present, it also holds at least three local meetings. It is the plan of the College 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 known need or interest of a particular community or a plan to start or encourage certain definite lines of work.

Farm and home institutes have been a very effective agency in bringing information in regard to improved practices in agriculture, rural engineering

and home economics to the people of the state. Many of these institutes have now become units of the local farm bureaus, and are carrying forward the work which they formerly did as a part of the program of that organization.

This department owns equipment valued at \$1,455.

### EXTENSION SCHOOLS

Extension schools are meetings of one or two days' duration conducted for the purpose of giving practical instruction in agriculture, rural engineering and home economics. Most of these schools are organized on the project basis and are an important feature in the yearly program of work conducted by each specialist. Results of demonstrations and experiments are given at these meetings and suggestions are made for their practical application under local conditions.

Extension schools are classified according to the subject matter presented. Each year schools are held in horticulture, animal husbandry, veterinary medicine, entomology, poultry, dairy, agronomy, marketing, farm management and plant pathology. In addition to these specialized meetings, schools of a more general character are held, and these are designed to present the extension program best suited to the communities of the county. Home economics and 4-H club work have an important place on the program of these schools.

Any Kansas community desiring to hold an extension school may obtain full information in regard to the organization necessary by writing the Extension Division or by making application to the county agent in farm-bureau counties.

### EXTENSION SCHEDULES

The specialists of this division work in extension schools and institutes during the winter months only, and a portion of this time is devoted to co-operative 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 co-operative demonstration work. The latter phase of the work of the extension specialists is being especially met by the organization of co-operative demonstration work in each branch of agriculture in a certain number of counties each year. In much of the co-operative work each specialist has from 10 to 100 or more co-operators 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 specialists make to each point varies from two to four, in the case of the specialist in soils, and to six, in the case of the specialists in horticulture and entomology. The aim in all of this co-operative 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 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 co-operation with the subject-matter departments of the College, the specialists become the carriers of information, not only from the Agricultural Experiment Station to the farmers, but from the farmers to the research workers of the Experiment Station. The extension specialist is, therefore, a medium through which both the Agricultural Experiment Station and the farmers can function to their mutual advantage.

To reach all the people of the state, the work of the specialist becomes

largely a matter of teaching and training leaders, such as the county agricultural agents, home demonstration agents, 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. Each year the specialists are becoming more and more 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 has no place in the program under the present system.

### **COUNTY AND LOCAL FAIRS**

The agricultural specialists devote some time each year to judging the live stock and agricultural products at county and local fairs. Under such a plan an excellent opportunity for lectures and demonstration work is furnished the specialists. 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 expenses of the trip to Manhattan, with reduced railroad rates, should not prevent any farmer from attending. The investment in knowledge and enthusiasm will tend toward more 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 investigational work in all lines of agriculture, home economics, and rural 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  
 J. V. HEPLER, District Agent  
 A. F. TURNER, Field Agent

DAN M. BRAUM, Allen  
 J. A. HENDRIKS, Anderson  
 JOE M. GOODWIN, Atchison  
 SHERMAN S. HOAR, Barton  
 T. F. YOST, Bourbon  
 R. L. STOVER, Brown  
 L. L. COMPTON, Butler  
 EBUR S. SCHULTZ, Chase  
 R. T. PATTERSON, Cherokee  
 HARVEY J. STEWART, Cheyenne  
 LYLE MAYFIELD, Clark  
 J. B. TAYLOR, Clay  
 F. G. ACKERMAN, Cloud  
 LELAND M. SLOAN, Coffey  
 L. A. SUTHERLAND, Comanche  
 E. H. AICHER, Cowley  
 ROY E. GWIN, Crawford  
 O. W. GREENE, Dickinson  
 CHAS. E. LYNNESS, Doniphan  
 J. A. TERRELL, Douglas  
 GEO. W. SIDWELL, Edwards  
 RALPH O. LEWIS, Ellsworth  
 L. E. CRAWFORD, Finney  
 ROBT. S. TRUMBULL, Ford  
 H. A. BISKIE, Franklin  
 PAUL B. GWIN, Geary  
 J. EDWARD TAYLOR, Grant  
 D. W. INGLE, Gray  
 H. L. MURPHEY, Greeley  
 J. W. FARMER, Greenwood  
 J. N. LOWE, Harper  
 R. R. MCFADDEN, Harvey  
 GEO. S. ATWOOD, Hodgeman  
 H. F. TAGGE, Jackson  
 OTIS B. GLOVER, Jefferson  
 RALPH P. RAMSEY, Jewell  
 C. A. JONES, Johnson  
 T. W. KIRTON, Kingman  
 L. B. HARDEN, Labette  
 HARRY C. BAIRD, Lane

PRESTON O. HALE, Leavenworth  
 R. C. LIND, Lincoln  
 W. J. DALY, Linn  
 CARL L. HOWARD, Lyon  
 M. L. ROBINSON, McPherson  
 F. A. HAGANS, Marion  
 W. O'CONNELL, Marshall  
 JOHN H. SHIRKEY, Meade  
 GLENN C. ISAAC, Miami  
 R. W. MCBURNEY, Mitchell  
 A. W. KNOTT, Montgomery  
 D. Z. MCCORMICK, Morris  
 R. L. RAWLINS, Nemaha  
 LESTER SHEPARD, Neosho  
 FRANK ZITNIK, Ness  
 FRED J. SYKES, Norton  
 E. L. MCINTOSH, Osage  
 PAUL EVANS, Ottawa  
 TOM D. DICKEN, Pawnee  
 H. B. HARPER, Pratt  
 R. W. STUMBO, Rawlins  
 GEO. W. HINDS, Reno  
 M. M. TAYLOR, Rice  
 L. M. SCHRUBEN, Riley  
 B. W. WRIGHT, Russell  
 RAY L. GRAVES, Saline  
 J. D. MONTAGUE, Sedgwick  
 W. H. ROBINSON, Shawnee  
 C. E. DUNBAR, Sheridan  
 L. D. MORGAN, Sherman  
 E. O. GRAPER, Smith  
 E. H. TEAGARDEN, Stafford  
 L. M. KNIGHT, Sumner  
 JOHN M. BUOY, Thomas  
 L. F. NEFF, Washington  
 A. C. THOMSON, Washington  
 (Assistant County Agent)  
 C. E. AGNEW, Wilson  
 M. C. AXELTON, Woodson  
 K. L. BACKUS, Wyandotte

Provision is made for county-agent work in this state 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 made available to the state, the state must guarantee to duplicate them.

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, the state farm-bureau law, effective July 1, 1915, 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 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, November 1, 1933, there are seventy-eight active farm bureaus in Kansas, as follows:

Allen	Edwards	Leavenworth	Rawlins
Anderson	Ellsworth	Lincoln	Reno
Atchison	Finney	Linn	Rice
Barton	Ford	Lyon	Riley
Bourbon	Franklin	McPherson	Russell
Brown	Geary	Marion	Saline
Butler	Grant	Marshall	Sedgwick
Chase	Gray	Meade	Shawnee
Cherokee	Greeley	Miami	Sheridan
Cheyenne	Greenwood	Mitchell	Sherman
Clark	Harper	Montgomery	Smith
Clay	Harvey	Morris	Stafford
Cloud	Hodgeman	Nemaha	Sumner
Coffey	Jackson	Neosho	Thomas
Comanche	Jefferson	Ness	Washington
Cowley	Jewell	Norton	Wilson
Crawford	Johnson	Osage	Woodson
Dickinson	Kingman	Ottawa	Wyandotte
Doniphan	Labette	Pawnee	
Douglas	Lane	Pratt	

The county agents conduct demonstrations of the best production and marketing methods; assist farmers with suggested improvement in plans of farm management and of farm business organization; and aid in the organization of rural activities.

Field demonstrations are conducted for the purpose of introducing improved varieties of crops, testing the relative value of varieties already grown in the county, and of introducing or testing improved tillage and harvesting methods.

Proper live-stock feeding methods, care and management of live stock, the control of insects and diseases of live stock and plants are among the most popular demonstrations.

Surveys of the farm business are made in order to study the conditions prevailing in typical cases, and to determine the proper improvements in farm-management methods that should be adopted.

Improved marketing methods, the promotion of community welfare, and the fostering of better social relations are important features of the work.

The county agent interests himself in practically every farm activity, especially where there is need for improvement.

The value of the equipment belonging to this department is \$1,358.

## Home Economics

MISS AMY KELLY, State Home Demonstration Leader, in Charge

MISS LORETTA McELMURRY, Clothing  
MISS MAUDE DEELY, Home Furnishings  
MISS W. PEARL MARTIN, Home Health  
and Sanitation  
MISS CONIE FOOTE, Foods and Nutrition

MISS FRANCES SHEWMAKER, Foods and  
Nutrition  
MISS MARGUERITE HARPER, Home  
Management

There are approximately eight hundred women who receive instruction each year in home economics at the Kansas State College, and there are several thousand throughout the state who have had the advantage of resident instruction either in this or some other institution. 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 such a project in view six specialists were regularly employed 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.

This department owns equipment valued at \$2,287.

## Home Demonstration Agent Work

MISS AMY KELLY, State Home Demonstration Leader  
MISS ELLEN M. BATCHELOR, District Home Demonstration Agent Leader  
MISS MAY MILES, District Home Demonstration Agent Leader  
MISS GEORGIANA H. SMURTHWAITE, District Home Demonstration Agent Leader.

MISS MINNIE BELLE PEEBLER, Allen  
County  
MISS GLYDE E. ANDERSON, Barton  
County  
MISS RUTH J. PECK, Bourbon County  
MISS NORA E. BARE, Butler County  
MISS ETHYL DANIELSON, Comanche  
County  
MISS CHRISTIANA MARIE SHIELDS,  
Crawford County  
MRS. MAMIE MAY SEARLES, Ford County  
MISS EULA MAY NEAL, Franklin County  
MISS ETHEL WATSON, Greenwood County  
MISS HELEN BREWER, Harper County  
MISS ALBERTA SHERROD, Harvey County  
MISS MARRY ELSIE BORDER, Johnson  
County

MISS CHRISTINE WIGGINS, Labette County  
MISS IVA HOLLADAY, Leavenworth County  
MISS GERTRUDE ALLEN, Lyon County  
MISS GRACE REEDER, Miami County  
MISS VERNETTA FAIRBAIRN, Montgomery  
County  
MISS SARA JANE PATTON, Neosho County  
MISS RUTH K. HUFF, Pratt County  
MISS CLYTICE ROSS, Rawlins County  
MISS GLADYS MYERS, Reno County  
MISS ELLA MEYER, Rice County  
MRS. LAURA I. WINTER, Sedgwick County  
MRS. MARY D. ZEIGLER, Shawnee County  
MISS EDITH PAINTER, Smith County  
MRS. MAUD H. GASTON, 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 the 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 determined that it would be advantageous to defer the placing of home demonstration agents 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 of organization. In such counties the work of the home demonstration agents is undertaken 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 Kansas State 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: A well-equipped office, adequate stenographic help; transportation facilities; and a county appropriation of not less than \$2,400 to the farm bureau for the salary and expenses of the agricultural agent and home demonstration agent.

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## Boys' and Girls' 4-H Club Work

M. H. COE, State Club Leader  
A. J. SCHOTH, Assistant State Club Leader  
LORA HILYARD, Assistant State Club Leader  
MABEL R. SMITH, Assistant State Club Leader  
J. H. JOHNSON, County Club Agent, Sedgwick County

Boys' and girls' 4-H club work is one of the very important phases of Kansas State College extension service. This work is conducted coöperatively with the United States Department of Agriculture, counties and county farm bureaus. The clubs are organized with the help of such organizations as farm and breed associations, business and civic 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 agent, 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 basis on which club work is founded is the project selected by the 4-H club member. This project is an important piece of work relating to the farm or home, the doing of which will demonstrate better practices in agriculture and home making. A club member receives instructions, keeps a complete record of his work, makes a final report on the entire year's project, explains the work to others, and participates in many related contests. Seventeen projects are offered to 4-H club members in Kansas as follows: beef, swine, sheep, dairy, poultry, colt, sorghum, corn, garden, potato, wheat, clothing, food preparation, food preservation, room improvement, and leadership.

4-H club work is available to all boys and girls between the ages of 10 and 20 years, inclusive. All the young people of one community interested in club work organize into one organization. Such clubs vary in size from five to fifty or more. The club members are allowed a choice of projects, thus making it possible for some members of a club to select one project while others may select others. The importance of unity or group selection is stressed. 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, and have a program consisting of the various matters in which young people are interested.

4-H club work is voluntary in nature. Certain minimum requirements are specified, including age of club members, conducting a project, attendance at club meetings, record keeping, and some others, but aside from these requirements the work is voluntary. No systematic course of instruction is attempted, but each member is given suggestions through printed circulars or by means of leaders trained by college specialists as to the method of handling his project, but he is not required to adopt these methods. Either partial or complete ownership of a project under his own supervision is an essential requirement of 4-H club work. All projects deal with the very essential but common ordinary affairs of rural life and home making. Books are studied incidentally and to supplement the actual work of the project, but club work is primarily learning by doing.

Leadership is another very essential characteristic of 4-H club work. It 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 and 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 experiences.

By means of exhibits, demonstration teams, judging teams, and other public participation, club members pass on their knowledge and information to others, and in so doing these young people secure valuable training for appearance in public. Their exhibits at local and state fairs have been remarkable both from the standpoint of quality and quantity. Prizes which are awarded are based primarily upon the record kept by the club member as well as the excellence of the product itself. Such records include time spent, material used, cost, and other interesting items.

Interspersed with all of these essentials of 4-H club work are the so-called club activities which include club tours, contest, field meetings, festivals, annual club round-up at the College, county 4-H club camps during the summer and many other club functions, all of which lend color to the work for young people and bring them in contact with leaders and others of importance. These activities bring to them incentives for highest endeavor, not only individually, but also in groups within the communities, counties, states, and finally into national competition. All of this brings to them a wholesome contact which serves to awaken youth, develop and broaden ideals, and stimulate the desire to achieve.

This department owns equipment valued at \$750.

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## **Rural Engineering**

WALTER G. WARD, Extension Architect, in Charge  
JOHN S. GLASS, Extension Agricultural Engineer

Engineering as applied to agricultural pursuits is, each year, increasing in importance. Its inclusion in the extension service of the Kansas State College began twenty years ago to meet the demands for information on land drainage and irrigation. Later the work of this department was enlarged to include other phases of agricultural engineering.

Kansas farms present numerous problems in engineering. The construction and maintenance of 166,000 sets of farm buildings, valued at more than \$386,000,000, 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 annually in a number of the counties, furnish infor-

mation 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 53,000 tractors and 21,000 combines comprise a part of the more than \$168,000,000 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. Information on the economic selection and management of this equipment is disseminated before groups of distributors and farmers by means of one-day and two-day extension schools.

Assistance is given the farmers of Kansas with their problems of land drainage, irrigation, and the control of soil erosion. More than one-half of the counties in the state are conducting from three to forty-five demonstrations in coöperation with this department.

The control of erosion is being recognized as an important problem in all sections of the state. As a solution to this problem, terracing is a practical, economical farm practice. Kansas now has approximately 50,000 acres of land protected by these demonstration terraces.

In addition to the information furnished through meetings held in the counties, several thousand mail inquires of an engineering nature are answered each year. The work in the counties is conducted principally in coöperation with the county farm bureaus.

This department owns equipment valued at \$969.

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## Home-Study Service

### CORRESPONDENCE STUDY

GEORGE GEMMELL, Head of Department  
B. H. FLEENOR, Education  
ADA BILLINGS, History and Government

JESSE M. SCHALL, English  
FLOYD PATTISON, Industrial Subjects

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 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 College, designed to make the state its campus—to enable the College to come to those who cannot come to it.

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. These are no longer an experiment but are a demonstrated success. By utilizing 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. The equipment belonging to this department is valued at \$1,265.

### FOR WHOM INTENDED

Though credit courses offered by the Home-study Service are limited, 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. The 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, provided 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. The 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. The 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 acquaintanceship between each instructor and his students.

### EXAMINATION

At the close of each course, before a grade is issued, a final examination is necessary. The 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 student's paper is sent in by him.

### FEEES

For residents of Kansas there is an initial enrollment fee of \$10 for a course of three semester hours credit or less, with \$3 additional for each added hour of work; for nonresidents of the state an initial enrollment fee of \$15 for a course of three semester hours of credit or less and \$4 for each additional hour of work.

For courses of secondary school (high school) grade there is an initial enrollment fee for residents of the state of \$6 for the first half-unit course and \$5 for each additional half-unit course; for nonresidents of the state an initial enrollment fee of \$9 for the first half-unit course, with a fee of \$7 for each additional half-unit.

Each student is expected to pay postage on lessons, manuscripts, and communications sent in to the department. The office will furnish postage for the return of all such papers to the student.

### 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

<i>Course No.</i>		<i>Number of assignments</i>	<i>Unit H. S. credit</i>
AGRICULTURE			
PCA 1.	Elementary Agriculture I.....	20	1/2
PCA 2.	Elementary Agriculture II.....	20	1/2
DRAWING			
PCD 3.	Shop Mechanical Drawing I.....	20	1/2
PCD 4.	Shop Mechanical Drawing II.....	20	1/2
ENGLISH			
PCE 1C.	Grammar and Composition (first year).....	20	1/2
PCE 2L.	Literature (first year).....	20	1/2
PCE 3C.	Composition (second year).....	20	1/2
PCE 4L.	Literature (second year).....	20	1/2
PCE 5C.	Composition (third year).....	20	1/2
PCE 6L.	Literature (third year).....	20	1/2
HISTORY AND CIVICS			
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 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



Course No.	SCIENCE	Number of assignments	Unit H. S. credit
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
PCC 3.	Elementary Sociology .....	20	1/2
PCC 4.	Elementary Psychology .....	20	1/2

College Credit Courses

DIVISION OF AGRICULTURE

Course No.	AGRONOMY	Assignments	Semester credit
CA 3.	Farm Crops .....	24	3
ANIMAL HUSBANDRY			
CL 2.	History of Breeds .....	16	2
HORTICULTURE			
CH 1.	Elements of Horticulture .....	16	2
CH 2.	Vegetable Gardening .....	16	2
CH 3.	Floriculture .....	16	2
CH 5.	Landscape Gardening .....	8	1
CH 6.	Small Fruits .....	16	2
POULTRY HUSBANDRY			
CPP 1.	Farm Poultry Production .....	8	1

DIVISION OF ENGINEERING

MACHINE DESIGN			
CE 2.	Engineering Drawing .....	16	2
CE 6.	Machine Drawing I. ....	16	2
CE 4.	Mechanism .....	24	3
CE 11.	Descriptive Geometry .....	16	2
CIVIL ENGINEERING			
CE 1.	Highway Engineering I. ....	16	2
SHOP PRACTICE			
CE 7.	Metallurgy .....	16	2
AGRICULTURAL ENGINEERING			
CE 3.	Gas Engines and Tractors .....	16	2
MECHANICAL ENGINEERING			
CE 9.	Steam Turbines .....	16	2
CE 10.	Essentials of Steam and Gas Power Engineering .....	16	2

DIVISION OF HOME ECONOMICS

CLOTHING AND TEXTILES			
CHE 1.	Textile Fabrics .....	16	2
CHE 2.	Applied Nutrition .....	16	2
HOUSEHOLD ECONOMICS			
CHE 4.	Economics of the Household .....	16	2
CHILD WELFARE AND EUTHENICS			
CHE 3.	Family Health .....	24	3
CHE 5.	Child Welfare II .....	24	3
CHE 7.	The Child and His Heredity .....	16	2
CHE 8.	The Home and Its Development .....	24	3
CHE 9.	The Home and the Changing Social Order .....	16	2
CHE 10.	Personal Health .....	16	2

## DIVISION OF GENERAL SCIENCE

<i>Course No.</i>	ECONOMICS AND SOCIOLOGY	<i>Assignments</i>	<i>Semester credit</i>
CEc 1.	Economics .....	24	3
CS 2.	Rural Sociology .....	24	3
CS 3.	Sociology .....	24	3
CS 4.	Community Leadership .....	16	2
EDUCATION (PROFESSIONAL)			
CP 2.	Educational Psychology .....	24	3
CP 3.	Educational Sociology .....	24	3
CP 4.	History of Education .....	24	3
CP 5.	School Management .....	24	3
CP 6G.	Methods of Teaching in Elementary Graded Schools and Rural Schools .....	24	3
CP 6H.	Methods of Teaching in the High School .....	24	3
CP 7.	Educational Administration .....	24	3
CP 8.	Psychology .....	24	3
CP 14	Vocational Education .....	24	3
ENGLISH			
CCE 1.	College Rhetoric I .....	24	3
CCE 2.	College Rhetoric II .....	24	3
CCE 3.	Commercial Correspondence .....	24	3
CCE 4.	The Short Story .....	24	3
CCE 6.	English Literature I .....	24	3
CCE 7.	American Literature .....	24	3
JOURNALISM			
CCJ 1.	Agricultural Journalism .....	24	3
GEOLOGY			
CG 1.	Geology .....	24	3
HISTORY AND CIVICS			
CHC 1.	Community Civics .....	16	2
CHC 2.	Modern Europe I .....	24	3
CHC 4.	English History .....	24	3
CHC 5.	Medieval History .....	24	3
CHC 6.	Ancient Civilizations .....	24	3
MATHEMATICS			
CM 6.	Solid Geometry .....	16	2
CM 7.	Plane Trigonometry .....	25	3
CM 8.	College Algebra .....	25	3
CM 9.	College Algebra .....	40	5

# The Agricultural Experiment Station

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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 practices 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 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 portions of said moneys exceeding five per centum 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 for 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 allotments increasing annually by \$10,000 until a total of \$60,000 was 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 agricultural investigation, are being studied by the members of the Agricultural Experiment Station staff.

The farms, live stock, laboratories, and general equipment of the College are all directly available for the use of the Agricultural Experiment Station.

The results of the work of the Station are published in the form of bulletins, circulars, and scientific papers. These bulletins are of two classes—those which record the results of research work of a purely scientific character and those which present technical information in a simplified form, suitable for the general reader. The circulars are popular presentations of data which call for immediate application, as well as timely and useful information not necessarily new or original. The scientific papers are usually published as reprints or addresses given before scientific bodies. These reprints contain original information or report definite steps in the progress of investigations under way.

All bulletins and other publications from the Agricultural Experiment Station are sent without charge to citizens of the state. Any person in the state who so desires may have his name placed on the permanent mailing list of the station.

Letters of inquiry and general correspondence should be addressed: “Agricultural Experiment Station, Manhattan, Kan.” Special inquiries should be directed, so far as possible, to the heads of departments having in charge the matters concerning which information is desired.

### CONTROL WORK OF THE STATION

In addition to the work of agricultural investigation, the state has enlarged the activities of the station along various lines of state executive or control work.

One of the important lines of control work is that of the State Entomological Commission. (Laws of 1907, ch. 386; 1909, ch. 27.) This commission, created in 1907, was established—

“To suppress and eradicate San José scale and other dangerous insect pests and plant diseases throughout the state of Kansas.”

The professors of entomology at the Kansas State 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 Kansas State 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 increased use of the scientific staff of the Agricultural Experiment Station in matters of state importance requiring the application of technical knowledge.

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## **Branch Agricultural Experiment Stations**

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### **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, and (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 demonstrations 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 townsite 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.

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## The Engineering Experiment Station

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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 and the people of the state. It is the intention to make all the work of the Experiment Station of direct importance to Kansas.

All 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, and others employed especially for the work of the Station.

Among the investigations now being carried on are: Quality of concrete in Kansas highway construction; atmospheric resistance of automobiles; farm sewage disposal systems; Lewis factors for nonstandard gear teeth; durability of belt fastenings; road-material resources of Kansas; *pisé de terre* construction; durability of concrete; processing and handling grain and forage; deterioration of concrete in silos; harvesting and storage of grain crops; volume changes in concrete; harvesting and baling hay; rural electrification; modernizing the home; farm refrigeration; elastic properties of concrete; relation of potential gradient to meteorological elements; tool rooms and storerooms of

school shops; air conditioning for residences; use of electricity in hot beds; cost and depreciation of farm machinery; wind pressures on farm buildings; cutting edges of tillage implements; blending lubricating oils; alcohol and gasoline blends; tractor fuels; television apparatus, electrical grounds, wind-electric plants, and low-cost residential construction.

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 test road materials for use in federal-aid road construction in this state.

Some of the results of the investigations are published as bulletins of the Engineering Experiment Station, which are sent free to any citizen of the state upon request. Thirty-two such bulletins have been published. 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, as far as possible, to the heads of departments in whose fields the particular matters lie.

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## Bureau of Research in Home Economics

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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:

- \* A study of calcium and phosphorus in various forms of milk and cheese.
- \* Effect upon the animal body of varying the amount of vitamin in the diet.
- \* Vitamin content of foods relating to human nutrition:
  - a. Fruits.
  - b. Vegetables.
  - c. Cereals.
  - d. Eggs.

Utilization by human subjects of the nitrogen and phosphorus of different cuts of meat.

Factors affecting the quality of cakes.

- \* Composition of cooked meats.

Dietary studies—group, individual.

A study of electric and other types of stoves commonly used in the farm household for cooking purposes.

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\* The investigations starred are being supported in part by funds from the Agricultural Experiment Station.

† Chapter 281, Laws of 1931.

\* A study of the coefficient of protection of clothing fabrics.

\* A study of the silk fiber, weighted and unweighted, as affected by:

a. Light.

b. Light and moisture.

c. Light and perspiration.

Coefficient of absorption of textile materials.

Comparative study of certain body measurements:

a. With those of selected commercial patterns.

b. With those of certain commercial made garments.

Methods in parent education.

Behavior records for nursery school.

The ability of individuals to maintain equilibrium under varying conditions.

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\* The investigations starred are being supported in part by funds from the Agricultural Experiment Station.



# Degrees and Certificates Conferred

In the Year 1933

## Seventieth Annual Commencement

June 1, 1933

### DEGREES CONFERRED

#### HONORARY DEGREES

##### DOCTOR OF SCIENCE

Frank Albert Waugh, B. S., Kansas State College, 1891; Professor of Horticulture and Landscape Gardening, Massachusetts Agricultural College; Amherst, Mass.

#### GRADUATE COURSES

##### DOCTOR OF PHILOSOPHY

Hugh Stanley Carroll, A. B., B. S., University of Notre Dame, 1918; M. S., University of Notre Dame, 1920; San Rafael, Cal.

##### MASTER OF SCIENCE

John Edmond Anderson, B. S., Kansas State College, 1932, Belvue  
Rhoda Anna Austin, B. S., Kansas State Teachers College of Emporia, 1925, Emporia  
Arthur Esco Bate, D. V. M., Kansas State College, 1919, Wichita.  
Henry Monroe Beachell, B. S., University of Nebraska, 1930, Beaumont, Tex.  
Chris Ray Bradley, B. S., Kansas State College, 1927, Mayetta  
Alice Katherine Brill, B. S., Kansas State College, 1932, Westmoreland  
Faith Winifred Briscoe, B. S., Kansas State College, 1931, Cambridge  
Vance Lindell Burch, B. S., Kansas State College, 1932, Manhattan  
Marion John Caldwell, B. S., Kansas State College, 1931, El Dorado  
Ida Margaret Chitwood, B. S., Kansas State College, 1932, Meriden  
Clarence Ralph Collins, B. S., Kansas State College, 1932, Manhattan  
Salvador Baidonado Della, B. S., Kansas State College, 1932, Santa Maria, P. I.  
Miriam Lenore Dexter, B. S., Kansas State College, 1926, Manhattan  
Avis A. Downey, B. S., Kansas State College, 1932, Manhattan  
Max Leon Eaton, B. S., Kansas State College, 1932, Colby  
Philip Joseph Edwards, B. S., Kansas State College, 1929, Athol  
Sina Faye Fowler, B. S., Northeast Missouri State Teachers College, 1927, Manhattan  
William Everett Gibson, B. S., Kansas State College, 1927, Manhattan  
Ben Glading, A. B., University of Michigan, 1932, Manhattan  
Frederic Groetsema, A. B., Kalamazoo College, 1931, Manhattan  
Golda Pearle Haas, A. B., Southwestern College, 1930, Hutchinson  
Helen Margaret Halstead, B. S., Kansas State College, 1932, Manhattan  
Frederick Charles Homann, B. S., Montana State College, 1916, Bozeman, Mont.  
Anna Howarth, B. S., New Mexico Agricultural College, 1930, Raton, N. M.  
William Huey, B. S., Kansas State College, 1932, Ogden  
Ollie Hulse, B. S., Oklahoma Agricultural and Mechanical College, 1922, Manhattan  
George William Johnson, B. Th., Anderson College and Theological Seminary, 1927, Reamsville  
Faith Eleanor Johnston, B. S., Kansas State Teachers College of Pittsburg, 1929, Oakley  
Gervacio Escobar Juan, B. S., South Dakota State College, 1930, Castillejos, Zambales, P. I.  
Laurel Lucille Kingsley, B. S., North Dakota Agricultural College, 1929, Manhattan  
Malcolm Laman, B. S., Kansas State College, 1932, Concordia  
Lindsay Bailey Loring, B. S., State College of Washington, 1931, Manhattan  
Henry Wilbert Loy, Jr., B. S., Kansas State College, 1930, Manhattan  
Carl Jesus Martinez, B. S., Kansas State College, 1932, Manhattan  
Buford John Miller, B. S., Kansas State College, 1924, Piedmont  
Walter Ford Mitchell, B. S., Kansas State College, 1931, Concordia  
William Edward Moling, A. B., University of Missouri, 1925, Manhattan  
Reed Franklin Morse, B. S., Iowa State College, 1923, Manhattan  
Pearl Frances Musgrave, B. S., Kansas State College, 1929, Hillsdale  
Rufus Gardiner Obrecht, B. S., Kansas State College, 1928, Topeka  
Galen Stephen Quantic, B. S., Kansas State College, 1930, Riley  
Sarah Helen Roberts, B. S., Kansas State College, 1928, Manhattan  
Ben Davis Russum, B. S., Washburn College, 1931, Topeka

Curtis Williams Sabrosky, A. B., Kalamazoo College, 1931, Kalamazoo, Mich.  
 Hildred Renetta Schweiter, B. S., Kansas State College, 1931, Manhattan  
 Mildred Loveless Skinner, B. S., Kansas State College, 1928, Manhattan  
 Arlo Lester Steele, B. S., Kansas State College, 1930, Manhattan  
 Walter Henry Von Trebra, B. S., Kansas State College, 1924, Manhattan  
 Leroy Albert Wilhelm, B. S., Kansas State College, 1932, Arkansas City  
 Claude Leonard Wilson, B. S., Kansas State College, 1925, Ottawa  
 Estelle Adele Winters, B. S., Kansas State College, 1932, Onaga  
 Chester Aaron Wismer, B. S., Kansas State College, 1931, Pomona  
 Iscah Marion Zahm, B. S., Kansas State College, 1927, Topeka

## PROFESSIONAL DEGREES IN ENGINEERING

### CHEMICAL ENGINEER

Kenneth Charles Anderson, B. S., Kansas State College, 1930, Baytown, Tex.  
 Edward Joseph Fisher, B. S., Kansas State College, 1930, Baytown, Tex.

### CIVIL ENGINEER

William Everett Gibson, B. S., Kansas State College, 1927, Manhattan

### ELECTRICAL ENGINEER

Orville Marshall Deibler, B. S., Kansas State College, 1926, Englewood, N. J.  
 Harold Herbert Higginbottom, B. S., Kansas State College, 1927; M. S., *ibid.*, 1932;  
 Manhattan  
 Frank Bugar Livingston, B. S., Kansas State College, 1912, Bogota, N. J.

