



KANSAS
STATE COLLEGE
BULLETIN

GENERAL
CATALOGUE

1953-1954



KANSAS STATE COLLEGE
OF AGRICULTURE AND APPLIED SCIENCE
MANHATTAN, KANSAS

KANSAS STATE COLLEGE BULLETIN



GENERAL CATALOGUE 1953-1954

SEPTEMBER 1, 1953

KANSAS STATE COLLEGE
OF AGRICULTURE AND APPLIED SCIENCE
MANHATTAN, KANSAS

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ACADEMIC AND FINANCIAL CALENDAR

FIRST SEMESTER, 1953-1954

<i>Date, Time, Days</i>	<i>Academic Calendar</i>	<i>Financial Calendar</i>
Sept. 1, Tues.		Beginning of pay period for 9-months staff.
Sept. 7, Mon.	Holiday—Labor Day. (Deans' offices and administrative offices will remain open.)	(See page 22 for refund policy applicable to periods shown below.)
Sept. 7, 3:00 p. m., Mon.	Convocation and orientation for first semester freshmen and transfer students.	
Sept. 8-10, Tues.-Thurs.	Physical examination for matriculating graduate students.	
Sept. 8, 8:00 a. m., Tues.	Registration for seniors and terminal juniors.	
Sept. 8, 10:00 a. m., Tues.	Physical examinations for transfer students.	
Sept. 8-9, 8:00 a. m., Tues.-Wed.	Testing and orientation for first semester freshmen.	
Sept. 8-10, 12:45 p. m., Tues.-Thurs.	Registration for juniors, sophomores, second semester freshmen, and graduate students.	
Sept. 8-10, 1:00 p. m., Tues.-Thurs.	Physical examinations for first semester freshmen.	
Sept. 9-10, 8:00 a. m., Wed.-Thurs.	Registration for School of Veterinary Medicine.	
Sept. 10, 8:45 a. m., Thurs.	Registration for first semester freshmen.	
Sept. 11, 8:00 a. m., Fri.	Classes begin.	Late enrollment fee \$2.50.
Sept. 12, Noon, Sat.	Regular registration closes for full-time College staff.	End of first week. Late enrollment fee \$5.00 for subsequent enrollment.
Oct. 3, Sat.	Examinations to remove conditions (4th week). Last day to enroll with full assignment.	
Oct. 9, 5:00 p. m., Fri.		End of first fourth.
Oct. 10, Noon, Sat.	Deficiency reports due in deans' offices (5th week).	
Oct. 19, 5:00 p. m., Mon.		End of first third.
Oct. 24, Noon, Sat.	Last day for dropping courses without a withdrawal or failure being recorded (7th week).	
Nov. 7, Noon, Sat.	Mid-semester deficiency reports due in deans' offices (9th week).	End of second quarter.
Nov. 24, 10:00 p. m., Tues.	Thanksgiving vacation begins.	
Nov. 30, 8:00 a. m., Mon.	Classes resume.	
Dec. 11, 5:00 p. m., Fri.		End of third fourth.
Dec. 19, Noon, Sat.	Christmas vacation begins.	
Dec. 19, Noon, Sat.	Applications for degrees must be made on or before this date.	
Jan. 4, 8:00 a. m., Mon.	Classes resume.	
Jan. 8, 4:00 p. m., Fri.	Last day subject may be dropped before end of semester	
Jan. 16, Noon, Sat.	Grades to registrar for candidates for degrees and low grades to the dean and student concerned.	
Jan. 18-22, Mon.-Fri.	Semester examinations.	
Jan. 20, 4:00 p. m., Wed.	Senate meeting to approve candidates for degrees.	
Jan. 22, 5:00 p. m., Fri.	Deficiency reports due in deans' offices.	
Jan. 23, 10:00 a. m., Sat.	Commencement.	
Jan. 23, Noon, Sat.	Grade reports to registrar.	

SECOND SEMESTER, 1953-1954

<i>Date, Time, Days</i>	<i>Academic Calendar</i>	<i>Financial Calendar</i>
Jan. 25, 8:00 a. m., Mon.	Testing and orientation for first semester freshmen and transfer students.	(See page 22 for refund policy applicable to periods shown below.)
Jan. 25, 8:00 a. m., Mon.	Physical examinations for matriculating graduate students.	
Jan. 25, 8:00 a. m., Mon.	Registration for seniors and terminal juniors.	
Jan. 25, 10:00 a. m., Mon.	Physical examinations for transfer students.	
Jan. 25, 1:00 p. m., Mon.	Physical examinations for first semester freshmen.	
Jan. 25-27, 12:45 p. m., Mon.-Wed.	Registration for juniors, sophomores, second semester freshmen and graduate students.	
Jan. 26-27, 8:00 a. m., Tues.-Wed.	Registration for School of Veterinary Medicine.	
Jan. 27, Noon, Wed.	Registration for first semester freshmen.	
Jan. 28, 8:00 a. m., Thurs.	Classes begin.	Late enrollment fee \$2.50.
Jan. 30, Noon, Sat.	Regular registration closes for full-time College staff.	End of first week. Late enrollment fee \$5.00 for subsequent enrollment.
Feb. 20, Sat.	Examinations to remove conditions (4th week). Last day to enroll with full assignment.	
Feb. 24, 5:00 p. m., Wed.		End of first fourth.
Feb. 27, Noon, Sat.	Deficiency reports due in deans' offices (5th week).	
March 5, 5:00 p. m., Fri.		End of first third.
March 13, Noon, Sat.	Last day for reassignment before mid-semester (7th week).	
March 24, 5:00 p. m., Wed.		End of second fourth.
March 27, Noon, Sat.	Mid-semester deficiency reports due in deans' offices (9th week).	
April 15, 10:00 p. m., Thurs.	Easter vacation begins.	
April 20, 8:00 a. m., Tues.	Classes resume.	
April 23, 3:00 p. m., Fri.	Applications for degrees must be made on or before this date.	
April 24, Noon, Sat.		End of third fourth.
May 8, Noon, Sat.	Last day a subject may be dropped before end of semester.	
May 17-21, Mon.-Fri.	Semester examinations.	
May 17, Noon, Mon.	Grades to registrar for all candidates for degrees, and low grades to dean and student concerned.	
May 20, 11:00 a. m., Thurs.	Senate meeting to approve candidates for degrees.	
May 22, Sat.	Alumni Day.	
May 23, Sun.	Commencement.	
May 24, 5:00 p. m., Mon.	Deficiency reports due in deans' offices, grades to registrar.	
May 26-29, Wed.-Sat.	4-H Club Roundup.	
May 31, Mon.	Holiday—Memorial Day.	

SUMMER SESSION, 1954 (Nine Weeks)

June 1-2, 8:00 a. m., Tues.-Wed.	Registration. Testing, orientation, and physical examinations for freshmen and transfer students, and entrance examinations.	(See page 22 for refund policy applicable to periods shown below.)
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June 3, 7:00 a. m., Thurs.	Classes begin.	Late enrollment fee \$2.50.
June 5, Noon, Sat.	Regular registration closes for full-time College staff.	End of first week. Late enrollment fee \$5.00 for subsequent enrollment.
June 12, Noon, Sat.	Last day to enroll with full assignment.	
June 17, 5:00 p. m., Thurs.		End of first fourth.
June 22, 5:00 p. m., Tues.		End of first third.
June 26, Noon, Sat.	Last day for reassignment before midsession.	
July 1, 5:00 p. m., Thurs.		End of second fourth.
July 1, 3:00 p. m., Thurs.	Applications for degrees must be made on or before this date.	
July 3, Noon, Sat.	Deficiency reports due in deans' offices.	
July 5, Mon.	Holiday—Independence Day.	
July 16, 5:00 p. m., Fri.		End of third fourth.
July 26, 5:00 p. m., Mon.	Grades to registrar for all candidates for degrees, and low grades to dean and student concerned.	
July 27, 4:00 p. m., Tues.	Last day subject may be dropped before end of session.	
July 28, 4:00 p. m., Wed.	Senate meeting to approve candidates for degrees.	
July 30, 5:00 p. m., Fri.	Last day for examinations.	
July 30, 5:00 p. m., Fri.	Deficiency reports due in deans' offices.	
July 31, 10:00 a. m., Sat.	Commencement.	
July 31, Noon, Sat.	Grades to registrar.	

FIRST SEMESTER, 1954-1955

<i>Date, Time, Days</i>	<i>Academic Calendar</i>	<i>Financial Calendar</i>
Sept. 1, Wed.		Beginning of pay period for 9-months staff.
Sept. 6, Mon.	Holiday—Labor Day (Deans' offices and administrative offices will remain open).	
Sept. 12, 3:00 p. m., Sun.	Convocation and orientation for first semester freshmen and transfer students.	
Sept. 13-15, 8:00 a. m., Mon.-Wed.	Physical examinations for matriculating graduate students.	(See page 22 for refund policy applicable to periods shown below.)
Sept. 13, 8:00 a. m., Mon.	Registration for seniors and terminal juniors.	
Sept. 13, 10:00 a. m., Mon.	Physical examinations for transfer students.	
Sept. 13-14, 8:00 a. m., Mon.-Tues.	Testing and orientation for first semester freshmen.	
Sept. 13-15, 12:45 p. m., Mon.-Wed.	Registration for juniors, sophomores, second semester freshmen and graduate students.	
Sept. 13-15, 1:00 p. m., Mon.-Wed.	Physical examinations for first semester freshmen.	
Sept. 14-15, 8:00 a. m., Tues.-Wed.	Registration for School of Veterinary Medicine.	
Sept. 15, 8:45 a. m., Wed.	Registration for first semester freshmen.	
Sept. 16, 8:00 a. m., Thurs.	Classes begin.	Late enrollment fee \$2.50.
Sept. 18, Noon, Sat.	Regular registration closes for full-time College staff.	End of first week. Late enrollment fee \$5.00 for subsequent enrollment.

Oct. 9, Sat.	Examinations to remove conditions (4th week). Last day to enroll with full assignment.	
Oct. 14, 5:00 p. m., Thurs.		End of first fourth.
Oct. 16, Noon, Sat.	Deficiency reports due in deans' offices (5th week).	
Oct. 25, 5:00 p. m., Mon.		End of first third.
Oct. 30, Noon, Sat.	Last day for dropping courses without a withdrawal or failure being recorded (7th week).	
Nov. 12, 5:00 p. m., Fri.		End of second fourth.
Nov. 13, Noon, Sat.	Mid-semester deficiency reports due in deans' offices (9th week).	
Nov. 23, 10:00 p. m., Tues.	Thanksgiving vacation begins.	
Nov. 29, 8:00 a. m., Mon.	Classes resume.	
Dec. 16, 5:00 p. m., Thurs.		End of third fourth.
Dec. 18, Noon, Sat.	Christmas vacation begins.	
Dec. 18, Noon, Sat.	Applications for degrees must be made on or before this date.	
Jan. 3, 8:00 a. m., Mon.	Classes resume.	
Jan. 14, 4:00 p. m., Fri.	Last day subject may be dropped before end of semester.	
Jan. 22, Noon, Sat.	Grades to registrar for candidates for degrees and low grades to the dean and student concerned.	
Jan. 24-28, Mon.-Fri.	Semester examinations.	
Jan. 26, 4:00 p. m., Wed.	Senate meeting to approve candidates for degrees.	
Jan. 28, 5:00 p. m., Fri.	Deficiency reports due in deans' offices.	
Jan. 29, 10:00 a. m., Sat.	Commencement.	
Jan. 29, Noon, Sat.	Grade reports to registrar.	

SECOND SEMESTER, 1954-1955

<i>Date, Time, Days</i>	<i>Academic Calendar</i>	<i>Financial Calendar</i>
Jan. 31, 8:00 a. m., Mon.	Testing and orientation for first semester freshmen and transfer students.	
Jan. 31, 10:00 a. m., Mon.	Physical examinations for matriculating graduate students.	(See page 22 for refund policy applicable to periods shown below.)
Jan. 31, 8:00 a. m., Mon.	Registration for seniors and terminal juniors.	
Jan. 31, 10:00 a. m., Mon.	Physical examinations for transfer students.	
Jan. 31, 1:00 p. m., Mon.	Physical examinations for first semester freshmen.	
Jan. 31-Feb. 2, 12:45 p. m., Mon.-Wed.	Registration for juniors, sophomores, second semester freshmen, and graduate students.	
Feb. 1-2, 8:00 a. m., Tues.- Wed.	Registration for School of Veterinary Medicine.	
Feb. 2, Noon, Wed.	Registration for first semester freshmen.	
Feb. 3, 8:00 a. m., Thurs.	Classes begin.	Late enrollment fee \$2.50.
Feb. 5, Noon, Sat.	Regular registration closes for full-time College staff.	End of first week. Late enrollment fee \$5.00 for subsequent enrollment.
Feb. 26, Sat.	Examinations to remove conditions (4th week). Last day to enroll with full assignment.	
Mar. 2, 5:00 p. m., Wed.		End of first fourth.
Mar. 5, Noon, Sat.	Deficiency reports due in deans' offices (5th week).	