### MECHANICAL ENGINEER

Lee Victor Haegert, B. S., Kansas State College, 1918, Topeka

## UNDERGRADUATE CURRICULA

### Division of Agriculture

#### BACHELOR OF SCIENCE IN AGRICULTURE

Erwin Abmeyer, Grantville	Harold Clyde Love, Wilsey
Clarence Hobert Anderson, Richland	James Elbert Loveless, Denton, Tex.
Lewis Harold Bacon, Sylvan Grove	Alvin Ernest Lowe, Argonia
Donald Houts Bowman, Manhattan	Robert Wagner Lukens, Beloit
Frank Robert Brandenburg, Riley	Everett John McNay, Clay Center
Francis Willard Castello, McCune	John Ivan Miller, Prescott
Ralph Boyd Cathart, Winchester	Joyce Walker Miller, Sycamore
Lester Raymond Chilson, Oberlin	Gilbert Carlyle Moore, Louisburg
Herbert William Clutter, Larned	Gaylord Russell Munson, Junction City
Raymond Joseph Cohorst, Marysville	Norris William Nelson, McPherson
Carl Clarence Conger, Manhattan	Harold Weekley Overbey, Winfield
Lloyd Marion Copenhafer, Manhattan	Carmy Gross Page, Norton
Earl Clark Coulter, Willis	William Newell Page, Detroit
Robert Norman Craft, Latham	Leonard William Patton, Manhattan
Harold Amos Daily, Waverly	Marion Wesley Pearce, Miltonvale
Laurence Robert Daniels, St. Francis	John Milton Raven, Morrowville
Orville Frederick Denton, Denton	Arthur Lawrence Reed, Manhattan
Andrew Charles Elson, Kansas City	John Bissell Roberts, Manhattan
Andrew Brian Erhart, Larned	Olin Sandlin, Palco
Glenn Sylvester Fox, Rozel	Luke Michael Schruben, Dresden
Dale Evart Halbert, Abilene	Floyd Henry Seyb, Pretty Prairie
Thomas Elliot Hall, Manhattan	Penn Thompson, Manhattan
John Hamon, Valley Falls	Marvin Eugene Vautravers, Centralia
Harold Byron Harper, Manhattan	Stephen Vesecky, Kansas City
Raymond Thomas Harper, Manhattan	Raymond Beaty Wagner, Richmond
Hubert Raymond Hein, Washington	Wilbur Wahl, Wheaton
Charles Thaddeus Herring, Tulia, Tex.	Frederick Henry Walker, Jr., Salem, Mass.
Thomas Clark Hinkle, Jr., Carbondale	Eugene Aubrey Ward, Lawrence
Harvey Collins Holm, Dwight	Jerold Jay Wardell, Platteville, Colo.
James William Hunter, Manhattan	Everett Fairbanks Yoxall, Woodston
Martin Fred Keck, Kansas City, Mo.	Robert Allen Zebold, Little Rock, Ark.
Yun Suh Kim, Shanghai, China	Walter William Zeckser, Alma
Harold LeRoy Kugler, Abilene	

**Division of Engineering**

**BACHELOR OF SCIENCE IN AGRICULTURAL ENGINEERING**

Ferrell McClellan Bozarth, Lenora	Willard Lawrence McFillen, Manhattan
Donald Christy, Scott City	Thomas Ellsworth Martin, Manhattan
Gerald Emerson Feldhausen, Frankfort	Murray Edgar Matter, Jewell
Walter Clarence Hinkle, Lenora	June Roberts, Ford
Eugene Harry Hobson, Atchison	Homer John Stockwell, Meriden
Paul William Jenicek, Bushton	Elmer Alexander Taylor, Solomon
Sylvester Harwood Keller, Newton	

**BACHELOR OF SCIENCE IN ARCHITECTURE**

Ethel Amelia Eberhart, Topeka	Waldo Ottive Kretzmeier, Manhattan
Oscar Sivert Ekdahl, Manhattan	Margaret Bacon Krider, Manhattan
Harry Winston Ganstrom, Hollis	Eunice Reed, Kanopolis
Arthur Carroll Hadley, Oklahoma City, Okla.	Robert Allen Schober, Manhattan
Keith Harry Hinchcliff, Manhattan	

**BACHELOR OF SCIENCE IN ARCHITECTURAL ENGINEERING**

Robert Joseph Alexander, Independence, Mo.	Floyde Noble Kennedy, Anthony
Oscar Sebastian Florell, Manhattan	Carl Gerhardt Ossmann, Concordia
Marian Frances Freedlun, Chanute	Arthur Merle Scott, Pittsburg
John James Heimerich, Clay Center	

**BACHELOR OF SCIENCE IN LANDSCAPE ARCHITECTURE**

Benjamin Reigle Lantz, Jr., Salina

**BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING**

Leslie Matthew Bryson, Abilene	John Royer Long, Abilene
Garlie Franklin Collins, Manhattan	Frank Stephen Martin, Manhattan
Roy Wayland Engler, Topeka	James Wesley Wells, Winona
Marion Winn Griffin, Merriam	Harold Brockway Wright, Hutchinson
Ronald Clark Hartman, Lyons	

**BACHELOR OF SCIENCE IN CIVIL ENGINEERING**

Donald Adair Adell, Manhattan	Clair Louis Howard, Clyde
Lynn Nathan Berry, Manhattan	William Goodman Kirby, Toronto
Ernest Verle Bogle, Pittsburg	Ruben Harold McElroy, Randall
Virgil Edward Bradley, Belle Plaine	James Lisle Neville, Coffeyville
Wayne Wiot Cantral, Manhattan	Edwin Mahlon Newman, La Crosse
Earl Eugene Comstock, Wichita	Eugene Joseph Peltier, Concordia
Ward Edmond Dale, Topeka	Marion Edgar Phillips, Wichita
Milbern Harry Davison, Manhattan	Louis Jasper Smith, Neodesha
Joseph Alfred Doubrava, Lorraine	James Byron Stephenson, Sedan
Rudolph Eugene Eberle, Emporia	Lewis Whitney Teall, Larned
Gene Ellis, Council Grove	Samuel Cyril Walker, Junction City
Louis Garner Elser, Fort Riley	Pearl Author Walters, Norwich
Anthony Dominic Fornelli, Cherokee	Eugene Lincoln Wells, Meriden
Alfred Arnold Holmquist, Manhattan	John Dewey Woodruff, Dodge City

**BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING**

Dale Everett Barkalow, Burden	Ivan Ernest McDougal, Atwood
Douglass Arthur Bly, Pierceville	James William Martin, Sabetha
George William Boys, Linwood	Charles Hubert Mehaffey, Farmington
Joseph Emil Brinkman, Americus	Norman John Mellies, Ellinwood
George R. Collier, Colwich	Grant Gould Miller, Offerle
Richard Perry Daniels, Topeka	Hiroshi Miyata, Honolulu, Hawaii
Roy Emanuel Danielson, Topeka	Stuart Redington Mudge, Salina
Harold Mead Denison, Topeka	Arthur Benjamin Niemoller, Wakefield
Truman Ben Drury, Burden	Orville Arthur Noell, Manhattan
Charles William Evans, Jr., Washington	Arle Edward Paige, Minneapolis
Maynard Hancock Finley, Emporia	William Robert Roberts, Manhattan
Harold Gibson, Altoona	Arthur Warwick Rucker, Americus
Bernard Eugene Hammond, Salina	William Arthur Sells, Eflingham
Elmer Roy Jensen, Herington	Ralph Ottis Smith, Hutchinson
Irving Mauritz Johnson, Smolan	William Russell Stewart, Lowemont
Joel Platt Kesler, Overbrook	John Ransom Stone, Jr., Leavenworth
Herbert Henry Kirby, Toronto	Charles Watson Stull, Osborne
Warren Peer Lyttle, Council Grove	Alfred Eugene Wooster, Erie

## BACHELOR OF SCIENCE IN FLOUR MILL ENGINEERING

John Preston Woolcott, Harrisburg, Ill.

## BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

Jewell Robert Benson, Topeka  
 Robert Charles Besler, Manhattan  
 Roy Wilson Best, Manhattan  
 William Neet Dale, Guymon, Okla.  
 William DeOzro Davis, Manhattan  
 Linn Alvin Gore, Bushton  
 James Wilbur Haupt, Newton  
 Lawrence Chester Hoerner, Preston  
 Kenneth George Lancaster, Junction City

Russell B. Smith, Manhattan  
 Walter Bruce Smith, Hoisington  
 Elden G. Stoskopf, Baxter Springs  
 Hughel Kamlage Tatum, Larned  
 Lyle Raymond Van Doren, Manhattan  
 Fred Lewis Van Scoyoc, Oak Hill  
 Harvey Russel Webb, Sedan  
 George Franklin Wiley, Chanute  
 Joe Edgar Woodford, Manhattan

## Division of General Science

## BACHELOR OF SCIENCE

Merle Walter Allen, Manhattan  
 Mildred Caroline Aspelin, Dwight  
 Paula Anne Bellinger, Manhattan  
 Anton Borecky, Holyrood  
 Ray James Bryan, Woodbine  
 Wilma Mae Bucknell, Olathe  
 Burnill Howard Buikstra, Cawker City  
 Clifton Andrew Byers, Manhattan  
 Velma Lorence Capper, Manhattan  
 Louise Helen Chalfant, Wichita  
 Adalyn Bell Coffman, Roodhouse, Ill.  
 Joseph Brady Cook, Cawker City  
 Gertrude Alice Cowdery, Lyons  
 Esther Ita Dorgan, Alta Vista  
 Roberta Josephine Downie, Garden City  
 Robert August Evers, Quincy, Ill.  
 Homer Lyle French, Pretty Prairie  
 Margaret Adele Gard, Kansas City, Mo.  
 Leonard Elvin Garrison, Manchester  
 Harriet Cordilla Gilson, Manhattan  
 Luella Elizabeth Graham, Topeka  
 Mabel Lillian Hall, Kensington  
 Ada Culp Haukenberry, Manhattan  
 Seward Ellis Horner, Abilene  
 Otis Fearing Hornish, Bucklin  
 Raymond Hickman Hughes, Manhattan  
 Rowena Myra Johnson, Fort Scott  
 Cleta Helene Keek, Manhattan  
 Clovis LeRoy Knecht, Leona

Ada Leah Krause, Marysville  
 Edith Emma Krause, Marysville  
 Lilly Anna Krause, Marysville  
 Florence Mary Landrum, Effingham  
 Verna Elaine McAdam, Parsons  
 Harriet Carolyn Mather, Burdett  
 Benjamin Ambrose Neill, Sharon Springs  
 Virginia Janette Peterson, Manhattan  
 Nancy Elizabeth Poole, Kansas City, Mo.  
 Marjorie McDonald Pyle, Manhattan  
 Ernest Harold Reed, Norton  
 Dorothy White Regier, Burlington  
 Ernest Herman Rogalsky, McPherson  
 Merle Marguerite Ross, Dover  
 Esther May Row, Larned  
 Harold Thomas Rowland, Clay Center  
 Clara Josephine Shellhaas, Junction City  
 Genevieve Marie Shellhaas, Junction City  
 Joseph Charles Slechta, East St. Louis, Ill.  
 Leland Maxwell Smiley, El Dorado  
 Ruth Evangeline Strickland, Manhattan  
 Edwin August Veeh, Stuttgart  
 Charles Fayette Ward, Pratt  
 Anne Elizabeth Washington, Manhattan  
 Donald Manly Williams, Manhattan  
 Florence Lillian Wittse, River Forest, Ill.  
 Russell Peter Young, Kansas City  
 Iva May Zimmerman, Simpson

## BACHELOR OF SCIENCE IN COMMERCE

James Delos Corrigan, Holyrood  
 Edward Everett Criner, Wichita  
 Lloyd Henry Dalton, Ottawa  
 Milton Ehrlich, Marion  
 Kenneth Joseph Ekdahl, Manhattan  
 James Howard Evans, Barnard  
 Max Frank Fockele, Ottawa  
 Geraldine Virginia Grass, La Crosse  
 Lela Mae Hahn, Glen Elder  
 Lyman Monroe Hall, Manhattan  
 Carl Edward Holliday, Kansas City  
 George Leslie Honstead, Waterville  
 Rex Mortimer Jennings, Hoyt  
 Ernest Ira Largent, Oak Hill

Marjorie Arminta LaShelle, Manhattan  
 Orville Philip Nuffer, Leonardville  
 Dale Franklin Pocock, Le Roy  
 Harlan Cromer Rhodes, Manhattan  
 Marion Riordan, Solomon  
 Oliver John Selfridge, St. John  
 David Marion Shannon, Iola  
 Lenora Marie Shara, Narka  
 James Leroy Sharp, Newton  
 George Baldrige Telford, Manhattan  
 Robert Vernon Vaupel, New Cambria  
 Max Allen Wickham, Manhattan  
 Robert Jerome Wilson, Manhattan

## BACHELOR OF SCIENCE IN INDUSTRIAL CHEMISTRY

Harold Lee Anderson, Manhattan  
 Omo Arthur Attwood, Randolph  
 Thomas Maxwell Buck, Abilene  
 Ralph Martin Conrad, Manhattan  
 James Romaine Cribbett, Parsons  
 Bertus Johannos Deters, Cawker City  
 Orrin Franz Grover, Manhattan

Merle Preston Hammond, Burdett  
 Julius Godfrey Immer, Hudson  
 Gerald Lowell, Hollis  
 Robert Bruce Perry, Manhattan  
 Raymond Rollin Roepke, Manhattan  
 Elwyn Space Shonyo, Bushton

BACHELOR OF SCIENCE IN INDUSTRIAL JOURNALISM

Magdalena LaFaun Astle, Hutchinson	Marie Antoinette Henney, Hutchinson
Veva May Brewer, Wichita	Mary Caroline Houser, Wooster, Ohio
Ward Eldon Colwell, Onaga	Louise Frances Layman, Arlington
Marian Hazel Crocker, Manhattan	Evelyn Jean Nuzman, Manhattan
Isabel Clara Cunningham, Manhattan	Frederick Adams Peery, Manhattan
Edith Marie Dobson, Manhattan	Mary Alice Schnacke, La Crosse
Eugenia Ebling, Lindsborg	Ralph Arthur Van Camp, Council Grove
Elizabeth Gaston, Manhattan	Mabel Louise Whitford, Hutchinson
Elizabeth Wadley Guthrie, Cincinnati, Ohio	Esther Irene Wiedower, Spearville
Dorothea Hadsell, Manhattan	Emily Eleanor Wright, Concordia
Elizabeth Lucile Heffelfinger, Newton	Donald Wilson Wyatt, Stockton

BACHELOR OF SCIENCE IN MUSIC EDUCATION

Mildred Evelyn Beard, McPherson	Marjorie Iris Lemon, Wakefield
Helen Gertrude Durham, Manhattan	Virginia Louise Lovitt, Great Bend
Frances Ann Fockele, Le Roy	Mildred Ruth Masden, Lenora
Harry Wilson Hinckley, Barnard	Arvena Mildred Miller, Manhattan
Frances Marie Jack, Russell	Maurice Elmer Schruben, Dresden

BACHELOR OF SCIENCE IN PHYSICAL EDUCATION

Marcine Dorothea Campbell, Hollis	Earl Frederick Morrison, Colby
Mary Lou Clark, Burr Oak	Shelby Merle Neely, Hopewell
Paul Eugene Fairbank, Topeka	Lawrence Bryan Pilcher, Glasco
Harry Linn Hasler, Oklahoma City, Okla.	Earl Lee Sims, Republic
Esther Elzena Hobson, Kingman	Roy Blanchett Smith, Herington
Thelma Lois Large, Protection	Betty Jane Wagstaff, Topeka
Emily Mae McKenzie, Wayne	Ernestine Henrietta Young, Arkansas City
Dorothy Lorraine Maltby, Canton	Evelyn Hannah Young, Arkansas City

**Division of Home Economics**

BACHELOR OF SCIENCE IN HOME ECONOMICS

Lois Louise Avis, Fostoria	Mollie Beatrice McBride, Atwood
Margaret Doreen Bierman, Kensington	Selma Mae McGinnis, Manhattan
Maxine Rose Blankenship, Downs	Ruth Alice McClain, Wichita
Helen Bradley, Sedan	Alice Marie Maixner, Wilson
Edith Alice Brown, Partridge	Annic Merle Mark, Abilene
Gladys Ruth Buikstra, Manhattan	Vera Isabell Martin, Hastings, Neb.
Marjorie Henrietta Casper, Clifton	Marjorie Harriet Morrow, Parsons
Blanch Lucille Christensen, Bushong	Lucy Ermine Nixon, Manhattan
Mary Elizabeth Crawford, Madison	Merle Fairchild Patterson, Manhattan
Blanche Irene Curry, Winchester	Mila Margaret Pishney, Cleburne
Faigh Ruth Daigh, Ashland	Harrel Elise Porter, Parsons
Helen Louise Davis, Topeka	Edith LaVerne Ramey, Manhattan
Florence Durham, Randall	Marjorie Elizabeth Ramey, Manhattan
Nadine Alice Gibson, Emporia	Wilma Elizabeth Reinhardt, Bison
Edith Gwendolyn Gosney, Goddard	Martha Hess Rodda, Arma
Alberta Maude Gurtler, Topeka	Elizabeth Roniger, Hymer
Frances Pearle Hampshire, Manhattan	Aileen Rundle, Clay Center
Marion Bernice Harris, Manhattan	Grace Leona Scholz, Frankfort
Ivalee Beryl Hedge, Manhattan	Leona Edythe Shara, Narka
Mary Holton, Manhattan	Helen Elsie Smerchek, Garnett
Sue Washington Irons, Winter Haven, Fla.	Esther Smiley, Manhattan
Roberta Amelia Jack, Russell	Pansy Smith, Moran
Florence Nevada Jones, El Dorado	Pauline Jessie Minick Smith, Talmage
Mary Margaret Kelley, Winfield	Geneva Mae Sutter, Effingham
Ruth Vera Kistler, Kingman	Helen Marie Tedman, Mount Hope
Zora Lee Knox, Emporia	Florence Mae Thompson, Harper
Mildred Woodcock Leker, Manhattan	Irene Lillice Todd, Topeka
Carolyn Alice Leonard, Coolidge	Blanche Louise Tomson, Dover
Dorothy Edna Linge, Topeka	Bessie Ann Wilson, Kansas City
Verla Jessie Lovell, Topeka	Lois Emily Windiate, Nickerson
Margaret Anna Lynch, Hutchinson	Lillian Geneva Witter, Plains
Mildred Katherine McBride, Boyle	Agnes Anna Wolkensdorfer, Herndon

BACHELOR OF SCIENCE IN HOME ECONOMICS AND NURSING

Marion Isabell Campbell, Topeka	Elizabeth Caroline Steele, Manhattan
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## Division of Veterinary Medicine

## DOCTOR OF VETERINARY MEDICINE

Linden Moore Alcorn, Manhattan  
 Gayle Derwood Allen, Shelton, Neb.  
 Olin Alvin Anderson, Reynolds, Neb.  
 William Joseph Angerer, Muscatine, Iowa  
 Loren Cleatus Blackburn, Manhattan  
 Thomas Lenord Bond, Manhattan  
 Paul Jacob Brandy, Manhattan  
 Allen Vincent Brunke, Manhattan  
 Wilmer I. Conger, Ionia  
 Grant Fuller Cottrell, Andover  
 Ray Curry, Selma  
 Elmer Fred Finke, Manhattan  
 Lendall Kiple Firth, Manhattan  
 Paul Carl Geilenfeldt, Manhattan  
 Robert Henry Gump, Abilene  
 John Lowell Haki, Stanton, Neb.  
 Raymond William Hayes, Bonner Springs  
 Arthur James Hoffman, Marfa, Tex.  
 Claude Hudson, Gothenburg, Neb.  
 Harlow Kenyon Hudson, Manhattan

William Francis Irwin, Wilsey  
 Conley Gordon Isenberg, Manhattan  
 Richard Hulett Jurden, Manhattan  
 Manuel Charles Kastner, Manhattan  
 William Hautecoyne Lindley, Vicksburg, Miss.  
 Clifford Ladell McGinnis, Valley Falls  
 Velmer Wayne McGinnis, Ord, Neb.  
 Robert Tulloss McLean, El Cajon, Cal.  
 Everil Dwain Merkle, Manhattan  
 Joseph Fedelis Nieberding, Marysville  
 Eugene Way Peck, Falls City, Neb.  
 Charles Deets Pickett, Manhattan  
 Charles Joseph Prchal, Omaha, Neb.  
 Jake Louis Reineccius, Creston, Neb.  
 Alexander Stephen Robertson, Oakland, Cal.  
 Ralph Franklin Shaner, Topeka  
 Hubert Leslie Smith, Manhattan  
 William Birchard Snodgrass, Manhattan  
 Thomas Marion Thompson, Mulberry  
 Richard Duncan Turk, Manhattan

## COMMISSIONS AWARDED

## SECOND LIEUTENANT, OFFICERS' RESERVE CORPS

Joseph Shirley Adams, Leoti  
 Leonard Rusco Adler, Goddard  
 Lewis Harold Bacon, Sylvan Grove  
 Albert Kilian Bader, Junction City  
 Crawford Beeson, Wamego  
 Kenneth Urbon Benjamin, Deerfield  
 Lynn Nathan Berry, Manhattan  
 Robert Charles Besler, Manhattan  
 Loren Cleatus Blackburn, Manhattan  
 Thomas Lenord Bond, Manhattan  
 George William Boys, Linwood  
 Wilmer I. Conger, Ionia  
 Grant Fuller Cottrell, Andover  
 †Edward Everett Criner, Wichita  
 Ray Curry, Selma  
 Lloyd Henry Dalton, Ottawa  
 William DeOzro Davis, Manhattan  
 Orva Harrison Douglas, Courtland  
 Charles William Evans, Jr., Washington  
 Glenn David Ferguson, McPherson  
 Elmer Fred Finke, Manhattan  
 Blair Clester Forbes, Leavenworth  
 Robert Henry Gump, Abilene  
 Bernard Eugene Hammond, Salina  
 Wilbur Gould Heer, Salina  
 Edward Charley Rostocil, Zurich  
 †William Arthur Sells, Effingham  
 Ralph Franklin Shaner, Topeka  
 William Richard Smith, Manhattan  
 William Birchard Snodgrass, Manhattan  
 Earl Raymond Stegman, Plains  
 William Russell Stewart, Lowemont  
 Marion Richard Stiles, Jewell  
 †Homer John Stockwell, Meriden

Thomas Marion Thompson, Mulberry  
 Clair Louis Howard, Clyde  
 Claude Hudson, Gothenburg, Neb.  
 Harlow Kenyon Hudson, Manhattan  
 Conley Gordon Isenberg, Manhattan  
 Donald Robert Johnston, Manhattan  
 Richard Hulett Jurden, Manhattan  
 Manuel Charles Kastner, Manhattan  
 Floyd Noble Kennedy, Anthony  
 Wilbur Eugene Laird, Burr Oak  
 Hal H. McCord, Jr., Manhattan  
 Velmer Wayne McGinnis, Ord, Neb.  
 Arvid Irvin Mall, Manhattan  
 Lawrence Norbert Marx, Manhattan  
 Gilbert Carlyle Moore, Louisburg  
 Lee Thomas Morgan, Hugoton  
 J. Atwood Morrison, Hutchinson  
 Joseph Fedelis Nieberding, Marysville  
 †Arthur Benjamin Niemoller, Wakefield  
 Eugene Way Peck, Falls City, Neb.  
 Francis Joseph Perrier, Olpe  
 Charles Joseph Prchal, Omaha, Neb.  
 Ernest Harold Reed, Norton  
 Jake Louis Reineccius, Creston, Neb.  
 William Robert Roberts, Manhattan  
 †Harold Arthur Totten, Clifton  
 Lyle Raymond Van Doren, Manhattan  
 Robert Vernon Vaupel, New Cambria  
 †James Wesley Wells, Winona  
 Clifford Jay Woodley, Tecumseh  
 Donald Henry Woodman, Manhattan  
 Rex Valentine Woodward, Medicine Lodge  
 †Harold Brockway Wright, Hutchinson  
 Donald Wilson Wyatt, Stockton

† Certificates in lieu of commissions until the age of 21 is reached.

# Ninth Annual Summer School Commencement

August 4, 1933

## DEGREES CONFERRED

### HONORARY DEGREE

#### DOCTOR OF ENGINEERING

DEXTER SIMPSON KIMBALL, A. B., M. E., LL. D., D. Sc., Dean,  
College of Engineering, Cornell University.

### GRADUATE COURSES

#### MASTER OF SCIENCE

Ellis Buchanan Babbit, B. S., Kansas State College, 1924, Kansas City  
 Ralph David Barnhart, B. S., Kansas State College, 1932, Manhattan  
 Dietrich Becker, A. B., Bethel College, 1927, Webster  
 George Francis Branigan, B. S., University of Nebraska, 1927, Manhattan  
 Arthur Senseny Brown, B. S., Pennsylvania State College, 1924, Chambersburg, Pa.  
 John McAnerney Browne, A. B., St. Marys College, 1923, St. Marys  
 William Roy Burgin, B. S., McPherson College, 1926, Manhattan  
 Robert Bell Casey, B. S., Clemson College, 1931, Anderson, S. C.  
 Winnie Pearl Condit, A. B., Southwestern College, 1929, Liberal  
 John Trumbull Correll, B. S., Kansas State College, 1932, Manhattan  
 Loua Marjorie Dean, B. S., Kansas State College, 1932, Manhattan  
 Charles George Dobrovolny, A. B., University of Montana, 1928, Manhattan  
 Mary Elizabeth Myers Elliott, A. B., University of Kansas, 1926, Manhattan  
 Glenn Leslie Ellithorpe, B. S., Kansas State College, 1932, Russell  
 Zelda Arliene Finch, B. S., Kansas State College, 1928, Oketo  
 Helen Bernice Fisher, A. B., DePauw University, 1932, Manhattan  
 Arthur Oran Flinger, B. S., Kansas State College, 1929, Manhattan  
 Eldred Lamonte Gann, B. S., Kansas State College, 1929, Burden  
 Harold David Garver, B. S., Kansas State College, 1929, Overland Park  
 Harriet Geffert, B. S., Kansas State College, 1927, Manhattan  
 Lester Odell Gilmore, B. S., University of Minnesota, 1932, Manhattan  
 John Vance Hays, B. S., Kansas State College, 1927, Manhattan  
 Hosea Samuel Hollingsworth, B. S., Mississippi Agricultural and Mechanical College, 1927,  
 Kosciusko, Miss.  
 Serena Louise Huey, B. S., Kansas State College, 1932, Ogden  
 Almyra Viola Jacobson, B. S., Oregon State College, 1927, Manhattan  
 Henry Daniel Karns, B. S., Kansas State College, 1924, Concordia  
 Fred Short Kruger, B. S., Kansas State College, 1932, Manhattan  
 Bernice Lydia Kuerth, B. S., Iowa State College, 1932, Manhattan  
 Herbert Joseph Leach, B. S., University of Vermont, 1932, Fletcher, Vt.  
 Maurine Theresa Lewis, B. S., Kansas State College, 1932, Manhattan  
 Iris McGee, B. S., Oklahoma Agricultural and Mechanical College, 1920, Waynoka, Okla.  
 Leona Irene Maas, B. S., Kansas State College, 1932, Alma  
 Vivian Anna Marley, B. S., Kansas State College, 1924, Manhattan  
 Lawrence Norbert Marx, B. S., Kansas State College, 1932, Manhattan  
 Ezra Perle Mauk, B. S., Kansas State College, 1922, Mulvane  
 Elizabeth Cora May, B. S., Kansas State College, 1919, Holton  
 Conrad Stephen Moll, B. P. E., George Williams College, 1925, Manhattan  
 Merle Dallas Morris, B. S., Kansas State College, 1928, Newton  
 Daniel Ronald Musser, B. S., Kansas State College, 1932, Jewell  
 Harold Leroy Nonamaker, B. S., Kansas State College, 1932, Osborne  
 Daisy Beebe Norman, B. S., Fort Hays Kansas State College, 1925, Topeka  
 Frank B. Prentup, B. S., Kansas State College, 1932, Fort Riley  
 Dorothy Readhimer, A. B., Louisiana State Normal College, 1931, Natchitoches, La.  
 Olga Barbara Saffry, B. S., Kansas State College, 1928, Alma  
 Byron Leroy Shepherd, B. S., Kansas State College, 1932, Manhattan  
 Lonnie Joseph Simmons, B. S., Kansas State College, 1928, Manhattan  
 Ralph Owen Snelling, B. S., Kansas State College, 1932, Lawton, Okla.  
 Maynard Harold Solt, B. S., Kansas State College, 1932, Manhattan  
 Charles William Stratton, B. S., Kansas State College, 1926, Manhattan  
 Lois Castle Vance, B. S., Oklahoma Agricultural and Mechanical College, 1918, Enid, Okla.  
 Ray Edward Weide, A. B., Baker University, 1925, Leona  
 Leola Jane White, B. S., University of Arizona, 1930, Manhattan  
 Jennie Williams, B. S., Kansas State College, 1910, Meriden  
 Olah Wilson, B. S., Southeastern State Teachers College, Oklahoma, 1931, Madill, Okla.  
 Wilbor Owens Wilson, B. S., Oklahoma Agricultural and Mechanical College, 1932, Manhattan

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DOCTOR OF VETERINARY MEDICINE

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# KANSAS STATE COLLEGE BULLETIN

VOLUME XVIII

MAY 15, 1934

NUMBER 4

## STUDENT LIST NUMBER

SEVENTY-FIRST SESSION, 1933-'34



KANSAS STATE COLLEGE  
OF AGRICULTURE AND APPLIED SCIENCE

MANHATTAN, KANSAS

Published by the College

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PRINTED BY KANSAS STATE PRINTING PLANT  
W. C. AUSTIN, STATE PRINTER  
TOPEKA 1934  
15-3591

*The Kansas State College Bulletin is published on the first and fifteenth of each month by the Kansas State College of Agriculture and Applied Science, Manhattan, Kan., to which requests for copies of the publication should be addressed. Entered as second-class matter November 6, 1916, at the post office at Manhattan, Kan., under the Act of August 24, 1912.*

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# List of Students

## Students Pursuing Graduate Work

June 1, 1933, to June 1, 1934

### Graduate Students

Joseph Jesse Abernethy; Manhattan  
Fulton George Ackerman; Manhattan  
Anna Tessie Agan; Manhattan  
Sadegh Madjidi Ahi; Teheran, Persia  
Vera Ethel Alderman; Coffeyville  
Merle Walter Allen; Manhattan  
Clarence Hobert Anderson; Richland  
Harold Lee Anderson; Manhattan  
John Edmond Anderson; Belvue  
Ross Harris Anderson; Richland  
Arthur Clinton Andrews; Manhattan  
Austin Chaerdles Andrews;  
Kansas City, Mo.  
Opal Lee Andrews; Junction City  
Ruth Evangel Angstead; Manhattan  
Harold Duane Arnold; Manhattan  
Ellis Buchanan Babbit; Kansas City  
Lewis Harold Bacon; Sylvan Grove  
Burton Lowell Baker; Manhattan  
Clarence Orval Banta; Ottawa  
Everett George Barber; Salina  
Dorothy Barfoot; Decorah, Iowa  
Edgar Lee Barger; Manhattan  
Ralph David Barnhart; Sterling, Colo.  
Oma Irene Barry; Hays  
Mary Alta Beach; Edwardsville  
Clarence Joseph Becker; Topeka  
Dietrich D. Becker; Webster  
Philip Becker, Jr.; Peoria, Ill.  
Bernice Eleanor Bender; Holton  
Lottie Nevella Benedick; Manhattan  
Erwin John Benne; Manhattan  
Jay Russell Bentley; Ford  
Ada Grace Billings; Manhattan  
Donald Houts Bowman; Manhattan  
George William Boys; Linwood  
Alice Katherine Brill; Westmoreland  
Arthur Senseny Brown; Chambersburg, Pa.  
John M. Browne; St. Marys  
Margaret Verneal Johnson Brown; Axtell  
Esther Bruner; Manhattan  
Harry Ray Bryson; Manhattan  
James Henry Burt; Manhattan  
Clifton Andrew Byers; Manhattan  
Marion John Caldwell; El Dorado  
James Phillip Callahan; Manhattan  
Lily Doris Campbell; Auburn  
Alfred Louis Casey; Corning  
Robert Bell Casey; Anderson, S. C.  
Louise Helen Chalfant; Manhattan  
Robert Frederick Childs; Manhattan  
Esther Evangeline Christensen; Randolph  
Edna Ellen Circle; Kiowa  
Alfred Lester Clapp; Manhattan  
Evelyn Marilda Colwell; Manhattan  
Frances Rebecca Conard; Ottawa  
Winnie Pearl Condit; Liberal  
William Eugene Connell; Manhattan  
William Joseph Conover; Elkhart  
Lloyd Marion Copenhagen; Manhattan  
Naomi Zimmerman Crawford; Manhattan  
James Romayne Cribbett; Parsons  
Rose Marie Darst; Manhattan  
Carrie Elvard Davis; Delavan  
Dorothy Mae Davis; Delavan  
Homer Thomas Deal; Hoisington  
Loua Marjorie Dean; Manhattan  
Percy Leroy DePuy; Manhattan  
Charles George Dobrovolny; Manhattan  
Carl Alfred Dorf; Lindsborg  
Glen LeRoy Dunlap; Ann Arbor, Mich.  
Joseph Edgar Durham; Manhattan  
Ethel Amelia Eberhart; Topeka  
Leslie Lee Eisenbrandt; Chanute  
Kenneth Joseph Ekdahl; Manhattan  
Leonard Paul Elliott; Manhattan  
Mary Myers Elliott; Manhattan  
Glenn Leslie Ellithorpe; Russell  
Delbert Frederick Emery; Parsons  
Oran Sylvester Emrich; Wakefield  
Olive Falls; Neodesha  
Bernadine Eathel Finch; Oketo  
Zelda Arliene Finch; Oketo  
Helen Bernice Fisher; Manhattan  
Theodore Allen Fleck; Wamego  
Mary Genevieve Fletcher; Sterling  
Arthur Oran Flinner; Manhattan  
Margaret Lansden Foster; Manhattan  
Roy Leslie Fox; Manhattan  
Harold J. Froning; Copeland  
Wanie Opal Froning; Copeland  
Eldred La Monte Gann; Burden  
Harold David Garver; Overland Park  
Harriet Geffert; Manhattan  
Henry Isely Germann; Fairview  
Pat O. Gill; Enid, Okla.  
Isabelle Gillum; Manhattan  
Lester Odell Gilmore; Freeborn, Minn.  
Clarence Fay Gladfelter; Emporia  
Arthur Leonard Goodrich; Manhattan  
James Robert Green; Kent, Ohio  
Myrtle Annice Gunselman; Manhattan  
Lydia Alma Haag; Holton  
Lester Theodore Hagadorn; Gaylord  
Dosca Watt Hale; Kilgore, Tex.  
Lawrence Fenner Hall; Manhattan  
Marguerite Velma Harper; Manhattan  
Marion Bernice Harris; Manhattan  
Elsie Settle Hartel; Manhattan  
Merle Preston Haymond; Burdett  
John Vance Hays; Manhattan  
Ruth Dillon Heckler; Manhattan  
John Hepler; Manhattan  
Katharine Paddock Hess; Manhattan  
Keith Harry Hinchcliff; Manhattan  
Walter Clarence Hinkle; Lenora  
Hazel Juanita Hoke; Manhattan  
Zadock Wayne Hook; Manhattan  
Seward Ellis Horner; Abilene  
Abram Eldred Hostetter; Hope  
Leo Everett Hudiburg; Manhattan  
Serena Louise Huey; Ogden  
Raymond Hickman Hughes; Manhattan  
Orville Don Hunt; Manhattan  
James William Hunter; Manhattan  
Jean Lyons Jackson; Leavenworth  
Merle Marlin Jackson; Leavenworth  
Almyra Viola Jacobson; Manhattan

GRADUATE STUDENTS—*Concluded*

Russell Everett James; Wetmore  
 Amor James Jefferis; Kincaid  
 William Edwin Jennings; Cohoes, N. Y.  
 Elmer Roy Jensen; Herington  
 Elfreda Marie Johnson; Manhattan  
 James Gibson Johnson; Manhattan  
 Edward C. Jones; Manhattan  
 Henry Daniel Karns; Concordia  
 Ethel Hannah Keith; Attica  
 Samuel Greenberry Kelly; Manhattan  
 Yun Suh Kim; Shanghai, China  
 Herbert Henry Kirby; Toronto  
 Ruth Vera Kistler; Kingman  
 Inge Kallesoe Kjar; Lemwig, Denmark  
 Christian Reid Knechtel; Larned  
 Marian Eugene Knechtel; Larned  
 Margaret Marie Knerr; Manhattan  
 Kathryn Mary Knowles; Gunnison, Colo.  
 Myra Caroline Koenig; Chanute  
 Lester Henry Koenitzer; Manhattan  
 Fred Short Kruger; Manhattan  
 Bernice Lydia Kunerth; Manhattan  
 Alice Elizabeth Lagerstrom; Lindsborg  
 Roy Clinton Langford; Manhattan  
 Herbert Joseph Leach; Fletcher, Vt.  
 Howard Kenneth Learned; Hutchinson  
 Mildred Woodcock Leker; Manhattan  
 Maurine Theresa Lewis; Manhattan  
 Charles Alden Logan; Manhattan  
 Glenn Wesley Long; Manhattan  
 Alvin Ernest Lowe; Argonia  
 Henry Wilbert Loy; Manhattan  
 Arla Amelia McBurney; Manhattan  
 Margaret Catherine McClymonds; Walton  
 Willard Lawrence McFillen; Manhattan  
 Iris McGee; Waynoke, Okla.  
 Hiram Temple McGehee; Manhattan  
 Eva Myrtle McMillan; Macomb, Ill.  
 Everett John McNay; Manhattan  
 Leona Irene Maas; Alma  
 David Leslie Mackintosh; Manhattan  
 Vivian Anna Marley; Manhattan  
 Alice Butler Marsh; Manhattan  
 Thomas Ellsworth Martin; Manhattan  
 Carl Jesus Martinez; Manhattan  
 Lawrence Norbert Marx; Manhattan  
 Elizabeth Cora May; Holton  
 Manie Herbert Meyer; Manhattan  
 Clara Grace Miller; Manhattan  
 Grant Gould Miller; Offerle  
 Merna Beatrice Miller; Kansas City  
 Ellen Milligan; South Haven  
 Conrad Stephen Moll; Manhattan  
 George Montgomery; Manhattan  
 Clark Leroy Morford; Olsburg  
 Merle Dallas Morris; Newton  
 Thirza Adaline Mossman; Manhattan  
 Willard Dow Munson; Madison  
 Daniel Ronald Musser; Jewell  
 Charles William Nauheim; Hoyt  
 Harold Theodore Nelson; Manhattan  
 Daisy Beeby Norman; Topeka  
 Dale Leora Norris; Raymond  
 Lois Marie Oberhelman; Barnes  
 John Carl Olsen; Manhattan  
 Arlie Edward Paige; Manhattan  
 Eleanor Seibert Parrott; Manhattan  
 Franklin Leonard Parsons; Manhattan  
 LeRoy Clay Paslay; Manhattan  
 Eugene Joseph Peltier; Concordia  
 Wilbur Reginald Pfenninger; Salina  
 Gerald Pickett; Manhattan  
 Dale A. Porter; Manhattan  
 Harrel Elsie Porter; Parsons  
 Ivan Pratt; Hope  
 Frank B. Prentup; Fort Riley  
 Joseph Aloysius Prochaska; Manhattan  
 Harry Charles Quantic; Riley  
 Dorothy Raburn; Manhattan  
 Mohammed Hassan Radi; Cairo, Egypt  
 Ernest Lee Raines; Mound City  
 Dorothy Readhimer; Manhattan  
 Anna Reed; Kanopolis  
 Arthur Lawrence Reed; Manhattan  
 G. Nathan Reed; Manhattan  
 Harriet Reed; Holton  
 Earl Hubert Regnier; Spearville  
 Bess Floyd Rhine; Emporia  
 Theodore Roosevelt Robb; Rexford  
 John Bissell Roberts; Manhattan  
 June Roberts; Manhattan  
 Sarah Helen Roberts; Manhattan  
 Raymond Rollin Roepke; Manhattan  
 John Orian Rowell; Manhattan  
 Tibor Alexander Rozia; Budapest, Hungary  
 Arthur Warwick Rucker; Americus  
 Vance Mather Rucker; Manhattan  
 Lucile Osborn Rust; Manhattan  
 Curtis Williams Sabrosky; Manhattan  
 Olga Barbara Saffry; Alma  
 Myron Lloyd Sallee; Manhattan  
 Olin Sandlin; Palco  
 Edward Henry Schneider; Kansas City  
 Luke Michael Schruben; Dresden  
 Francisco Antonio Sierra de Soto; Manhattan  
 Florence Myrtle Sitz; Manhattan  
 Sadie Sylvia Sklar; Manhattan  
 Howard Dewight Smethers; Haddam  
 Edna Marie Smith; Kingman  
 Paul Francis Snyder; Elkhart  
 Lela Vale Sourk; Goff  
 Irimie Dumitru Staicu; Bucharest, Roumania  
 Lee Clarence Stenzel; Assaria  
 Elsa Horn Stiles; Manhattan  
 Francisco Rioja Taberner; San Juan, P. I.  
 Margaret Jeanne Tabor; Marcellus, Mich.  
 Bruce Ross Taylor; Alma  
 Delos Clifton Taylor; Manhattan  
 James William Taylor; Manhattan  
 Altha Tedrow; Salina  
 George Baldrige Telford; Manhattan  
 John Franklin Thackrey; Manhattan  
 Arch Thompson; Blackwell, Okla.  
 Penn Thompson; Manhattan  
 Carmen M. Thornton; Kansas City  
 Marcia Edythe Tillman; Manhattan  
 Amy Sarah Trojan; Bazine  
 Mona Marguerite Tucker; Altoona  
 Gladys Ellen Vail; Plains  
 Lois Castle Vance; Enid, Okla.  
 William Voth; Lake City  
 Jesse Leroy Walker; Manhattan  
 Jewell Kimball Watt; Peru  
 Arthur D. Weber; Manhattan  
 Ray Edward Weide; Leona  
 Ruth Weisser; Paxico  
 Francis J. Wescoat; Formoso  
 Bessie Brooks West; Manhattan  
 Leola Jane White; Manhattan  
 Wilton Terry White; Jewell  
 George Frank Wiley; Manhattan  
 Donald Manly Williams; Manhattan  
 Jennie Williams; Meriden  
 James Herdman Wilmoth; Blue Rapids  
 Anna Marian Wilson; Alma  
 Olah Wilson; Madill, Okla.  
 Wilbor Owens Wilson; Manhattan  
 Ethel May Wix; Appleton City, Mo.  
 Lloyd Lander Woods; Wichita  
 Helen Martha Woodworth; Salina  
 Harold Brockway Wright; Hutchinson  
 Paul G. Wurtz; Clifton  
 Lillie Margaret Zimmerman; Burrton  
 Frank Jesse Zink; Manhattan

**Graduate Students Pursuing Work in Absentia**

Vera Ethel Alderman; Coffeyville  
Everett George Barber; Salina  
Silas Solomon Bergsma; Hill City  
Thomas Conway Faris; Arkansas City  
Mary Genevieve Fletcher; Sterling  
Clarence Fay Gladfelder; Emporia  
Walter Eldridge Mathewson; Topeka  
Franklin Leonard Parsons; Manhattan  
Raymond Patterson; Washington

Wilbur Reginald Pfenninger; Salina  
Ernest Lee Raines; Mound City  
Raymond Schlotterbeck; Wichita  
LaVelle Robert Schruben; Centralia  
Sheridan Settler; Prairie View, Tex.  
Howard Dewight Smethers; Haddam  
Ralph Owen Snelling; Manhattan  
Marcia Edythe Tillman; Manhattan

**Senior Students Pursuing Graduate Study**

Leonard Rusco Adler; Goddard  
Marie Rosabelle Appel; Bushton  
Nathan Lea Axton; El Dorado  
Viola Frances Barron; Kensington  
Martha Pearl Betz; Enterprise  
John Milan Biddison; Manhattan  
Opal Olive Bowers; Manhattan  
Vernon Edward Burnet; Manhattan  
Frank Sherman Burson; Monument  
Julia Marie Davis; Nebraska City, Neb.  
Phares Decker; Holton  
Dale D. Dixon; Norcatour  
Paul Wilson Griffith; Edmond  
Harold Ray Heckendorn; Cedar Point  
Maybeth Herndon; Amy  
Kenneth Rives Houglund; Olathe  
Lois Elda Howard; Holyrood  
Robert Huey; Ogden  
Edward Guerrant Kelly; Manhattan  
Lawrence Lincoln Kelly; Manhattan  
Howard Maxwell Kindsvater; Wichita

Hal H. McCord, Jr.; Manhattan  
Charles Dean McNeal; Boyle  
Katherine Amelia Manker; Vernal, Utah  
James Warren Mather; Grinnell  
Gladys Edra Mellinger; Milford  
Merton Dennison Olmstead; Perry, N. Y.  
Carl Edward Pate; Parsons  
Miriam Peck; Jewell  
Helen Mae Pickrell; Minneapolis  
Helen Marjorie Reed; Circleville  
Emily May Rogler; Manhattan  
Lisle LeRoy Smelser; Manhattan  
William Richard Smith; Manhattan  
Maurice Sheppard Smyth; Manhattan  
Velma Fern Thompson; Manhattan  
John Emery Veatch; Ozark, Mo.  
Esther Loretta Walters; Manhattan  
Paul Frank Warner; Whiting  
Melvon Wertzberger; Alma  
Allen Rea Wilson; Rochester, Mich.

## Undergraduate Students

The following lists include seniors, juniors, sophomores, freshmen and special students in College. For students in the Summer Schools 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; Ar, architecture; ArE, architectural engineering; C, commerce; C&A, commerce and accounting; CE, civil engineering; ChE, chemical engineering; EE, electrical engineering; FME, flour mill engineering; GS, general science; GS&V, general science and veterinary medicine; HE, home economics; HE&A, home economics and art; HE&J, home economics and industrial journalism; HE&N, home economics and nursing; IE&D, institutional economics and dietetics; IC, industrial chemistry; IJ, industrial journalism; LA, landscape architecture; LG, landscape gardening; M, applied music; MuE, music education; ME, mechanical engineering; MI, milling industry; PE, physical education; VMP, preveterinary; VM, veterinary medicine.

### SENIORS

- Zelda Laurraine Ackenhausen (GS);  
Manhattan  
Joseph Shirley Adams (Ag); Oak Mills  
Cirilo Lagmay Adan (VM); Sison, P. I.  
†Leonard Rusco Adler (EE); Goddard  
Clifford Lankford Alcorn (EE);  
Carbondale  
Mary Elizabeth Allman (HE);  
Manhattan  
Rosalind Almén (IE&D); McPherson  
Robert Louis Anderes (VM);  
Kansas City  
Lillian Gale Anderson (GS); Lincoln  
Verna Lucille Anderson (PE); Topeka  
†Marie Rosabelle Appel (GS); Bushton  
Cecil Francis Arens (EE); Topeka  
Donald Maurice Atkins (Ag); Manhattan  
Omo Arthur Attwood (ChE); Manhattan  
Herbert Willard Avery (VM); Wakefield  
Thomas Burt Avery (Ag); Coldwater  
†Nathan Lea Axton (EE); El Dorado  
Dorothea Lillian Bacon (MuE);  
Atchison  
Albert Killian Bader (ArE);  
Junction City  
Francis Daniel Baker (IJ);  
Junction City  
Josephine Alice Baker (MuE);  
Miltonvale  
Dorothy Baldwin (GS); Manhattan  
Russel Raymond Ballou (GS); Glasco  
†Viola Frances Barron (HE&A);  
Kensington  
Vernon C. Bates (ArE); Garden City  
Richard Sherwood Bean (EE);  
Schenectady, N. Y.  
Crawford Beeson (IC); Wamego  
Frances Elaine Bell (HE); Marysville  
Marcus Lorenzo Bergsten (VM);  
Cleburne  
Johnathan Ralph Bert (LA); Abilene  
†Martha Pearl Betz (HE&N); Enterprise  
†John Milan Biddison (EE); Manhattan  
John Stephen Bidnick (ME); Kansas City  
John Sherman Biggs (CE); Wichita  
Oma Louise Bishop (IJ); Abilene  
Clifford Hibbard Black (Ar); Manhattan  
Dorothy Velma Blackman (GS); Manhattan  
Addison Blair (VM); Manhattan  
Ellen Grace Blair (IE&D); Williamsburg  
Gertrude Elizabeth Blair (IJ); Junction City  
Major Guy Bliss (CE); Minneapolis  
Howard Bohnenblust (EE); Leonardville  
Helen Elizabeth Boler (HE); Dover  
Grace Louise Booker (IE&D); Clay Center  
†Opal Olive Bowers (IE&D); Manhattan  
Francis Woodrow Boyd (IJ); Phillipsburg  
Alice Marguerite Bozarth (M); Lenora  
Evelyn Marie Braden (HE); Wichita  
Fred Ewing Brady (EE); Kansas City  
Harry Bernard Brandon, Jr. (C);  
Osawatomie  
Justina Veronica Brening (IE&D); Burns  
Edward Louis Broghamer (ME);  
Wilkes Barre, Pa.  
Richard Carleton Brown (ArE); Hill City  
Rita Brown (PE); Edmond  
†Vernon Edward Burnet (Ag); Manhattan  
†Frank Sherman Burson, Jr. (AA);  
Monument  
Marvin James Busby (VM); Manhattan  
Everett Leslie Byers (Ag); Hepler  
Duane LeRoy Cady (VM); Manhattan  
Floyd William Caldwell (CE); Parsons  
Olyn Danford Calhoon (AA); Manhattan  
Ethel Irene Call (HE); Mound Valley  
Shirley Pollard Campbell (EE); Wichita  
Cesar Baudelio Cardenas (ME);  
Mexico City, Mex.  
John Carr (Ar); Salina  
Mary Margaret Carr (IE&D); Winfield  
Merrill Levern Carter (IC); Smith Center  
Vernon Lee Carter (CE); Coffeyville  
Samuel Marshall Caughron (C); Manhattan  
Cornelius Donald Chalmers (CE);  
Scranton  
Virgil Theodore Chapman (CE);  
Manhattan  
Willard Martin Cheney (EE); Abilene  
William Harley Chilson (Ag); Oberlin  
Paul Edward Chleboun (VM); Manhattan  
Mary Jane Frances Clark (HE);  
Manhattan  
Bradbury Bedell Coale (VM); Manhattan  
Harry Wyant Coberly (Ag); Gove  
Wesley Samuel Coblentz (Ag); Great Bend  
Thelma Louise Coffman (GS); Manhattan  
(Deceased)

† Also pursuing graduate study.



## SENIORS—Continued

- Eugene Frederick Collins (GS);  
Wellsville  
Ruth Elizabeth Collins (HE); Ottawa  
William Vaughn Combs (AA); Linn  
Zelma Nadyne Conn (IE&D); Kirbyville  
Marcia Noyes Conrad (GS); Manhattan  
Ruth Martha Cook (HE); Larned  
\*Frank Barker Cookson (GS); Keats  
Edgar Alexander Cooper (EE); Stafford  
Samuel Prentis Cory (CE); Hutchinson  
Delbert James Costa (GS); Anthony  
Forrest Oliver Cox (VM); Blue Rapids  
Wayne Russell Criswell (ME); Manhattan  
Ralph William Crouch (C&A); Everest  
Richard Jerome Crowley (Ar); Manhattan  
Gerald Lloyd Cubbison (CE); Gardner  
George Jackson Davidson (Ar); Manhattan  
†Julia Marie Davis (HE);  
Nebraska City, Neb.  
Kenneth Sydney Davis (Ag); Manhattan  
Betty Olive Davison (HE&N); Tescott  
\*Howard Everest Dean (C); Agra  
Jessie Gertrude Dean (IJ); Baldwin  
†Phares Decker (Ag); Holton  
Marvin DeLapp (ME); Cherokee  
Harold Oscar Dendurent (IJ); Goodland  
Mary Folwell Dexter (HE); Columbus, Ga.  
Walter Edward Dicke (VM); Louisburg  
†Dale D. Dixon (GS); Norcatour  
Louis Elmer Dobson (LA); Manhattan  
Merle Alfred Dodge (IC); Manhattan  
Lawrence Beers Donaldson (EE);  
Kansas City, Mo.  
Harvey Phillip Donnell (EE); Manhattan  
Dorothy Rosencrans Donnelly (GS);  
Manhattan  
John Joseph Donnelly (ME); Manhattan  
Frances Lorene Doornbos (GS); El Dorado  
Orva Harrison Douglas (ME); Courtland  
James Drew (EE); Rolla  
Wallace Reed Dudley (Ag); Goodland  
John Leroy Duncan (LG); Manhattan  
Harry Orin Dutton (CE); Jamestown  
Louis Bion Earle (GS); Washington  
Arthur Harold Eberhart (EE);  
Burlington  
Dale Henry Edleblute (Ag); Keats  
George Wathen Edelen, Jr.; (CE);  
Kansas City, Mo.  
Olin Orlando Ediger (CE); Newton  
Marguerite Lena Edwards (IE&D); Athol  
Elizabeth Fairzina Elledge (IE&D); Parsons  
George Harold Ellinger (EE); Abbyville  
Vorras Alexander Elliott (ME); McPherson  
Vera May Ellithorpe (Ar); Russell  
†Oran Sylvester Emrich (EE-1 Grad-2);  
Wakefield  
Marian Edith Evans (C&A); Hartford  
Eugene Patrick Farrell (MI); St. Marys  
John Moses Ferguson (AE); Bazine  
Charles Emil Fisher (Ag); Cuba  
Leonice Marie Fisher (IE&D); Fort Scott  
Voigt Raymond Fisher (CE); Atchison  
Ronald Walter Fleck (ME); Beloit  
Nathan Fligstein (IJ); Manhattan  
Bernard Eugene Foote (VM); Manhattan  
Blair Clester Forbes (ME); Leavenworth  
Mildred Viola Forrester (PE); Wamego  
James C. Foulds (ME); Hutchinson  
Richard George Fowler (IJ); Holton  
Donald Fox (IC); Longford  
Marvin William Freeland (EE); Effingham  
Archie French (EE); Augusta  
Edna Henrietta Fritz (HE&A); Manhattan  
Marjorie Christine Fuhrman (HE);  
Atchison  
Ralph Dana Gage (PE); Minneapolis  
Clara Ann Gantenbein (IJ); Elmo  
Clara Bess Garrison (IE&D); Lincolnville  
Donald George Gentry (CE); Manhattan  
Madge Kent Gibbs (HE); Quinter  
William Ean Gildersleeve (EE);  
Kingston, N. Y.  
Clarence Lee Gish (Ag); Abilene  
John Elmore Going (ME); Topeka  
Frank Donald Gomez (VM); Manhattan  
Frances Mae Gordon (IE&D); De Soto  
Ralph Melvin Graham (PE); El Dorado  
\*Leola Olive Green (HE); Garden City  
Henry Lesse Greene (ChE); Topeka  
Howard Homer Greene (ME); Topeka  
†Paul Wilson Griffith (Ag); Edmond  
Robert Merriam Groesbeck (IJ);  
Manhattan  
Lloyd Oscar Gugler (AA); Woodbine  
Gersilda Guthrie (HE); Jetmore  
Virginia Kay Haggart (HE&J); Topeka  
Phil Creager Haggman (GS); Scandia  
\*Pearl Elizabeth Hall (HE); Manhattan  
\*Garvin Vernon Hamilton (GS);  
Kansas City, Mo.  
\*Susan Robinson Hamilton (GS);  
Kansas City, Mo.  
Mary Aileen Hanley (IE&D); Topeka  
Carl Hansen (ME); Strong City  
Helen May Hanson (HE); Clifton  
Louis Benton Hanson (Ag); Jamestown  
Harold Francis Harper (CE); Topeka  
Helen Ruth Harper (IE&D); Herington  
Kenneth Wilson Harter (IJ); El Dorado  
Richard Otto Hashagen (IC); Leavenworth  
Louis Ernest Hay (ME); Clay Center  
Frederick William Hayer (EE); Syracuse  
†Harold Ray Heckendorn (EE);  
Cedar Point  
Wilbur Gould Heer (ME); Manhattan  
Allen Richard Heidebrecht (EE); Buhler  
Ralph G. Hendrickson (ME); Manhattan  
John Herbert Hensley (VM); Manhattan  
El Don Howard Hermes (EE); Great Bend  
†Maybeth Herndon (HE); Amy  
Richard Leo Herzig (MuE); Salina  
Harold Crutchfield Hibbs (ArE); Osborne  
William Clarence Higdon (ME); Canton  
Frederick William Hill (C);  
Huntington, N. Y.  
Ursula Edith Hiller (MuE); Manhattan  
Newt Lowell Hinkson (CE); Halstead  
Mabel Virginia Hodgson (HE); Little River  
Claude Allen Hodshire (ME); Coffeyville  
Eugene Honeycutt (PE); Blue Rapids  
Maurice Wilson Horrell (EE);  
Baldwin City  
Pius H. Hostetter (Ag); Harper  
†Kenneth Rives Houglan (Ag); Olathe  
\*†Lois Eida Howard (GS); Holyrood  
Genevieve Loban Hoyt (IJ); Manhattan  
†Robert Huey (C); Ogden  
Imogene Hugunin (C); Manhattan  
Walter Clare Hulburt (AE); Wichita  
John Mark Hurd (VM); Manhattan  
Russell Joseph Hurt (EE); Manhattan  
Bruce Charles Hutchins (ME); Manhattan  
Donald Curtis Hutchinson (C);  
Hutchinson  
George Lyons Huyett (EE); Berryton  
\*James Erfert Hyett (GS); St. Marys  
George Raleigh Irvine (AE); Stafford  
Eleanor Jane Irwin (IE&D); Highland  
\*William Edward Ivey (VM); Jakir, Ga.  
\*Pauline Ethel Jackson (GS); Claudell  
Wayne Worley Jacobs (Ag); Harper

\* Matriculated 1933-'34.

† Also pursuing graduate study.

## SENIORS—Continued

- Doris Jaedicke (C); Hanover  
 †Amor James Jefferis (EE-1; Grad-2); Kincaid  
 Ray Christian Jensen (VM); Herington  
 Edward Groh Johnson (EE); Emporia  
 Harry Clarence Johnson (MI); Marquette  
 Marie Johnson (HE&A); Columbus  
 Ruth Caroline Johnson (IE&D); Wamego  
 Mary Irene Jordan (HE&A); Beloit  
 Helen Shell Joseph (HE); Kirwin  
 William Henry Juzi (Ag); Florence  
 \*Erwin Lynn Kay (IC); Brewster  
 \*Rhea Irene Keeler (HE); Manhattan  
 Clarence Eugene Keith (AA); Ottawa  
 Eugene Rix Kell (LG); Manhattan  
 †Edward Guerrant Kelly (GS); Manhattan  
 †Lawrence Lincoln Kelly (LG); Manhattan  
 Ronald A. Kennedy (VM); Manhattan  
 Earle Lewis Kent (EE); Manhattan  
 Howard Luther Kester (VM); Cottonwood Falls  
 Alice Day Kimball (GS); Manhattan  
 †Howard Maxwell Kindsvater (IC); Wichita  
 George Wilson King (ME); Manhattan  
 Eunice Velma Kinner (GS); White City  
 Alton Sawyer Knechtel (ArE); Larned  
 Arthur Henry Knost (VM); Manhattan  
 Benjamin Christ Kohrs (AA); Elmo  
 Aloysius Joseph Koster (ME); Manhattan  
 Louise Kinney Krehbiel (HE&A); Newton  
 Amelia Kroft (IE&D); Wilson  
 William Carroll Lacy (EE); Everest  
 Geraldine Frances Lancaster (HE); Parsons  
 Donald Clell Landon (IC); Topeka  
 Ruth Elizabeth Langenwalter (Ar); Wichita  
 Liebmann Gordon Langston (C); Hutchinson  
 Olga Christene Larsen (HE); Vesper  
 Loyt Leland Lathrop (EE); Burlington  
 Raymond Price Latimer (AA); Manhattan  
 Helen Latta (IE&D); Holton  
 John Russell Latta (Ag); Holton  
 Barbara Lautz (HE&A); Amarillo, Tex.  
 Lesta Lolita Lawrence (MuE); Abilene  
 Olin Zebediah Leasure (ME); Valley Falls  
 James Buchanan LeClere (PE); Coffeyville  
 Walter John Leemhuis (EE); Rome, N. Y.  
 Helen Louise Leisz (IJ); Salina  
 Guy Hussey Lemon (IC); Manhattan  
 Albert Edgar Letts (EE); El Dorado  
 Charlotte Louise Leuenberger (GS); Overland Park  
 Lois Isabell Lewellen (IE&D); Newton  
 Grace Marthana Light (C); Liberal  
 Leora Bernice Light (PE); Liberal  
 Charles Howard Lockhart (GS); Junction City  
 Elmer Ira Long (VM); Manhattan  
 John William Loth (EE); Manhattan  
 Jack Algernon Lowell (PE); Glen Elder  
 Hugo Frederick Lucas (ME); Manhattan  
 Otto Walter Ludloff (VM); Honolulu, Hawaii  
 Henry Norbert Luebecke (AE); Marysville  
 Virgil Ferdernand Lundberg (EE); Falun  
 Kenneth Deardorff McCall (CE); Manhattan  
 †Hal H. McCord, Jr. (ArE); Manhattan  
 \*Helen Prudence McCord (GS); Topeka  
 Alvin Rutti McDonald (VM); Bremen  
 \*Lucius Elijah McGee (VM); Moultrie, Ga.  
 Robert Carlyle McIntire (CE); Belleville  
 \*Pauline Marguerite McKenna (HE); Kingman  
 Donald King McKenzie (Ag); Solomon  
 Florence Elizabeth McKinney (HE); Bartlesville, Okla.  
 Katheryn Ann McKinney (PE); Bartlesville, Okla.  
 Thurnel Francis McMahon (CE); Beattie  
 †Charles Dean McNeal (AA); Boyle  
 Margaret Alice Madaus (HE); Hutcheson  
 Madge Mahoney (GS); Atchison  
 †Katherine Amelia Manker (HE); Vernal, Utah  
 Ralph Edwin Mariner (ME); Fredonia  
 †James Warren Mather (AA); Grinnell  
 Hugh Sickner Maxwell (EE); Wichita  
 †Gladys Edra Mellinger (HE); Milford  
 Clarence Charles Merriman (VM); Omaha, Neb.  
 Ernestine Merritt (IE&D); Haven  
 Elmer Louis Metcalfe (VM); Manhattan  
 Clement Lambert Miller (VM); Manhattan  
 Elsie Lee Miller (HE); Manhattan  
 Erma Jean Miller (PE); Manhattan  
 Harrison Allen Miller (EE); Cawker City  
 John Orville Miller (Ag); Meriden  
 Marion Francis Miller (ME); Manhattan  
 Norris Edward Miller (ME); Kansas City  
 Reba Clare Miller (C); Haviland  
 Ralph Emen Mitchell (Ar); Manhattan  
 John George Mogge (C); Goodland  
 Virgil Stanton Moore (ChE); Altoona  
 Maxine Emma Morehead (HE); Baltimore, Ohio  
 Alvin Morgan (Ag); Lebo  
 Helen Kathryn Morgan (PE); Newton  
 Lee Thomas Morgan (AA); Hugoton  
 Mary Kathryn Morgan (HE); Manhattan  
 Muriel Frances Morgan (HE); Manhattan  
 Irene Morris (HE); Paxico  
 John Rex Morrison (EE); Great Bend  
 Dorothea Jeanette Moser (GS); Blue Rapids  
 Lillian Kelly Mosshart (C&A); Manhattan  
 Mildred Rella Mowery (HE); Salina  
 Esther Laura Mundell (HE); Nickerson  
 Leslie Eugene Murphy (ME); Galena  
 \*Margaret Ann Murphy (IE&D); Wichita  
 Hal Thomas Mydland (VM); Horton  
 Harold Milton Nellans (ME); Potwin  
 Jennie Joy Nelson (HE&A); Holton  
 Nevlyn Richard Nelson (AA); Belle Plaine  
 Norman August Nelson (C); Jennings  
 Raymond Maurice Nelson (CE); Troy  
 Tillman Harvey Nelson (VM); Manhattan  
 Clifford Franklin Newell (EE); Manhattan  
 James Bernhard Nichols (VM); Manhattan  
 Charlotte Celestine Nix (HE); Kansas City, Mo.  
 Merwin Edgar Nixon (Ag); Manhattan  
 Gilbert George Noble (CE); Lyons  
 Lawrence Bertram Noble (ME); Stockton  
 James Carr North (Ag); Kansas City, Mo.  
 Clayton Omar Obenland (IC); Manhattan  
 Ruth Obenland (GS); Manhattan  
 Milo Claire Oberhelman (GS); Randolph

\* Matriculated 1933-'34.

† Also pursuing graduate study.