Mar. 11, 5:00 p. m., Fri.	End of first third.
Mar. 19, Noon, Sat.	Last day for dropping courses without a withdrawal or fail- ure being recorded (7th week).
Mar. 30, 5:00 p. m., Wed.	End of second fourth.
April 2, Noon, Sat.	Mid-semester deficiency reports due in deans' offices (9th week).
April 7, 10:00 p. m., Thurs.	Easter vacation begins.
April 12, 8:00 a. m., Tues.	Classes resume.
April 29, 3:00 p. m., Fri.	Applications for degrees must be made on or before this date.
April 30, Noon, Sat.	End of third fourth.
May 14, Noon, Sat.	Last day a subject may be dropped before end of semes- ter.
May 23-27, Mon.-Fri.	Semester examinations.
May 23, Noon, Mon.	Grades to registrar for all candi- dates for degrees, and low grades to dean and student concerned.
May 26, 11:00 a. m., Thurs.	Senate meeting to approve candi- dates for degrees.
May 28, Sat.	Alumni Day.
May 29, Sunday	Commencement.
May 30, Monday	Holiday—Memorial Day.
May 31, 5:00 p. m., Tues.	Deficiency reports due in deans' offices, grades to registrar.
May 31-June 3, Tues.-Fri.	4-H Club Roundup.

REGISTRATION AND ASSIGNMENT SCHEDULE

No undergraduate student will be permitted to register who has not taken the required physical examination and aptitude tests.

The following tabulation shows the schedule of hours for registration and assignment of students for the College sessions indicated, arranged according to initial letters of last names:

FIRST SEMESTER, 1953-1954

SCHEDULE FOR SENIORS AND TERMINAL JUNIORS *

TUESDAY, SEPTEMBER 8, 1953

<i>Hours</i>	<i>Initial Letters</i>
8:00 to 8:45 a. m.	B, O, W
8:45 to 9:30 a. m.	H, L, R, V, X, Y, Z
9:30 to 10:15 a. m.	C, F, G, I, P, Q
10:15 to 11:00 a. m.	D, E, S, T, U
12:00 to 12:45 p. m.	A, J, K, M, N

SCHEDULE FOR JUNIORS, SOPHOMORES, SECOND SEMESTER FRESHMEN, †
AND GRADUATE STUDENTS

TUESDAY, SEPTEMBER 8, 1953

<i>Hours</i>	<i>Initial Letters</i>
12:45 to 1:30 p. m.	C, A
1:30 to 2:15 p. m.	F, G, Q
2:15 to 3:00 p. m.	P, T

WEDNESDAY, SEPTEMBER 9, 1953

<i>Hours</i>	<i>Initial Letters</i>
8:00 to 8:45 a. m.	D, Sa-Se, U
8:45 to 9:30 a. m.	Sf-Sz, E
9:30 to 10:15 a. m.	M
10:15 to 11:00 a. m.	H
12:00 to 12:45 p. m.	Ba-Bro
12:45 to 1:30 p. m.	Brp-Bz, L, O
1:30 to 2:15 p. m.	W, Ja-Je
2:15 to 3:00 p. m.	Jf-Jz, N, I, K

THURSDAY, SEPTEMBER 10, 1953

<i>Hours</i>	<i>Initial Letters</i>
8:00 to 8:45 a. m.	R, V, X, Y, Z

SCHEDULE FOR FRESHMEN ENTERING COLLEGE FOR THE FIRST TIME

<i>Hours</i>	<i>Initial Letters</i>
8:45 to 9:30 a. m.	F, G, Q, P, T
9:30 to 10:00 a. m.	D, E, S, U
10:15 to 11:00 a. m.	M, C, A
12:00 to 12:45 p. m.	B, L, O
12:45 to 1:30 p. m.	W, J, N, I, K
1:30 to 2:15 p. m.	V, Y, R, X, Z, H
2:15 to 3:00 p. m.	Special Students and those (including upperclassmen) who failed to report during the period provided for their groups.

SCHEDULE FOR SCHOOL OF VETERINARY MEDICINE

(Veterinary Hall—Room 114)

WEDNESDAY, SEPTEMBER 9, 1953

<i>Hours</i>	<i>Initial Letters</i>
8:00 to 11:00 a. m.	First Year Students
1:00 to 3:00 p. m.	Second Year Students

THURSDAY, SEPTEMBER 10, 1953

<i>Hours</i>	<i>Initial Letters</i>
8:00 to 11:00 a. m.	Third Year Students
1:00 to 2:15 p. m.	Fourth Year Students
2:15 to 3:00 p. m.	Those who did not report with their class.

* Juniors leaving K. S. C. at end of year to enter professional schools; must have dean's permit to enroll on this day.

† Freshmen who have credit for a minimum of one summer session.

SECOND SEMESTER, 1953-1954

SCHEDULE FOR SENIORS AND TERMINAL JUNIORS *

MONDAY, JANUARY 25, 1954

<i>Hours</i>	<i>Initial Letters</i>
8:00 to 8:45 a. m.	C, F, G, I, P, Q
8:45 to 9:30 a. m.	D, E, S, T, U
9:30 to 10:15 a. m.	A, J, K, M, N
10:15 to 11:00 a. m.	B, O, W
12:00 to 12:45 p. m.	H, L, R, V, X, Y, Z

SCHEDULE FOR JUNIORS, SOPHOMORES, SECOND SEMESTER FRESHMEN, †
AND GRADUATE STUDENTS

MONDAY, JANUARY 25, 1954

<i>Hours</i>	<i>Initial Letters</i>
12:45 to 1:30 p. m.	Sa-Sm
1:30 to 2:15 p. m.	L, Hj-Hz
2:15 to 3:00 p. m.	V, Y, R, X

TUESDAY, JANUARY 26, 1954

<i>Hours</i>	<i>Initial Letters</i>
8:00 to 8:45 a. m.	Ha-Hi, Z
8:45 to 9:30 a. m.	Bp-Bz, O
9:30 to 10:15 a. m.	W
10:15 to 11:00 a. m.	Ba-Bo
12:00 to 12:45 a. m.	T, D
12:45 to 1:30 p. m.	N, K
1:30 to 2:15 p. m.	Ma-Mo
2:15 to 3:00 p. m.	Gp-Gz, P

WEDNESDAY, JANUARY 27, 1954

<i>Hours</i>	<i>Initial Letters</i>
8:00 to 8:45 a. m.	C, I, Q
8:45 to 9:30 a. m.	F, Ga-Go
9:30 to 10:15 a. m.	Sn-Sz, U, E
10:15 to 11:00 a. m.	Mp-Mz, A, J

SCHEDULE FOR FRESHMEN ENTERING COLLEGE FOR THE FIRST TIME

WEDNESDAY, JANUARY 27, 1954

<i>Hours</i>	<i>Initial Letters</i>
12:00 to 12:45 p. m.	L-Z incl.
12:45 to 1:00 p. m.	A-K incl.
1:15 to 3:00 p. m.	All those who failed to report during the period provided.

SCHEDULE FOR SCHOOL OF VETERINARY MEDICINE

(Veterinary Hall—Room 114)

TUESDAY JANUARY 26, 1954

<i>Hours</i>	<i>Initial Letters</i>
8:00 to 11:00 a. m.	First Year Students
1:00 to 3:00 p. m.	Second Year Students

WEDNESDAY, JANUARY 27, 1954

<i>Hours</i>	<i>Initial Letters</i>
8:00 to 11:00 a. m.	Third Year Students
1:00 to 2:15 p. m.	Fourth Year Students
2:15 to 3:00 p. m.	Special Students and those who did not report with their class.

* Juniors leaving K. S. C. at end of year to enter professional schools; must have dean's permit to enroll on this day.

† Freshmen who have credit for a minimum of one summer session.

THE BOARD OF REGENTS

WALTER FEES, <i>Chairman</i> , Iola	LESTER MCCOY, Garden City
DREW McLAUGHLIN, Paola	MRS. ELIZABETH HAUGHEY, Concordia
WILLIS N. KELLY, Hutchinson	ARTHUR W. HERSHBERGER, Wichita
LAVERNE B. SPAKE, Kansas City	GROVER POOLE, Manhattan
HUBERT BRIGHTON, <i>Secretary of the Board of Regents</i> , Topeka	
ED BURGE, <i>Business Manager</i> , Topeka	

Administrative Officers of the College

President	JAMES A. MCCAIN
President Emeritus	F. D. FARRELL
Dean of the School of Agriculture and Director of the Agricultural Experiment Station	ARTHUR D. WEBER
Dean of the School of Engineering and Architecture and Director of the Engineering Experiment Station	M. A. DURLAND
Dean of the School of Arts and Sciences	R. W. BABCOCK
Dean of the School of Home Economics and Director of the Bureau of Research in Home Economics	MARGARET M. JUSTIN
Dean of the School of Veterinary Medicine	E. E. LEASURE
Dean and Director of the Division of College Extension	L. C. WILLIAMS
Dean of the Graduate School	HAROLD HOWE
Dean of Financial Administration	A. R. JONES
Dean of Academic Administration and Director of Summer School	A. L. PUGSLEY
Dean of Students*	WILLIAM C. CRAIG
Acting Dean of Students	PAUL M. YOUNG
Director of Admissions and Registrar	ERIC T. TEBOW
Dean of Women	HELEN MOORE
College Historian	C. M. CORRELL
Director of Public Service	MAX W. MILBOURN
Librarian	WILLIAM BAEHR
Superintendent of Maintenance	R. F. GINGRICH

* On leave of absence, 1953-'54.

Admission

All correspondence about admission should be addressed to the Director of Admissions.

High School Graduates

A graduate of any Kansas high school or academy accredited by the State Board of Education is eligible to enter the freshman class. A graduate of an accredited high school or academy in another state is eligible to enter if his principal recommends him as capable of college work.

The Director of Admissions will send every applicant an information blank which should be filled in and returned as soon as possible. On it the student must specify the curriculum in which he plans to enroll.

When the Director of Admissions gets the student's information blank properly filled in, he will ask the applicant's high school principal to send a transcript of record. If this transcript is satisfactory, the director will send the student a permit to register. Students who present such permits will not have to meet with the committee before registration.

Students without permits to register must meet with the Committee on Admissions before registering. Those without satisfactory transcripts of record may be enrolled provisionally at the option of the committee.

The committee cannot act on transcripts received later than one week before the date of registration.

Entrance examinations will be given to eligible students who are deficient in high school units. Applications for such examinations must be made in advance to the Director of Admissions.

As enrollment in the curriculum in Veterinary Medicine is limited, students who wish to be admitted to that curriculum should read the statement, "Veterinary Enrollment Limited," under the School of Veterinary Medicine.

FIXED ADMISSION REQUIREMENTS

There are certain fixed admission requirements for all curriculums except the Two-year Curriculum in Agriculture. Although a high school graduate may enroll in the College if he lacks some of these requirements, he must make up the entrance deficiencies.

- (A) For the curriculums listed below which are preceded by the letter (A), the fixed admission requirements are three units* of English, one unit of algebra, one unit of plane geometry, and one unit of general science, biological science, or physical science.
- (B) For the curriculums listed below which are preceded by the letter (B), the fixed admission requirements are three units of English, one unit of algebra, one unit of general science, biological science or physical science, and one unit of plane geometry, general mathematics, applied mathematics, business arithmetic, or bookkeeping.
- (C) For the curriculums listed below which are preceded by the letter (C), the fixed admission requirements are three units of English, one and one-half units of algebra, one unit of plane geometry, one-half unit of solid geometry, and one unit of general science, biological science, or physical science.
- (D) For the curriculums listed below which are preceded by the letter (D), the fixed admission requirements are three units of English, one and one-half units of algebra, one unit of plane geometry, and one unit of general science, biological science, or physical science.
- (E) For the Curriculum in Elementary Education listed below and preceded by the letter (E), the fixed admission requirements are three units of English, one unit of mathematics, and one unit of general science, biological science, or physical science.