## SENIORS—Continued

- Cora Maurine Oliphant (PE); Offerle  
 †Merton Dennison Olmsted (GS);  
 Perry, N. Y.  
 Ethel Olney (IE&D); St. Joseph, Mo.  
 James Andrew O'Malley (ChE);  
 Manhattan  
 Edwin George Orrick (CE); Topeka  
 Evelyn Audrey Osborn (HE&A);  
 Waverly  
 Henry John Osterholtz (VM);  
 Manhattan  
 Betty Ozment (HE); Manhattan  
 Clair Norman Palmer (EE); Kincaid  
 Howard Benton Palmer (CE); Aulne  
 Ruth Evelyn Parcells (HE); Hiawatha  
 Edith Corene Parke (IJ);  
 Valley Center  
 †Carl Edward Pate (ChE); Parsons  
 Margaret Virginia Patterson (HE);  
 Kansas City, Mo.  
 Lormor Allen Pearman (C&A); Holton  
 Miriam Grace Peck (GS); Jewell  
 Kathryn Ruth Pelton (GS); Manhattan  
 Francis Joseph Perrier (ME); Olpe  
 Erma Juanita Perry (HE); Greenleaf  
 Hester Marie Perry (IC); Fredonia  
 Lloyd Arthur Perry (EE); Manhattan  
 Paul Chadwick Perry (ME); Fredonia  
 Milfred John Peters (IJ); Halstead  
 Maria Elizabeth Pfuetze (HE&N);  
 Manhattan  
 †Helen Mae Pickrell (HE); Minneapolis  
 Wilfred Harold Pine (AG); Lawrence  
 George Ernest Pinter (EE); Manhattan  
 Lucile May Piper (HE); Kanorado  
 Hal Walter Poole (EE); Wichita  
 Paul Francis Ragland (IJ); Manhattan  
 Harlan Edwin Rathbun (Ar); Manhattan  
 Evelyn Ellen Reber (HE); Morrill  
 Margaret Mary Reddy (IJ);  
 Baxter Springs  
 †Harriet Reed (GS-1; Grad-2); Holton  
 †Helen Marjorie Reed (GS); Circleville  
 Henry Clay Reppert (IJ); Harris  
 Nelson Stanley Reppert (IJ); Harris  
 James Hazen Rexroad (GS);  
 Fort Leavenworth  
 William C. Rhodes (CE); Neodesha  
 James Cornelius Richards, Jr. (ChE);  
 Manhattan  
 Wayne Chesly Richards (EE); Manhattan  
 Culver Willis Rippetoe (VM); Meriden  
 Howard Elliott Rivers (Ar); Hutchinson  
 Hubert Maxwell Rivers (ChE); Hutchinson  
 Stanley Irving Roberts (ME); Chanute  
 Sidney Alfred Robinson (C); Parsons  
 \*Albert Arthur Roby, Jr. (VM);  
 Apopka, Fla.  
 Dale Servetus Romine (GS); Oswego  
 Robert Talbot Romine, Jr. (Ag);  
 Kansas City, Mo.  
 Maxine Gan Roper (HE); Manhattan  
 Leland Jay Rose (EE); Council Grove  
 Lois Rosencrans (PE); Manhattan  
 Leonard Anthony Rosner (VM); Bucyrus  
 Sara Frances Rosser (HE&A); Pratt  
 Myra May Roth (HE); Ness City  
 Carl H. Rupp (Ag); Moundridge  
 Dougal Russell, Jr. (PE); McDonald, Pa.  
 Mabel Esther Russell (MuE); Manhattan  
 \*Mary Lois Rynders (PE); Wichita  
 Marion K. Salmans (C); Garden City  
 Mary Katherine Samuel (HE); Manhattan  
 William Ned Samuel (LA); Manhattan  
 Carl Herman Sartorius (IC); Garden City  
 Nils Ilmar Saven (EE); Manhattan  
 Jean Willard Scheel (IJ); Emporia  
 Mildred Erma Ruth Schlickau (HE);  
 Haven  
 Erma Schmedemann (GS); Manhattan  
 Lawrence Ralph Schmutz (C); Chanute  
 Marlin Charles Schrader (GS); Olivet  
 Jonah Schreiner (GS); Manhattan  
 Carl William Schulz (VM); Manhattan  
 Ephraim Oren Schwab (AE); Gridley  
 Clifford LeRoy Scott (GS); Norway  
 Harold J. Scott (C); Altoona  
 James Herndon Scott (EE); Manhattan  
 Lloyd Hoyt Scott (EE); Manhattan  
 Sarah Elizabeth Scott (IJ); Manhattan  
 Lois Mae Scripter (IE&D); Herington  
 John Leon Sealey (ChE); Salina  
 Richard Melvin Seaton (IJ); Manhattan  
 Martin Gerhardt Seibel (CE); Ellis  
 Gardner Charles Sellers (GS); Downs  
 Hollis Lee Sexson (HE); Goodland  
 Melvin William Schroeder (EE);  
 Grandview, Mo.  
 Herbert Franklin Sibert (VM); Manhattan  
 Virgil William Siebert (ME);  
 Pretty Prairie  
 Albert Earnie Siler (EE); Garden City  
 Calentine Wright Silkett (Ag); Downs  
 William Philip Simpson (CE); Salina  
 \*Sister Clement Marie Heidrick (MuE);  
 Manhattan  
 Charles Scott Skinner (CE); Tyro  
 Gladys Naomi Skinner (C); Topeka  
 (deceased)  
 Louise Sklar (VM); Manhattan  
 †Lisle LeRoy Smelser (CE); Manhattan  
 †William Richard Smith (Ag); Manhattan  
 †Maurice Sheppard Smyth (EE);  
 Manhattan  
 Herbert Eugene Somerville (C); Manhattan  
 Theodore Sommers (GS); Leoti  
 Howard Scott Spear (EE); Leoti  
 Ralph Westly Spears (CE); Mulvane  
 Ernest Rudolph Specht (CE); Emporia  
 Elsie Virginia Speer (IJ); Manhattan  
 Marian Stahlman (GS); Potwin  
 Betty Stanley (MuE); Wichita  
 Earl Raymond Stegman (ME); Plains  
 Quentin Jerome Stein (EE); Manhattan  
 Mabel Sophie Stener (IJ); Courtland  
 Charles William Stewart (AE); Hunter  
 Mary Emma Stewart (HE); Auburn  
 Marion Richard Stiles (IC); Manhattan  
 Thomas Benjamin Stone (CE);  
 Leavenworth  
 Emma Anne Storer (IJ); Muncie  
 Frank Burnette Stratford (C); El Dorado  
 Doris Catherine Streeter (HE); Milford  
 Hilmar Clinton Stuart (GS); Nickerson  
 Lorán Glenn Stukey (EE);  
 Steamboat Springs, Colo.  
 William Herman Sunderland (CE);  
 Fairview  
 Byron Gilman Swain (IJ); McPherson  
 Jane Allen Swenson (PE);  
 Phoenix, Ariz.  
 Dean Edwin Swift (CE); Olathe  
 James Willett Taylor (AA); Lawrence  
 Robert Ray Teagarden (Ag); La Cygne  
 Arthur Rheinart Thiele (VM); Bremen  
 Ruth Thomas (IJ); Baxter Springs  
 Dwight Jesse Thompson (Ag); Wichita  
 †Velma Fern Thompson (HE&N);  
 Manhattan  
 Walter Theodore Thompson (ME);  
 Manhattan  
 John Herman Tietze (C); Kansas City  
 Arthur Duckworth Tindall (IC);  
 Hutchinson

\* Matriculated 1933-'34.

† Also pursuing graduate study.

SENIORS—*Concluded*

- Harold Arthur Totten (EE); Jewell  
 Lola Loomis Totten (GS); Jewell  
 Eva Madeline Townsend (IE&D);  
 Phillipsburg  
 Olen Trotter (EE); Anthony  
 Linford L. Truax (AA); Peabody  
 Charles Frederick Turner (C&A);  
 Hartford  
 Ernest John Ubelaker (GS); Willis  
 Loyal Van Doren (CE); Hays  
 Grace Emily Van Scoyoc (HE); Mont Ida  
 Edna Greeves Van Tuyl (IJ); Manhattan  
 Christine Eloise Vaughan (HE);  
 Scott City  
 Francis Arthur Vaughn (CE); Hartford  
 Paul Burton Vautravers (GS); Centralia  
 †John Emery Veatch (AE); Ozark, Mo.  
 Carl Norton Vickburg (ChE); Talmage  
 Wilfred Nuffer Wallace (ME); Augusta  
 †Esther Loretta Walters (HE); Manhattan  
 Laura Lillian Ward (IE&D); Manhattan  
 Eugene Decatur Warner (ArE);  
 Manhattan  
 †Paul Frank Warner (ChE); Whiting  
 Dwight Silas Waters (AA); Milford  
 Harold Clinton Weathers (CE); Haviland  
 Virgil Leland Weaver (EE); Garden City  
 Russell Wayne Webb (C); Hardtner  
 Herschel William Weber (LG);  
 Novinger, Mo.  
 Marvin Arthur Weihe (ArE); Bushton  
 John Fletcher Wellemeyer (GS);  
 Kansas City
- Ovitt Melvin Wells (EE); Syracuse  
 Carl Edward Wendell (VM); Mulberry  
 †Melvon Wertzberger (AA); Alma  
 Helen Frances Weygandt (IE&D);  
 Keats  
 Elbert Eden Wheatley (CE); Gypsum  
 Grace Wilson Wheeler (GS); Manhattan  
 Robert G. White (AE); Manhattan  
 Mary Bessie Whitelaw (IJ); Kingman  
 \*James Rudolph Whitman (VM);  
 DeLand, Fla.  
 Maxine Wickham (HE); Manhattan  
 Millard Waldo Wilcox (CE); Wichita  
 Velma Ruth Wilkerson (GS); Manhattan  
 Prentice Fay Willis (GS); Manhattan  
 Alma Wilsey (GS); Washington  
 Alice Wilsey (PE); Washington  
 †Allen Rea Wilson (C); Rochester, Mich.  
 Lewis Alfred Wilson (CE); Valley Center  
 Walter Edwin Wilson (Ag); Manhattan  
 Ralph Waldo Winget (ME); Garden City  
 Clifford Jay Woodley (ME); Tecumseh  
 Donald Henry Woodman (LG);  
 Manhattan  
 Abram Dwight Woodruff (VM);  
 Manhattan  
 Gene Neill Woodruff (IC); Kansas City  
 Rachel Faye Worrel (IJ); Manhattan  
 Joyce Glick Wright (EE); Topeka  
 William Telford Young (AA); Colony  
 Burl Zimmerman (ArE); Manhattan  
 Mark Joseph Zoeller (C); Manhattan

## JUNIORS

- Lyman Emmett Abbott (PE); Phillipsburg  
 Orval Jack Abel (GS); Green  
 Carson Hugh Adams (EE); Sterling  
 Charles Edward Adams (EE); Garden City  
 Robert Francis Adams (CE); Wellington  
 Louis Carlyle Aicher (EE); Hays  
 Clara Jean Martin Allen (MuE);  
 Manhattan  
 \*Charles Lawrence Allison (ChE); Newton  
 \*Henry Ben Allphin (CE); Kinsley  
 Lawrence Alfred Antenen (C); Bazine  
 Ardath Armstrong (C); Sylvia  
 Richard Elliott Armstrong (PE); Riley  
 Stephen Grieve Asbill (VM); Manhattan  
 \*Leonard Maurice Aubuchon (ME);  
 Emporia  
 Buford Dean Baker (CE); Chanute  
 \*Ottis Elmo Ballinger (VM);  
 Westminster, S. C.  
 Monroe Balton (VM); Kansas City  
 John Virgil Baptist (EE); Uniontown  
 Alice Loy Barrier (IC); Topeka  
 Harvey Clayton Bates (ME); Augusta  
 Charles Benjamin Bayles (CE); Manhattan  
 Buell, Wesley Beadle (IC); Talmage  
 Clyde Bearden (GS); Manhattan  
 \*Herbert Lewis Beckett (C); Garden City  
 Thomas Gilbert Beckwith (ME); Hiawatha  
 Frederick Elmo Beeler (C); Jewell  
 Herbert Wayne Beeman (Ar-1; GS-2);  
 Hutchinson  
 George Rowan Bell (ME); New Cambria  
 Ethel Mae Bellis (IE&D); Ottawa  
 \*Geraldine Mable Bender (HE); Holton  
 \*Harold Lester Bennett (C); Hutchinson  
 Fred Jacob Benson (CE); Grainfield  
 Henry Daniel Bentrup (EE); Deerfield  
 Esto Ray Berkey (CE); Manhattan  
 Philip Carl Blackburn (IC); Manhattan  
 Paul Everett Blackwood (GS); Talmage
- Dan Wesley Blaine (PE); El Dorado  
 \*Jack Puckett Blair (ME); Coffeyville  
 \*Vivian Marie Bloomfield (HE);  
 Arkansas City  
 Albert Henry Boggs (CE); Emporia  
 Norman Cellars Booth (EE-1; C-2);  
 Topeka  
 \*Earl Clarence Borgelt (Ag); Zenda  
 William Raymond Brady (Ag); Vermillion  
 \*Mary Lee Braerton (IE&D); Denver, Colo.  
 Fred Charles Bramlage (C&A);  
 Junction City  
 Francis Eastham Brenner (EE); Waterville  
 \*Berwyn Yelton Brewer (EE); Wichita  
 Lee Justin Brewer (Ag); Hartford  
 Wilma DeNell Brewer (GS-1; HE-2);  
 Riley  
 \*Buford Forrest Bridges (VM);  
 Sale City, Ga.  
 George Ralph Brindle (ME); Fredonia  
 \*Elizabeth Bristol (HE); St. Joseph, Mo.  
 Earl Copeland Brookover (C); Scott City  
 William Everett Brown (GS); Junction City  
 Eva Brownwell (PE); Wichita  
 Anna Lee Evelyn Brubaker (IE&D);  
 Aliceville  
 E. Marjorie Brubaker (IE&D); Marysville  
 Jeanne Virginia Bryan (C); Delia  
 Charlotte Buckmann (IJ); Clay Center  
 Max Lewis Burk (IJ); Manhattan  
 John Bruce Burrows (ME); Chetopa  
 Edith Marian Burt (HE); Manhattan  
 LeRoy Warden Butler (Ar); Independence  
 Wilma Lois Byers (GS); Hepler  
 Marjorie Call (IJ); Manhattan  
 Richard Henry Campbell (AA); Greenola  
 Harold Vanevery Carlson (AE); Utica  
 Leonard Willis Carrel (EE); Topeka  
 Joseph Leo Cavanaugh (VM); Esbon  
 Charles Elbert Cheney (C-2); Abilene

\* Matriculated 1933-'34.

† Also pursuing graduate study.

## JUNIORS—Continued

- Claude Cyril Cheney (GS); Kanorado  
Helbrand David Chilen (LG); Miltonvale  
Arnold Churchill (ME); Junction City  
Ralston Clouse (EE); Preston  
James Pratt Coffman (EE); Sedgwick  
Charles Elmer Cole (EE); St. Marys  
Catharine Helen Colver (MuE); Manhattan  
Wilbur Eugene Combs (EE); Manhattan  
Pauline Elizabeth Compton (C); Manhattan  
Lenore Vinnel Converse (HE); Harveyville  
Ivan Bernard Conwell (GS); Manhattan  
Wilma Faye Cook (PE); Ash Valley  
Martin Luther Cooley, Jr. (ME);  
Tulsa, Okla.  
Hildred Ann Cooper (HE); Chase  
Donald Risdon Cornelius (Ag); Wheaton  
Wilma Marian Cowdery (HE&A); Lyons  
Chevalier Francis Crandell (EE);  
Falls City, Neb.  
Pauline Violet Crawford (HE); Luray  
\*Vada Faye Crawford (GS); Little River  
Wade Overton Crawford (CE); Manhattan  
Joseph Franklin Creed (PE);  
Bartlesville, Okla.  
David Scott Crippen (EE); Council Grove  
Roy Doubt Crist (AE); Brewster  
\*Ruth Elizabeth Crouch (GS); Everest  
Julia Ellen Crow (MuE); Manhattan  
Dale Rush Curtis (EE); Manhattan  
Philip Burdette Dale (IC); Topeka  
Arthur Henry Daman (VM); Manhattan  
\*Robert James Danford (Ag); Hutchinson  
\*Marlene May Dappen (IE&D); McPherson  
Larry Aldon Darnell (GS); Osborne  
Stephen Prema Das (Ag); Bangalore, India  
Evan Lloyd Davis (Ar); Topeka  
Paul Alvin David (GS); Emmett  
William Barry Davis (CE); Burr Oak  
K. Ruth DeBaun (HE&J); Topeka  
\*Lamont Don DeCamp (CE); Topeka  
William Jacobus Dekker (VM); Manhattan  
\*Warren William DeLapp (CE); Elk City  
Stephen Delladio (EE); Frontenac  
\*John Henry Denham (CE); Pittsburg  
\*Neil Albert DeVault (IC); Kansas City  
John Raymond Dicken (Ag); Winfield  
Ferne Lucille Dixon (HE); Agra  
Ernest Dobrovolny (GS); Manhattan  
James Phillip Dodge (GS); Manhattan  
Raymond Joseph Doll (AA); Ellinwood  
Laurence Charles Donat (VM); Manhattan  
Hal Hollingsworth Doolittle (EE-1; GS-2);  
Kansas City, Mo.  
\*John William Drisko (ME);  
Kansas City, Mo.  
Alice Louise Droz (IE&D); Humboldt  
Wendell Philip Dubbs (EE); Ransom  
Albert Richard Duree (EE); Perry  
Harold Francis Eddington (CE);  
Dodge City  
Glen Ferrell Egan (CE); Altamont  
Hal Field Eier (CE); Atwood  
Gerald Franklin Ely (GS); Spivey  
Lewis Saxton Evans (Ag); Washington  
Robert Lyle Evans (EE); Sabetha  
Ralph Frederick Exline (CE); Salina  
Evelyn Pauline Ezell (HE); Pratt  
Wilson Blaine Fagerberg (GS); Olsburg  
William Ramsdell Farmer (MuE);  
Kansas City  
\*Glenn Dungey Farrar (EE); Wichita  
\*George Faust (CE); Parsons  
\*Dorothy Myrtle Fearey (IE&D); Amess  
Herbert Henry Fechner (VM); Manhattan  
Rex Bird Finley (CE); Elk Falls  
Oscar Frederick Fischer (VM);  
Junction City  
William David Fitch (MuE); Manhattan  
John Leo Flentie (ME); Centralia  
\*Thomas Jefferson Fletcher (ArE); Parsons  
\*Wilburn Rowland Flournoy (ChE);  
Kansas City  
Hazel Mary Foust (C); Leona  
Edith Fern Frankenberg (HE); Altoona  
John Warren Frazier (CE); Manhattan  
Elsie Marie Fulks (IE&D); Langdon  
\*E. Eugene Funk (ChE); Arkansas City  
Edwin John Gantenbein (Ag); Elmo  
\*Agnes Armildia Gardner (C); Garden City  
Fred Earl Garrison (ArE-1; C-2); Parsons  
George William Garrison (Ag); Goodland  
Richard Dale Gentry (EE); Garden City  
Chester Dale George (GS); Manhattan  
Dwight Ivan Gillidett (ArE); Plains  
Karl Goss (IJ); Dwight  
\*Alice Lucile Graham (GS); Webber  
Edward W. Graham (VM); Manhattan  
\*Arthur Dwight Graham (CE); Pittsburg  
Harry White Grass III (Ag); La Crosse  
Ronald George Grebner (CE); Manhattan  
Fred Foster Greeley (ME); Manhattan  
Gerald Goodale Green (C&A); Norton  
Harold Stacy Greve (EE); Anthony  
\*Dorothy Marciel Gribble (GS);  
Kansas City, Mo.  
\*Dorothy Haglage (GS); Kansas City, Mo.  
\*John Lawrence Halliday (ME); Pittsburg  
Richard Howard Hamilton (EE);  
Washington  
Mary Louise Hampshire (IE&D);  
Manhattan  
Ross Haney (AH&V); Manhattan  
\*David Clarence Hanson (EE); Pittsburg  
Homer Peter Hanson (PE); Riley  
\*Bernice Jewell Hardeman (GS); Parsons  
Clifford L. Harding (AA); Wakefield  
\*Edward Thomas Haslam (GS);  
Council Grove  
Irving Bennett Hawk (AA); Effingham  
Harriet Glenn Healy (C); Manhattan  
Hubert Raymond Hein (VM); Washington  
Robert Leroy Heinson (EE); Newton  
\*William Douglas Helm (EE); Simpson  
\*Margaret Anna Hempler (MuE); Almena  
Lucille Evangeline Herndon (MuE); Amy  
\*Violet Elizabeth Herrmann (HE);  
Enterprise  
Leonard Wilbur Hibbs (VM); Manhattan  
Margaret Higdon (MuE); South Haven  
Neva Inez Hilton (HE); Attica  
Rolland Theodore Hinkle (ME); Carbondale  
Homer Orello Hoch (EE); Riley  
Arthur Jacob Hochuli (ChE); Holton  
Garland Clarence Hogle (IC); Miller  
Rosema Louise Holman (HE); Manhattan  
Tom Holmes (EE); Emporia  
Mabel Marie Holt (GS); Manhattan  
Crosby Johnson Hook (VM); Manhattan  
Boyd Herbert Hope (AA); Moundville, Mo.  
Victor Hopeman (AE); Independence  
\*Laura Leu Hopkins (GS); Sabetha  
Edward Anderson Houser (EE); Udall  
David Marion Howard (VM); Manhattan  
Junior H. Howard (EE); Oberlin  
Howard Busby Hudiburg (ChE);  
Independence  
Mary Frances Hurley (HE); Paola  
\*Henry Lee Huston (IC); Fort Scott  
Donald Fred Isaacson (Ag); Topeka  
Leonard Barclay Izard (EE); Carthage, Mo.  
Shirley Maxine Jacobs (MuE); Lenora  
Arthur Randolph James (ArE); Macon, Mo.  
Glenn Curtis James (GS); Andover  
Homer Jameson (LG); Garrison  
\*Frankie Jamison (GS); Kansas City  
Dolores Marie Jehlik (IE&D); Cuba

## JUNIORS—Continued

- Harold Jack Jewell (VM); Manhattan  
 Charles Wesley Jobs, Jr. (ChE);  
 Pretty Prairie  
 Dorothy Etna Jobling (GS); Caldwell  
 George Loomis Jobling (ChE); Caldwell  
 \*Charles Fred Johnson (ME); Kansas City  
 Geneva Johnson (HE); Frankfort  
 Genevieve Rachel Johnson (C); Topeka  
 Howard Walter Johnson (C&A); Sublette  
 Sanford Edwin Johnson (VM); Omaha, Neb.  
 Vinton Gustaf Johnson (EE-1; GS-2);  
 Manhattan  
 \*Ruthana Jones (HE-1; IJ-2); Garden City  
 \*William Cope Jones (EE); Wichita  
 \*Mary Carolyn Jordan (IE&D); Topeka  
 Ruth Elizabeth Jorgenson (HE);  
 Manhattan  
 William Gottlieb Kaeser (C); Manhattan  
 Jane Kahl (IJ); Topeka  
 DeVere Kay (IJ); Manhattan  
 Althea Leonore Keller (HE); Enterprise  
 Warren Ferdinand Keller (EE-1; MI-2);  
 Great Bend  
 Donald Clifford Kelley (VM); Great Bend  
 Samuel Kelsall (VM); Lawrence  
 George Miller Kerr (VM); Manhattan  
 James Randle Ketchersid (AH&V); Hope  
 Henry Adams Kilian (EE); Chapman  
 Ned William Kimball (GS); Manhattan  
 \*John Godfred Kimen (EE); Rutland, Vt.  
 Inez Vera King (PE); Junction City  
 Leslie Waterman King (FME); Wichita  
 Carl Lawrence Kirk (C); Newton  
 Henry Charles Kirk (C&A); Scott City  
 Roy Charles Kirkpatrick (EE); Manhattan  
 Zelda Mary Kleven (HE); Superior, Neb.  
 Joseph Frank Knappenberger (VM);  
 Penalosa  
 Kathryn Marie Knechtel (HE); Larned  
 Jack William Knittle (GS); Salina  
 Velma May Koontz (C); Jetmore  
 William Charles Kosinor (ArE); Manhattan  
 Clark F. Kostner (C); Murdock  
 James Kral (VM); Omaha, Neb.  
 Dorothy Orlene Krig (HE); Manhattan  
 Elinor Lee Kubin (IJ); McPherson  
 \*Ethel May Kurz (HE); Coldwater  
 Edwin Rector Lamb (AA); Manhattan  
 Elizabeth C. Lamprecht (IE&D);  
 Manhattan  
 Leslie Kummer Lancaster (C&A);  
 Junction City  
 Jaconette Lawrence (IJ); Council Grove  
 Wilbur Max Lehman (Ag); Wathena  
 Walter Morris Lewis (Ag); Larned  
 William Yew Look (ME); Denver, Colo.  
 Lois Anne Lumb (HE); Wakefield  
 \*Charles Ragland Lutz (C); Hutchinson  
 Lester LaVerne McBride (VM); Manhattan  
 Max Elton McCluggage (MI); Manhattan  
 Myrna Amelia McClure (GS); Manhattan  
 George Lester McColm (Ag); Emporia  
 Mary Lou McConathy (IE&D);  
 Roodhouse, Ill.  
 Neil Arthur McCormick (ChE); Oatville  
 Lloyd Everett McDaniel (GS);  
 Michigan Valley  
 Vida Edith McDaniel (HE); Edson  
 Glenn Melvin McFadden (VM); Natoma  
 James Lawrence McIntire (ME);  
 Burlingame  
 \*Kenneth W. McLeod (ArE); Hutchinson  
 \*Crystal Elaine McNally (GS); Iola  
 T. Henry McNary (ME); Manhattan  
 Ione Clothier McNay (IJ); Manhattan  
 Joe Kenneth McNay (PE); Manhattan  
 Don Lee Mace (VM); Manhattan  
 Lehman Dedrick Madsen (EE); Corbin  
 Joe David Manges (VM); Courtland  
 Marian Merrideth Manion (IJ); Goodland  
 Edna Leona Mann (HE); Quinter.  
 Grace Sadie Mann (GS); White City  
 \*Kathryn Marquart (HE); Hutchinson  
 Wilma Nina Marsh (HE); Chanute  
 Arlene Marshall (HE); Herington  
 Wallace Bayless Martin (IC); Wichita  
 \*Virginia Maser (IJ); Parsons  
 James Daniel Mayden (EE); Junction City  
 \*Georgie Ellen Meece (IE&D); Hutchinson  
 Stanley Taylor Merrill (EE); Abilene  
 \*Ray Curtis Messick (CE); Oakley  
 Lloyd Jake Michael (VM); Eudora  
 Edgar William Millenbruck (VM);  
 Herkimer  
 Edwin Louis Millenbruck (VM); Herkimer  
 Donald Wesley Miller (GS); Hanover  
 \*Jack Miller (Ag); Manhattan  
 Roy Forest Miller (VM); Atlantic, Iowa  
 Kenneth Byron Milliken (CE); Tecumseh  
 Catherine Beatrice Mitchell (C);  
 Manhattan  
 \*Eugene Howell Mock (ChE); Topeka  
 Charles Calvin Moore (C); Manhattan  
 John Ewing Moore (ME); Muscotah  
 Howard Anthony Moreen (Ag); Salina  
 Myrtle Mae Morris (HE); Paxico  
 Stanley Chattan Morris (IJ); Paxico  
 \*Novella Berniece Morton (IJ); Hutchinson  
 Frances Emma Moss (HE); Lincoln  
 John Engler Bertus Mouw (VM);  
 Manhattan  
 Charles Evert Murphey (Ag); Leoti  
 Charles Cornelius Murphy (IC); Clyde  
 Obed Edmund Myrah (AH&V);  
 Manhattan  
 \*George William Nesbitt (ArE);  
 Tonganoxie  
 Paul A. Neuschwanger (EE); Bloomington  
 Thelma Eleanor Nichols (IJ); Manhattan  
 Walter William Niemoller (Ag); Wakefield  
 \*Gladys Esther Niles (GS); Liberal  
 Mollie Berthel Nix (HE); Kansas City  
 Marion Burns Noland (Ag);  
 Falls City, Neb.  
 \*Marvel Lucille Nordyke (GS); Wichita  
 \*Lela Ruth Oliver (HE); Iola  
 \*Elna Joyce Olson (HE); Manhattan  
 Glenn O. Olson (EE); Opolis  
 \*Francis Justus O'Reilly (ChE); Girard  
 Maxine Josephine Osbourne (IE&D);  
 Manhattan  
 \*Wilson Marshal Osteen (VM);  
 Pembroke, Ga.  
 Alvin Henry Otte (AA); Great Bend  
 Richard Reese Owen (GS); Fort Riley  
 Marianne Ozment (IJ); Manhattan  
 Mina Opal Paddock (HE&A); Lakin  
 Clifton Walter Pangburn (C); Luray  
 Willard Alden Parker (GS); Clearwater  
 \*Donald Baker Parrish (IC); Fort Scott  
 Frank George Parsons (Ag); Winfield  
 John Roland Patton (Ag); Columbus  
 Charlotte Penny (IJ); Manhattan  
 Eusebio Antonio Perez (VM);  
 Panama City, Panama  
 Lois Maurine Peterson (HE&A); Garrison  
 Melvin George Peterson (EE); Manhattan  
 \*Virginia Pettibon (HE&A); Hutchinson  
 Kenneth James Phelps (C); Manhattan  
 Robert Emmett Phillips, Jr. (Ag);  
 Manhattan  
 \*Leonce Louis Picot III (VM);  
 Caldwell, N. J.  
 Benjamin David Pile (EE); Ottawa  
 Floyd Volney Pinnick (C-1; AA-2);  
 Ulysses

## JUNIORS—Continued

- \*Gwendolyn Roberta Planck (HE&J);  
Kansas City  
William Elby Polk (ME); Augusta  
Gene Wilson Porter (Ag); Anness
- \*Gertrude Irene Porter (IE&D); Stirling  
Isabelle Lee Porter (GS); Stafford  
John Donald Porter (C); Mount Hope
- \*Walter Bradford Price (AA);  
Winter Park, Fla.
- \*Margaret Tupper Prince (GS); Manhattan  
Leland John Propp (C); Marion
- \*Emma Belle Purviance (MuE); Manhattan  
Winifred Marguerite Purviance (GS);  
Milford  
Emerald Glenn Rader (CE); Severy  
Julia Elizabeth Rader (IJ); Manhattan
- \*Lee Thomas Railsback (GS&V); Langdon
- \*Howard Maxwell Randles (C); White City  
Louise Ratliff (IJ); Manhattan  
Margaret Belle Ratts (MuE); Atlanta
- \*Anna Katherine Renz (IE&D); Riley  
Howard Eugene Rhoads (CE);  
Arkansas City  
Rachel Edith Roberts (HE&A); Morrill  
William Henry Rockey (VM); Manhattan  
Eugene Curtis Roe (Ag-1; GS-2);  
Manhattan  
Clinton Gerald Roehrman (PE);  
White City  
Melvin Palmer Rogers (Ag); Glasco  
Ross Earl Rogers (AE); Glasco  
George Albert Rogler (Ag); Matfield Green  
Paul John Rohm (C); Topeka  
Arthur George Rosenkrans (ME);  
Dorsey, Neb.  
Ethel Agnes Rosey (MuE); Junction City  
Harold Eugene Ross (C); Wamego  
Paul Daniel Ross (VM); Otterville, Mo.
- \*Armand Harvey Rousseau (MI);  
Seattle, Wash.  
Jessie Marguerite Rowland (HE);  
Clay Center  
Woodrow Wilson Rufener (AA);  
Strong City
- \*Edward Willis Rupp (IJ); Moundridge  
Robert Homer Russell (C); Manhattan  
John McPherson Rutherford (C);  
Fort Riley  
Mary Catherine Ryan (IE&D); Manhattan  
Kenneth Earl Sadler (VM); Seneca  
Mildred Bernice Sands (GS); Wichita  
Bill Campbell Scales (C); Manhattan  
Alan Max Schaible (CE); Fairview  
Lyle Leon Schlaefle (CE); Cawker City  
Clarence Schmidt (VM); Manhattan  
Carl William Schnell (C); New York City  
Beverly Horace Scott (CE); Atwood  
Dean Doctor Scott (Ag); Bonner Springs  
John Monroe Sears (EE); Kanorado  
Ben Alfred Sellers (CE); Lyons  
Betty Anne Shackelford (MuE);  
Cameron, Mo.  
Helen Berniece Shackelford (HE);  
Cameron, Mo.  
Allan Rudd Shank (EE); Woodbine  
Lucile Nellie Shannon (GS); Manhattan  
Roberta LaVone Shannon (GS); Geneseo  
LaGrande Clarence Shaw (VM);  
Manhattan  
Edward Temple Sheldon (GS); Topeka
- \*Marjorie Jean Shellenberger (IJ);  
Hutchinson  
Wayne David Shier (AA); Gypsum  
Karl Gardner Shoemaker (AA); Pomona  
Ward Haynes Shurtz (EE); Manhattan  
Eugene Schisler Sims (CE); Le Roy  
Harry Grant Sitler (Ag); Lake City
- \*Tom Franklin Skinner (ME); Fort Scott  
Rose Martha Skradski (IE&D);  
Kansas City  
Arlene Frances Smith (PE); Topeka  
Elizabeth Smith (HE&J); Kansas City  
Norman John Sollenberger (CE);  
Manhattan  
Lola Helena Somers (IE&D); Canton  
Fred Joseph Sorenson (ArE); Kansas City
- \*Howard Farnsworth Spainhour (EE);  
Manhattan
- \*Clarence Harold Speck (Ag); Sterling  
Jane Elizabeth Speed (HE&A); Parsons  
Kenneth Ross Speed (Ar); Holton  
Robert William Spiker (C); Manhattan  
Laurence Eric Spong (GS); Enterprise  
Jacob Emil Spring (VM); Pittsburg  
Mary Ellen Springer (HE); Manhattan  
Anselm Ignatius Sramek (EE); Atwood  
Charles Dougherty Stafford (VM);  
Manhattan  
Irma Lyle Stanbery (GS); Jewell  
Henry Herman Stark (MI); Wellington
- \*Mary Carolyn Stark (GS); Topeka
- \*Gwendolyn Louise Starkey (GS); Hutchinson  
Clarence Melvin Stay (VM); Manhattan  
Orin Grover Steele (AA); Barnes
- \*Vern Emmett Stepp (ME); Neodesha  
Lois D. Stingley (PE); Manhattan  
Jewell Stockdale (IE&D); Kansas City  
Oren Paul Stoner (PE); Sabetha
- \*Frank Allen Story (VM); Ellabell, Ga.
- \*Charles Raymond Stumbo (Ag); Bayard  
Eugene Everett Sundgren (Ag); Falun  
Richard William Swart (GS); Manhattan  
Ferne Ethelyn Tannahill (HE); Manhattan  
Phil J. Tatman (CE); Manhattan  
Homer Otis Taylor (C); Topeka  
Charlie Bailey Team (Ag); Wichita
- \*Dwight Pell Teed (C&A); Weskan  
Lewis Ivan Thomas (ME-1; AA-2);  
Garden City  
Doris Jenelle Thompson (HE); Marion  
James Otis Thompson (GS); Dodge City  
Kenneth Boyd Thompson (MuE); Wichita  
Marian Thompson (HE&A); Manhattan  
Willis Alexander Thomson (VM); Girard  
Albert Adam Thornbrough (AA); Lakin  
Lloyd Thomas Thorp (CE); Langford  
Wallace William Thurston (EE-1; GS-2);  
Elmdale  
Ansel Walter Tobias (AE); Lyons  
John Sherman Todd (Ag); Olathe  
Marian Ayers Todd (IE&D); Leavenworth
- \*Ross Edwin Torkelson (ME); Everest  
Roland Franklin Turner (GS); Manhattan  
William Martin Turner (ME); St. Marys  
Thelma Lucile Twidwell (HE&A); Frankfort  
Grace Kolch Umberger (MuE); Manhattan  
John David Umberger (CE); Manhattan
- \*Margaret Ruth Urquhart (HE); Wamego  
Pauline Vail (HE); Plains  
James Paul Vandergriff (GS); Douglass  
Margaret VanOrsdol (HE); Silver Lake  
Victor Venard (CE); Manhattan  
Ferne Vesecky (IJ); Kansas City  
Helen Louise Vickburg (GS); Talmage  
Clarence Campbell Vierling (VM);  
Manhattan  
William Fernando Waddell (VM);  
Manhattan  
Elizabeth Daniel Walbert (HE); Columbus  
Edwin Leslie Walker (AE); Junction City  
Harold Parker Walker (AA); Bucklin  
Robert Elston Wallerstedt (EE);  
Manhattan  
Melvin Orville Ward (C&A); Egbert, Wyo.
- \*William Victor Warren (ME); Sterling

JUNIORS—*Concluded*

Dorothy Washington (HE); Manhattan  
 Forest Otto Waters (EE); Fort Scott  
 Clement Earl Watson (VM); Manhattan  
 George William Watson (PE); Clifton  
 James Howard Watson (AH&V); Shawnee  
 Harold Rowe Weller (PE); Olathe  
 Nellamarie Wells (C); Jewell  
 Lillis Raphael Wempe (VM); Seneca  
 Winston Douglas Wetlaufer (PE);  
 Manhattan  
 Ida May Weygandt (IE&D); Keats  
 Alfred Emmett White, Jr. (VM);  
 Manhattan  
 Elouise Arlie White (C); Dalhart, Tex.  
 Jane Whyte (IJ); Wallula  
 Harold Wierenga (GS); Cawker  
 Paul C. Wilber (ME-1; GS-2); Belleville  
 Mary Elizabeth Wilkes (IE&D);  
 Leavenworth  
 Eleanor May Wilkinson (HE);  
 Humboldt, Neb.  
 Leroy Albert Wilkinson (ArE); Manhattan  
 Eunice Carolyn Williams (HE); Osage City  
 Theodore Shields Williams (VM);  
 Kansas City  
 William Welton Williamson (VM);  
 Manhattan  
 Edna Pearl Willis (HE); Leoti

Luke Avery Wilper (CE); Harris  
 Albert Bentley Wilson (Ag); Galesburg, Ill.  
 Melvine Leekrone Wilson (Ag);  
 E. St. Louis, Ill.  
 Ruby Alice Wilson (IE&D); Council Grove  
 \*Ruth Wilson (IE&D); Topeka  
 Casper Charles Winter (Ar); Dresden  
 Edwin Stravel Wiseman (VM); Delphos  
 William Alexander Wishart (Ag);  
 Manhattan  
 Wilbur Harold Wiswell (VM); Manhattan  
 \*J. Forest Wall (MI); Woodston  
 Winifred Wolf (IJ); Ottawa  
 Esther Marie Wright (Ar);  
 Kansas City, Mo.  
 Velda Pauline Wunder (PE) Valley Falls  
 Spencer Hastings Wyant (ME-1; IJ-2);  
 Topeka  
 Maurice Ivan Wyckoff (Ag); Luray  
 \*William Raymond Yerkes (LG); Hutchinson  
 Claude Clayton Young (EE); Utica  
 Glenn Mayer Young (EE); Kansas City  
 Herman Wilson Zabel (ChE);  
 Westmoreland  
 Leonard Albert Zerull (EE); Ellis  
 S. Frederic Zickefoose (VM); Rossville  
 \*Frank Isaac Zoglin (AE);  
 Kansas City, Mo.