* A unit represents five recitation periods a week for a full school year.

- (F) For the curriculums listed below which are preceded by the letter (F), the fixed admission requirements are three units of English, one unit of algebra, and one unit of general science, biological science, or physical science.
- (G) For the curriculums listed below which are preceded by the letter (G), the fixed admission requirements are three units of English, one and one-half units of algebra, one unit of plane geometry, one additional half-unit of either algebra, trigonometry, or solid geometry, and one unit of general science, biological science, or physical science. A student with the required minimum of mathematics will be permitted to commence his college mathematics sequence at an advanced stage when a mathematics placement test indicates he can pursue the advanced course without undue lack of material or method. Demonstrated proficiency in the field of college algebra or trigonometry will reduce the graduation requirement by the number of hours allotted to the course in which the proficiency is demonstrated. A student with less than the required minimum of mathematics may enter a curriculum in the School of Engineering and Architecture. He will be required to start his mathematics sequence at the point indicated as appropriate by the mathematics placement test. This sequence may start with courses which do not give college credit.
- (H) There are no fixed admission requirements, other than high school graduation, for the Curriculum in Agriculture (two years) listed below and preceded by the letter (H).

Curriculums in the School of Agriculture

- (A) Agriculture, page 66.
- (A) Agricultural Administration, page 68.
- (A) Agricultural Education, page 69.
- (A) Agricultural Journalism, page 70.
- (A) Dairy Manufacturing, page 71.
- (D) Feed Technology, page 78.
- (A) Horticulture, page 72.
- (D) Landscape Design, page 74.
- (D) Milling Administration, page 75.
- (C) Milling Chemistry, page 76.
- (C) Milling Technology, page 77.
- (D) Technical Agronomy, page 80.
- (H) Agriculture (2 years), page 81.

Curriculums in the School of Arts and Sciences

- (A) Humanities, page 114.
- (A) Social Science, page 118.
- (A) Biological Science, page 111.
- (A) Biological Science, Medical Technician, page 112.
- (A) Biological Science, Pre-medical, page 113.
- (A) Business Administration, page 119.
- (D) Chemistry, page 121.
- (E) Elementary Education, page 122.
- (D) Geology, Applied, page 123.
- (A) Music, Applied, pages 124, 127.
- (A) Music Education, pages 125, 126.
- (F) Physical Education (Men), page 128.
- (F) Physical Education (Women), page 129.
- (D) Physics, page 130.
- (D) Physical Science, pages 111, 112, 113.
- (A) Pre-veterinary, page 132.
- (A) Technical Journalism, page 131.

Curriculums in the School of Engineering and Architecture

- (G) Agricultural Engineering, page 219.
- (G) Architectural Engineering, page 220.
- (G) Architecture (5 years), page 221.
- (G) Chemical Engineering, page 222.
- (G) Civil Engineering, page 223.
- (G) Electrical Engineering, page 224.
- (G) Industrial Arts, page 227.
- (G) Industrial Engineering, page 229.
- (G) Mechanical Engineering, pages 230, 231, 232.
- (G) Nuclear Engineering, page 233.

Curriculums in the School of Home Economics

- (B) Home Economics General Curriculum, page 267.
- (B) Home Economics with Provision for Specialization, page 269.
- (B) Dietetics and Institutional Management, page 271.
- (B) Home Economics and Journalism, page 273.
- (B) Home Economics and Nursing, page 274.
- (B) Restaurant Management, page 272.

Curriculum in the School of Veterinary Medicine

Veterinary Medicine (must be preceded by two-year Pre-veterinary curriculum in the School of Arts and Sciences, page 132), page 296.

For those curriculums in the School of Agriculture in which college algebra appears as an alternate to mathematics in agriculture, students desiring to take the college algebra will be required to have one and one-half units of credit in high school algebra.

An applicant for admission to the School of Engineering and Architecture may take a placement test to receive credit in college algebra and/or trigonometry without expense to himself. Failure in the examination will not be entered on his permanent record. A student with at least two units of high school credits in algebra may take the placement test in college algebra. A student with at least one-half unit of high school credit in trigonometry may take the placement test in trigonometry.

A student who is admitted to the School of Arts and Sciences who has the required minimum of credits in mathematics will be permitted to commence his college mathematics sequence at an advanced stage when a mathematics placement test indicates he can pursue the advanced course without undue lack of material or method.

A student who enters without one unit of algebra or one unit of plane geometry will be enrolled as a special student if he wishes to enter any of the curriculums in Engineering and Architecture or the curriculums in Applied Geology, Industrial Chemistry, Industrial Physics, Landscape Design, Milling Technology, or Physical Science. As soon as the fixed requirements in mathematics are completed, he will be transferred to regular status without loss of credit.

A student who lacks one unit of algebra must complete this requirement during his first semester in College through courses offered by the Division of College Extension in resident centers on the campus.

The student who lacks one unit of plane geometry should complete this requirement in the geometry class or by correspondence during his first semester of attendance; he must have completed it or be enrolled in it at the beginning of his third semester of residence.

For information about making up deficiencies in algebra and geometry, the student should consult the Department of Home Study. (See page 310.) No student lacking required units in algebra and plane geometry will be advanced in classification.

A student lacking a half unit of advanced high school algebra, if he enrolls in a curriculum for which it is prerequisite, will in general be en-

rolled in a non-credit course in Intermediate Algebra to make up his deficiency before enrolling in college algebra.

A student lacking solid geometry will, if he enrolls in a curriculum for which it is required, be assigned to a two-hour course in solid geometry. For these hours he may be given elective credit toward graduation, except in curriculums in the School of Engineering and Architecture.

A student lacking one-half or one required unit of biological or physical science will be held for two or four hours of college science in addition to the science required in his curriculum. For these hours he may be given elective credit toward graduation, except in curriculums in the School of Engineering and Architecture.

A matriculated student, who has high school units in excess of the fifteen units required for admission, may apply for an examination in certain subjects of freshman rank on the basis of his surplus units. The application should be made to the Registrar, who will check surplus units and authorize an examination within the first thirty days of the semester or summer session. Examinations which affect the assignment of a semester or summer session, however, will be given on the first Saturday of that semester or summer session. After the expiration of the thirty-day period, the student's dean may authorize an examination. The fee is \$2 a semester hour for residents of Kansas, \$6 a semester hour for non-residents.

Students from high schools not in Kansas must be recommended by their principals as capable of doing college work.

High School Nongraduates

A student who is not a graduate of an accredited high school or academy may enter the freshman class if he has completed fifteen acceptable units of high school work, including the fixed requirements. One who offers fourteen such units will be admitted, but will be conditioned in one unit. The deficiency must be made up during the first year of attendance. In addition to the fixed requirements of the particular curriculum the student wishes to enter, he must offer the remainder of the units in subjects acceptable to the Director of Admissions. For details, nongraduates should write to the Director of Admissions.

Students with Advanced Credit

Students presenting transcripts of record of work done in other accredited institutions of collegiate level are allowed hour-for-hour credit on courses in this College insofar as the credits can be accepted in the student's curriculum. A student who cannot furnish an acceptable transcript of record of work for which he has advanced credit, may be examined in subjects that he has studied under competent instructors.

On the information blank furnished by the Committee on Admissions a student with advanced credit must not only state the curriculum he plans to follow, but also list all other institutions in which he has been enrolled. He must ask these institutions to send a transcript of his record to the Director of Admissions. A separate transcript must be furnished from each college previously attended. If fees are charged for such transcripts, the applicant must make necessary arrangements with his former institutions.

When the transcripts have been evaluated, the committee will send the student a copy of the evaluation. Students without an approved evaluation of credits must meet with the committee before registering. If their records are not completely satisfactory, they may be enrolled provisionally at the option of the committee.

The committee cannot act on transcripts received later than one week before the date of registration.

Note: Transcripts of record must come to the Director of Admissions directly from the institutions issuing them. Others will not be accepted.

In general, no student will be admitted to the College unless he is eligible to return to the institution last attended.

Special Students

A special student is one not regularly enrolled to work for a degree. He may, however, on completing entrance requirements and with the consent of his dean, become a regular student.

A student who satisfies entrance requirements may be admitted as a special student for such work as is approved by the dean of the school in which he enrolls.

A student who satisfies requirements for entrance to the College, but lacks fixed requirements for admission to certain curriculums (See page 12.) may, with the approval of the dean, be admitted as a special student to the school in which he wishes to enroll. When the fixed requirements have been completed, he may, with the consent of the dean, become a regular student without loss of credit.

Because experience and maturity often compensate for lack of scholastic attainment, the College admits as special students men and women over twenty-one years of age who cannot meet the regular entrance requirements. The age limit does not apply to special students in music.

Special students must give evidence of satisfactory preparation for the courses they wish to take, and most special students must present transcripts of record of their preliminary education. In some cases a special student may present a statement from another college in lieu of a transcript of record. This statement must certify that the student is in good standing, list the courses that the student wishes to take, and declare that the student has completed the prerequisites.

Special students are subject to regulations for regular students, payment of all fees, regular attendance at classes, maintenance of satisfactory standing, and as a rule assignment to physical education and military training.

The College will give special consideration to students who apply for admission as special students on the basis of experience gained in service in the Armed Forces. (See "Veterans of the Armed Forces," p. 18.)

Late Admission

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. A fee of \$2.50 is charged anyone enrolling late, but completing enrollment the first week. Anyone enrolling after the first week must pay a late enrollment fee of \$5. (See the College Calendar.)

Aptitude Test

Before he may enroll, every applicant for admission to the College must take a book-learning abilities test. This test is given to freshmen enrolling in Kansas State College for the first time during the Freshman Orientation period, and to other new students at a stated time before they register. Equivalent tests taken elsewhere cannot be substituted for the tests required in this College.

Freshman Orientation Week

Freshmen enrolling for the first time come to the campus a few days before registration begins. (See Calendar.) During these days they have the opportunity of becoming acquainted with the College, meeting faculty members and classmates, getting information and other help from advisers, taking aptitude, placement, and physical examinations, and attending social functions.

Each entering freshman gets a booklet that gives the complete schedule of Freshman Week Activities. Since the College handles large numbers of students, it is essential that all freshmen get here on time, follow the schedule closely, and attend all functions.

No one may register as an undergraduate unless he has taken the required physical examinations, and the required aptitude tests, which will help him in making judgments about his work in the College.

Freshmen and their parents are invited particularly to the opening convocation of the orientation period.

Freshman Advising Program

Freshmen have the opportunity of meeting with their advisers at the beginning of the school year and any time during the year when they need help. The purpose of the first meeting is to define student goals to be reached in college, give information regarding appropriate curriculum and courses, and to discuss any problems the student may have. Later meetings are usually devoted to a discussion of the student's progress and plans for the next semester's work. These meetings give the student a better understanding of himself in relation to his goals and college life as a whole.

Mathematics Proficiency Tests

In all curriculums in which college algebra is required, students will take a proficiency test in algebra within the first two weeks of their enrollment in any course in algebra. The results of this test will be used to determine whether a student shall be required to take the course in intermediate algebra to qualify for college algebra.

English Requirement

Each freshman entering the College for the first time will be required to take an English placement test consisting of a theme and a written examination on the mechanics of writing. Students who meet a standard set by the Department of English in the placement examination may elect to take Written Communications II and to substitute another English course for Written Communications I. They are also automatically eligible to take a special examination which, if passed satisfactorily, will permit them to receive credit in Written Communications I. Students having low scores in the placement test will be required to take Written Communications IA.

The special examination for credit in Written Communications I will be given the fourth Saturday of each semester and the second Saturday of the Summer Session. The examination will cover the content of the course as it is offered at Kansas State College. Permission to take the examination must be secured from the student's dean and the head of the Department of English. The charge for the examination is \$6 for residents of Kansas and \$18 for nonresidents.

The examination must be taken the first semester that the student is enrolled in the College.

Required Physical Examinations

All students must take a physical examination at time of matriculation. In addition, because of the nature of the profession, students who enroll in teaching participation must pass a physical examination. All seniors in home economics and fourth year veterinary students must take a physical examination before graduation. Under no circumstances will a student be deprived of a degree because of the results of a physical examination. Such examinations are optional for all other seniors.