## SOPHOMORES

James Black Adams (ME-1; C-2);  
 Goodland  
 Bartlett Vernattie Allen (MuE); Manhattan  
 Lucile Eugenia Allman (Ag); Manhattan  
 Earl Preston Anderson (Ag);  
 Waynesville, Mo.  
 \*Doyle David Andrews (C); Salina  
 Georgia Amelia Appel (HE&A); Bushton  
 Violet Arensman (HE&N); Copeland  
 Carroll Charles Arnett (C&A); Clay Center  
 \*Josephine Irene Arnett (GS); Broughton  
 \*Gertrude Elizabeth Arnold (HE-1; IJ-2);  
 Newton  
 \*Francis Raymond Arnoldy (EE); Salina  
 Lester Joseph Asher (ME); Cheyenne, Wyo.  
 Edward Leroy Askren, Jr. (GS); Manhattan  
 R. Elwyn Athey (C); Junction City  
 Arthur Clyde Aushman (AA); Elmont  
 \*Leo Carlton Ayers (PE); Manhattan  
 Dorothy Alice Bacon (HE); Sylvan Grove  
 \*Charles Edgar Baker, Jr. (MI); Coldwater  
 Margaret Louise Ballard (HE); Topeka  
 Donald Max Bammes (Ar); Manhattan  
 Kenneth Benson Banks (Ar); Gypsum  
 Max Monroe Barber (GS); Council Grove  
 Kemp Elmo Barley (CE); Burlington  
 \*Julia Elaine Beard (HE); McPherson  
 Bernard Frank Beaver (IC); Ottawa  
 Hazel Arlene Bebermeyer (IE&D);  
 Enterprise  
 Susanne Murry Beeson (HE); Wamego  
 Frances Mildred Berggren (HE);  
 Morganville  
 Mary Emily Berryman (C); Fredonia  
 \*Frank Holyoke Betton (ArE); Bethel  
 \*Matthew Thornton Betton (MuE); Bethel  
 Elmer Clarence Betz (Ag); Enterprise  
 Ervin William Bevin (Ag); Manhattan  
 Lucile Elizabeth Bilderback (HE);  
 Nortonville  
 Byron Woodrow Black (IC); Utica  
 Kathryn Daisy Black (PE); Council Grove  
 Mary Estelle Blackman (IJ); Manhattan  
 Paul Lang Blakslee (ME); Manhattan  
 Robert Vincent Blanche (ChE);  
 Leavenworth

Marje Lorraine Blythe (GS); White City  
 Arthur August Boeka (Ag); Colby  
 \*Charles Randolph Boggs (Ag); Topeka  
 \*Harold Andrew Borgelt (GS); Zenda  
 Martha Elise Boss (HE); Hiawatha  
 Glen Herbert Boyles (Ag); Manhattan  
 Mary Elizabeth Boys (GS); Linwood  
 \*Stewart Boys (Ar); Wichita  
 Sidney Oral Brady (ChE); Manhattan  
 Gladys Lorraine Bratton (HE); Waldo  
 \*Kenneth Oliver Brecheisen (PE);  
 Garden City  
 \*Jesse Clyde Brock (VM); Sale City, Ga.  
 \*Charles Brown (CE); Hutchinson  
 \*Floyd Payne Brown (ME); Wichita  
 Howard Donald Howell Brown (M);  
 Manhattan  
 Stanley Franklin Brubaker (EE);  
 Manhattan  
 Marian Louise Buck (IE&D); Abilene  
 Ona Lee Burson (PE); Manhattan  
 Thomas Bateman Bushby (PE); Belleville  
 David J. Butterfield (CE); Russell  
 \*Ray Warren Call (EE); Hoisington  
 Wayne Callahan (EE-1; GS-2); Coffeyville  
 Nancy Jane Campbell (HE); Lakin  
 Ronald M. Campbell (GS); Manhattan  
 \*Helen Chloe Carl (IE&D); Kansas City  
 Alice Loree Carnahan (HE); Galena  
 Gordon Albert Carter (AA); Bunkerhill  
 Jack Crosby Carter (CE); Topeka  
 Robert Steele Cassell (ArE); Salina  
 Anna Grace Caughron (HE); Manhattan  
 Willard Alton Challender (Ag); Sedgwick  
 \*Charles DeFurse Chase (VM);  
 Oakley, Mich.  
 Raymond Ernest Chitwood (EE); Meriden  
 Ralph Durland Churchill (PE);  
 Junction City  
 \*Barbara Jane Claassen (IJ); Newton  
 \*Harold Claassen (CE); Newton  
 George Jay Clark (EE); Riley  
 Elda Ione Clausen (HE); Alton  
 \*Lucile Pearl Clennin (HE); Tulia, Tex.  
 Mary Josephine Coffman (GS); Sedgwick  
 Robert Cole (C); Wetmore



## SOPHOMORES—Continued

- Fredrich Monroe Coleman (Ag); Sylvia  
 \*Leonard Thomas Coles (GS); Erie  
 Eunice May Coll (IE&D); Ottawa  
 \*Ethel Iris Collins (IE&D); Dwight  
 Marjorie Anne Conner (C); Osage City  
 Leland Wilbur Cook (Ag); Cawker City  
 Olga Elizabeth Cook (HE);  
 Fort Leavenworth  
 Robert William Cook (VM);  
 West Plains, Mo.  
 Warden Harold Cook (ChE); Eskridge  
 Louis Herman Cool, Jr. (Ag); Glasco  
 Mary Elizabeth Cooper (IJ); Manhattan  
 \*Roland Paul Cooper (VM-1; C-2);  
 Wichita  
 Russell Parker Cope (VM); Manhattan  
 Helen Pauline Copeland (C); Randolph  
 Ruby Margaret Corr (HE); Clearwater  
 DuFay Hamilton Coryell (EE);  
 Junction City  
 William Chris Covington (C); Wellington  
 Clarence R. Crawford (AE); Luray  
 \*Donna Belle Crawford (C); Little River  
 Kenneth A. Crawford (C); Springfield, S. D.  
 Caryl Elizabeth Crocker (IJ); Manhattan  
 Maurice Crouch (VM); Kansas City  
 Charles Main Crow (C); Manhattan  
 Doris Marjorie Dalton (MuE); St. George  
 Ivernia Rosetta Danielson (IJ); Manhattan  
 \*Howard Warner Davenport (ME);  
 Manhattan  
 Caldwell Davis, Jr. (AA); Bronson  
 \*Glenn Howard Dearing (Ag); Wellington  
 Claude Holmes Denchfield (Ag); Piedmont  
 Louise Denton (GS-1; IE&D-2);  
 Manhattan  
 Wayne Vorine Dexter (IJ); Waterville  
 John LaVerne Dickey (EE); Liberal  
 Evelyn Elizabeth Diehlman (HE);  
 Findlay, Ohio  
 Robert Mitchell Dill (AE); Winchester  
 Ruth Virginia Dobson (IJ); Manhattan  
 Virginia Dole (HE); Salina  
 Laura June Donat (MuE); Manhattan  
 Josephine Berniece Donnelly (C); Goodland  
 \*Richard Carter Donnelly (C); Stafford  
 Homer Eugene Dreier (Ar); Kansas City  
 \*Henry Frederick Dudte (AA); Newton  
 \*Margaret Ellis Dryden (C); Harper  
 \*David Barry Dukelow (ChE); Hutchinson  
 Fern Collins DuMars (IJ); Washington  
 Elma Irene Edwards (IJ); Athol  
 James Bernard Edwards (PE); Phillipsburg  
 George Howard Eicholtz (ArE); Abilene  
 Pauline Elizabeth Eiler (GS); Oberlin  
 Frank Hugh Elayer (ArE); Manhattan  
 Sam Dixon Elliott (EE); Plains  
 Ellurena Pauline Emery (HE); Kansas City  
 William Carl Erdtmann (PE); Ellsworth  
 Delbert Eugene Eshbaugh (Ag); Manhattan  
 Elbert Lee Eshbaugh (Ag); Manhattan  
 \*Alburt Cassius Esterly (ArE);  
 Carthage, Mo.  
 Alfred Lincoln Evans (C&A); Barnard  
 Charles Vern Everett (ME); Manhattan  
 \*Emily Jane Ewart (HE); Topeka  
 \*Frances Erma Farrell (HE&A); Manhattan  
 \*Clifford Leland Feldt (C); Manhattan  
 Gwendoline Predetta Fisher (HE); Marion  
 Doyle Harold Fisk (VM); Courtland  
 Mary Elizabeth Fleenor (HE&A);  
 Manhattan  
 Donald Eugene Flenthrope (AA); Wamego  
 \*Thelma Lorena Fleury (HE); Jamestown  
 Dudley King Flint (ME); Girard  
 \*Cleora Maxine Follmer (GS); Buffalo  
 \*Willie Charles Follmer (PE); Buffalo  
 Belle Amanda Forney (HE); Goodland  
 Gayle Herbert Foster (GS); Emmett  
 \*Eleanor Fowler (GS); Osawatomie  
 James Raymond Freeland (C); Manhattan  
 Charles Frederick Frey (C); Alma  
 William Grant Fuller (ME);  
 Ponca City, Okla.  
 \*Herbert Funk (Ag); Marion  
 Max Wayne Gallagher (C); Perth  
 Townsend Galley (ChE); Newton  
 Donald Emerson Garr (EE); Wichita  
 \*Sarah Florence Garrison (IE&D); Parsons  
 Dale Martin Garvey (IJ); Waverly  
 Clarence Henry Gatch (C); Woodbine  
 \*James Garnet Gaume (GS); Salina  
 Gilbert Lee Gaumer (Ar); Gypsum  
 Robert Allen Geiger (ME); Oberlin  
 Charles William Gentz (Ag); Manhattan  
 George Willis Gerber (AA); Oneida  
 \*Beulah Marie Geyer (GS); Waterville  
 Fern Marine Geyer (HE); Topeka  
 Maxine Gibbs (PE); Quinter  
 Mildred Elmira Gibbs (HE); Kansas City  
 Paul Gilbert Gibson (CE); Chanute  
 William David Gilligan (PE); Manhattan  
 Paul Gilpin (AA); Topeka  
 Elnora Marguerite Gilson (GS); Manhattan  
 Orville Roy Ginn (ArE); Corbin  
 Mary Margaret Glass (HE&J); Manhattan  
 Martha Elizabeth Gordon (HE); Waterville  
 Elsie Gertrude Gottschalk (PE); Wichita  
 Robert Elmer Gouge (VM); Sedalia, Mo.  
 Margaret Elizabeth Green (HE); Pratt  
 Gertrude Elizabeth Greenwood (HE);  
 Bethel  
 David Walter Gregory (Ag); Cheney  
 Ruth Gresham (GS); Manhattan  
 Sarah Anna Grimes (IE&D); Manhattan  
 Tom Conrad Groody (GS); Manhattan  
 Ira Emmett Grove (CE); Irving  
 Maurice Lee Gunn (C); Great Bend  
 \*Gilbert Allison Guthrie (Ag); Walton  
 Howard James Haas (Ag); Alma  
 William Phillip Hackney (Ag); Wellington  
 Mildred Maurine Hadock (HE); Lindsey  
 \*Rosamond Pauline Haeberle (GS);  
 Clearwater  
 Richard Simpson Haggman (IJ);  
 Courtland  
 Thomas Benton Haines (ChE);  
 Chillicothe, Mo.  
 Francis Mitchell Hall (C); Manhattan  
 Howard Laird Hall (C&A); Manhattan  
 Geraldine Ruth Hammond (MuE); St. John  
 John Franklin Hanson (PE); Concordia  
 Laird Allen Hanson (C); Marion  
 Marjorie Caroline Hanson (GS);  
 Morganville  
 Marvin Arvid Hanson (ME); Manhattan  
 Maurice Edward Hanson (ME); Newton  
 Boyce Parshall Hardman (C); Hill City  
 Charles Franklin Hardman (ChE); Anthony  
 Doris Lucille Harman (HE&A);  
 Kansas City  
 Jane Harman (IJ); Manhattan  
 Hal Charles Harned (GS); Manhattan  
 Kenneth Warden Harris (IC);  
 Kansas City, Mo.  
 Robert LeRoy Harris (IC); Topeka  
 Jerome Joseph Harshaw (C&A);  
 Manhattan  
 \*Helen Maxine Hart (HE); Goff  
 George William Hartter (IC); Sabetha  
 \*Gerald Oscar Hassler (ME); Enterprise  
 George Dely Haines (EE); Abilene  
 David Armond Hays (IJ); Manhattan  
 James Eugene Hemphill (GS); Clay Center  
 Elbert Chauncey Henry (GS); Belleville  
 Ferne Henry (HE&A); Salina

\* Matriculated 1933-'34.

## SOPHOMORES—Continued

- Lloyd Wayne Herring (Ag); Tulia, Tex.  
 Walter Herrmann (GS); Offerle  
 John Clare Higginbotham (MF); Herington  
 Paul Nelson Hines (Ag); Ashland  
 Walter F. Hines (GS); Manhattan  
 \*Edward Jay Hinkhouse, Jr. (ChE); Newton  
 Thomas Clark Hinkle, Jr. (VM);  
 Carbondale  
 \*Dorr Judd Hinman (ME); Sylvia  
 Tella Hinshaw (MuE); Bennington  
 Glenda Mae Hodge (GS); McPherson  
 Irene Hofmann (HE); Manhattan  
 Vincent Benedict Holbert (C); Manhattan  
 Katherine Virginia Holman (HE&A);  
 Manhattan  
 \*Henry Julian Holuba (EE); St. George  
 Arliss Evelyn Honstead (HE&J); Waterville  
 \*George Theodore Hopkins (C); Garden City  
 \*Anton Stephen Horn (Ag); Horton  
 Mary Elizabeth Horn (HE); Holton  
 LeRoy William Horne (IC); Alma  
 Eugene Everett Howe (IC); Stockdale  
 Morna Evalena Howe (HE&A); Stockdale  
 Imogene Hubbard (HE); Bartlesville, Okla.  
 Charles Wilfred Hughes (IC); Pittsburg  
 Morris Cleveland Humes (Ag); Glen Elder  
 Vincent Rockford Hurst (ChE); Ozawkie  
 Margaret Naomi Huscher (HE&A);  
 Concordia  
 Alta May Irwin (HE); Wakarusa  
 Ralph Wendover Jackson (ME); Claudell  
 \*Agnie Irene Jenkins (HE); Jewell  
 Fred Alva Jenkins (GS); Osage City  
 Roscoe Everett Jenkins (AH&V); Selden  
 \*Myrta Virginia Jennings (HE&J); Lebo  
 Robert Sidney Jensen (C); Leavenworth  
 Frances Marie Jesse (HE); Centralia  
 \*Donna Theodosia Johnson (IJ); Cleburne  
 Esther Elizabeth Johnson (HE&J); Ottawa  
 Lorraine Howard Johnson (C); Talmo  
 Tom Robert Johnson (C); Topeka  
 Robert Compton Johnston (ME);  
 Junction City  
 Lucile Johnitz (PE); Abilene  
 Mildred Mae Jolitz (GS); Solomon  
 Margaret Elizabeth Jones (C&A);  
 White City  
 Wynona Elizabeth Jones (HE);  
 Clay Center  
 Mark Hubbard Kannal (IJ); Kansas City  
 Robert Carr Kassner (EE); Detroit  
 Eugene Franklin Keas (PE); Chanute  
 Donald Dee Keeney (IJ); Lucas  
 \*Elizabeth Dee Kelly (HE-1; PE-2);  
 Hutchinson  
 Mary Edith Kendall (IJ); Great Bend  
 Robert Burton Kendall (GS); Council Grove  
 \*Samuel W. Kerr (Ag); Americus  
 \*Cornelia Louise King (HE&N); Manhattan  
 Homer Dale Kirgis (GS); Cawker City  
 Howard Gale Kirgis (GS); Cawker City  
 Robert Winston Kirk (AA); Scott City  
 Elmer Henry Kloepfer (AE); Monrovia  
 Elizabeth Rachel Knechtel (GS); Larned  
 Martha Elizabeth Koestel (IE&D);  
 Partridge  
 Mildred Kratochvil (HE); Manhattan  
 Duane Eldon Kratzer (C&A); Salina  
 Justina Kroeker (HE); Hutchinson  
 \*William Delbert Kuhns (ME); El Dorado  
 Donald James Lacey (C); Herington  
 \*James Ellis Lander (PE); Coffeyville  
 \*Margaret Louise Large (GS); Protection  
 Keith Obed Lassen (VM); Phoenix, Ariz.  
 Dwight Raymond Lee (CE); Salina  
 Lucille Catherine Lemley (IJ); Alton  
 Dorothy Aylene Leshosky (IE&D); Cuba  
 \*Sydney Paul Levene (VM);  
 Woodbine, N. J.  
 Milton Lewis (C); Bavaria  
 \*William John Lewis (ChE); Manhattan  
 Bernice Marie Light (HE); Yates Center  
 Eugene Michael Lill (CE); Mount Hope  
 Melvin August Lindahl (EE); Enterprise  
 Henry James Lindenstruth (VM);  
 Manhattan  
 Pearl Phillis Lindquist (HE); Emmett  
 Raymond Edwin Lippenberger (Ar);  
 Manhattan  
 Luella Mary Lisk (HE); Manhattan  
 Philip Warner Ljungdahl (Ag); Menlo  
 Marjorie Agnes Lomas (GS); Manhattan  
 Leonard Mark Lovejoy (CE); Manhattan  
 \*Donald Eugene Lowe (C); Moscow  
 \*Charles M. Loyd (GS); Valley Center  
 \*Elvera Mathild Lundine (GS); Hope  
 John Edwin McColm (Ag); Emporia  
 Edward Nash McGrew (VM); Manhattan  
 Albert Edward McKay (GS-1; LG-2);  
 Junction City  
 Carl Emmit McKee, Jr. (AE); Dodge City  
 Elizabeth McKeen (HE&A); Manhattan  
 \*Hester Mary McKenna (IJ); Kingman  
 Hazel Alida McKibben (HE); Grantville  
 Maxine Belle McKinley (GS); Manhattan  
 Margaret Elenora McKown (IJ);  
 Manhattan  
 Don Avlin McNeal (IJ); Boyle  
 \*Nelle Ruth MacQueen (GS); Manhattan  
 George Maddox (GS); Manhattan  
 Burton C. Mader (C); Florence  
 Frederick Belsor Majors (C&A); Elmo  
 Nevabelle Mall (PE); Manhattan  
 Kathleen Louise Mallon (GS); Anthony  
 \*Wesley Hildreth Maranville (CE);  
 Langdon  
 Geneva Louise Marble (IE&D); Troy  
 Richard Fredrick Marin (EE); Topeka  
 Delite Martin (IJ); Lewis  
 \*Helen Elizabeth Martin (HE); Wichita  
 Joe Patro Martinez (IJ); Manhattan  
 Edmund Peter Marx (GS); Manhattan  
 \*Eric Eugene Matchette (ME);  
 Kansas City, Mo.  
 \*Thelma Oreana Mathes (HE); Leoti  
 Mertin Gilbert Mathews (GS); Manhattan  
 \*Donald Lawrence Maxwell (ChE); Menlo  
 William Albert Maxwell (C); Manhattan  
 Floyd James Mayer (CE); Wetmore  
 Iola Silva Meier (PE); Abilene  
 \*Palmer Martin Mellgren (CE); Cleburne  
 \*Russell Lloyd Mellies (IC); Wellington  
 Victor Theron Merrifield (IC); Minneapolis  
 \*Helen Ruth Meyer (HE); Anthony  
 Weldene Jo Middlekauff (C); Beatrice, Neb.  
 \*Mark Francis Millard (EE); Basil  
 Betty Marguerite Miller (HE&J); Hays  
 Dean Hamlin Miller (ME); Ness City  
 Jo Elizabeth Miller (HE); Manhattan  
 Leonard Fred Miller (AA); Agra  
 Alvin Jess Mistle (Ag-1; GS-2);  
 Leavenworth  
 \*George Harvey Mitchelson (Ag);  
 Baxter Springs  
 Loyal Kay Mock (ME); Osborne  
 George Eugene Monroe (IJ); Lyons  
 Louis Gary Montre (ME); Topeka  
 Emory Lavern Morgan (Ag); Ottawa  
 Frances Metta Morgan (PE); Manhattan  
 Harold Deane Munal (GS); Milford  
 Elmer Lewis Munger (CE); Manhattan  
 Roland Alpheus Munsell (Ag); Sedgwick  
 Mary Janet Murdock (IJ); Wichita  
 Robert Dean Murphey (ChE); Tulsa, Okla.

## SOPHOMORES—Continued

- Edward Aloysius Murphy (VM);  
Kansas City
- Joseph Patrick Murphy (C);  
Schenectady, N. Y.
- Royse Peak Murphy (Ag); Norton
- Eltie Mae Musgrove (HE&A); Fort Riley
- Charles Walter Myers (Ag); Goff
- James Lowell Myler (Ag); Andover
- Roland Seldon Nash (ChE); Eskridge
- \*Blanche Lillyane Nattier (HE&A);  
Fredonia
- Wilson Naylor (GS); Manhattan
- \*Frances El Vera Nelson (GS); McPherson
- Paul Harold Nelson (EE); McPherson
- Mildred Violet New (HE); Leavenworth
- Richard Frank New (AA); Leavenworth
- \*Dorothea Marie Nielson (HE); Marysville
- Bertha Elizabeth Nixon (HE); Manhattan
- Harvey Max Nixon (Ag); Manhattan
- John Bruce Nixon (C); Paradise
- Paul Talogi Nomura (VM);  
Honolulu, Hawaii
- \*Fred William Nussbaumer (CE); Lebanon
- Myra Camelia Ogg (HE&A); Ottawa
- Agnes Elizabeth Olds (HE); Delphos
- \*Harold Herman Olson (IC); Lindsay
- Wilbert Edwin Osterholtz (VM);  
Manhattan
- Eleanor Otto (GS); Manhattan
- Christine Louise Overley (HE&N);  
Belle Plaine
- Patricia Helen Paff (GS); Sedgwick
- Margaret Eleanor Paige (HE); Manhattan
- Peggy Parker (IJ); Hill City
- R. L. Parker (AA); Kansas City
- Earl Walter Parsons (Ag); Winfield
- Dan Partner (IJ); El Dorado
- Carl Paulson (CE); El Dorado
- Ellen Isabel Payne (GS); Manhattan
- \*Rose Catherine Pearl (GS); St. Marys
- Kernit Adrien Pearson (C&A);  
Council Grove
- Walter Eugene Peery (EE); Manhattan
- Milton Zacharie Pelischek (C);  
Manhattan
- \*Kathryn Eileen Peterman (HE); Beattie
- \*Earl Melvin Peters (C&A); Manhattan
- Edwin Hugo Peterson (ME); St. Marys
- Max Pfuetz (GS); Manhattan
- Howard Walter Phelps (EE); Manhattan
- Ronald D. Pickett (EE); Manhattan
- Blanche Amy Pierce (HE&A); Burden
- Elizabeth Alice Pittman (HE);  
Lewistown, Mont.
- Margaret Henrietta Ploger (HE&N);  
Kinsley
- \*Pauline Florence Pope (HE&A); Ottawa
- \*Mary Margaret Porter (C); Mount Hope
- \*Roland Sanford Powers (CE); Manhattan
- Charles Frank Prechal (VM); Omaha, Neb.
- William Hardy Prentice (EE); Clay Center
- Mary Eleanor Price (C); Manhattan
- Charles Stanley Prince (EE); Manhattan
- Walter Byram Purviance (Ar); Milford
- Ival James Ramsbottom (LG); Munden
- \*Harold Hugh Rea (IJ); Salina
- \*Kenneth John Reddick (GS); Downs
- Elizabeth Reed (C); Holton
- \*Alice Roff Reese (HE&N); Newton
- David Alexander Reid (Ag); Manhattan
- Roland Herman Renwanz (CE);  
Enterprise
- Ora Lea Riepe (HE); Dighton
- Lloyd Carr Riggs (IJ); Manhattan
- Leland Roberts (MuE); Ogden
- \*Arthur Lynn Robinson (Ag); Manhattan
- Harry Edward Rooney (C); Haddam
- Charles Eugene Roper (EE); Atchison
- \*Arnold Samuel Rosenwald (VM);  
Denver, Colo.
- Claude Floyd Ross (ME); Dover
- Worth Follett Ross (GS); Manhattan
- \*Hy Henry Rothganger (EE); Kinsley
- \*Mercedes Brown Rowell (GS); Manhattan
- James Warren Rowland (C&A); Clay Center
- Helen Rudbeck (GS); Manhattan
- Earl Leo Ruff (EE); Manhattan
- Louise Rust (GS); Manhattan
- Edwin Charley Sample (Ag); Council Grove
- Mary Lois Saxton (GS); Fort Scott
- Opal Schlickau (PE); Haven
- William Henry Schorer (C); Clyde
- Herbert Oliver Schrepel (GS); Hoisington
- Lloyd Fay Sconce (Ag); Halstead
- John Leonard Scott (Ag); White City
- Wayne Sears Scott (IJ); Topeka
- Betsy Ruth Sesler (GS); Wamego
- Ethel Denelda Shafer (IJ); Manhattan
- John B. Shaffer (Ag); Meriden
- Royal Franklin Shaner (ME); Topeka
- Marie Shelton (GS); Palestine, Tex.
- Willard J. Sherar (PE); Latham
- Frank Shideler (IJ); Girard
- Harriet Elizabeth Shrack (C); Pratt
- Lebert Russell Shultz (Ag); Eureka
- Virgil Edwin Siddens (Ar); Manhattan
- James Monroe Siever (GS); Manhattan
- Walter Henry Simpson (GS); Manhattan
- \*Corinne Sinclair (IJ); Jetmore
- Martha Jean Singleton (HE); Benedict
- Dwight Ellsworth Sisney (C&A);  
Bonner Springs
- Harold Milton Skaggs (C); Dodge City
- \*Laura Jo Skillin (PE); Frankfort
- Elizabeth Annetta Sloop (HE); Nortonville
- Francis Edwin Smith (Ar); Stockton
- \*Lois Fern Smith (HE&N); Lakin
- Wilmer Ray Smittle (Ag); Columbus
- Fred Wilbur Songer (ArE); Olathe
- \*Helen Marjorie Spainhour (IJ); Manhattan
- Cecil Otto Spencer (MI); Manhattan
- \*Annie Margaret Spiker (HE); Manhattan
- Earl Louis Stadel (AE); Manhattan
- \*Vincent Albert Steimel (ChE); Iola
- Harley Allen Stewart (EE); Ozawkie
- \*William Frederick Stewart (Ag-1; GS-2);  
Kansas City, Mo.
- Marguerite Corinna Stoops (GS); Bellaire
- John Frederick Stoskopf (EE); Hoisington
- J. Maurice Street (CE); Yates Center
- Ray Stremel (EE); Garden City
- \*Charles Edward Sullivan (GS); Leavenworth
- Jean Peyton Sullivan (IJ); Manhattan
- \*Carl Herman Sutter (EE); Salina
- Earl Sutton (CE); Abilene
- Leonard Leo Sweeney (VM); Manhattan
- Frances Maxine Tannahill (HE);  
Manhattan
- Dorothy Rebecca Taylor (HE); Downs
- \*Dorothy Emilia Teichgraeber (GS);  
Marquette
- Arthur Louis Tellejohn (VM); Kansas City
- William Woodrow Templar (GS); Moline
- Victor Preston Terrell (Ar); Syracuse
- Charles Deare Thompson (ME); Cheney
- Dale Elliott Thompson (CE); Clay Center
- Ned Odell Thompson (AA); Manhattan
- Vera Thompson (HE); Harveyville
- Wayne Thornbrough (C); Lakin
- Eleanor Tibbetts (GS); Westmoreland
- Charles Clarence Tillitson (ChE); Sublette
- \*Florence Lorraine Todd (IE&D); Gridley
- James Madsen Towner (CE); Dwight
- Oda Mae Tracy (C); Salina
- Mary Josephine Troutt (HE); Manhattan.
- \*Florence Gladys Turner (PE); Menlo

SOPHOMORES—*Concluded*

- \*Margaret Jean Turner (HE); Hartford  
Trena Evelyn Turner (HE&A); Manhattan  
Marvin John Twiehaus (VM); Manhattan  
Mervin Earl Vantuyl (EE); Peabody  
\*Howard Wright Vick (EE); Le Loup  
Emil John Von Lehe (EE); Clifton  
Mark Wadick (AE); Chapman  
\*Waldo Theodore Wadley (ArE);  
Garden City  
Virginia Wagner (HE); Richmond  
Marian Josephine Wait (IE&D);  
Superior, Neb.  
Edward LeRoy Waller (ArE); Wellington  
\*Esther Elizabeth Walter (HE); Princeton  
Evelyn Jean Walter (HE); Manhattan  
Charles Philip Walters (AA); Manhattan  
Vona Beatrice Wandling (IE&D);  
Sharon Springs  
Maxwell Perrine Wann (GS-1; Ag-2);  
Manhattan  
Joseph Duane Ward (Ar); Peabody  
Verne Orville Warner (GS); Osawatomie  
William Barnes Warner (EE); Wellington  
Walter Herman Warstler (ME); Columbus  
Durward Albert Watson (PE); Osborne  
Madeline Estelle Weathers (HE);  
Haviland  
Edith Sophia Weber (HE); Waterville  
\*Charles Poe Weeks (CE); Wichita  
Junior Weir (EE); Stafford  
Eleanor Marie Weller (MuE); Abilene  
\*Sylvester Wendelina Wendel (ArE); Topeka  
Leon Elbert Wenger (Ag); Powhattan  
Magdalene Wenger (HE); Powhattan  
Rudy Frederick Wenger (Ag); Powhattan  
John Leslie West (VM); Manhattan  
\*Williard Allen West (PE); Kansas City  
\*Willard Malcolm West (IJ); Offerle  
Mabel Marie Westzig (HE); Junction City  
William Lawrence Wheelock (ME);  
Pleasanton  
\*Thomas Charles Wherry (EE); Sabetha  
Bertha May White (C); Jewell  
Marguerite Louise Whitten (HE);  
Wakarusa  
William Orra Wikoff (AA); Modoc  
J. Kelly Wilcox (Ag); Jamestown  
John Bennett Wilcox (Ag); Lawrence  
Howard I. Wildman (Ag); Manhattan  
\*Arthur Owen Williams (GS); Belleville  
\*James Wesley Williams (AA); Dodge City  
Anona Margaret Wilson (GS); Manhattan  
Marie Alphonsine Wilson (HE); Manhattan  
Harry Lester Wimmer (ME); St. George  
Elmer Benjamin Winner (AA); Topeka  
\*Harold Leon Winter (ME); Dover  
Walter John Wohlforth (CE); Easton  
Wilma Ray Womer (PE); Topeka  
John D. Woodman (GS); Manhattan  
Edith Pauline Woodruff (GS); Clyde  
\*Everett Wilson Woodward (C&A); Salina  
John Donald Wright (IJ); Oketo  
James Wallace York (EE); Vinland  
Electa Grace Young (HE&N); Haddam  
\*Faye Adeline Young (IJ); Bloom  
Colleen Lucille Zacharias (HE); Oak Mills  
Lester Allen Zerbe (Ag); Salina  
Thomas Hockleman Ziegler (IJ);  
Junction City  
Joseph Zitnik (Ag); Scammon  
Emanuel Zoglin (Ag); Kansas City, Mo.

## FRESHMEN

- Jake Arthur Abendshien (EE); Turon  
\*Alonzo Robert Adams (AA); Leavenworth  
George Neal Adams (LA); Manhattan  
Scott George Adams (EE); Moran  
\*Ezra George Ade (C&A); Carlton  
\*Frances Irene Ahlborn (HE); Smith Center  
\*Lorraine Barry Alexander (MuE);  
Manhattan  
Francis Allison (VM); Olathe  
\*Lawrence Sylvester Alwin (Ag);  
Morrowville  
\*Edna Anna Anderson (HE); Courtland  
\*James Vernon Andrews (C); Manhattan  
\*Lowell Augustus Andrews (PE); Selden  
\*Sara Jane Antrim (PE); Topeka  
\*Alma Evelyn Armantrout (HE);  
Scott City  
\*Ralph Wayne Arnold (Ag); Manhattan  
\*Wilbur Eldon Ashton (C); Manhattan  
\*Curtis Walker Astle (IJ); Haven  
\*Gerald Clealand Ault (VMP); Esbon  
\*Georgiana Martha Avery (HE);  
Coldwater  
\*Lee Weldon Baker (EE-1; C&A-2);  
Overbrook  
\*Irene Eleanor Baldwin (HE&N); Ada  
\*Fred Hayes Banning (GS); Horton  
\*Charles Edgar Bare (AA); Douglas  
\*Mary Lou Barker (IJ); Manhattan  
\*Charles Ernest Bateman (CE); Manhattan  
\*John Henry Bateman (CE); Manhattan  
\*Doris Olive Bathurst (MuE); Abilene  
Guy William Bayles (VM); Manhattan  
\*Robert Edwin Beardsley (GS); Manhattan  
\*Mildred Bower Beatty (HE&N);  
Bartlesville, Okla.  
\*Glorene Olive Beck (GS); Ottawa  
\*Donald Wilson Beeler (PE); Mankato  
Raymond Royel Beeler (Ag); Mankato  
\*Charles William Beer (Ag); Larned  
\*Jack Perry Begley (Ag); Caldwell  
\*Francis Wendell Beichley (EE); Chase  
Ruby Ina Beitler (C); Coldwater  
\*Russell Lee Belflower (EE); Dodge City  
\*Clarence LaFollette Bell (Ag); McDonald  
\*Loren Claude Bell (GS); McDonald  
\*Glenn Edwin Benedick (Ar); Manhattan  
Kaye Willis Benjamin (C); Deerfield  
\*Charles Wilmot Benkelman (AE);  
McDonald  
\*Lyle Eugene Bennett (CE); Burr Oak  
\*Robert John Benson (PE); Herington  
William Edmund Bentley (GS); Manhattan  
Chandler Price Berryman (C); Fredonia  
\*Max Besler (IJ); Manhattan  
\*Ruth Evelyn Betz (HE); Enterprise  
\*Vincent Clinton Bevenue (VMP);  
Kansas City  
\*Carl Henry Hermanon Beyer (Ag);  
Fairview  
\*Donald Clayton Bidwell (C); Holton  
\*Marian Audrey Biggs (GS); Barnard  
\*Bruce Jasper Birkmier (GS); St. Francis  
\*John William Blackwell (GS); Frizell  
\*Reeva Jean Blankinship (MuE); Fredonia  
\*Alvin Herbert Block (C&A); Bavaria  
Arthur Randolph Blythe (AA);  
White City  
\*Hazel Mae Blythe (HE); White City  
\*Helen Mary Blythe (HE&A); White City  
\*Edwin Curtis Bockenstette (C); Sabetha  
\*Chalmers Morton Boles (CE); Turon  
\*Edwin Johnston Boon (ME); Topeka  
Fred Ernest Bothe (VM); Manhattan  
\*Kenneth Carson Bottenberg (IC); Wetmore  
\*James Daniel Bowles (EE); Oberlin

## FRESHMEN—Continued

- \*Burr Walter Boyd (IC); Clarksville, Iowa  
 \*Walter Enos Boyer (AE); Kinsley  
 \*Elon Bramble Boyers (Ag);  
 Manchester, Okla.  
 \*Arloa Maye Bradskey (HE); Portis  
 \*Elliot Wilson Brady (ME); Manhattan  
 \*Thomas Floyd Bragg (CE); Leavenworth  
 \*Walter Louis Braun (VMP); Manhattan  
 \*Charles Francis Bredahl (Ag); Fairview  
 \*Melvin P. Britschge (C&A); Alton  
 \*Adeline Marie Brown (GS); Alton  
 \*Gerald James Brown (AA); Circleville  
 \*Lorin James Brown (EE); Salina  
 \*Marlin Mack Brown (GS); Council Grove  
 \*Ord Kent Brown (AE); Edmond  
 \*Gerald Wayne Brubaker (IJ); Manhattan  
 \*Millicent Lucille Brumm (IJ); Manhattan  
 \*Virginia Marie Bryan (PE); Topeka  
 \*Beth Helen Bryant (IJ); Manhattan  
 \*Margaret Ann Bryscke (IJ); Mankato  
 \*Blanche Marie Buchanan (IJ); Abilene  
 \*Ben Salvatore Burdo (VMP);  
 Brooklyn, N. Y.  
 \*Oran Frank Burns (IG); Topeka  
 \*Robert John Burns (ChE); Wichita  
 \*Mary Eliza Burt (HE); Manhattan  
 \*James Clayton Buster (Ag); Larned  
 \*Ben Butler (VM); Phoenix, Ariz.  
 \*Lyman Charles Calahan (GS); Abilene  
 \*Robert Hoover Calahan (GS); Abilene  
 \*Hugh Burkett Campbell (VMP);  
 Geneva, Ind.  
 \*Clarence Canary (ChE); Manhattan  
 \*Augustus Cæsar Cardorelli (PE);  
 Republic, Pa.  
 \*Walter Monroe Carleton (Ag); Coldwater  
 \*Leland Virgil Carlson (C); Topeka  
 \*Rachael Elizabeth Carter (HE); Meriden  
 \*Robert George Carter (Ag); Meriden  
 \*Francis Adam Caspar (VMP); Alida  
 \*Ceora Katherine Caven (HE); Le Roy  
 \*Howard Francis Chapman (GS); Manhattan  
 \*Donald Evans Charles (Ag); Republic  
 \*John Edward Cheatham (Ag);  
 Valley Falls  
 \*Ralph Woodrow Christensen (C);  
 Clay Center  
 \*John Porter Coble (VMP); Liberty, N. C.  
 \*Margaret Emma Coffman (HE); Overbrook  
 \*Melvin Albert Collier (C&A); Smith Center  
 \*Horace Reynolds Collins (VM); Manhattan  
 \*Tate Benton Collins, Jr. (EE); Fort Riley  
 \*Doris Compton (GS); Manhattan  
 \*Glenn Harvey Conard (AE-1; Ag-2);  
 Coolidge  
 \*Lois Mae Conner (C); Osage City  
 \*Harold Richard Conwill (GS); Hutchinson  
 \*Clarence Edwin Cook (Ag); Effingham  
 \*Geraldine Cook (HE&N); Russell  
 \*Omer Lincoln Cook (GS); Larned  
 \*Oscar George Cook (ME); Larned  
 \*Frank Harvey Cooley (Ag); Goff  
 \*Robert Marshall Coon (EE); Anthony  
 \*Harold Keim Cooper (ChE); Manhattan  
 \*Lois Olive Cordon (HE); Circleville  
 \*Marjorie Marie Cordts (IE&D); Overbrook  
 \*Roland Willard Cordts (GS); Wamego  
 \*Jack Wallace Cornell (ME); Council Grove  
 \*Kathryn Laura Correll (GS); Manhattan  
 \*Ralph Willett Correll (CE); Carbondale  
 \*Robert George Cotten (VM); Kansas City  
 \*Jimmie Richard Cowan (VMP); Wichita  
 \*Elizabeth Cowie (HE); Kansas City, Mo.  
 \*Earl Cox (GS-1; Ar-2); Downs  
 \*Betty Lou Cramer (HE&A);  
 Kansas City, Mo.  
 \*Myrtle Madena Cranston (HE); Langdon  
 \*John Carl Crawley (Ag); Wilburton  
 \*Robert Edwin Cress (C); Manhattan  
 \*Charles Burton Crook (Ag); Ogden  
 \*Palmer Howard Crow (C&A); Denison  
 \*Roger McKee Crow (CE); Topeka  
 \*Allen Payne Crowley (IC); Manhattan  
 \*Humphrey Clayton Curry (CE); Madison  
 \*Dale Alfred Dahlgren (C&A); Enterprise  
 \*Lloyd Clifford Danielson (ME); Russell  
 \*Mary Elizabeth Danner (HE);  
 Springfield, Ill.  
 \*Margaret Sarah Daum (C); Manhattan  
 \*Loren Albert Davidson (AA); Yates Center  
 \*Nelson Earl Davidson (EE); Yates Center  
 \*Harold Ivor Davies (Ag); Lebo  
 \*Herbert Smith Davies (AA); Topeka  
 \*Emily Davis (C); Merriam  
 \*Wilda Faye Davis (GS); Offerle  
 \*Caroline Elaine Dawley (IJ); Manhattan  
 \*Paul McConnell Dean (Ar); Manhattan  
 \*Charles William Decker (GS); Enterprise  
 \*Frank Eugene De Coursey (Ag);  
 Kansas City  
 \*Loris Arthur Dehner (VM); Concordia  
 \*Ralph Raymond Dent (Ag); Bavaria  
 \*Charlotte Denton (IJ); Manhattan  
 \*Johnie Patton Denton (Ag); Anthony  
 \*Lawrence Eugene De Shazer (IJ);  
 Burlingame  
 \*Charles Martin Dick (Ag); Topeka  
 \*Darrell Dean Dicken (Ag); Winfield  
 \*John Benjamin Dickens (IJ); Manhattan  
 \*George Angelo Dileo (PE); Republic, Pa.  
 \*Robert Delmar Donaldson (Ar); Iola  
 \*Yale Douley (VMP); Muncie  
 \*Velma Jane Dull (PE); Clifton  
 \*Ray Allison Dunham (IJ); Jewell  
 \*Lloyd Samuel Eberhart (EE); Topeka  
 \*Mary Jeane Edelblute (C); Manhattan  
 \*Lela Agnes Edlin (GS); Herington  
 \*Florence Elizabeth Edwards (GS);  
 Manhattan  
 \*Paul Arnold Ehram (ME); Enterprise  
 \*Charles Edward Eibes (Ag); Tonganoxie  
 \*Mary Ruth Einhellig (HE); Bonner Springs  
 \*Maurice LaVerne Elder (PE); Manhattan  
 \*Enoch Railsback Eliason (AE); Gypsum  
 \*Carl Mudge Elling (Ag); Manhattan  
 \*John Lawrence Endacott (GS); Manhattan  
 \*Charles Engel (C); Woodbine  
 \*Harry Albert Engle (EE); Linwood  
 \*Harold Thomas Engleman (EE);  
 Indianapolis, Ind.  
 \*John Loy Engler (CE); Chapman  
 \*Ruth Elaine Engler (HE); Chapman  
 \*Esther Marie Erickson (PE); Fort Riley  
 \*Roy Omar Evans, Jr. (VMP); Olathe  
 \*Margaret Woolfolk Ewing (MuE);  
 Manhattan  
 \*Fred Leroy Fair (Ag); Raymond  
 \*Chester Edgar Fairbanks (EE); Manhattan  
 \*Kenneth Leroy Fairbanks (Pe); Holton  
 \*Paul Kenneth Fanning (Ag); Melvern  
 \*Forrest Raymond Fansher (Ag);  
 Hutchinson  
 \*Walter Wallace Fechner (VM); Alta Vista  
 \*Reinhold Paul Henry Fensch (Ar);  
 Lincoln  
 \*Randal Fenton, Jr. (EE); Manhattan  
 \*Ernest Harlan Fergus (C); Humboldt  
 \*Charles Ozias Files (EE);  
 Overland Park  
 \*Robert Morgan Fink (ChE); Mankato  
 \*Jacob Dale Fisher (GS); Bennington  
 \*Leslie Elizabeth Fitz (HE); Chicago, Ill.  
 \*Harry M. Flagler (C); Manhattan  
 \*Elizabeth Jean Fleming (HE&A); Piper  
 \*Vera Velma Floyd (HE); Bayneville  
 \*Lon E. Foote (VMP); Herkimer

## FRESHMEN—Continued

- \*James Leonard Foster (IC); Emmett  
 \*Erna Maxine Fowler (GS); Osawatomie  
 \*Albert Jerome Fredrickson (CE); Lindsborg  
 \*Roy Henry Freeland (Ag); Effingham  
 \*Madaline Vivian Freeman (HE);  
 Kansas City  
 Marguerite Freeman (GS); Augusta  
 Lenus Carl Frevert (EE); Holyrood  
 \*Roy Fred Fritz (IJ); Kansas City  
 \*Dorothy Vesta Funk (C); Manhattan  
 \*Alma Lucille Furman (GS); Clearwater  
 \*Maynard Melvon Furney (ME); Manhattan  
 \*Robert Russell Gambriell (ME); Mentor  
 \*Verna Belle Garey (C); St. George  
 \*Richard Fredrick Ganger (EE);  
 Harveyville  
 \*Alberta Marie Garrett (GS); Manhattan  
 \*Glen Harley Garrett (GS); Clay Center  
 \*John Franz Gaumer (EE); Wamego  
 \*Merrill Douglas Gerachty (ChE-1; GS-2);  
 Selden  
 \*Kenneth Lyle Gfeller (EE); Winona  
 \*Glenn LaVern Gilbert (ME); Plainville  
 \*Thomas Edward Gilliam (VMP);  
 Smithville, Mo.  
 \*Horace Thomas Givan (VMP);  
 Kansas City, Mo.  
 \*Stanley Edward Goodwin (ArE); Hiawatha  
 \*William Victor Gough (ME); Leavenworth  
 Francis Irving Gould (C); Manhattan  
 \*John Adolphus Graff, Jr. (ChE-1; C-2);  
 Abilene  
 \*Pauline Avis Gravenstein (GS); Riley  
 \*Violet Agnes Greenwood (PE); Bethel  
 \*Merwin Jack Gregg (VMP); Caney  
 \*Mary Helen Gregory (GS); Hugoton  
 Orin Dean Griffing (Ag); Council Grove  
 \*Robert Lewis Griffith (VMP);  
 Junction City  
 David LaMonte Gripton (ME);  
 Smith Center  
 \*Loren Dwight Grubb (ChE); Phillipsburg  
 \*Richard Howard Gunn (EE-1; Ag-2);  
 Attica  
 Richard Joseph Gunn (C); Great Bend  
 \*Waldo Dorence Haflich (Ag); Fairview  
 \*Henry D'Alma Haley (GS); Sabetha  
 \*John Steward Haley (Ag); Delphos  
 \*Helen Virginia Hall (HE); Marion  
 John Fenwick Hall (CE); Junction City  
 \*Lawrence Isador Haller (EE); Alma  
 \*Jeannette Estelle Halstead (HE);  
 Manhattan  
 \*Dorothy Lucile Hammond (GS);  
 Great Bend  
 Clarke Daniel Hanson (GS); Jamestown  
 Mildred Betty Hanson (HE); Topeka  
 \*Elsie Elaine Harrell (GS); Wamego  
 Clare Barton Harris (GS); Pratt  
 \*George Thomas Hart (IJ); Phillipsburg  
 Leland Taylor Harvey (C); Council Grove  
 \*Robert Henry Harvey (AA);  
 Schnectady, N. Y.  
 \*Leroy Anson Haselwood (GS); Glasco  
 \*Ray Vincent Hauck (AA); Miltonvale  
 \*Chauncey Alfred Hawke (Ag); Irving  
 \*Barnabas Allen Hays (PE);  
 Kansas City, Mo.  
 \*Helen Margaret Hayward (HE);  
 Valley Falls  
 \*Orville Thomas Hayward (C); Manhattan  
 \*Robert M. Heaton (C); Norton  
 \*Esther Bailey Hedges (HE-1; IJ-2);  
 Kansas City, Mo.  
 \*Harold Arthur Heimerich (EE); Clay Center  
 \*John Gunion Helm (ChE); Simpson  
 \*John Graham Hemphill (VM); Chanute  
 \*William Andrew Hemphill (IC); Chanute  
 \*George Clifford Henderson (ChE);  
 Manhattan  
 Dwight Kirk Henry (Ag); Lecompton  
 \*Maurice Wyatt Henry (Ag); Nortonville  
 \*Lester Lee Hermon (ChE); Bazine  
 \*Mary Virginia Herst (HE); Argonia  
 William Hugh Hervey (VM); Belle Plaine  
 \*Dale Garnet Higley (Ag); Muscotah  
 \*Ernest Wilbur Hill (GS); Manhattan  
 Ione Marie Hill (C); Harper  
 \*Kenneth Verle Hill (GS); Bloom  
 \*Anne Minnie Hirt (MuE); Bucklin  
 \*Rolla Buskirk Holland, Jr. (Ag); Iola  
 \*Beth Merle Hollis (IJ); Manhattan  
 Medrey Thomas Hollis (GS); Manhattan  
 \*Marion Elias Holverson (GS); Maplehill  
 George Harold Hoopingarner (AA); Manter  
 \*Paul Edward Hopkins (ME); Abilene  
 \*Nelva Irene Horner (C); Abilene  
 \*Laurence Calvin Horton (Ar); Wichita  
 \*Ruth Ellen Howe (IJ); Emporia  
 \*Joseph Hraba (GS); East St. Louis, Ill.  
 Lucienne Hudson (IJ); Fredonia  
 \*Dorothy Louise Hughes (HE&A);  
 Manhattan  
 \*Donald Floyd Hunziker (Ag); Seldeu  
 \*Elberta Maxine Huse (C); Manhattan  
 \*Margaret Maxine Hutchings (HE);  
 Glenview, Ill.  
 \*Estella Hutter (C); Neodesha  
 Irvin Irwin (VM); Wilsey  
 \*Mary Etta Isaacson (HE-1; IJ-2); Topeka  
 \*Robert Bright Jaccard (Ag); Manhattan  
 James Phil Jackson (Ag); Hutchinson  
 \*James Thomas Jackson (IC); Manhattan  
 \*Wilma Ernestine Jacobs (HE); Topeka  
 \*Mae Secelia Jacobsen (HE); Hiawatha  
 \*Ula Jaedicke (IJ); Hanover  
 \*Ellen Louise Jenkins (GS); Pratt  
 \*Florence Esther Jensen (GS); Manhattan  
 \*James Robert Jesson (GS); Ashland  
 \*Ernest DeWayne Jessup (IJ); Wichita  
 \*Samuel Russell Johns (Ag); Ellsworth  
 \*Chester Herman Johnson (AE); Garrison  
 \*Edna Elnora Johnson (GS); Manhattan  
 \*Kenneth Emil Johnson (C&A); Newton  
 \*Kenneth Eugene Johnson (Ag); Norton  
 \*Virgil Whitford Johnson (PE); Kismet  
 \*Ella Gertrude Johnstone (MuE); Wamego  
 \*Edward Tracy Jones (GS&V); Manhattan  
 \*Helen McCune Jones (IE&D); Herington  
 \*Katherine Elizabeth Jones (MuE); Wichita  
 \*Frank Wilson Jordan (Ag); Beloit  
 \*Lawrence Lee Jordan (Ag); Claflin  
 \*Laura Marie Joy (HE); Narka  
 \*Eunice Ruth Justis (IJ); Washington  
 William Wade Justis (IJ); Hill City  
 \*Mac Kappelman (ME); Athol  
 Helen Anna Karns (GS); Bucklin  
 \*Eldon Charles Kaup (MuE); Riley  
 \*Elizabeth Marie Keimig (HE&A); Zenda  
 \*Lorene Kelly (HE); Manhattan  
 \*Lois Ellen Kelso (HE); Manhattan  
 \*Geraldine Madge Kenney (GS); Norton  
 \*Anita Mae Kensler (HE&N); Manhattan  
 \*Raymond Carroll Kent (EE); Manhattan  
 \*Harry Chatley Kephart (Ar); Manhattan  
 \*Frank Boone Kessler (Ag); Newton  
 \*William Thomas Kilian (CE); Chapman  
 \*Katharine Frances Kilmer (IJ); Kirwin  
 \*Mary Elizabeth Kimball (PE); Manhattan  
 \*Peter Arthur Kimen (ChE); Rutland, Vt.  
 \*Emma Lois King (HE); Manhattan  
 \*Margaret King (HE); Manhattan  
 \*Richard Franklin King, Jr. (AA);  
 Manhattan

## FRESHMEN—Continued

- \*Marjorie Kittell (PE); Topeka  
 \*Earl Theodore Klaus (Ag);  
 Cheyenne Agency, S. D.  
 \*Gloria Nell Klinefelter (HE); Hiawatha  
 Dwight David Klinger (AA); Ashland  
 \*Virginia Knostman (IJ); Manhattan  
 \*Marjorie Mary Kohler (IJ); Woodbine  
 \*Herbert James Koon (GS); Manhattan  
 \*Edward Emil Kregar (GS); Offerle  
 \*Erna Emma Kregar (C); Offerle  
 \*Doris Alene Kubin (PE); McPherson  
 \*Lee Roy Kunce (CE); Estes Park, Colo.  
 \*Fred Bryce Lamb (Ag); Macksville  
 \*John William Lamb (Ag); Dunlap  
 \*Delmer Theile Lang (ME); Falls City, Neb.  
 \*William James Langworthy (CE);  
 Leavenworth  
 \*Olive Beatrice Lasswell (HE); Emmett  
 \*Robert Tudor Latta (Ag); Holton  
 \*Horton Meyer Laude (GS); Manhattan  
 \*Ellyn Lennorah Lawrence (HE); Mankato  
 \*Eva Lucille Leger (C); Manhattan  
 \*Geraldine Lennen (MuE); Lyons  
 \*Kenneth Raymond Leonard (IJ);  
 Manhattan  
 \*Marjorie Florence LeRoux (GS); Topeka  
 \*Eloise Lessenden (MuE); Downs  
 \*Harold Woodrow Lindahl (MI); Enterprise  
 \*Ned Wilson Link (ME); Pratt  
 \*Henry William Lins (EE); Beloit  
 \*William Wallace Litfin (EE); Great Bend  
 \*Beatrice Fay Ljungdahl (PE); Menlo  
 Joseph Merrit Long (PE); Edmond  
 \*Ralph Alvin Long (C); Kansas City  
 Russell Keith Long (ME); Manhattan  
 \*Sam Long (ChE); Abilene  
 \*Orville Franklin Longerbeam (ArE);  
 Herington  
 \*Harold G. Lortscher (C); Sabetha  
 \*Ray Ford Lowry (PE); Hoisington  
 \*Samuel Raymond Lungren (Ag);  
 Osage City  
 \*Kenneth Price Lusher (VMP);  
 Salisbury, Mo.  
 \*James William Lutz (PE); Sharon Springs  
 \*Lyman Max Lyon (CE); Sabetha  
 \*Beryle Elizabeth McCammon (IJ); Esbon  
 \*Edith Louise McCaslin (HE); Osborne  
 Jack Hall McCleskey (EE); Abilene  
 \*Jack Robinson McClung (C); Manhattan  
 Theodore Oliver McClurg (IC);  
 Leavenworth  
 \*Marjorie Mable McColloch (GS);  
 Manhattan  
 \*Donald Rea McCollum (AH&V);  
 Blue Springs, Mo.  
 \*Mary Jane McComb (LG); Wichita  
 \*Donald Irvine McCoy (ChE); Manhattan  
 \*Hal McCoy (ChE); Manhattan  
 \*William George McDanel (IJ);  
 Ashland, Ohio.  
 \*Paula McDaniel (HE); Topeka  
 \*Frederick Lee McDonald (IJ); Horton  
 \*John Leonard McKenzie (C); Solomon  
 \*Desdia Neva McKittrick (GS); Wilson  
 \*Martha Ray McLeod (GS); Valley Falls  
 \*Raymond Leroy McMahan (VMP); Logan  
 \*Wilbur Laurence Maddy (EE); Utica  
 Russell Martin Madison (VM);  
 Slayton, Minn.  
 \*Harlin Claude Mahon, Jr. (C); Burlington  
 \*George Badsky Maichel (VMP);  
 Overbrook  
 \*Arthur Emil Malacky (CE); Peabody  
 \*John Richard Malone (EE-1; C-2);  
 Leavenworth  
 \*Neva Joyce Manion (HE-1; MuE-2);  
 Marysville  
 \*George Andrew Mann (GS-1; MI-2);  
 Herington  
 \*Wilson Samuel Marsh (Ag); Chanute  
 \*Clem Bowle Martin (GS); Concordia  
 Thurman Lowell Mathias (GS); Manhattan  
 \*Albert Meinke (Ag); Linwood  
 \*James Cletis Melroy (VMP); Ottawa  
 \*Arthur Clayton Mengel II (CE);  
 Ballston Lake, N. Y.  
 \*Edward Martin Mertel (C&A); Salina  
 \*Philena Deane Merten (HE);  
 Morganville  
 \*Howard Otto Meyer (Ag); Basehor  
 \*Robert Richard Meyer (CE); Riley  
 \*William Udeen Meyer (GS); Jamestown  
 \*Burriss Edward Miles (Ag); Cunningham  
 \*Cassus Orin Miller, Jr. (C); Wichita  
 \*Iris Gereldene Miller (HE&J); Lyons  
 Fred James Millican (EE); Topeka  
 \*Helen Lawson Millican (C); Topeka  
 \*Charles Augustus Mitchel (VM);  
 Manhattan  
 \*Lloyd Burdette Mobiley (VMP);  
 Kansas City  
 \*Phyllis Allene Monnier (IJ); Concordia  
 Floyd Edward Monroe (VM);  
 Dover, N. J.  
 \*Robert A. Moore (EE-1; IJ-2);  
 Cleveland, Mo.  
 \*William Lorenzo Moore (Ag);  
 Bridgeton, N. J.  
 Ziba Thomas Moore (GS); Oketo  
 \*Edna Mae Moreen (HE); Salina  
 \*Darrell Morey (Ag); Manhattan  
 \*Herbert Carl Morgan (GS); Greenleaf  
 \*Ilene Anna Morgan (PE); Manhattan  
 \*Merna Rae Morris (GS); Paxico  
 \*Lucy Agnes Moss (HE); Coats  
 \*Wilbur Henry Mowder (VMP); Sabetha  
 \*Virginia Marian Moyle (C); Augusta  
 \*Wilson Muhlheim (CE); Ellis  
 Charles Ambrose Mulbern (C&A); Selden  
 Lillian Jones Munal (GS); Milford  
 \*Joseph Daniel Murphy (VMP); Wichita  
 \*Lyle Moyer Murphy (GS); Manhattan  
 \*Willis Roy Myers (C&A); Abilene  
 Lois Pauline Narramore (HE&A);  
 Elmdale  
 \*Richard Albert Nelson (EE);  
 Susquehanna, Pa.  
 \*Jerry Nemecek (EE); Humboldt, Neb.  
 Herbert Stephens Neyhart (IJ); Burlington  
 Lane Orville Nicholas (GS); Manhattan  
 \*John Locke Noble (CE); Manhattan  
 Margaret Nonamaker (HE&A); Osborne  
 \*Betsy Ann Norelius (HE); Springfield, Ill.  
 \*Aldene Nussbaumer (HE); Lebanon  
 \*Russell Grant Nystrom (AE); Dover  
 \*Georgia Louisa O'Dell (IJ); Abilene  
 \*David Deyoe Olive (C); Leavenworth  
 \*Carol Leola Olsen (HE); Horton  
 \*Anna Berniece Olson (HE); Russell  
 Richard Eugene Omohundro (VM);  
 Wellington  
 \*James Carlile Osten (EE); Herington  
 \*Lorena Freda Otte (HE); Great Bend  
 \*Gustaf Clark Overley (Ag); Belle Plaine  
 \*Burton Wallace Pacey (C); Manhattan  
 \*John Willifred Page (VMP); Ellis  
 \*Marjorie Annabel Paine (HE); Admire  
 \*Gwendolyn Althea Painter (HE); Meade  
 \*Elton Vernon Parsons (VMP); Emporia  
 \*Ralph C. Patterson (VM); Odessa, Mo.  
 George Ralph Pauling (C); Manhattan  
 \*Chester Winfred Peeples (GS);  
 Washington  
 \*Charles William Pence (Ag); Elmont