Junior Colleges

There is excellent co-operation between the junior colleges of Kansas and Kansas State College. A student who plans to begin his work in junior college and complete it in Kansas State College may arrange his program so as to proceed without loss of time. Different curriculums require different subjects, but the College will give all possible credit for work done in junior colleges. Hour-for-hour credit is given where junior college work can be accepted to satisfy curricular requirements.

The College will gladly furnish to junior college students a list of recommendations for any curriculum, so that a student may begin his work in junior college with an assignment acceptable to this institution, and later transfer without loss of credit. A junior college student who has followed the advice of the College can usually complete his work for the bachelor's degree from Kansas State in two years.

The curriculums printed in this catalogue give full information as to courses required in each, but the College will be glad to hear from students as to specific problems.

The following Kansas junior colleges are accredited by the State Board of Education.

PUBLIC

Arkansas City Junior College, Arkansas City
Chanute Junior College, Chanute
Coffeyville College of Arts, Sciences, and Vocations, Coffeyville
Dodge City Junior College, Dodge City
El Dorado Junior College, El Dorado
Fort Scott Junior College, Fort Scott
Garden City Junior College, Garden City
Highland Junior College, Highland
Hutchinson Junior College, Hutchinson
Independence Junior College, Independence
Iola Junior College, Iola
Kansas City Junior College, Kansas City
Parsons Junior College, Parsons
Pratt Junior College, Pratt

PRIVATE

Central Academy and College, McPherson
Ursuline College of Paola, Paola
Hesston College, Hesston
Sacred Heart, Wichita
Saint John's College, Winfield
Tabor Academy and College, Hillsboro

Veterans of the Armed Forces

All men and women honorably discharged from the armed forces of the United States will be considered for admission to Kansas State College.

The College will consider the individual needs of each student whose education was interrupted by a call into the armed forces. Those who lack high school graduation or a full list of high school prerequisites will be given an opportunity to prove equivalent ability and knowledge by taking entrance examinations, or other means. For certain technical curriculums, high school prerequisites, especially in mathematics, must be made up.

Correspondence courses taken from accredited institutions through the United States Armed Forces Institute will be accepted from veterans, subject to the regular rules covering the acceptance of advanced credit by correspondence.

Correspondence courses and others given by the United States Armed Forces Institute, in-service courses, and other courses taken by men and women while in service in the armed forces, may be accepted for entrance credit or advanced credit if validated by examinations given by the College, or in some other manner satisfactory to the student's dean. No credit is given for General Educational Development Tests, College Level.

Work done in the Army Specialized Training Program, the Navy V-12 Program, or the Army Air Forces Pre-Meteorology courses will in general be accepted as a collegiate grade, and used for advanced credit insofar

as it applies on the student's curriculum. Work done in the Army Air Force College Training Program and the Navy V-5 Program must usually be validated by examination.

In general the College follows the recommendations given in "A Guide to the Evaluation of Educational Experiences in the Armed Services," published by the American Council on Education.

To receive benefits under PL 346 or PL 16, a veteran must have initiated his education or training on or before July 25, 1951, or before the end of 4 years after his discharge from the services, if he served past July 25, 1947. His education and training must be completed by July 25, 1956, unless he enlisted between October 6, 1945, and October 5, 1946, in which event he has 9 years from date of termination of enlistment or re-enlistment.

To receive benefits under PL 550, Korean GI Bill, a veteran must have initiated his training by August 20, 1954, or 2 years after discharge or release from active services, whichever is later.

Public Law 894 is the Vocational Rehabilitation Law for veterans disabled on or after June 27, 1950, and requires the same procedure as PL 16 in obtaining educational benefits.

Services for Veterans

College-wide agencies giving special services for veterans are grouped in Anderson Hall. The Veterans Service Office and the Counseling Bureau are operated by Kansas State College. Each veteran attending Kansas State College under the Federal educational benefits program must have VA authorization. Applications for benefits under Public Law 346 or Public Law 550 are available in the College Veterans Service Office or any Veterans Administration Center. To obtain benefits under Public Law 16 or Public Law 894, contact Veterans Administration Center at Wichita 8, Kansas.

The Office of Admissions, Housing Office, Business Office, and other College-wide service offices are also located in Anderson Hall. Correspondence concerning veterans' educational benefits should be addressed to the Veterans Service Office, Kansas State College.

State Vocational Rehabilitation Training

The College co-operates with the State Board for Vocational Education in providing rehabilitation training for physically handicapped persons who need financial assistance. Correspondence should be addressed to the Vocational Rehabilitation Division of the State Board for Vocational Education, Topeka, Kansas.

The College

The College, founded on February 16, 1863, was established under the Morrill Act, under which land-grant colleges came into being. According to the law of its establishment, the object of the College 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."

At first the College was located on the grounds of the old Bluemont Central College, chartered in 1858, but in 1875 most of the work of the College was moved to the present site. The campus is at the northwest corner of the city of Manhattan, convenient to both business and residential sections. The campus itself consists of 153 acres carefully landscaped, while beyond the campus there are about 2,800 acres of land belonging to the College, used for experimental work in agriculture.

Most of the College buildings are constructed of native limestone. They are so placed as to give maximum effect to the landscaping of the campus.

As a land-grant College, Kansas State provides opportunity to fuse, in a single educational program, processes which have often been wholly separate—those of technical instruction and general education. The former is necessary for vocational and professional efficiency in an age of specialization; the latter is essential to significant living and effective citizenship. Continued separation of technical training from living and citizenship responsibilities could only lead to a vast social catastrophe in our time. To get the two together in actual fusion, achieving an integrity of mind and body in the individual student, is the over-all purpose of the College, making the campus a vital place, the classroom a stimulating environment, and learning an exciting experience.

The College offers technical instruction in agriculture, engineering and architecture, home economics, veterinary medicine, and the physical and biological sciences. There is instruction in music, graphic arts, physical education, social and humane studies, business administration, and journalism as related to such fields as agriculture, home economics, engineering, and industry. The College also prepares elementary and secondary school teachers, and laboratory technicians and specialists in institutional management.

The College also offers courses and activities designed to widen the general information, increase the living wisdom, and strengthen the moral character of students. To fit students for their social and political responsibilities and for exercise of judgment in their individual lives is a major objective of the institution as a whole. It is the hope of the College that its graduates will go forth with an understanding of democracy and an enthusiasm for it.

Instruction is combined with research. In the agricultural and engineering experiment stations, in the Bureau of Research in Home Economics, and in the laboratories of the various scientific departments, there is constant investigation of problems of importance to the people of Kansas. Such research is largely conducted by the staff, but there is opportunity for capable students to participate.

Through the Division of College Extension, adult education is carried throughout the state. Although the work is largely in agriculture and home economics, there is opportunity for all the people in the state to profit in many ways. The Department of Home Study offers numerous correspondence courses and classes in extension centers which cover various fields. This phase of college usefulness will presumably grow as needed.

Business Directions

General information about the College is obtainable from the President.

Prospective students should communicate with the Director of Admissions.

The experiment stations and the various departments are always ready to respond to requests for information in their special fields. Those who need scientific and practical information should write to the head of the department concerned with the work under consideration.

Requests for publications of the Agricultural Experiment Station or the Engineering Experiment Station should be made to the director of the station.

Fees

Fees Subject to Change. All fees are subject to change at any time by the Board of Regents. The various customary enrollment fees are listed under the recapitulation on page 21.

Payment of Fees. The matriculation fee is paid only at the first registration in the College. The incidental fee, the student health fee, and the student union fee are paid during registration at the beginning of each semester or summer session.

All fees must be paid in full during the period of registration. Checks on out-of-town or local banks are accepted to the amount of the fees.

Refunds will not be made until sufficient time has elapsed to insure that student checks have been honored—usually 15 days after students enroll.

Tuition. There is no tuition fee. Fees are charged for individual lessons in music but not for class instruction. (See Personal Service Fees.)

Matriculation Fee. The matriculation fee is paid only once. All students who enroll for credit (including enrollees in workshops and short courses if for credit) must pay this fee when first enrolling.

Incidental Fee. The incidental fee is designed to assist in defraying costs of laboratory supplies, plant operation and maintenance, non-academic and administrative personnel, library books and personnel, student recreational activities and publications; equipment and other nonteaching activities not particularized. The incidental fee is not tuition, nor a fee in lieu of tuition, but represents the student's contribution to the costs of nonteaching aspects of the total instructional program.

Student Health Fee. For a description of the Department of Student Health, see page 34.

Student Union Fee. In accordance with a vote of the student body and with section 4 of chapter 364 of the Kansas Session Laws of 1941, each student pays a student union fee. The fund so collected is to be used to provide a student union building.

Recapitulation. To make clear the amount of fees due at the opening of each semester of the College year, the following tabular statement is given:

FOR RESIDENTS OF KANSAS OR STAFF MEMBERS

Paid for each semester (sixteen weeks or more, if enrolled in more than six hours) except matriculation, which is paid only once.

	<i>New students</i>	<i>Old students</i>
Matriculation (paid at first enrollment only)	\$10.00	None
Incidental		
All except Veterinary Medicine Students	62.50	\$62.50
Veterinary Medicine Students	72.50	72.50
Student Health	10.00	10.00
Student Union	7.50	7.50
Totals—All except Veterinary Medicine Students	\$ 90.00	\$80.00
Totals—Veterinary Medicine Students	100.00	90.00

(If enrolling in six semester hours or less, see paragraph below regarding pro rata fees.)

FOR NONRESIDENTS OF KANSAS

Paid for each semester (sixteen weeks or more, if enrolled in more than six hours) except matriculation, which is paid only once.

	<i>New students</i>	<i>Old students</i>
Matriculation (paid at first enrollment only)	\$ 20.00	None
Incidental		
All except Veterinary Medicine Students	132.50	\$132.50
Veterinary Medicine Students	142.50	142.50
Student Health	10.00	10.00
Student Union	7.50	7.50
Totals—All except Veterinary Medicine Students	\$170.00	\$150.00
Totals—Veterinary Medicine Students	180.00	160.00

(If enrolling in six semester hours or less, see paragraph below regarding pro rata fees.)

Definition of Resident. The residence of students entering Kansas State College is determined by an act of the legislature (L. 1938, Special Session, ch. 70, sec. 1), which reads as follows:

“Persons entering the state educational institutions who if adults have not been, or if minors, whose parents have not been residents of the state of Kansas for six months prior to matriculation in the state educational institutions, are nonresidents for the purpose of the payment of

matriculation and incidental fees: *Provided further*, That no person shall be deemed to have gained a residence in this state for the aforesaid purpose while or during the elapse of time attending such institution as a student, nor while a student of any seminary of learning, unless, in the case of a minor, his parents shall have become actual residents in good faith of the state of Kansas during such period, or unless, in the case of a minor, he has neither lived with nor been supported by his parents or either of them for three years or more prior to enrollment and during said years has been a resident in good faith of the state of Kansas."

Pro Rata Fees. Fees for enrollees enrolling originally in six semester hours or less for a regular semester or three semester hours or less for a summer session of seven weeks or more are as follows:

	<i>Kansas residents or staff members</i>	<i>Non- residents</i>
Matriculation (paid at first enrollment only)	\$10.00	\$20.00
Incidental (regular semester or summer session)		
All except work in School of Veterinary Medicine, a semester hour	4.00	9.00
Work in School of Veterinary Medicine, a semester hour	5.00	10.00
Student Health (regular semester or summer session)	Not eligible	Not eligible
Student Union		
Regular semester	5.00	5.00
Summer term	2.00	2.00
Recreation fee		
Regular semester	Not eligible	Not eligible
Summer term	\$2.50	\$2.50

Refund Policy. If an enrollee withdraws and returns his identification card during a school term, the following schedule of refunds shall apply:

	<i>A If withdrawal is NOT to enter Military Service</i>	<i>B If withdrawal IS to enter Military Service</i>
Matriculation Fee	Not subject to refund	Not subject to refund
a. During first week of each enrollment period.	100% except matriculation	100% except matriculation
b. After first week and before end of first quarter of each enrollment period.	50% except matriculation and health	100% except matriculation
c. After first quarter and before end of first third of each enrollment period.	50% except matriculation and health	50% except matriculation
d. After first third and before end of first half of each enrollment period.	No Refunds	50% except matriculation
e. After first half and before end of three-fourths of each enrollment period.	No Refunds	25% except matriculation
f. After three-fourths of each enrollment period.	No Refunds	No Refunds

Graduate Research Work in Absentia. The fee for graduate research work *in absentia* is \$2.50 a semester hour for both residents and non-residents. Resident staff members may not enroll *in absentia* while regular college sessions are in progress. This fee is not subject to refund.

Special Examination. Any student granted permission to take a special examination for possible college credit (in lieu of attending classes) shall be assessed a fee of \$2 a semester hour in which examined if a Kansas resident or a staff member; or \$6 a semester hour in which examined if a nonresident. This fee must be paid before taking the examination and is not subject to refund; this service is available only to matriculated students.

Late Enrollment, Including Re-enrollment After Withdrawal. A late enrollment fee of \$2.50 shall be assessed and collected from each person enrolling after the regularly scheduled enrollment period. A larger late enrollment fee of \$5 shall be assessed and collected from each person enrolling, re-enrolling or paying his fees after the first week of a school term. However, only one or the other of these fees shall be collected for each late enrollment or re-enrollment. Late enrollment fees shall not be

subject to refund and payment thereof shall be considered a part of the enrollment process.

Laboratory Fees and Course Charges or Deposits. No laboratory fee or course charge is assessed against or collected from persons enrolled in any regular semester or summer session at Kansas State College, except for excessive usage or breakage or losses due to personal negligence on the part of the student, and then only for actual fair value of supplies so used or lost and subject to the approval of the appropriate dean or the President.

Non-Credit Short Courses and Credit Workshops. Fees for credit workshops and non-credit short courses to be assessed and collected as announced in official College publications shall be based on the following schedule and shall be subject to the refund policy outlined above. (Irregularly scheduled courses given for credit are subject to regular or pro rata fees.)

	<i>Kansas residents or staff members</i>	<i>Non- residents</i>
Matriculation (Workshops taken for credit)	\$10.00	\$20.00
Incidental fee* (per week)	4.00	9.00
Student Health:		
First week	1.50	1.50
Each additional week	.75	.75
Student Union:		
For first 3 weeks	1.50	1.50
Each additional week	.50	.50
Recreation fee: (Summer Sessions only)		
Less than 3 weeks	None	None
For first 3 weeks	1.00	1.00
Each additional week	.25	.25
Recreation fee: (Winter terms)	Not eligible	Not eligible
Consumable supplies charge	As determined in each instance	

Personal Service Fees. Charges for private music lessons or for other individual instruction are in addition to the fees outlined above; such fees, however, are subject to the refund policy set forth above. The schedule for private music lessons is as follows:

	<i>Students paying incidental fee*</i>	<i>Students not paying incidental fee</i>
Two lessons a week for 16 to 18 weeks.....	\$35.00	\$42.00
One lesson a week for 16 to 18 weeks.....	17.50	23.00
Two lessons a week for 8 to 10 weeks.....	17.50	23.00
One lesson a week for 8 to 10 weeks.....	8.75	11.50
Separate individual lessons, each	1.50	2.00

Charges for individual training in flight instruction are based upon actual costs to the College. A deposit to cover these costs is required at the time of enrollment. All unused deposits are refunded when the course is completed. Any excess in costs over the deposit will be appropriately collected before the student concerned may be graduated.

Audition Fee. An auditor who is neither an enrollee nor a staff member shall be assessed \$1 a semester hour for courses audited. Laboratory courses may not be audited. These fees shall not be subject to refund.

Commencement and Certificate Fees. Each person eligible for a degree shall be assessed \$9 for each degree to be conferred to cover cost of diploma and commencement activities. Each person eligible for a certificate of completion of a course of study shall be assessed \$5 for each such certificate to cover cost of preparing the certificate and of related commencement activities. These fees shall not be subject to refund.

Transcript Fees. Each student is entitled to receive without charge one transcript of his record. For each additional transcript requested by such student there shall be charged a fee of 50 cents, payable in advance. Pay-

* There is no additional charge for equipment used by students paying incidental fees, except that the number using the organ may be limited by the music department. The term "incidental fee" as used here refers to a *full* incidental fee, not a *pro rata* incidental fee.

ment of each commencement fee beyond the first entitles the recipient of a further degree to an additional transcript. For transcripts furnished to any person or agency other than the student or graduate concerned or his financial sponsor, there shall be charged a fee of \$1 for each transcript. These fees are not subject to refund.

Summer Sessions. In general the fees for the regular summer session are approximately one-half the fees as outlined for regular semesters, and are subject to the refund policy outlined above. The following schedule of fees will be charged for summer sessions of more than 6 and less than 13 weeks.

	<i>Kansas residents or staff members</i>	<i>Nonresidents</i>
Matriculation (paid at first enrollment only)	\$10.00	\$20.00
Incidental		
All except Veterinary Medicine students	35.00	75.00
Veterinary Medicine students	40.00	80.00
Student Health	5.00	5.00
Student Union	3.00	3.00
Totals—All except Veterinary Medicine students	\$43.00	\$83.00
Totals—Veterinary Medicine students	48.00	88.00

(If enrolling in three semester hours or less, see paragraph regarding pro-rata fees.)

Each fee for a summer session of six weeks or less shall be one-half (to the nearest dollar) the fee for a regular summer session, except that no fee shall be less than \$1, and no pro-rata fees shall be assessed.

Home Study Fees. For a complete listing of fees charged for work offered through the Department of Home Study, Division of College Extension, see page 311. Resident students taking work by correspondence are required to pay the *enrollment* fee for that work.

Military Uniforms. Every student who takes military training (except Veterinary) must have a uniform. For the basic courses the uniform is furnished by the Government. The money value of any missing articles will be collected when the uniform is returned. Failure to return or pay for missing articles of the uniform may result in withholding of credit and in extreme cases may cause the College to refuse a transcript or to graduate the student concerned. A uniform is purchased for each advanced course student which becomes his personal possession upon completion of the course. All or nearly all of the cost of this uniform is paid by the federal government.

Charges to Governmental or Private Agencies. The fees collected under federal contracts or arrangements with other governmental or private agencies follow in general the fees outlined above, and in all cases the charges are equal to or greater than the fees stated herein.

Other Expenses

Textbooks. The cost of textbooks varies considerably from semester to semester and according to the curriculum chosen. A freshman may reckon with an expenditure of about \$30 for new textbooks during his first semester, and of about \$20 during his second semester. Certain curriculums require books costing slightly more than these figures; most curriculums require books costing slightly less. For many courses secondhand books are satisfactory.

Drawing Instruments. In several curriculums, especially in architecture and engineering, drawing instruments are necessary. These range in price from \$18 to \$30 a set.

Gymnasium Suits. Every woman taking physical education must have an approved gymnasium suit costing \$4 to \$5. In the major course the suit costs \$5 to \$7. The gymnasium suit for a man costs about \$5. In the major course the suit costs \$10.

Classification of Students

A student who is a high school graduate, or offers fifteen acceptable units of high school work, is classified as a freshman. He is advanced to a higher class when he has credit in hours and points to meet the requirements for advancement in the various schools as listed below:

<i>School</i>	<i>Sophomore class</i>	<i>Junior class</i>	<i>Senior class</i>
Agriculture	23	56	88
Arts and Sciences	23	55	86
Engineering and Architecture*	25	61	97
Home Economics	23	54	81

Students enrolled in the professional curriculum in the School of Veterinary Medicine are classified as First Year, Second Year, Third Year, and Fourth Year students. The First Year students are so classified following admission and assignment to the School, after completion of the two-year Preveterinary curriculum (68 hours). To advance to a higher classification, a student must complete satisfactorily the requirements as listed in the professional curriculum for the previous year or years. Exceptions are granted only in meritorious cases by the Dean of the School of Veterinary Medicine and shall not exceed nine credit hours of deficiencies. No student lacking required units in elementary algebra and plane geometry will be advanced in classification.

Assignments

A student is responsible for fulfilling all the requirements of the curriculum in which he is enrolled. His assigner and his dean will help him plan his work, but do not assume responsibility for his mistakes. A student should be familiar with the catalogue statements about assignments and curriculums, because the catalogue is the official source of information.

No student may be enrolled in classes or for private lessons in music or other subjects before getting an assignment. No assignment is complete until all fees and charges are paid.

Registration and assignment to courses take place on the dates shown in the Calendar, page 5. Later assignments are made during regular office hours by a student's dean or assigner, but must be checked by the Registrar as to availability of classes, which are closed when the limit as to number is reached.

A student may not enroll later than ten days after the beginning of a semester or summer session except by permission of his dean.

Penalties are provided for failure to enroll during the regularly scheduled registration periods, or failure to complete registration by payment of fees before the dates set for that purpose. See the Calendar, or the section on Fees, page 20, for these penalties.

A student who wants to take work at other than scheduled times must have the written consent of his dean, the head of the department in which the work is to be done, and the dean of the school in which the department belongs.

Every student must take a full assignment unless excused by his dean. Students whose grades averaged B or better during the preceding semester and who did not receive a deficiency of any kind during the preceding semester, may apply to their deans for permission to take excess hours, but not to exceed 21, including correspondence work. Other students may not normally take excess hours. Exceptions to this policy are reported to the President by the dean granting the exception.

An enrolled student may not carry correspondence work except by permission from his dean.

If a student makes special requests about assignments or asks permission to make up deficiencies by study under an approved tutor, his dean will decide after conferring with the heads of the departments concerned.

* Students enrolled in the five-year Curriculum in Architecture are classified according to the following requirements in hours and points: Second Year, 22; Third Year, 55; Fourth Year, 87; Fifth Year, 119.

Changes in Assignments

Deans will not drop subjects from a student's assignment during the last two weeks of a period covered by final scholarship deficiency reports.

No student may drop a course or change an assignment except by a formal reassignment, which can be made only by his dean.

If an instructor recommends a reassignment, a student should confer with his dean.

A student who drops out of class without a reassignment is reported absent.

Withdrawal from College

A student who withdraws from College must have an official withdrawal permit from his dean. If a student withdraws from College before midsemester, a mark of WD (withdrawn) is reported. If he withdraws after mid-semester, he gets a grade for one-half semester. A student who withdraws during the eighth or ninth week or the seventeenth or eighteenth week of a semester gets a midsemester or semester grade of F for courses in which he is not doing satisfactory work.

Auditing Classes

An auditor is one who attends a class regularly without participating in class work and without getting credit. Permission to audit a class is granted by the dean of the School in which the class is offered. The fee for those not connected with the College is \$1 a semester hour. A student or employee of the College who wants to audit a class must first get the consent of his dean. Laboratory classes cannot be audited.

Grades

The College uses the following grades:

- A, for distinguished work
- B, for superior work
- C, for average work
- D, for merely passing work
- F, for failure

The equivalent percentage grade for passing is 70. For purposes of translating percentage grades into letter grades, the following schedule shall be used when 70 is the minimum passing grade:

- 94-100 A
- 86- 93 B
- 78- 85 C
- 70- 77 D

The report Con, conditioned, is used for unsatisfactory work on which an examination may be taken. If the examination is passed, the Con becomes D; otherwise it becomes F. The examination must be taken at the first subsequent semester of enrollment. The report Inc, incomplete, is used when a student may have further time to complete the required work. It, too, must be removed within the first subsequent semester of attendance or the report becomes an F, unless the Inc was reported for a course designated in the catalogue as "research."

Report of Grades

(1) On the fifth and the ninth Saturday of each semester; (2) not later than 6 p.m. on the last day of each semester, reports of unsatisfactory work on those dates are sent to the students concerned and the deans. The dates appear in the Calendar; these reports are an imperative duty of all instructors. The first two 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.

Students desiring reports of grades must supply these instructors with properly filled official cards after the fifth or the ninth Saturday of the semester or with their final examination papers. Instructors will make

reports so requested to the students or send them to the student organizations.

The instructor prepares for each student a semester grade based on the examination and class work, and must report this to the Registrar for record as shown in the Calendar.

If a student drops a subject before the seventh week, no mark shall be reported to the Registrar. An official drop slip from the student's dean shall constitute the record of performance.

If a student drops a subject after the seventh and before the end of the sixteenth week, either a mark of Wd or a full semester grade of failure shall be reported depending on whether the student was passing or failing, respectively, at the time of dropping the subject. Regardless of the time of withdrawal, however, a final grade shall be reported and designated as such, if all the required work of the course has been completed.

In case of absence from a final examination, no semester grade is reported until the reason for such absence has been learned; the instructor reports to the Registrar a mark of Inc. If the student's absence is inexcusable, a semester grade is reported on the basis of zero for the final examination; but if the absence is excused or excusable, a reasonable time, usually not over one month, is allowed within which the examination may be taken.