## FRESHMEN—Continued

- Oril Evernden Pennington (AA); Winston, Mo.
- \*Frances Edna Perkins (HE); Lawrence  
Vincent Lorin Peters (PE); Ness City  
\*Raymond Orville Petersen (LG); Manhattan
- Kenneth Osler Pettijohn (Ar); Larned  
\*Carolyn Marian Phillips (HE&A); Salina  
\*Marion Vesper Phillips (Ag); Newton  
\*Veda Birdine Pickett (HE); Morrill  
\*Mary Lorraine Platt (HE); Manhattan  
\*Frieda Anna Ploger (HE); Kinsley  
\*Gladys Irene Poole (GS); Kansas City, Mo.  
\*Clare Robert Porter (GS-1; Ag-2); Stafford
- \*Thomas Mitchell Potter (Ag); Peabody  
\*Gilbert Powers (ChE); Casper, Wyo.  
\*Joseph Curtis Prentice (PE); Manhattan  
\*William Phillip Price (EE); Little River  
\*Elsie Elizabeth Prickett (IE&D); Wamego
- \*Ray Sherman Pyles (VMP); Kansas City  
\*Earl Albert Ragland (EE); Herington  
\*Roger Dean Ramey (ChE); Manhattan  
\*George Carlson Rankin (C); Gardner  
\*Ralph Thornton Rankin (IC); Manhattan  
\*Grace Esther Rathbun (IJ); Hutchinson  
\*Alwin Rector (EE); Lincoln  
\*David Vernon Rector (AE); Topeka  
\*Harold Elmo Redfield (PE); Bucklin  
\*Maxine Virginia Redman (PE); Manhattan  
\*Ward Dallas Redman (VMP); Manhattan  
\*Alma Helen Reed (HE); Stockton  
\*Charles Ewing Reed (IJ); Manhattan  
\*Mary Alberta Reed (GS); Culver  
\*Jay Voyl Rees (C); Jennings  
\*Eldon Edwin Reichle (GS); Riley  
\*Helen Louise Reilly (IE&D); Leavenworth  
Jackson Chilcott Remmele (GS); Manhattan
- \*Oren Jared Reusser (Ag); Wellington  
\*Anneliese von Reuter (HE&A); Ellsworth  
\*Delbert Christopher Richardson (Ag); Lawrence
- \*Charles Pearson Roberts (ChE); Manhattan
- \*David Clay Roberts (ChE-1; C-2); Liberal
- \*Harold Ralph Roberts (AE); Stratford, Tex.
- \*Gordon George Robertson (C); Alma  
Charles Edwin Robinson (VM); Manhattan  
\*Katharine Colby Robinson (GS); Manhattan
- \*Roy Albion Robinson, Jr. (EE); Larned  
\*Marvin Henry Robison (PE); Delavan  
\*Fred Warren Rock (EE); Goodland  
\*Ruth Rockey (GS); Manhattan  
\*Fern Doris Roehrman (MuE); White City  
\*Leo Alfred Rogers (GS); Pretty Prairie  
\*Myron Maxford Rooks (IJ); Kansas City, Mo.
- \*Paul Chester Rooney (ME); Haddam  
\*Jean Louise Roper (HE&A); Manhattan  
\*Edgar Le Roy Rose (ME); Herington  
Frank Augustus Rose (EE); Luray  
\*Roger Vergne Rosenkrans (Ag); Dorsey, Neb.
- \*Robert Earl Ross (EE); Kendall  
\*Vernal George Lee Roth (Ag); Emporia  
\*Dorothy Elayne Rowland (HE-1; GS-2); Hanover
- \*Ada Marie Ruff (GS); Manhattan  
\*Grace Ryan (HE); Abilene  
\*Myrle Ryman (EE); Dunlap  
\*Janet Anabel Samuel (GS); Manhattan  
\*Andy John Sargent (VM); San Bernardino, Cal.
- \*Clarence John Sattler (ME); Herndon  
Arthur Eugene Schafer (CE); Jewell  
\*Harold James Scanlan (Ag); Manhattan  
\*Ruth Dana Schaal (HE); Zeandale  
\*John George Scheu (GS); Manhattan  
Virgil Raymond Schibler (Ag); Manhattan  
\*Dorothy Marie Schmitz (GS); Alma  
\*Elmer Raymond Schneider (AE); Gridley  
Lawrence Wicks Schoolcraft (C); Fredonia  
\*Maurice A. Schooley (VMP); Morganville  
\*Paul Schoonhoven (GS); Manhattan  
\*Merwin Ellenwood Schoonover (EE); Topeka
- \*Albert Von Schwartz (GS); Manhattan  
\*Marion Dodford Scott (Ag); Cottonwood Falls
- \*Deane Robert Seaton (AA); Abilene  
\*Robert Martin Segor (Ar); Oshkosh, Wis.  
\*Allan Eugene Settle (IJ); Strong City  
\*Dorothy Marie Sewell (M); Coweta, Okla.  
Glen Virgil Shank (C); Bazine  
\*Mary Lee Shannon (HE); Geneseo  
Garnet Evadna Shehi (IJ); Westmoreland  
\*Edwin Joseph Shellenberger (EE); Ransom  
\*Darliene Shelley (C); Coldwater  
\*Richard Dickinson Sherman (GS); Manhattan
- \*Pauline Eula Sherwood (HE); Grenola  
\*Max Frederick Shoemaker (Ag); Pomona  
\*David Dillon Shrader (PE); Enterprise  
Delmer Ernest Shreve (ME); Augusta  
\*William Vincent Silver (Ag); Clay Center  
\*Clifford Delton Sinclair (ME-1; Ag-2); Jetmore
- \*Sigrid Johanna Sjogren (GS); Concordia  
\*Warren Lang Skinner (VMP); Beverly  
\*William Leonard Slater (Ar); Manhattan  
\*Muriel Ascenith Sloop (C); Oskaloosa  
\*Clarence William Smith (CE); Clay Center  
\*Eleanor Elizabeth Smith (HE); Shreveport, La.
- \*LeRoy Clarence Smith (Ag); Frankfort  
\*Ralph William Smith (LA); Topeka  
Raymond Eugene Smith (VM); Lebo  
\*Richard Wilkerson Smith (CE-1; GS-2); Salina
- \*Robert Moody Smith (C); Manhattan  
\*Vernon Gilbert Smith (VM); Lebo  
\*Virginia Dell Smith (MuE); Cherokee, Okla.  
\*William Daniel Smith (GS); Fredonia  
\*Burl Jackson Snow (EE); Topeka  
\*Don Arnold Snyder (MI); Manhattan  
\*Corinne Solt (HE&A); Manhattan  
\*Loyd Dayton Somers (ME); Canton  
\*Glenna Louise Sowers (C); Manhattan  
\*Delbert George Spangler (EE); Mayfield  
\*Ralph Dwain Spangler (EE-1; C-2); Mayfield
- Karl Henry Speed (PE); Holton  
\*Obadiah Joseph Spencer (PE); Leavenworth  
\*Meredith Earl Sperline (CE); Sabetha  
\*Max Raymond Springer (ME); Manhattan  
\*George Jacob Staehler (CE); Ridgewood, N. Y.
- \*Francis Davis Stark (EE-1; IJ-2); Wellington
- \*Alfred Steele (ME); Leavenworth  
\*Gordon Kirkpatrick Steele (ChE); Columbus
- \*Robert J. Steele (Ag); Manhattan  
\*Doris Lucille Steiner (GS); Lebanon  
\*Arthur Stephens (EE-1; C-2); Bethel  
\*Clark Bernard Stephenson (Ag); Sedan  
\*Alice Louise Sternburg (MuE); Caney  
\*Vernon McKee Stevens (AA); Abilene  
\*Clarice Alyce Stewart (C); Eskridge  
\*Everett Wilson Stewart (GS); Talmage  
Jane Stone (C); Ottawa



## FRESHMEN—Concluded

- \*Keeta Elizabeth Strong (IE&D-1; IJ-2);  
Hoisington  
Frank Bernard Stuckey (Ag); Leavenworth  
\*Phyllis Margaret Studer (GS); Atwood  
\*Stella Elizabeth Swallow (IJ); Manhattan  
\*Harold Burdett Swanberg (Ag); Clay Center  
\*Lewis Sweat (GS); Cedar  
\*Ernest Oran Talbot (Ag); Manhattan  
\*Floyd Arthur Tannahill (PE);  
Phillipsburg  
\*Howard Lee Taylor (MuE); Norton  
\*Marvin John Taylor (GS); Clay Center  
\*Evelyn Ruth Terrell (IJ); Syracuse  
\*Mary Genevieve Thaller (HE); Manhattan  
\*Wilton Bradley Thomas (Ag); Clay Center  
\*Geraldine Rose Thompson (HE); Kinsley  
\*Hobert Harvey Thompson (GS-1; CE-2);  
Coldwater  
\*Joe Earle Thompson (CE); Almena  
\*William Ewald Thompson (C); Parsons  
Hill Cook Thurman (GS); Plattsburg, Mo.  
Emerson Myron Thwing (EE); Manhattan  
\*Gertrude Lola Tobias (IJ); Lyons  
\*Lois Lucille Travis (HE); Goddard  
\*Helen Alice Trekkell (HE); Belle Plaine  
\*John Anthony Trenkle (C); Manhattan  
\*Mary Elizabeth Trenkle (C); Manhattan  
\*Alberta Wilme Trentman (HE); Fairview  
\*Omer Estel Trower (C); Wellington  
\*Archie Tucker (EE); Topeka  
\*Kenneth Wible Tudor (ME); Holton  
Irwin John Twiehaus (VM); Manhattan  
\*Reba Trepheona Twyman (HE&N); Zenda  
\*Glenn Albert Tyler (VMP); Mankato  
\*Velda Frances Umbach (HE); Spearville  
\*Keith Bernard Underwood (Ar); Gypsum  
\*Ross Bingham Vandever (ME); Fredonia  
Willard Merrill Van Sant (VM); Manhattan  
\*Juan Rambac Vidad (IC); Manhattan  
\*Loise Cleo Vinson (HE&A); Manhattan  
\*Kermit Wagner (MI); Howells, Neb.  
\*Carrol LeRoy Wahl (Ag); Wheaton  
\*Hazel Marie Walden (GS); Leavenworth  
\*Dale Frank Walker (Ag); Hardy, Neb.  
\*William Henry Walker (AE); Junction City  
\*Nadine Marguerite Wallace (HE);  
Manhattan  
James Thomas Wallingford (C);  
Kansas City  
\*Wanda Maxine Walton (HE); Mildred  
\*Raymond Woodrow Wann (VMP); Grenola  
\*Allen Ward (EE); Irving  
\*Theresa Mae Ward (HE); Rozel  
\*Ralph Dale Warner (AA); Arlington  
\*Frederick Gail Warren (Ag); Beverly  
\*Kenneth McKinley Warren (PE); Delphos  
\*Victor Eugene Warren (AE); Wellsville  
\*Ivan John Wassberg (C); Topeka  
\*Rex Eugene Watts (Ag); Havensville  
\*George Bruce Waugh (VMP); Mankato  
\*Clarence Hale Weaver (GS); Clay Center  
\*Merle Alfred Webb (AA); Meriden  
\*Virginia Louise Webb (GS); Concordia  
\*Morris John Weiner (VMP); Manhattan  
\*Perry F. Wendell (Ar); Manhattan  
\*Delbert Oscar Wendt (VMP);  
Bonner Springs  
\*Hilary John Wentz (LG); Ames  
\*Virginia Louise West (MuE); Hartford  
\*James Richard Westmacott (CE); Chase  
\*Wallis Christian Wetlaufer (EE);  
Manhattan  
\*Joe Wetta (Ag); Colwich  
\*Riley Russell Whearty (PE); Rossville  
\*John Robert Wheelock (ME);  
Cusihuiriachie, Mexico  
\*John Frederick Whetstone (GS); Green  
\*Marvin Whitaker (VMP); Kansas City  
\*Thaddeus Hug White (GS); Manhattan  
\*Carson Harold Wiedeman (EE); Caldwell  
\*Curtis Sewell Wilcox (ME); Green  
\*Elmer Glen Wilder (GS); Topeka  
Jennie Lee Wilkinson (MuE); Topeka  
Wilhelmenia Edna Wilkinson (HE);  
Topeka  
\*Pauline Williams (GS); Meriden  
\*Rachel Thelma Williams (HE&N);  
Meriden  
\*Thaine Daniels Williams (CE);  
Pawnee Rock  
Wayne Clifford Williams (Ag); Broughton  
\*Arthur Charles Willis (ChE); Hugoton  
\*Jean Brown Willoughby (GS); Manhattan  
\*Velma Louise Wiley (C); Washington  
Cleo Grace Wilson (HE); Manhattan  
\*Iva Wanda Wilson (HE); Hoisington  
\*Wilbert John Wilson (Ag); Alta Vista  
Ben N. Winchester (VM); Kinsley  
\*Bruce Kendall Winchester (AA);  
Stafford  
\*Winifred Winship (IJ); Phillipsburg  
\*Ray Gerard Winter (C); Washington  
\*Lawrence Leroy Wisdom (ME-1; C-2);  
Colby  
\*Ronald Cameron Wishart (ME);  
Manhattan  
\*Elizabeth Irene Woodburn (GS); Cleburne  
\*Harry Albert Woodbury (C); Abilene  
\*Agnes Grace Woodington (IC); Topeka  
\*Edith Mabelle Woods (HE); Kensington  
\*Leona Kathryn Woodward (HE);  
Medicine Lodge  
\*Lucile Josephine Woodworth (HE);  
Corning  
\*Gerald Monroe Workman (GS); Ionia  
\*Albert Alfred Worrel (C); Manhattan  
\*Ruby Corrine Wunder (HE&A);  
Valley Falls  
\*Margaret Fulton Wyant (GS); Topeka  
\*Eunice Pearl Youngquist (IE&D); Topeka  
James Elias Ziegler (VMP);  
Junction City  
\*Joe Wilford Zink (CE); Turon  
\*Fred Sutherland Zutavern (MI);  
Great Bend

## SPECIAL STUDENTS

- \*Francis Aicher (GS); Hays  
\*Howard Louis Beebe (Ag); Buffalo, N. Y.  
Margaret Marie Bigelow (GS); Manhattan  
\*James Philip Boyce (GS); Wamego  
\*Philip Craig Boyce (GS); Wamego  
Frank Robert Brandenburg (AA); Riley  
\*James Bottorff Carr (GS); Manhattan  
Marian Doretta Childs (GS); Hoisington  
Stella Cady Clapp (HE); Manhattan  
Harvey Ellis Davidson (ME); Manhattan  
Jean McDougal Dexter (Ar);  
Columbus, Ga.  
\*Adah Lou Eier (GS); Manhattan  
Edson Arthur Elser (GS); Fort Riley  
\*Arthur Frank Endacott (GS); Lawrence  
Robert Clifton Eychner (GS); Jewell  
\*Mildred Dixon Faith (GS); Manhattan  
\*Ernest Ramon Fink (Ar); Mankato  
\*Lucille Irene Gaynor (GS); De Soto  
David George Griffiths (GS); Manhattan

SPECIAL STUDENTS—*Concluded*

- \*Oscar Delbert Grover (GS); Washington  
William Upton Guerrant (GS); Manhattan
- \*Bernice Havley (GS); Centralia
- \*Rosemarie Hebrank (HE&A-1; GS-2);  
Council Grove
- \*Hazel Ruth Hedstrom (GS); Burdick
- \*Florence Edith Hemphill (HE); Chanute
- \*John Thomas Heptig (GS); Horton
- \*Ruby V. Herndon (GS); Amy
- \*Caroline Augusta Janssen (GS); Lorraine
- \*Vesta Verle Joy (GS); Narka
- \*John C. Kauffman (GS); Abilene
- \*Mary Margaret Keller (GS); Clyde
- \*Pattie Margaret Kimball (GS); Manhattan
- \*Irwin Henry Klassen (C-1; Ag-2);  
Whitewater
- \*Maxine Elizabeth Krotzinger (GS);  
Wetmore
- \*Cecil St. Clair Latimer (EE); Manhattan
- \*Beulah Mae Leach (HE); Bird City
- \*Karl Marx Lee (GS); Garden City
- \*Clyde Delbert Lindsley (GS); Morrowville
- \*Sarah Josephine Lister (GS); Wamego
- \*Janice Lyons (HE); Ford
- \*Sterling Alfred McCollum (ME);  
Manhattan
- Charles Sherwood Manley (GS);  
Junction City
- \*Emil Meyerhaus (Ag);  
Weinfeld, Switzerland
- Margaret Boore Muse (GS); Monmouth
- \*Beulah Burnetta Nelson (GS); Manhattan
- \*Elton Nelson (ME); Garrison
- Isabel Jane Overman (HE); Sedgwick
- Gladys Elsa Paulsen (GS); Onaga
- \*John Frederick Pickering (GS); Olathe
- Margaret K. Pierce (GS); Fort Riley
- Edna Marie Runciman (GS); Culver
- \*Betty Schalket (GS); Leavenworth
- \*Virgil T. Sigler (GS); Manhattan
- Sister M. Domitilla Arnoldy (GS);  
Manhattan
- Robert Drake Spencer (GS); Leavenworth
- Charles William Turner (GS); Saffordville
- Aloys Paul Wadham (GS); Marysville
- \*Olive Lena Weaver (GS); Garden City
- Renwick Henry Wilson (ME); Alta Vista
- Walter Woodrow Wilson (GS); Manhattan
- John Preston Woolcott (MISC); Manhattan

\* Matriculated 1933-'34.

## Summer School Students

### Nine-week Session

Joseph Jesse Abernethy; Manhattan  
 Fulton George Ackerman; Manhattan  
 Vera Ethel Alderman; Coffeyville  
 Mary Elizabeth Allman; Manhattan  
 Max Donald Alwin; Morrowville  
 Earl Preston Anderson; Waynesville, Mo.  
 Ross Harris Anderson; Richland  
 Verna Lucille Anderson; Topeka  
 Myrtle Louise Andres; Alta Vista  
 Austin Chandler Andrews; Kansas City, Mo.  
 Ruth Evangel Angstead; Manhattan  
 Ethel Marie Antrim; Spivey  
 Richard Elliott Armstrong; Riley  
 Lawrence Robert Arnett; Broughton  
 Harold Duane Arnold; Manhattan  
 LaVerna Bertha Arnold; Osborne  
 Ellis Buchanan Babbit; Kansas City  
 Dorothy Attol Baldwin; Manhattan  
 Everett George Barber; Salina  
 Dorothy Barfoot; Decorah, Iowa  
 Edgar Lee Barger; Manhattan  
 E. Myrtle Barker; Junction City  
 Wilma Mildred Barr; Manhattan  
 Charles Benjamin Bayles; Manhattan  
 Guy William Bayles; Manhattan  
 Clarence Joseph Becker; Topeka  
 Dietrich D. Becker; Webster  
 Philip Becker, Jr.; Peoria, Ill.  
 Frances Elaine Bell; Marysville  
 Kenneth Urban Benjamin; Deerfield  
 Erwin John Benne; Manhattan  
 Minnie Louise Bergsma; Lucas  
 Silas Solomon Bergsma; Hill City  
 Geneva Bergsten; Cleburne  
 Esto Ray Berkey; Manhattan  
 J. Ralph Bert; Abilene  
 John Sherman Biggs; Wichita  
 Philip Carl Blackburn; Herington  
 Elizabeth Elnora Blackman; Manhattan  
 Mary Blackman; Manhattan  
 Addison Blair; Manhattan  
 Gertrude Blair; Junction City  
 Leslie M. Blake; Glasco  
 Major Guy Bliss; Minneapolis  
 Marje Lorraine Blythe; White City  
 Nelle Miller Boellner; El Dorado  
 Victor Wayne Boellner; El Dorado  
 Grace Louise Booker; Clay Center  
 Norman Cellars Booth; Topeka  
 Armand Boss; Manhattan  
 C. L. Bothwell; Kackley  
 Opal O. Bowers; Manhattan  
 Hazel Vivienne Bowles; Junction City  
 Verne Wendell Boyd; Irving  
 Fred Ewing Brady; Topeka  
 Wayne D. Branick; Fredonia  
 Emmett Newton Breen; El Dorado  
 Kay Elizabeth Brewer; Wichita  
 Faith Winifred Briscoe; Cambridge  
 Earl Copeland Brookover; Scott City  
 Mary Vashti Brookshier; Osborne  
 Arthur Senseny Brown; Chambersburg, Pa.  
 Gerald James Brown; Circleville  
 Lawrence Edwin Brown; Fall River  
 Richard Carlton Brown; Hill City  
 Rita Brown; Edmond  
 William Everett Brown; Junction City  
 John M. Browne; St. Marys  
 AnnaLee Evelyn Brubaker; Aliceville  
 Frank Sherman Burson; Monument  
 Edith Marion Burt; Manhattan  
 Jeanne Paterson Burt; Manhattan  
 Tom Bateman Bushby; Belleville  
 Clifton Andrew Byers; Manhattan  
 Everett Leslie Byers; Hepler  
 Marion John Caldwell; El Dorado  
 Lily Doris Campbell; Auburn  
 Shirley Pollard Campbell; Wichita  
 Alice Loree Carnahan; Galena  
 Alfred Louis Casey; Corning  
 Robert Bell Casey; Anderson  
 Robert Steele Cassell; Salina  
 Victor Clare Cavin; La Crosse  
 James Percy Chapman; Manhattan  
 Virgil Theodore Chapman; Collyer  
 Nettie Evelyn Chavey; Clyde  
 Robert Frederick Childs; Manhattan  
 Esther Irene Chitwood; Meriden  
 Esther Evangeline Christensen; Randolph  
 Eunice Sarah Christenson; Olsburg  
 Edna Ellen Circle; Kiowa  
 Alfred Lester Clapp; Manhattan  
 Mary Jane Frances Clark; Manhattan  
 Miriam Clark; Iola  
 Bradbury Bedell Coale; Manhattan  
 Wesley Samuel Coblentz; Great Bend  
 Franklin Grimes Colladay; Hutchinson  
 Evelyn M. Colwell; Manhattan  
 William Vaughn Combs; Linn  
 Pauline Elizabeth Compton; Manhattan  
 Robin Dale Compton; Manhattan  
 Frances Rebecca Conard; Ottawa  
 Winnie Pearl Condit; Liberal  
 Nelle May Cook; Chapman  
 Bernice L. Cousins; Manhattan  
 Walter Ellis Crabb; Lebanon  
 Wade Overton Crawford; Manhattan  
 Joe Franklin Creed; Bartlesville, Okla.  
 L. Ileene Crispin; Junction City  
 Wayne Russell Criswell; Manhattan  
 George Richard Crossen; Turner  
 Elsie Kathryn Crouch; Minneola  
 Richard Jerome Crowley; Manhattan  
 Blanche Irene Curry; Winchester  
 Philip Burdett Dale; Topeka  
 Jane Harvey Daughters; Manhattan  
 Martha Lynn Daughters; Manhattan  
 Floyd Ewing Davidson; Madison  
 George Jackson Davidson; Manhattan  
 Doreen Davies; Clay Center  
 Julia Marie Davis; Nebraska City, Neb.  
 William Barry Davis; Burr Oak  
 Homer Thomas Deal; Hoisington  
 Jessie Gertrude Dean; Baldwin  
 Loua Marjorie Dean; Manhattan  
 K. Ruth DeBaun; Topeka  
 Louise Denton; Manhattan  
 Percy Leroy DePuy; Manhattan  
 Irene Evelyn Deschner; Beloit  
 Catherine Charlotte DeTar; Ottawa  
 Robert Cooper Dial; Irving  
 Ferne Lucile Dixon; Agra  
 Eleanor I. Dobkins; Marysville  
 Charles George Dobrovolny; Manhattan  
 Dorothy Gertrude Dodson; Clay Center  
 Joseph Alfred Doubrava; Lorraine  
 Myrtle Dougherty; Manhattan  
 Deda Louise Drake; Manhattan  
 Mary Edmona Dudley; Lebanon  
 Robert Watson Dudley; Manhattan  
 Wallace Reed Dudley; Goodland  
 David Barry Dukelow; Hutchinson  
 Maurice Leland DuMars; Agra  
 George Wallace Duncan; Topeka  
 Albert Richard Duree; Perry  
 Lewis Bion Earle; Washington

## SUMMER SCHOOL—Continued

A. Thornton Edwards; Junction City  
 Elma Irene Edwards; Athol  
 Hal Field Eier; Atwood  
 Leslie Lee Eisenbrandt; Chanute  
 Margaret Virginia Elder; Hutchinson  
 Mary Myers Elliott; Manhattan  
 Glenn Leslie Ellithorpe; Russell  
 Oran Sylvester Emrich; Wakefield  
 Irene Gwendolyn Erickson; Olsburg  
 Charles William Evans; Washington  
 Marian Edith Evans; Hartford  
 Myron Wayne Ewing; Beloit  
 Jennie Grace Faidley; Broughton  
 Ruth Elvina Falk; Courtland  
 Margery Imogene Farnham; Hope  
 Herbert Henry Fechner; Manhattan  
 Glenn David Ferguson; McPherson  
 Madeline Janice Ferris; Conway  
 Zelda Arliene Finch; Oketo  
 Helen Robbins Fisher; Manhattan  
 William David Fitch; Manhattan  
 Theodore Allen Fleck; Wamego  
 Mary Genevieve Fletcher; Sterling  
 Arthur Oran Flinger; Manhattan  
 Dudley King Flint; Girard  
 Marjorie Forbes; Columbus  
 Mildred Viola Forrester; Wamego  
 Margaret Lansden Foster; Manhattan  
 Hazel Mary Foust; Leona  
 Ella Louise Fouts; McPherson  
 Roy Leslie Fox; Manhattan  
 Lenus Carl Frevort; Holyrood  
 Beulah May Frey; Elmdale  
 Edna Henrietta Fritz; Manhattan  
 Harold J. Froning; Copeland  
 Wanie Opal Froning; Copeland  
 Dorothy Vesta Funk; Manhattan  
 Ralph Dana Gage; Minneapolis  
 Max Wayne Gallagher; Wellington  
 Eldred LeMonte Gann; Burden  
 Harold David Garver; Overland Park  
 Harriet Geffert; Manhattan  
 Bernard Kenneth Geraghty; Selden  
 Henry Isely Germann; Fairview  
 Clyde Robert Getty; Winchester  
 Fern Maxine Geyer; Topeka  
 Pat O. Gill; Enid, Okla.  
 Lester Odell Gilmore; Freeborn, Minn.  
 Clarence Fay Gladfelder; Emporia  
 Ed Cephas Glover; Coolidge  
 Sam W. Grossen; Hillsboro  
 Edith Gwendolyn Gosney; Goddard  
 Ralph Melvin Graham; El Dorado  
 Fred F. Greeley; Manhattan  
 May Louise Gregory; Ellsworth  
 Lester Theodore Hagadorn; Gaylord  
 Wilburn Hale; Manhattan  
 Avis Charlotte Hall; Manhattan  
 Mabel Lillian Hall; Kensington  
 Newell Martin Hall; Manhattan  
 Irene J. Hank; Holton  
 Homer Peter Hanson; Riley  
 Jesse D. Harden; Manhattan  
 Oran Andrew Harger; Manhattan  
 Marguerite Velma Harper; Manhattan  
 Marion Bernice Harris; Manhattan  
 Kenneth Wilson Harter; El Dorado  
 Edward Thomas Haslam; Council Grove  
 Harry Linn Hasler; Wichita  
 Ruth D. Hawkinson; McPherson  
 Merle Preston Haymond; Burdett  
 John Vance Hays; Manhattan  
 Harriet Glenn Healy; Manhattan  
 Ruth Dillon Heckler; Dallas, Tex.  
 Georgia Hemphill; Clay Center  
 Frances Larson Herzig; Smolan  
 Richard Leo Herzig; Salina  
 Frederich William Hill; Huntington, N. Y.  
 Neva Inez Hilton; Attica  
 Harry Hinekley; Barnard  
 Walter Clarence Hinkle; Lenora  
 Zelma E. Hockett; Manhattan  
 Claude Allen Hodshire; Coffeyville  
 Maxine Hofmann; Manhattan  
 Norma F. Hofsess; Partridge  
 Verna Doris Holmstrom; Randolph  
 Zadock Wayne Hook; Manhattan  
 Harold John Horsman; Herington  
 David Marion Howard; Manhattan  
 Junior H. Howard; Oberlin  
 Lester Carlton Howard; Melstone, Mont.  
 Lois Elda Howard; Melstone, Mont.  
 Mary Alice Howard; Garnett  
 Robert Huey; Ogden  
 Serena Louise Huey; Ogden  
 Raymond Hickman Hughes; Manhattan  
 Walter Clare Hulburt; Wichita  
 Anita Ann Humbert; Harper  
 Sibil Maud Humbert; Danville  
 John Mark Hurd; Manhattan  
 Bruce Charles Hutchins; Parsons  
 Leota Isabelle Irvine; Stafford  
 Percy Jennings Isaacson; Walsburg  
 Merle Marlin Jackson; Leavenworth  
 Pauline Ethel Jackson; Claudell  
 Thelma Irene Jacobs; Concordia  
 Almyra Viola Jacobson; Manhattan  
 Verland Thomas Jahnke; Woodbine  
 Russell E. James; Wetmore  
 William Edwin Jennings; Manhattan  
 Elmer Roy Jensen; Herington  
 Florence Jensen; Manhattan  
 Frances Marie Jessee; Centralia  
 Harold Jack Jewell; Manhattan  
 Edward Groh Johnson; Emporia  
 Esther Elizabeth Johnson; Ottawa  
 George Roll Johnson; Council Grove  
 Helen Sylvia Johnson; Manhattan  
 Myrtle Helena Johnson; Concordia  
 Ruth Caroline Johnson; Belvue  
 Donald Robert Johnston; Manhattan  
 Lucile Johntz; Abilene  
 Lee Goree Jolley; Bastrop, Tex.  
 Louise Emma Jones; Manhattan  
 Wynona Elizabeth Jones; Clay Center  
 Henry Daniel Karns; Concordia  
 Ed Kasel; Manhattan  
 John C. Kauffman; Abilene  
 DeVere Kay; Manhattan  
 E. Lynn Kay; Brewster  
 Rhea Irene Keeler; Nickerson  
 Clarence Eugene Keith; Ottawa  
 Ethel Hannah Keith; Attica  
 Eugene Rix Kell; Manhattan  
 Warren Ferdinand Keller; Great Bend  
 Ronald A. Kennedy; Manhattan  
 Daniel Oscar Kent; Manhattan  
 Russell Anthony Kern; Manhattan  
 Henry Adams Kilian; Chapman  
 Glenn Monroe Kilmer; McPherson  
 Katharine Frances Kilmer; Kirwin  
 Alice Day Kimball; Manhattan  
 Marjorie Kimball; Manhattan  
 Ned William Kimball; Manhattan  
 Cornie Louise King; Manhattan  
 Leslie Waterman King; Wichita  
 Pauline Mae King; Manhattan  
 Sophia Amelia King; Goff  
 Mary Belle Kirk; Scott City  
 Roy Charles Kirkpatrick; Manhattan  
 Ruth Vera Kistler; Kingman  
 Inge Kallesie Kjar; Lemwig, Denmark  
 Doris DeEtte Kline; Miltonvale  
 Alton Sawyer Knechtel; Larned  
 Christian Reed Knechtel; Larned  
 Marian Lugene Knechtel; Larned  
 Margaret Marie Knerr; Manhattan  
 Arthur Henry Knost; Manhattan  
 Omar Ellsworth Knoux; Augusta

## SUMMER SCHOOL—Continued

William Charles Kosinor; Manhattan  
 James Kral; Omaha, Neb.  
 Louise Kinney Krehbiel; Newton  
 Elsie Della Kruger; Holton  
 Bernice Lydia Kurerth; Manhattan  
 Lucile Orlee Laessig; Gypsum  
 Alice Elizabeth Lagerstrom; Lindsborg  
 Wilbur Eugene Laird; Burr Oak  
 Gerald August Lake; Manhattan  
 Elizabeth C. Lamprecht; Manhattan  
 Charles Herbert Lantz; Manhattan  
 Olga Christene Larsen; Vesper  
 Alta Lathrop; Smith Center  
 Phyllis Elizabeth Latimer; Abilene  
 Louise Frances Layman; Arlington  
 Beulah Mae Leach; Bird City  
 Herbert Joseph Leach; Fletcher, Vt.  
 Edwin E. Lee; Michigan Valley  
 Mildred Woodcock Leker; Manhattan  
 May Lessig; Ellsworth  
 Maurine Theresa Lewis; Manhattan  
 Nathaniel Clyde Lewis; Topeka  
 John E. Ley; Sharon Springs  
 Henry James Lindenstruth; Manhattan  
 Eva Elizabeth Lisk; Manhattan  
 John Ira Loomis; Jewell  
 Lola Fay Loomis; Jewell  
 Ada Grace Lorimer; Olathe  
 Gladys G. Lorson; Elmo  
 John William Loth; Manhattan  
 Ada Pearl Lowe; Argonia  
 Jack Algernon Lowell; Glen Elder  
 Dona Wells Lower; Belleville  
 Hazel Louise Lucas; Highland  
 Hugo Frederick Lucas; Manhattan  
 Otto Walter Ludloff; Honolulu, T. H.  
 Louise Lumb; Wakefield  
 Eunice Nelson Lundblade; Courtland  
 Elvera Mathild Lundine; Hope  
 Hattie Lanaea Lundine; Hope  
 Carrie Ann McAninch; Stockdale  
 Arla Amelia McBurney; Manhattan  
 Kenneth Deardorff McCall; Manhattan  
 Julius C. McCann; Wellington  
 Margaret Catherine McClymonds; Walton  
 Marjorie Mable McCulloch; Manhattan  
 Mary Lou McConathy; Roodhouse, Ill.  
 Bob McCool; Manhattan  
 Hal H. McCord, Jr.; Manhattan  
 Hal L. McCoy; Falls City, Neb.  
 Margaret Elizabeth McCoy; Meriden  
 Frank Clemens McCurdy; Leavenworth  
 Willard Lawrence McFillen; Manhattan  
 Iris McGee; Waynoka, Okla.  
 James Lawrence McIntire; Burlingame  
 Robert Carlyle McIntire; Belleville  
 Anetta Jane McKinney; Junction City  
 Alvin Nugent McMillin; Manhattan  
 Leona Irene Maas; Alma  
 Elbert Bonebrake Macy; Woodston  
 Arvid Irvin Mall; Manhattan  
 Ralph William Manly; Manhattan  
 Grace Sadie Mann; White City  
 Vivian Anna Marley; Manhattan  
 Thomas Ellsworth Martin; Manhattan  
 Wallace Bayless Martin; Wichita  
 Carl Jesus Martinez; Manhattan  
 Joe Potio Martinez; Manhattan  
 Lawrence Norbert Marx; Manhattan  
 Elizabeth Cora May; Holton  
 Bess Cordelia Mayden; Manhattan  
 Thelma Elizabeth Mears; Beloit  
 Florence Ruth Melchert; Ottawa  
 Ernestine Merritt; Haven  
 Alfreda Meyer; Frankfort  
 Beatrice Lillian Meyer; Lillis  
 Frances Lucille Meyer; Lillis  
 Marcella Rita Meyer; Frankfort  
 Clara Grace Miller; Manhattan  
 Elsie Lee Miller; Manhattan  
 Grant Gould Miller; Offerle  
 Leonard Fred Miller; Agra  
 Merna Beatrice Miller; Kansas City  
 Ellen Milligan; South Haven  
 Charles Augustus Mitchell; Okmulgee, Okla.  
 Conrad Stephen Moll; Manhattan  
 Floyd Edward Monroe; Manhattan  
 Tom Allen Montgomery; Hill City  
 Earl Atlas Moody; Kansas City  
 Charles Calvin Moore; Manhattan  
 Margaret Maida More; Glen Elder  
 Genevieve Elizabeth Moreen; Salina  
 Virgil Iadmire Morey; Narka  
 Clark Leroy Morford; Olsburg  
 Irene Morris; Paxico  
 Merle Dallas Morris; Newton  
 Lillian Kelly Mosshart; Manhattan  
 Thirza Adaline Mossman; Manhattan  
 Harold Deane Munal; Milford  
 Lillian Jones Munal; Milford  
 Willard Dow Munson; Madison  
 Daniel Ronald Musser; Jewell  
 Hal Thomas Mydland; Horton  
 James Byron Nash; Parsons  
 Clifford Franklin Newell; Manhattan  
 Dorothea Marie Nielson; Marysville  
 Alex Nigro; Kansas City, Mo.  
 Marcella Elaine Nolan; Lillis  
 Margaret Elizabeth Nolan; Lillis  
 Marion Burns Noland; Falls City, Neb.  
 Paul Talogi Nomura; Honolulu, Hawaii  
 Margaret May Nonamaker; Osborne  
 Daisy Beeby Norman; Topeka  
 Lois Marie Oberhelman; Barnes  
 Roberta Delane Odle; Manhattan  
 Ethel Olney; St. Joseph, Mo.  
 Elna Joyce Olson; Manhattan  
 Mable Bessie Olson; Elk Falls  
 Frieda Marie Oltjen; Hiawatha  
 Wilbert Edwin Osterholtz; Manhattan  
 Eleanor Otto; Manhattan  
 Richard Reese Owen; Fort Riley  
 Elizabeth Ozment; Manhattan  
 Marianne Ozment; Manhattan  
 Arlie Edward Paige; Minneapolis  
 Bernice E. Palenske; Paxico  
 Ruth Lucille Palmquist; Concordia  
 Edward M. Parrish; Dalton, Mo.  
 Franklin Leonard Parsons; Ruleton  
 LeRoy Clay Paslay; Manhattan  
 Lloyd Everett Patterson; St. John  
 Carl Paulson; El Dorado  
 Dorothy Esther Peak; Densmore  
 Miriam Peck; Jewell  
 Kathryn Ruth Pelton; Manhattan  
 Charlotte Penny; Manhattan  
 Kathryn Eileen Peterman; Beattie  
 Melvin George Peterson; Manhattan  
 Virginia Jeanette Peterson; Manhattan  
 Wilbur Regenal Pfenninger; Salina  
 Edwin Lounsbury Pfuetze; Manhattan  
 Max Pfuetze; Manhattan  
 Howard Walter Phelps; St. Louis, Mo.  
 Ronald D. Pickett; Manhattan  
 Dale A. Porter; Manhattan  
 Ralph Pratt; Manhattan  
 Frank B. Prentup; Fort Riley  
 Leland John Propp; Marion  
 Winifred Marguerite Purviance; Milford  
 Harry Charles Quantic; Riley  
 Dorothy Raburn; Manhattan  
 Ralph Thornton Rankin; Manhattan  
 Harlan Edwin Rathbun; Manhattan  
 Paul Beck Rayburn; Newton  
 Dorothy Readhimer; Manhattan  
 Evelyn Ellen Reber; Morrill  
 Anna Reed; Kanopolis

## SUMMER SCHOOL—Continued

Frank Earl Reed; Junction City  
 Harriet Reed; Holton  
 Helen Marjorie Reed; Circleville  
 Charles Edward Reeder; Troy  
 Adelaine Reid; Iola  
 Katherine Reid; Manhattan  
 John Henry Reinecke; Great Bend  
 Henry Clay Reppert; Harris  
 Bess Floyd Rhine; Emporia  
 Laurence Walter Rice; Topeka  
 Dora Riesen; Hillsboro  
 Joseph Alexander Ritchie; McLouth  
 Theodore Roosevelt Robb; Rexford  
 John Bissell Roberts; Manhattan  
 Leland Roberts; Ogden  
 Albert Arthur Roby; Apopka, Fla.  
 Ruth Rockey; Manhattan  
 Philip Dean Rockwood; Parker  
 Clinton Gerald Roehrman; White City  
 Harold Richard Roehrman; White City  
 Emily May Rogler; Manhattan  
 Helen Katheryn Romig; Bethany, Mo.  
 Dale S. Romine; Oswego  
 Lois Rosenerans; Manhattan  
 Leonard Anthony Rosner; Bucyrus  
 Edward Charley Rostocil; Zurich  
 Francenia Routt; Paola  
 John Orian Rowell; Manhattan  
 Vance Mather Rucker; Manhattan  
 Emily Olive Rumold; Herington  
 Loyal Luther Rush; Erie  
 Louise Rust; Manhattan  
 Mary Elizabeth Rust; Manhattan  
 Mary Catherine Ryan; Manhattan  
 Robert Jacob Rychel; Downs  
 Olga Barbara Safiry; Alma  
 Myron Lloyd Sallee; Manhattan  
 John Franklin Scantland; Manhattan  
 Lorena Amelia Schlemmer; Manhattan  
 Erma Schmedemann; Manhattan  
 Edward Henry Schneider; Kansas City  
 Carl William Schnell; Jamaica, N. Y.  
 Luke Micheal Schruben; Dresden  
 Nancy Leona Schultz; Manhattan  
 Edmund H. Schwanke; Alma  
 Louis Charles Schwanke; Alma  
 Albert Von Schwartz; Manhattan  
 Florence Etta Schwendener; Abilene  
 Dean Doctor Scott; Bonner Springs  
 Harold J. Scott; Altoona  
 Marjorie Marie Scott; Altoona  
 John Leon Sealey; Salina  
 Wallace Allen Searey; Independence, Mo.  
 Laurence C. Seyb; Pretty Prairie  
 Maxine Marie Shaffer; Beloit  
 Lucile Nellie Shannon; Manhattan  
 Frank Jessup Shideler; Girard  
 Juanita Lorena Shields; Lost Springs  
 Pauline Juriah Shipp; Alma  
 Lebert Russell Shultz; Eureka  
 Velma Alice Siddens; Westmoreland  
 Ray Richard Simmons; Ashland  
 Arlene G. Simms; Republic  
 Arvilla Alice Singley; Plains  
 Sister Lorena Heidrick; Concordia  
 Sister Thomas Hall; Salina  
 Sister M. Cosmas Weigel; Concordia  
 Florence Myrtle Sitz; Manhattan  
 Sadie Sylvia Sklar; Manhattan  
 Howard Dewight Smethers; Haddam  
 Edna Marie Smith; Kingman  
 Sylvia Faye Smith; Manhattan  
 Velma Dot Smith; Moundridge  
 Virginia K. Smith; Moundridge  
 Wilmer Ray Smittle; Columbus  
 Maurice Sheppard Smyth; St. Joseph, Mo.  
 Ralph Owen Snelling; Manhattan  
 Paul Francis Snyder; Elkhart  
 Lola Helena Somers; Canton  
 Herbert Eugene Somerville; Manhattan  
 Ralph Westly Spears; Mulvane  
 Ernest Rudolph Specht; Emporia  
 Mable Neill Speer; Manhattan  
 Robert William Spiker; Manhattan  
 Roy Robert Spilman; Manhattan  
 Irimie Dumitru Staicu; Cristian, Roumania  
 Clarence Melvin Stay; Manhattan  
 Virginia Maurine Steele; Manhattan  
 Earl Raymond Stegman; Plains  
 Lee Clarence Stenzel; Assaria  
 Elsie Mildred Stevens; Manhattan  
 Mary Emma Stewart; Auburn  
 Ruth Vernetta Stiles; Kansas City  
 Esther Still; Centralia  
 Walter Martyn Stingley; Manhattan  
 James McDonald Stone; Leavenworth  
 Evelyn Emma Stout; Kincaid  
 Roberta Louise Strowig; Paxico  
 William Herman Sunderland; Fairview  
 Stella Elizabeth Swallow; Manhattan  
 Geneva Harriet Swan; Washington  
 Francisco Rioja Taberner; San Juan, P. I.  
 Grace Elizabeth Taylor; Manhattan  
 James Willett Taylor; Lawrence  
 James William Taylor; Manhattan  
 Altha Tedrow; Salina  
 Donald Wayne Teed; Weskan  
 Dwight Teed; Weskan  
 Donald McCrea Telford; Manhattan  
 Ruth Hanna Telford; Manhattan  
 Edith Hays Tempero; Clay Center  
 Elsie May Tempero; Clay Center  
 Mary Geneveive Thaller; Manhattan  
 Arch Thompson; Blackwell, Okla.  
 Arthur Chase Thomson; Washington  
 Carmen M. Thornton; Kansas City  
 Ethel Agusta Thurow; Macksville  
 Leona Zoe Tibbetts; Westmoreland  
 Marcia Edythe Tillman; Manhattan  
 Arthur Duckworth Tindall; Hutchinson  
 Gladys Clara Tonn; Haven  
 Hazel Marie Torgeson; Council Grove  
 Alice Lee Trechsel; Idana  
 Amy Sarah Trojan; Bazine  
 John Boyd Underwood; Manhattan  
 Herman Utterback; Junction City  
 Lois Castle Vance; Enid, Okla.  
 Alta Lucille Van Nortwick; Republic  
 Irene Katherine Van Nortwick; Republic  
 Grace Emily Van Scoyoc; Mont Ida  
 Victor Venard; Manhattan  
 Cloyd Glen Vermilion; Norton  
 William Voth; Lake City  
 William Fennando Waddell; St. Joseph, Mo.  
 Aloys Paul Wadham; Marysville  
 Verne Ingeborg Wagner; McFarland  
 Dorothy Blanche Walker; Hardy, Neb.  
 Edwin Leslie Walker; Junction City  
 Ruth Walker; Bucklin  
 David Wall; St. Joseph, Mo.  
 Esther Loretta Walters; Manhattan  
 Marge Lois Walters; Riley  
 Grace Bernice Waltie; Peabody  
 Laura Lillian Ward; St. Joseph, Mo.  
 Etta E. Warner; Glasco  
 Eugene Decatur Warner; Ottawa  
 William Barnes Warner; Wellington  
 Ellen Grace Warren; Manhattan  
 Dorothy Washington; Manhattan  
 Irene M. Wassmer; Garnett  
 Dwight Silas Waters; Milford  
 Jewell Kimball Watt; Peru  
 Maurine Amanda Webb; Agenda  
 Ray Edward Weide; Leona  
 Ruth Weisser; Paxico  
 Lillis Raphael Wempe; Seneca  
 Carl Edward Wendell; Manhattan  
 Francis J. Wescoat; Formoso

SUMMER SCHOOL—*Concluded*

Bessie Brooks West; Manhattan	Olah Wilson; Madill, Okla.
Lee Alvin West; Augusta	Ruth Louise Wilson; New Cambria
Winston Douglas Wetlaufer; Manhattan	Wilbor Owens Wilson; Manhattan
Helen Frances Weygandt; Keats	Rex Valentine Woodward; Medicine Lodge
Leola Jane White; Manhattan	Harold Brockway Wright; Hutchinson
Raymond Eugene Whitla; Osawatomie	Joyce Glick Wright; Topeka
Hallie Elizabeth Whitney; Council Grove	Paul G. Wurtz; Clifton
Jane Whyte; Wallula	Homer Yoder; Manhattan
Donald Manly Williams; Manhattan	Electa Grace Young; Haddam
Jennie Williams; Meriden	Iva Marie Young; Council Grove
James Herdman Wilmoth; Blue Rapids	Everett Fairbanks Yoxall; Woodston
Allen Rea Wilson; Manhattan	Walter William Zeckser; Alma
Anna Marian Wilson; Alma	Leonard Albert Zerull; Ellis
Marie Alphonsine Wilson; Manhattan	

**Four-week Session**

Clarence Orval Banta; Ottawa	Paul E. Phenneger; Sedgwick
Ray James Bryan; Woodbine	Ernest Lee Raines; Mound City
Allen Baxter Crow; Harper	Merlin LaReux Rogers; Norton

**August Period (in Absentia)**

Thomas Conway Faris; Arkansas City	Francisco Rioja Taberner; San Juan, P. I.
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## Students by States, Foreign Countries and Kansas Counties

### STATES

Arizona .....	3	Michigan .....	4	Pennsylvania .....	6
California .....	1	Minnesota .....	2	South Carolina .....	2
Colorado .....	7	Missouri .....	54	South Dakota .....	2
Florida .....	3	Montana .....	2	Texas .....	10
Georgia .....	8	Nebraska .....	18	Utah .....	1
Illinois .....	10	New Jersey .....	4	Vermont .....	3
Indiana .....	2	New York .....	13	Wisconsin .....	1
Iowa .....	3	North Carolina .....	1	Wyoming .....	3
Kansas .....	2,728	Ohio .....	5		
Louisiana .....	1	Oklahoma .....	16	Total .....	2,913

### FOREIGN COUNTRIES

China .....	1	India .....	1	Roumania .....	1
Denmark .....	1	Mexico .....	2	Switzerland .....	1
Egypt .....	1	Panama .....	1		
Hawaii .....	2	Persia .....	1	Total .....	15
Hungaria .....	1	Philippine Islands .....	2	Grand total .....	2,928

### KANSAS COUNTIES

Allen .....	13	Greenwood .....	7	Pawnee .....	17
Anderson .....	9	Hamilton .....	7	Phillips .....	14
Atchison .....	15	Harper .....	19	Pottawatomie .....	55
Barber .....	6	Harvey .....	30	Pratt .....	9
Barton .....	25	Haskell .....	2	Rawlins .....	8
Bourbon .....	8	Hodgeman .....	4	Reno .....	59
Brown .....	33	Jackson .....	31	Republic .....	30
Butler .....	31	Jefferson .....	28	Rice .....	25
Chase .....	12	Jewell .....	34	Riley .....	732
Chautauqua .....	3	Johnson .....	20	Rooks .....	11
Cherokee .....	14	Kearny .....	8	Rush .....	2
Cheyenne .....	2	Kingman .....	16	Russell .....	15
Clark .....	5	Kiowa .....	3	Saline .....	51
Clay .....	45	Labette .....	21	Scott .....	6
Cloud .....	36	Lane .....	4	Sedgwick .....	65
Coffey .....	18	Leavenworth .....	40	Seward .....	7
Comanche .....	9	Lincoln .....	12	Shawnee .....	101
Cowley .....	14	Linn .....	4	Sheridan .....	8
Crawford .....	16	Logan .....	3	Sherman .....	14
Decatur .....	8	Lyon .....	27	Smith .....	21
Dickinson .....	98	McPherson .....	28	Stafford .....	12
Doniphan .....	7	Marion .....	21	Stanton .....	1
Douglas .....	11	Marshall .....	44	Stevens .....	4
Edwards .....	15	Meade .....	7	Sumner .....	32
Elk .....	5	Miami .....	9	Thomas .....	9
Ellis .....	9	Mitchell .....	17	Trego .....	1
Ellsworth .....	12	Montgomery .....	13	Wabaunsee .....	33
Finney .....	19	Morris .....	39	Wallace .....	5
Ford .....	17	Morton .....	5	Washington .....	38
Franklin .....	25	Nemaha .....	31	Wichita .....	6
Geary .....	50	Neosho .....	14	Wilson .....	25
Gove .....	6	Ness .....	14	Woodson .....	5
Graham .....	7	Norton .....	19	Wyandotte .....	62
Grant .....	1	Osage .....	19		
Gray .....	3	Osborne .....	21	Total .....	2,728
Greeley .....	0	Ottawa .....	17		



# Record of Enrollment and Degrees Conferred, 1863-1934

YEAR.	Summer school.....	Housekeep'g sht. course.	Dairy Mfg. sht. course.	Dairy short course.....	Farmers' short course.	Apprentice.....	Special.....	Preparatory.....	Subfreshman.....	Vocational school.....	Freshman.....	Sophomore.....	Junior.....	Senior.....	Graduate.....	Counted twice.....	Net total.....	Graduated.....	Advanced degrees.....	
1863-'64								93			14						107			
1864-'65								90			14	8	1				113			
1865								112			28	5	5				150			
1866-'67								154			11	7	1	5			178	5		
1867-'68																	168			
1868-'69																	170			
1869-'70								146			11	10	2		1		173			
1870-'71											13	7	5	5			194	5	5	
1871-'72								162			22	10	3	2	3		202	3		
1873																	*217	2	1	
1873-'74											24	14	3	6			183	5		
1874-'75								103			26	10	2	2			143	2	1	
1875-'76																	252	5		
1876-'77																	234	9	1	
1877-'78								75			42	23	5	5			150	4		
1878-'79								1			89	89	16	12			207	9	2	
1879-'80								1			166	61	35	11	2		276	7	2	
1880-'81								6			178	48	24	9	2		267	8		
1881-'82								5			227	50	19	11			512	9	2	
1882-'83								4			241	60	30	12			347	12	3	
1883-'84								2			255	92	26	18	2		395	17		
1884-'85								2			271	71	36	16	5		401	14	1	
1885-'86								1			273	91	55	24	4		428	21	2	
1886-'87											303	100	44	24	10		481	21	5	
1887-'88											305	92	46	27	2		472	22	1	
1888-'89											266	105	41	28	7		445	25	1	
1889-'90								1			307	105	63	28	10		514	27	2	
1890-'91											343	135	50	53	12		593	52	2	
1891-'92											336	139	62	37	10		584	35		
1892-'93											339	110	66	43	29		587	39	9	
1893-'94											275	141	72	42	25		555	39	6	
1894-'95								5			276	108	89	64	39		572	57	3	
1895-'96								3			353	121	67	71	32		647	66	4	
1896-'97								6			521	163	69	62	46		734	55	8	
1897-'98				6				15			516	174	77	82	57	10	803	68	10	
1898-'99				26		9		40			506	177	92	65	40	21	870	54	10	
1899-1900		24		57		35		32			376	163	109	69	27	22	1,094	58	3	
1900-'01		47		72		50		32			348	183	80	74	40	52	1,321	60	9	
1901-'02		41		66		87		19			396	206	120	65	52	59	1,396	52	3	
1902-'05		63		38		123		78			471	229	141	86	24	57	1,574	55		
1905-'04	17	51		16		122		33			403	206	161	114	20	36	1,605	102	1	
1904-'05	15	88		24		99		12			289	198	122	117	26	43	1,462	107	2	
1905-'06	18	92		28		118		46			373	214	145	110	30	64	1,690	96	4	
1906-'07	18	134		23		179		48			411	269	149	133	24	88	1,957	119	5	
1907-'08	29	188		26		173		42			450	357	202	148	26	82	2,192	116	4	
1908-'09	25	168		18		197		42			491	381	243	171	28	86	2,308	146	12	
1909-'10	22	152	4	111		124		87			456	417	286	170	26	70	2,305	141	2	
1910-'11	31	160	9	26		285		107			553	412	288	248	34	59	2,507	219	2	
1911-'12	94	160	14	160		14		85			357	461	288	261	44	81	2,423	251	6	
1912-'13	282	175	11	289		129		129			444	432	355	268	55	166	2,928	230	4	
1913-'14	570	149	12	225		112		112			658	516	431	324	64	159	3,027	283	8	
1914-'15	472	127	18	199		98		120			560	575	368	383	321	48	3,089	223	6	
1915-'16	536	85	17	207		188		175			484	605	454	305	401	76	3,314	342	18	
1916-'17	586	103	14	228		191		172			422	693	471	378	282	68	3,340	197	13	
1917-'18	481	84		119		135		138			231	483	349	294	238	36	2,406	215	17	
1918-'19	519	25	5	160		400		199			216	810	322	254	201	34	2,991	167	7	
1919-'20	415	57	3	117		362		271			224	894	400	297	273	44	3,376	260	11	
1920-'21	604	30	10	96		278		270			280	878	602	318	275	42	3,395	248	14	
1921-'22	820	19	10	59		173		221			297	931	628	422	296	125	3,560	271	28	
1922-'23	884	19	8	55		83		163			220	1004	656	460	401	118	457	3,626	341	31
1923-'24	978	12	7	43		57		161			167	1160	657	458	413	171	475	3,812	342	43
1924-'25	1120	14	14	55		54		159			47	1391	679	467	347	185	486	4,031	335	52
1925-'26	947	12	11	41		29		89			1494	725	512	344	182	384	4,019	341	51	
1926-'27	959		18	52		71		71			1311	854	509	411	179	300	4,083	357	77	
1927-'28	966		20	57		88		88			1039	819	584	500	167	418	3,878	429	70	
1928-'29	920		18	51		57		57			1084	743	584	537	197	321	3,879	461	84	
1929-'30	902		13	59		70		70			1128	787	581	554	432	548	3,987	469	91	
1930-'31	995		24	52		50		50			1077	790	605	528	506	589	4,045	424	91	
1931-'32	1059		12	29		54		54			935	752	633	572	572	688	3,928	486	119	
1932-'33	995					72		72			666	596	552	590	518	650	3,359	523	118	
1933-'34	655					61		61			707	558	520	522	327	422	2,928			

† Figures above this in this column include neither graduate students in summer session, nor undergraduate students pursuing graduate work.

## College Enrollment, 1933-1934

THE DIVISION.	Men.	Women.	Total.
<b>The Division of Agriculture</b> .....	<b>344</b>	<b>4</b>	<b>348</b>
Graduate students.....	27	3	30
Seniors.....	57	.....	57
Juniors.....	65	.....	65
Sophomores.....	76	.....	76
Freshmen.....	114	1	115
Special students.....	5	.....	5
<b>The Division of Veterinary Medicine</b> .....	<b>179</b>	<b>1</b>	<b>180</b>
Graduate students.....	3	.....	3
Seniors.....	40	1	41
Juniors.....	55	.....	55
Sophomores.....	23	.....	23
Freshmen.....	58	.....	58
<b>The Division of General Science</b> .....	<b>564</b>	<b>408</b>	<b>972</b>
Graduate students.....	62	22	84
Seniors.....	82	73	155
Juniors.....	97	75	172
Sophomores.....	129	95	224
Freshmen.....	173	119	292
Special students.....	21	24	45
<b>The Division of Home Economics</b> .....		<b>436</b>	<b>436</b>
Graduate students.....		25	25
Seniors.....		93	93
Juniors.....		84	84
Sophomores.....		115	115
Freshmen.....		103	103
Special students.....		6	6
<b>The Division of Engineering</b> .....	<b>655</b>	<b>7</b>	<b>662</b>
Graduate students.....	26	3	29
Seniors.....	174	2	176
Juniors.....	157	1	158
Sophomores.....	130	.....	130
Freshmen.....	162	.....	162
Special students.....	6	1	7
Totals.....	1,742	856	2,598
Counted twice.....	40	12	52
Net totals.....	1,702	844	2,546
<b>The Summer School (1933)</b> .....	<b>345</b>	<b>310</b>	<b>655</b>
Totals.....	2,047	1,154	3,201
Counted twice.....	169	104	273
Net grand totals.....	<b>1,878</b>	<b>1,050</b>	<b>2,928</b>
<b>Students Pursuing Graduate Work</b> .....	<b>205</b>	<b>122</b>	<b>327</b>
Graduate students in regular session.....	113	63	176
Graduate students in summer session (excluding duplicates).....	61	44	105
Graduate students in absentia (excluding duplicates).....	5	0	5
Undergraduates carrying graduate work.....	26	15	41

Degrees Conferred in the Year 1933

DIVISION AND CURRICULUM (OR MAJOR STUDY).	Men.	Women.	Total.
<b>Division of Agriculture (B. S.)</b> .....	<b>71</b>	<b>1</b>	<b>72</b>
Agriculture.....	71	1	72
<b>Division of Engineering (B. S.)</b> .....	<b>138</b>	<b>5</b>	<b>143</b>
Agricultural Engineering.....	13	.....	13
Architecture.....	7	4	11
Architectural Engineering.....	6	1	7
Landscape Architecture.....	2	.....	2
Chemical Engineering.....	10	.....	10
Civil Engineering.....	31	.....	31
Electrical Engineering.....	45	.....	45
Flour-mill Engineering.....	1	.....	1
Mechanical Engineering.....	23	.....	23
<b>Division of General Science (B. S.)</b> .....	<b>97</b>	<b>91</b>	<b>188</b>
General Science.....	32	45	77
Commerce.....	29	6	35
Industrial Chemistry.....	15	.....	15
Industrial Journalism.....	8	20	28
Music.....	3	10	13
Physical Education.....	10	10	20
<b>Division of Home Economics (B. S.)</b> .....	.....	<b>79</b>	<b>79</b>
Home Economics.....	.....	77	77
Home Economics and Nursing.....	.....	2	2
<b>Division of Veterinary Medicine (D. V. M.)</b> .....	<b>41</b>	.....	<b>41</b>
Veterinary Medicine.....	41	.....	41
<b>Total of undergraduate degrees</b> .....	<b>347</b>	<b>176</b>	<b>523</b>
<b>Division of Graduate Study (M. S.)</b> .....	<b>69</b>	<b>39</b>	<b>108</b>
Agricultural Economics.....	3	.....	3
Agricultural Engineering.....	1	.....	1
Agronomy.....	3	.....	3
Bacteriology.....	1	2	3
Botany.....	2	1	3
Chemical Engineering.....	1	.....	1
Chemistry.....	6	1	7
Child Welfare and Euthenics.....	.....	3	3
Civil Engineering.....	3	.....	3
Clothing and Textiles.....	.....	10	10
Dairy Husbandry.....	2	.....	2
Economics.....	1	.....	1
Education.....	11	2	13
Electrical Engineering.....	4	.....	4
English.....	1	3	4
Entomology.....	7	.....	7
Food Economics and Nutrition.....	.....	4	4
General Home Economics.....	.....	4	4
History.....	3	1	4
Horticulture.....	4	.....	4
Industrial Journalism.....	.....	1	1
Institutional Economics.....	.....	2	2
Mechanical Engineering.....	2	.....	2
Milling Industry.....	1	.....	1
Physics.....	2	.....	2
Poultry Husbandry.....	3	.....	3
Public Speaking.....	.....	1	1
Shop Practice.....	1	.....	1
Zoölogy.....	7	4	11
<b>Division of Graduate Study (Ph. D.)</b> .....	<b>1</b>	.....	<b>1</b>
Chemistry.....	1	.....	1
<b>Professional Degrees</b> .....	<b>7</b>	.....	<b>7</b>
Chemical Engineer.....	2	.....	2
Civil Engineer.....	1	.....	1
Electrical Engineer.....	3	.....	3
Mechanical Engineer.....	1	.....	1
<b>Honorary Degrees</b> .....	<b>2</b>	.....	<b>2</b>
Doctor of Engineering.....	1	.....	1
Doctor of Science.....	1	.....	1
<b>Total of degrees conferred in 1933</b> .....	<b>426</b>	<b>215</b>	<b>641</b>



Attend:

	C	Music.....	Counted twice.....			Net totals.....		NET GRAND TOTALS.....
			M.	W.	M.	W.	M.	W.
<b>UNDERGRADUATE:</b>								
Senior.....	1	1	169	.....	.....	353	169	522
Junior.....	1	3	160	12	2	362	158	520
Sophomore.....	3	3	210	7	3	351	207	558
Freshman.....	1	3	223	18	5	489	218	707
Special.....	.....	31	1	1	1	31	30	61
Summer sessio.....	3	3	250	142	89	113	161	274
Totals..	3	13	,043	180	100	1,699	943	2,642
<b>GRADUATE:</b>								
Regular sessio.....	.....	.....	63	.....	.....	113	63	176
Summer sessio.....	.....	.....	60	26	16	61	44	105
In absentia.....	.....	.....	3	10	3	5	.....	5
Undergraduat.....	.....	.....	15	.....	.....	26	15	41
Totals..	.....	.....	141	36	19	205	122	327
Grand	3	13	,184	216	119	1,904	1,065	2,969
Counted twice..	.....	2	.....	.....	.....	26	15	41
Net grand	3	11	.....	.....	.....	1,878	1,050	2,928
Group	.....	63	.....	.....	.....	.....	.....	.....

\* One woman





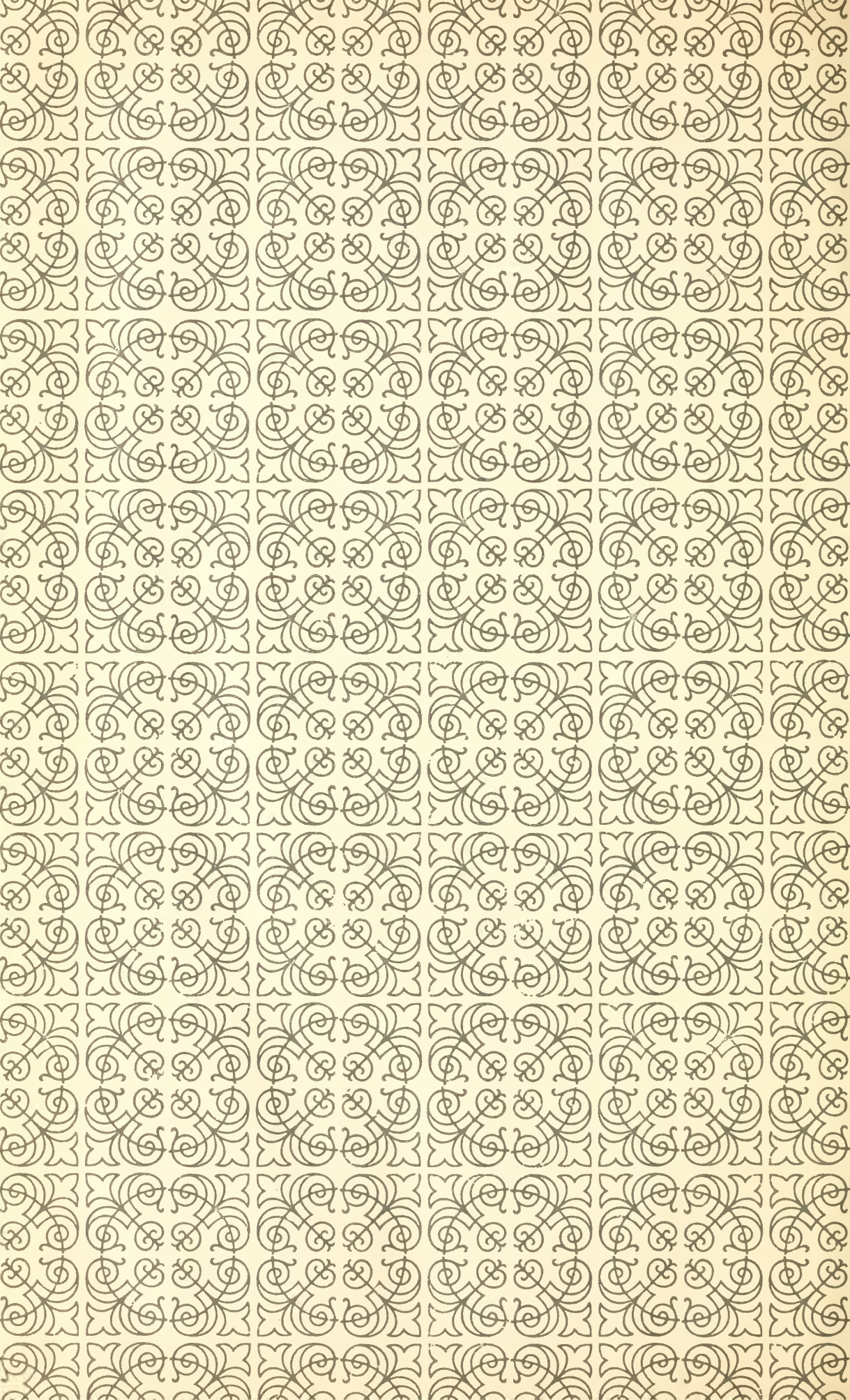














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