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. Special procedures are followed in reporting a grade to replace Inc and in reporting corrections of grades.

Instructors are to leave all class books on file in the proper department when semester grade cards have been made out. The head of the department is to keep all grade books as a permanent file of the department.

Points

For each semester hour of work a student gets points, according to the grades he makes, as follows: A, 3; B, 2; C., 1; D, 0; F, —1. For graduation or for advancement in classification, the requirement in points is the same as in hours.

Scholarship Deficiencies

PROBATION

If a student in either semester or summer session of his first year at Kansas State College gets F or Con in one-third of his work, he is put on probation for a semester, and his parent or guardian is informed of the fact. Any other student is put on probation for a semester if he gets F or Con in one-fourth of his work. A third such probation results in dismissal from the College.

DISMISSAL

If a student in either semester or summer session of his first year at Kansas State College gets F or Con in one-half of his work, he is dismissed from the College, and his parent or guardian is informed of the fact. Any other student is dismissed if he gets F or Con or an Inc (F) in two-fifths of his work. After two probations, one probation and one dismissal, or two dismissals, any subsequent probation involves dismissal.

REINSTATEMENT

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 or a summer session are excluded until the end of the next fall semester. During this period they may not habitually appear on the campus or enter any classes. Any student dismissed for scholarship deficiencies may petition in writing, on a form provided by the College, for immediate reinstatement. The Committee on Reinstatement considers such petitions, granting reinstatement in exceptional cases only.

CREDITS WHILE ON PROBATION AND DISMISSAL

Credits earned by a student at another college during a period in which he is ineligible to attend Kansas State College will not be accepted by Kansas State College.

Absence

Each student is expected to attend the first meeting and all subsequent meetings of each class to which he is assigned. A student who stops attending a class without being reassigned is reported absent; failure to take out a reassignment is not accepted as an excuse for absence from the class concerned.

OPTIONAL ATTENDANCE

A student with a senior classification or a junior student who has a grade point average of 2.0 or better each semester and who has made at least 30 grade points during each of the last two semesters he has attended the College has the privilege of optional attendance. A junior with optional attendance is responsible for informing his instructors that he has earned this privilege.

REPORTING ABSENCES

Each instructor shall take the roll daily. When a student has as many unexcused absences in a course as the number of credit hours in that course, the instructor shall send an absence report to the office of the student's dean with the dates of the absences. Thereafter, unexcused absences of that student shall be reported weekly.

EXCUSING ABSENCES

Absence Because of Illness: A student who is ill should report immediately to Student Health. A student missing classes while under the care of Student Health will be issued an excuse from those classes by Student Health. The student must present this excuse to his instructors and make arrangements to make up the work missed. Hospitalized students are reported to the student's dean by Student Health.

Dean's Excuses: A student who must be absent shall obtain in advance a written excuse from his dean and shall show this excuse to his instructors prior to the absence. In case of emergency, the student is responsible for seeing that his dean is notified of his absence. Excuse for absence permits the student to make up the work missed.

ABSENCES FOR ACTIVITIES PARTICIPATION

Each student who will be absent to participate in out-of-town or other scheduled activity must submit to his coach or sponsor of the event a completed form for each of his classes (Excuse Absence Notification to Instructor, obtained at the College Post Office). The coach or sponsor will compile a list of students authorized to make the trip on a separate sheet (Absence Notification to Deans) and present a copy of it and the Absences Notifications to Instructors to the respective offices of the academic deans concerned at least 24 hours in advance of departure.

ABSENCES THE DAY BEFORE OR THE DAY AFTER A HOLIDAY

A dean's excuse will be granted only in case of emergency. Instructors will not grant excuses.

EXCESSIVE ABSENCES

A student may be withdrawn with failure from a course by his dean for excessive absences. After due warning to both student and parents, the dean may report persistent absentees to the President with recommendation for suspension from the College.

Examinations

Final examinations are held at the end of the semester, except for candidates for degrees.

A student whose semester grade in any subject is A may be excused from the final examination in that subject.

Examinations to remove conditions are held on the fourth Saturday of each semester. A student with a mark of Con may take such an examination if he makes arrangements with his instructor or department head not later than the previous Tuesday.

Permission for special examination in subjects not taken in class or to make up failures is given by the student's dean after consultation with the head of the department in which the course is given. A special examination may be given only to a matriculated student.

Entrance examinations in high school subjects are given at the beginning of each semester. (See the Calendar.) Applications for such examinations should be made to the Director of Admissions. No examinations to make up deficiencies in entrance requirements will be given to students who have entered on the fourth semester of work in the College.

A matriculated student, who has high school units in excess of the fifteen units required for admission, may apply for an examination in certain subjects of freshman rank on the basis of his surplus units. The application should be made to the Registrar, who will check surplus units and authorize an examination within the first thirty days of the semester or summer session. Examinations which affect the assignment of a semester or summer session, however, will be given on the first Saturday of that semester or summer session. After the expiration of the thirty-day period, the student's dean may authorize an examination.

Honors

In each School of the College *sophomore honors* are awarded to not more than five percent of the members of the sophomore class having the highest standing. Such honors are to be reckoned only on courses completed at this institution, combining the work of the freshman and sophomore years, and will be computed at the end of the regular academic year in May.

Similarly at all commencement programs *senior honors* are awarded to not more than ten percent of the members of the senior class having the highest standing. Such honors are to be determined only on courses completed at this institution, combining the work of the junior and senior years.

Credits for Extracurricular Work

Students may earn credit toward graduation by satisfactorily participating in certain extracurricular activities. These activities, and the maximum of semester hours of credit allowed, are as follows:

Subject	Semester	Total
Orchestra	1	4
Band	1	4
A Cappella Choir	1	4
Men's Glee Club	1	4
Women's Glee Club	1	4
Debate	2	4
Oratorical Contest	2	4
Kansas State Collegian journalism	1	4
Agricultural Student journalism	1	4
Kansas State Engineer journalism	1	4
K Book journalism (if not paid)	2	2

Credits may be counted as electives in the student's curriculum, or substituted for required subjects if the curriculum does not offer sufficient elective opportunity. A student may have not more than eight semester hours in these subjects, and not more than two in a semester.

A student is regularly assigned to these activities, but only on the written recommendations of the instructor in charge of the work. A student

enrolling in one or more of these activities must be enrolled for credit even though the credits exceed the maximum usable for graduation.

Bible Study

Bible study is an elective for which no more than four semester hours of credit may be approved toward requirements for a degree. If work is completed while in residence at this College, instructors must have College approval. The Department of History, Government, and Philosophy supervises the work and certifies the credit.

Classes

By order of the Board of Regents classes for freshmen are limited to a minimum of 15. Classes for other than freshmen are limited to a minimum of 10, except that certain advanced technical and laboratory classes may have a minimum of 7.

Assemblies

About eight times a semester, as announced, regular classes of the morning will be shortened to permit insertion of an hour at 9:30 for an all-College assembly. In these College-wide programs of general education, nationally famous speakers will address the students and faculty on problems of critical importance. At other times the program will be musical or literary in nature. When suitable for broadcasting, the assemblies are carried direct over radio station KSAC.

Course Numbers

Effective with the 1951 fall semester, the numbering of courses at Kansas State College has been revised as follows:

1. Courses which do not carry college credit carry numbers between 0 and 99.
2. Courses for undergraduate credit only carry numbers from 100 to 399. These courses formerly carried numbers from 100 to 199.
3. Courses for graduate and undergraduate credit carry numbers from 400 to 799. These courses formerly carried numbers from 200 to 299.
4. Courses for graduate credit only carry numbers from 800 to 999. These courses formerly carried numbers from 300 to 399.

The College Library

The general College Library consists of all books belonging to the College, including the library of the Agricultural Experiment Station, which is incorporated with it. The Library contains 164,990 bound volumes, besides much unbound material. It receives currently about 3,410 serial publications. As a depository the Library receives the documents and other publications of the United States government, as well as publications of all state experiment stations, extension services, and state departments of agriculture.

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 important daily and weekly Kansas newspapers.

School Libraries. School 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 department concerned.

College Publications

The Kansas Industrialist is the official alumni newspaper of the College and is published in July, September, November, January, February, April, and May. It is supplemented by *The K-Stater*, a magazine published in

October, December, March, and June. Both carry news of College developments, alumni news notes, and features about the College and its friends. Active members of the Alumni Association receive both publications. A combination subscription to both is \$3 a year.

The Kansas State Collegian, a newspaper published five days a week during the College year, and *The Royal Purple*, a student yearbook, are published by Student Publications, Inc.

The Kansas Agricultural Student is issued quarterly by the Agricultural Association of the School of Agriculture. *The Kansas State Engineer* is published by students in the School of Engineering and Architecture.

College Postal Center

The College operates a postal center, which is not a part of the United States postal service, but to which students and faculty may have their mail delivered. Mail arrives from the Manhattan post office twice a day. The College postal center sells stamps, but not money orders, and insures and registers mail. It also facilitates intercommunication of College departments and communications of faculty with students. Federal postal regulations prevent the handling of personal mail or mail which is not officially College mail through the College postal center without postage. Students are urged to rent boxes for 50 cents a semester.

Student Personnel Services

Kansas State College has developed a program of student personnel services in the belief that true education involves experiences that supplement his classroom training. This philosophy considers the importance of providing students with a variety of opportunities and services aimed at developing well-rounded individuals—his intellectual development; his vocational interests, aptitudes, and skills; his emotional balance; his social relationships; his moral and religious values; his physical health; his aesthetic appreciations.

Office of the Dean of Students

The Dean of Students has the general responsibility for administration and co-ordination of the various divisions of the student personnel program in the carrying out of their responsibilities for the many phases of student life outside the classroom. He is responsible for maintaining a close relationship with the academic and administrative staffs in helping to interpret student needs. The following student services are designed to meet these needs.

Office of the Dean of Women

The Dean of Women is responsible for the welfare of the women students on the campus. She also has the responsibility for the women's residence-living program. This responsibility consists of developing the social, educational, and vocational phases of resident living in co-ordination with other student personnel services and the academic departments. The residence hall counseling program is designed to assist each student in developing academic proficiency and the social education program provides students with valuable experience in group living and democratic self-government. This office is also responsible for extending counseling services to students living in sororities and off campus. Women interested in part-time work should see the Dean of Women.

A major responsibility of this office is to assist the staff and student officers of all student groups in problems of program and administration with particular responsibility for the social program. Living standards for off-campus students and approval of off-campus housing for women also fall within the province of this office.

Scheduling of all student events is centered in this office.

Office of Director of Housing**HOUSING**

Rooming establishments accommodating male College students are regularly visited, and the establishments approved are issued certificates of approval by the Director of Housing.

FOR WOMEN

The Dean of Women has responsibility for the housing of women students. All unmarried undergraduate women students at Kansas State College are required to live in houses approved by the College.

Since the fall semester of 1951, all freshman girls live in College operated Residence Halls for the entire year unless excused by the College Administration. The basis for excuse is (a) to live at home with parents, (b) to live with close relatives in Manhattan, (c) to commute from nearby communities (It is understood that if the weather or other circumstances at any time during the freshman year make it necessary or desirable for a girl to live in Manhattan, she will move into a Residence Hall, unless again given permission to live outside.), (d) marriage, (e) financial need. If a student needs to be excused from living in a Residence Hall for any of these reasons, she should present a formal request in writing with a statement signed by her parents that it is necessary for her to do this.

Upperclass women and transfer students who have had two semesters in an accredited college may live in College Residence Halls, off-campus houses approved by the College, or sorority houses.

Kansas State College has four College operated Residence Halls with accommodations for approximately 650 women students. They are Northwest Hall, capacity 210; Southeast Hall, capacity 210; Van Zile Hall, capacity 150; and Waltheim Hall, capacity 78. Two halls are used for freshmen and two for upperclassmen.

Contracts signed by both student and parent or guardian are required. The contract in all Residence Halls is for both room and board and is for a full semester. The College reserves the right to change room and board rates as food costs and operating expenses change. At the present time, the rates for room and board in all Residence Halls are \$266 for the semester. Payments may be made in three installments at stated intervals. The first payment of \$120 is due at the beginning of the semester. The other two payments are \$73 each. A notice is sent to the resident by the Housing Office at the beginning of each period, and payments are made at the Cashier's Office. Those wishing to pay for a full semester may do so.

Anyone wishing to make application for a room in one of the Residence Halls for women or in an off-campus house should write to the Office of Dean of Women, Kansas State College, where a list of all current vacancies is maintained.

FOR MEN AND FAMILIES

All unmarried undergraduate men students at Kansas State College are required to live in houses approved by the College.

The College provides accommodations in East Stadium Hall and West Stadium Hall for 176 men. The rent is \$64.00 a semester. It may be paid in advance or in three installments. The first installment is \$32.00, the second and third installments, \$16.00 each, subject to no refunds. All rates are subject to change. Contracts for rooms are made for one semester.

Several organized houses are privately operated off-campus for unmarried men students. Other unmarried men live in private homes which have been approved by the College. All off-campus rooms are contracted for one semester. Rent for off-campus accommodations ranges from approximately \$10 to \$25 a month.

For married students, the College operates 336 (one bedroom, two bedroom) apartments and 31 spaces to park privately owned trailers. Two bedroom apartments rent for \$28 a month; one bedroom apartments rent for \$24 a month; trailer space rents for \$12 a month. All rates are subject to change.

Apartments in private homes or apartments off-campus provide additional housing for married students. Rent for off-campus apartment ranges from approximately \$45 to \$75 a month, depending on the size of the apartment and the location in Manhattan.

Lists of available rooms for single men and apartments for married students are kept up to date and may be used by those who wish to call at the Housing Office, Room 121, Anderson Hall.

Inquiries should be addressed to the Director of Housing.

Meals

A College cafeteria is operated for the convenience of students, faculty, and campus visitors. A selection of moderately priced food is available during the school year.

Temporary Student Union

The Union is the campus center for recreation and relaxation and provides meeting facilities for student organizations. A soda fountain and coffee bar are maintained, and light lunches and snacks are served. The facilities of the Union also include a browsing library, ping-pong, a piano, and a juke box for dancing. The Director of the Union works with the All-College Social and Recreational Committee in organizing such activities as dancing, crafts, bridge, table tennis, chess, a photography dark room, movies, and other activities which are of interest to the students. Plans for the new Kansas State Union are in progress.

Student Counseling Center

The Counseling Center is a student service agency designed to help students help themselves in living and learning more effectively. A staff of counselors with specialized psychological training is available to talk over with students their plans for the future, ability to study effectively, appropriateness of vocational goals and degree of satisfaction with their personal lives. Many times students will be aided in solving their problems by taking tests which enable them to obtain objective comparisons of their college skills, vocational interests and personality characteristics with those of other students. Students who have not acquired efficient reading and study habits may be helped through their voluntary participation in special groups organized for this purpose or through a service course offered in the Department of Psychology. The Counseling Center maintains a library of occupational information for students who wish to explore a number of alternate vocational opportunities.

Responsible Citizenship

Students coming to K. S. C. have an opportunity to participate in student government, hall government, independent student association, the student planning conferences, and many other groups. Through these organizations the student has a share in formulating many of the policies under which he lives and as a result learns to live in a democratic manner, accepting responsibility and participating in the affairs of the college community. Developing responsible citizenship is one of the primary purposes of Kansas State College.

Conduct

Students are expected to conduct themselves in a way becoming to any good citizen. Students who violate standards of good citizenship are subject to disciplinary action by the Tribunal.

Student Health

The Student Health Service is supported by the student health fees. Full-time physicians are always on duty with an adequate medical supporting staff to care for the College students. The College Hospital has a capacity of 57 beds.

The Student Health Service is located directly west of the Library in the center of the campus. The clinic is open to students each day from 8:00 a.m. until 11:50 a.m. and from 1:00 p.m. until 5:00 p.m. with the exception of Saturday, when the clinic closes at 11:50 a.m. The emergency room is open 24 hours each day to receive any student needing attention for sudden illness. Students who become ill at home may be taken directly to the emergency room at any hour.

Those who are able to walk should go to the clinic unless there is a possibility that they have a contagious disease, in which event they should present themselves to the hospital at once. The physicians of the Student Health Service make no private calls to students' rooms.

Any student may be admitted to the College Hospital by a staff physician. Two days of hospitalization are provided for each student without charge in each regular semester, and one day per summer session. In the event that the period of hospitalization exceeds two days, \$3 a day extra will be charged, this rate to be in effect for only 21 days of hospitalization. All days in excess of 21 will then be charged for at current Blue Cross rates. The student-health fee fund is supplemented by small charges, made while the student is under care, for special expensive medicines and laboratory procedures. These charges are, for the most part, the actual cost price of the extra service rendered and are consistently far lower than prevailing commercial rates. Many laboratory procedures are provided free of charge.

If warranted by a low Summer School enrollment, the College Hospital may be closed during that time, but provision will be made for a physician to be on call at times other than regular clinic hours. Cases needing hospitalization will be cared for at the city hospitals under the same provisions as at the College Hospital.

In the event of the necessity of major surgery, the patient will elect his own surgeons and be transported at his own expense to one of the Manhattan hospitals. After surgery and whenever advisable, the student may be returned to the College Hospital for convalescence. The days of free hospitalization are not applicable to the Manhattan hospitals except during the summer term when the College Hospital is closed. Any services rendered by other physicians and any medicines given while there will be at the student's own expense. Naturally, Blue Cross or other commercial health and accident insurance carried by the student will be expected to pay for a student's hospitalization, either here or at any Manhattan hospital.

The Health Service gives a physical examination to all students entering the College for the first time. Periodic health checkups are recommended by the Service, but are optional. Physical examinations such as for life insurance, C.A.A., and civil service, or any other which the student may need, will be given without extra charge to the student if time permits and it does not interfere with care of ill or injured students. It is the policy of the Student Health Service to extend unlimited diagnostic and therapeutic facilities to all students regardless of the time or onset of illness.

Foreign Students

The Assistant Dean of Students serves as foreign student adviser and is responsible for the reception, orientation, and personal counseling of foreign students. His office helps to promote contacts between foreign students and American student groups, faculty and community. Contacts are maintained with national and governmental agencies having to do with the exchange of students between countries. He is also concerned

with providing information to American students about opportunities for studying abroad and with helping them to make the necessary arrangements.

Religious Life at the College

Opportunities for worship in Manhattan are ample: Seventh Day Adventist, College Baptist, First Baptist, Pilgrim Baptist, Seven Dolors Catholic Church, Church of Christ, Christian, Christian Science, Congregational, St. Paul's Episcopal, Assembly of God, Church of God, Church of God in Christ, Hillel services, Jehovah's Witnesses, First Lutheran, St. Luke's Lutheran (Missouri Synod), Bethel African Methodist, First Methodist, Shepherd's Chapel Methodist, Wesleyan Methodist, Church of Nazarene, First Presbyterian, and United Presbyterian. Many of these groups have active student programs which are described on page 37. There is a Y. M. C. A. and a Y. W. C. A. each with a full-time director and offices on the campus. Their program is described in the section on student organizations. The small Danforth Chapel on the campus is for the use of individuals and all groups who wish to worship there.

Driving Cars on the Campus

Students, faculty, and employees of the College are required to purchase from the College at the cashier's office for a nominal sum, a vehicle identification sticker in order to make use of College parking facilities. The sticker may be renewed. Rules governing parking and operation of vehicles on the campus are available in the cashier's office.

College Organizations

The Student Governing Association

Every undergraduate student who has paid the activity fee is a member of the Student Governing Association, which is charged with the responsibility of student government.

The Student Council comprises the legislative branch of the association and is composed of a student representative for each 300 students in each academic school. In addition to the All-College Student Council, each academic school has its own school council. The executive branch of student government consists of the student body president, elected directly by all the students; the vice-president, who is chosen by and who serves as Chairman of the Student Council; and various administrative officers appointed by the president. The president is responsible for the execution of legislation passed by the Council. He has veto power but may be overruled by a two-thirds vote of the Council.

The judicial branch of student government is the Tribunal. This body consists of six student justices and three faculty justices. The chancellor of the Tribunal is appointed by the president from among the student justices. The Tribunal is concerned with student discipline cases, including traffic violations.

Student government representatives, both elective and appointive, are responsible to the student body and to the President of the College. The Student Governing Association, through its representatives, coordinates the activities of other student organizations and cooperates with other organizations in the promotion of interest and participation in student activities. It participates in the administration of funds from student activity fees.

The Student Governing Association acts in the belief that student government contributes to a keener sense of co-operation and responsibility among students as members of the college community.

Religious Organizations

THE YOUNG MEN'S CHRISTIAN ASSOCIATION

All men students are welcome as members of the College Y. M. C. A. The work of the organization is carried on by a student cabinet, composed of the officers and the chairmen of the standing committees. The Y. M. C. A. program seeks to show through worship, study, and action the place and need for religion in all of life. The Y. M. C. A. maintains an employment bureau for all men students. The permanent secretary is glad to correspond with prospective students and to receive them for interviews.

THE YOUNG WOMEN'S CHRISTIAN ASSOCIATION

All women students are invited to become members of the College Y. W. C. A., which welcomes the new students to the campus and community through its College Sister program. The Y. W. C. A. program, based on faith in action, includes social affairs, service projects, worship services, and joint activities with the Y. M. C. A. This program, planned by a student cabinet and an advisory board, offers opportunities to all women students for useful service through fun and fellowship. The Y. W. C. A. Director is glad to correspond with prospective students.

THE NEWMAN CLUB

The national organization of Newman Clubs for secular colleges and universities is represented by a local unit of the Catholic students in Kansas State College. The organization has as its purpose the fostering of religious and social subjects under the direction of the Newman Club Chaplain. There are also regular monthly educational meetings, including a communion breakfast and a social program.

THE HILLEL COUNSELORSHIP

The B'nai B'rith Foundation sponsors a counselorship for Jewish students. One of the faculty members serves as part-time director of the program. This program includes biweekly meetings, worship services, and provides a social fellowship.

PROTESTANT GROUPS

The following churches have groups which meet in the local churches each Sunday evening. Some of the larger groups have student centers with full-time directors and conduct activities during the week. These include worship services and programs which seek to nurture the Christian growth of students. With the recreation and dinner together Christian fellowship is encouraged.

The Baptist Youth Fellowship is sponsored by the Baptist Church. Theta Epsilon is the church sorority.

The Canterbury Club is sponsored by the Episcopal Church.

The Christian Church has a Disciples Student Foundation, and for the girls Kappa Beta Sorority.

The Congregational Church sponsors the United Student Fellowship. Sigma Eta Chi is the church sorority.

The Lutheran Student Association is sponsored by the First Lutheran Church. St. Luke's Church (of the Missouri Synod) provides Gamma Delta for its students.

The United Presbyterian Church has a Young People's Christian Union.

The Wesley Foundation, sponsored by the Methodist Church, has in addition to its program a men's club and Kappa Phi for girls.

The Westminster Foundation is sponsored by the Presbyterian Church. Phi Alpha is the men's organization.

Open to students of any denomination is the Kansas State Christian Fellowship which is associated with the Inter-Varsity Christian Fellowship. This group meets during each week.

RELIGIOUS CO-ORDINATING COUNCIL

The Religious Co-ordinating Council of Kansas State College, a committee of the Student Governing Association, is composed of representatives of the College Y.M.C.A., Y.W.C.A., and all church student groups that wish to co-operate. Each year the Council sponsors the Religious Emphasis Week, when outstanding religious leaders are brought to the campus. This council is responsible for initiating, directing, co-ordinating and evaluating all campus-wide religious programs.

Honor Societies

Phi Kappa Phi. A national fraternity. Membership is open to honor students in all departments, on the basis of scholarship. The Kansas State chapter was installed in 1915.

Sigma Xi. A national fraternity. Members of the faculty and graduate students are eligible for election to active membership on the basis of achievement in original scientific investigation; seniors who have shown excellence in two departments of science are eligible for election to associate membership. The Kansas State chapter was installed in 1928.

Gamma Sigma Delta. A national fraternity. Seniors in agriculture and agricultural engineering, and fourth-year veterinarians are eligible for election by the faculty members of the local chapter on the basis of scholarship. The Kansas State chapter was installed in 1914.

Omicron Nu. A national sorority. A percentage of seniors and juniors in home economics are eligible for election to membership by the active faculty and student members of the local chapter on the basis of scholarship, leadership, and research in home economics. The Kansas State chapter was installed in 1915.

All-College Organizations

All College Political Party	Scouting Fraternity
Alpha Phi Omega	Literary Society
American College Quill Club	
Arab Student Club	Rodeo and Riding Club
Chaparajos Club	
Collegiate 4-H Club	Hawaiian Students
Hui O Hawaii	
Kansas State Amateur Radio Club	Model Airplanes
Kansas State Circle Burner Model Club	
Kansas State Collegiate Republicans	
Kansas State Conservation Club	
Kansas State Masonic Club	
Kansas State Players	Drama
Phi Sigma Chi (Purple Pepsters)	Women's Pep Club
Pi Epsilon Pi (Wampus Cats)	Men's Pep Club
Whi-Purs	Freshman Women Pep Club
Women's Athletic Association	
Young Democrats of Kansas State College	

Departmental Organizations

Agricultural Association	
Agricultural Economics Club	
Alpha Alpha Gamma	Women in Architecture and Allied Arts
American Guild of Organists	
Arnold Air Society	
Block and Bridle Club	Animal Husbandry Students
Business Students' Association	
Chancery Club	Pre-law Students
Criticorum	Institute of Citizenship Club
Dairy Club	
Engineering Association	
Extension Club of Kansas State College	
Frog Club	Swimming
Future Teachers of America	
Kansas State College Chapter of Student Affiliates of the American Chemical Society	
Kansas State College Entomological Club	
Kansas State College Student Branch of the Institute of the Aeronautical Sciences	

Kansas State College Student Chapter of American Institute of Architects	
Kansas State College Student Section of the American Institute of Physics	
Kansas State Horticulture Club	
Kansas State Student Chapter of the American Veterinary Medical Association	
Klod and Kernel Klub	Agronomy
Margaret Justin Home Economics Club	
Mathematics Club	
Milling Industry Association	
Phems	Women's Physical Education
Plow and Pen Club	Agricultural Journalists
Poultry Science Club	
Student Branch of American Institute of Chemical Engineers	
Student Branch of American Society of Agricultural Engineers	
Student Branch of American Society of Electrical Engineers	
Student Branch of American Society of Civil Engineers	
Student Industrial Arts Association	
Student Section of the American Welding Society....	

Honorary Organizations

Alpha Delta Theta	Medical Technicians
Alpha Kappa Psi	Business Administration
Blue Key	National Honorary Fraternity
Chimes	Junior Women Honorary
Club Cervantes	Spanish Club
Delta Sigma Rho	Forensic Honorary
K-Fraternity	Athletic Lettermen
Miniwanca Club	American Youth Foundation
Mortar Board	Senior Women Honorary
Mu Phi Epsilon	Music
Orchesis	Modern and Creative Dance
Pershing Rifles	Military
Phi Delta Kappa	Education
Phi Epsilon Kappa	Men's Physical Education
Phi Lambda Upsilon	Chemists
Pi Epsilon Delta	Collegiate Players
Scabbard and Blade	Cadet Officers ROTC
Sigma Delta Chi	Men's Journalism
Steel Ring	Engineering

Honorary Scholastic Organizations

Alpha Mu	Milling
Alpha Zeta	Agriculture
Delta Phi Delta	Student Art
Eta Kappa Nu	Electrical Engineering
	Junior and Senior Women in Arts and Sciences
Phi Alpha Mu	Mathematics
Pi Mu Epsilon	Mechanical Engineering
Pi Tau Sigma	Geology
Sigma Gamma Epsilon	Engineering
Sigma Tau	Architecture
Tau Sigma Delta	Women Journalists
Theta Sigma Phi	

Sororities and Fraternities

There are twenty-three Greek letter fraternities for men at Kansas State College and nine national sororities for women. Sororities and fraternities offer excellent living accommodations and a social program to their members. Membership in all of these organizations is by invitation.

Information about sororities may be obtained from the Faculty Adviser of Sororities and about fraternities from the Faculty Adviser of Fraternities.

SORORITIES

Alpha Chi Omega, Alpha Delta Pi, Alpha Xi Delta, Chi Omega, Clovia, Delta Delta Delta, Kappa Delta, Kappa Kappa Gamma, Pi Beta Phi.

FRATERNITIES

Acacia, Alpha Epsilon Pi, Alpha Gamma Rho, Alpha Kappa Lambda, Alpha Tau Omega, Beta Sigma Psi, Beta Theta Pi, Delta Sigma Phi, Delta

Tau Delta, Farm House, Kappa Alpha Psi, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Kappa, Phi Kappa Tau, Pi Kappa Alpha, Sigma Alpha Epsilon, Sigma Chi, Sigma Nu, Sigma Phi Epsilon, Tau Kappa Epsilon, Theta Xi.

Independent Student Association

The Independent Student Association is a social and service organization for those students not actively affiliated with a social fraternity or sorority. The executive council of I.S.A. is composed of the elective officers, standing committee chairmen, and representatives of the dormitories and independent organized houses.

The Graduate Students Association

All students enrolled in the Graduate School are members of the Graduate Students Association. Objectives of the organization are to promote acquaintance and fellowship among those enrolled in graduate work, to have representatives elected and authorized to speak and act for graduate students and to carry out the requirements of the Student Government Association constitution. Graduate students are represented by a member on the all-College Student Council.

Agricultural Societies

The Agricultural Association meets regularly once a month. All students enrolled in the School of Agriculture are members. The objectives of the association are to encourage and support agricultural activities, to correlate the work of various clubs and other organizations of students within the School; and, in general to have leaders elected and authorized to speak for the student body of the school at all times.

Departmental clubs of the School are the Agricultural Economics Club, Agricultural Education Club, Block and Bridle Club (animal husbandry), Dairy Club, Horticultural Club, Klod and Kernel Klub (agronomy), Milling Industry Association, Plow and Pen Club (agricultural journalism), and the Poultry Club. Membership in these clubs is open to students and faculty of the School who are specially interested in the fields represented by the respective clubs.

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.

The object of the clubs is to expand the interest and familiarity of the students in the fields and industries most closely related to the department in which they are majoring. Meetings and social affairs further the acquaintance of faculty and students. Student officers preside at the meetings and plan the programs, many of which are presented by students, though frequently faculty members or other speakers participate. Usually a student belongs to the club representing the department in which he is majoring, while many belong to more than one.

Engineering Societies

All students enrolled in the School of Engineering and Architecture are members of the Engineering Association, which usually meets once each month. The students in agricultural, chemical, civil, electrical, and mechanical engineering are organized as student branches of the American Society of Agricultural Engineers, the American Institute of Chemical Engineers, the American Society of Civil Engineers, the American Institute of Electrical Engineers or the Institution of Radio Engineers, and the American Society of Mechanical Engineers, respectively. Students in architecture and architectural engineering are organized as a student branch of the American Institute of Architects.

The purpose of these various societies is to acquaint the students with the latest developments in engineering and architecture, to give them more definite ideas as to the opportunities and the requirements for success in their professions, to promote acquaintance and fellowship among the students, and to further the interests of the School of Engineering and Architecture in the College and in the state.

Societies in the School of Arts and Sciences

The Kansas State College section of the American Chemical Society arranges during the school year for monthly meetings which are usually addressed by visiting chemists.

The Kansas State College chapter of the Student Affiliates of the American Chemical Society affords an opportunity for undergraduate students to actively participate in various projects in the field of Chemistry and to consider problems of general professional interest. Regular monthly meetings are held during the school year.

The Business Students Association gives the students in business administration an opportunity to get first-hand information on the problems and the opportunities in the business world by providing for speeches by specialists in business subjects and representative businessmen.

The Geology Club builds up a professional spirit among the students majoring in Geology.

The Medical Technicians Club meets twice a month and is frequently addressed by men of the medical profession and practicing medical technicians. The club members learn about the opportunities and responsibilities in this field.

The Mathematics Club meets monthly to listen to talks of mathematical interest.

Home Economics Club

Membership in the Margaret Justin Home Economics Club is open to all students in the School of Home Economics. Its purpose is to promote professional interest by means of contacts and activities of many types. The Club is affiliated with the American Home Economics Association and leads to continued membership in that organization after graduation.

Veterinary Medical Association

The Junior Chapter of the American Veterinary Medical Association is a student organization in affiliation with the American Veterinary Medical Association. The object of the chapter is to promote interest and knowledge in veterinary science. The organization meets on the first and third Tuesdays of each month; students present papers, and members of the faculty and outside speakers also appear on the program.

Collegiate 4-H Club

Former 4-H Club members now in College make up the membership of the Collegiate 4-H Club, one of the largest service and social organizations at Kansas State College. The group participates actively in worthwhile College activities; sponsors a radio program; publishes the *Who's Whoot*, Kansas 4-H Club annual; maintains a loan fund; assists at Round-up and Rural Life Conference; and has contributed to the building of the State 4-H Club Camp and the Student Union.

Normal membership of more than 500 former 4-H boys and girls enables the Collegiate 4-H Club to maintain a strong and effective service program, train and develop leadership and promote the good of the 4-H boys and girls and the entire Extension program. The value of this group is not confined to the Kansas State College campus; the contacts of this active group have caused many more former club members to seek a college education.

Extension Club

Membership in the Extension Club is primarily for those who wish to become county agents, home demonstration agents, or club agents. Any boy or girl interested in extension, may join. The club is not restricted to students enrolled in any particular curriculum.

The objectives of the club are to become better acquainted with Kansas State's Extension Division personnel, to learn extension methods and policies, and to become better acquainted with the club's members.

In addition to learning more about extension programs, the club helps promote the extension work through its own radio program.

Cosmopolitan Club

There is in the College a chapter of the Association of Cosmopolitan Clubs in Universities and Colleges of America. The active membership consists of foreign and American students, both men and women. The objective of the club is to promote international understanding through friendship among students of various nationalities.

The College Bands

The three College bands, the Concert Band, the Varsity Band, and the Football Band, are student organizations, membership in which is voluntary. The Football Band includes all qualified players from both Concert and Varsity bands. The Concert and Varsity bands do not function until the end of the football season, when the Football Band is divided into two units. The Football Band plays for all home games and rallies, and takes one trip each year for an important conference game. The Concert Band plays frequent public concerts and provides music for other formal campus ceremonies. The Varsity Band plays for home basketball games and rallies.

Membership in the bands is determined by competitive tryout. Students not majoring in the Department of Music may enroll in the Football Band, Varsity Band, or Concert Band for one semester hour of credit. Students may also participate in band work on a noncredit basis.

The College Orchestra

The Orchestra is an all-College organization under the direction of a member of the music department. Membership is on a voluntary basis and is open to all musically qualified students, college staff, and others interested. The Orchestra library is adequately stocked with standard symphonic works and lighter classics, and each season's repertoire is selected to fit the capabilities of the ensemble.

The Orchestra plays one or more formal concerts each season, appears informally both on and off the campus, and accompanies the vocal ensembles in the presentation of traditional Christmas and Easter music.

The College Choral Organizations

The A Cappella Choir is an all-College organization conducted by the Head of the Department of Music. Membership in this organization is voluntary and is open to graduate and undergraduate students. The choir meets three times a week. The best in the unaccompanied choral literature, both sacred and secular music, is sung by the choir. Several performances a year including special Christmas and Easter Vespers are given by this organization. Off-campus concerts are also planned. Credit of one hour a semester is given to students not majoring in the Department of Music.

It is advised that students who have not had considerable training in high school choral groups enroll in the Mixed Chorus.

The College Chorus is an all-College organization conducted by a member of the music staff. Membership is voluntary. This group meets twice a week. Credit of one hour a semester is given to students not majoring in the Department of Music. In addition to performing at

college functions throughout the year this organization presents a concert once a year. At various times during the college year the chorus and the A Cappella Choir are joined to present one extended choral work with orchestral accompaniment.

The Men's and Women's Glee Clubs are all-College organizations conducted by members of the music staff. Membership is voluntary. These groups meet twice a week. Credit of one hour a semester is given to students not majoring in the Department of Music. In addition to performing at college functions throughout the year each organization presents a combined concert once a year. At various times during the college year the glee clubs and the A Cappella Choir are joined to present one extended choral work with orchestral accompaniment.

Kansas State Players

Membership in the Kansas State Players is open to all students, both men and women, through tryouts and participation. The object of the Players is to afford its members an opportunity to become acquainted with good drama and to take part in the various activities connected with the producing of plays. Regular meetings are held the second Tuesday of each month.

The presentation of several plays a season as part of the drama program of the Department of Speech gives the members of the Players opportunity in practical training and interesting experience in the various phases of dramatic production. When a player reaches his junior year, he is eligible to try for membership in Pi Epsilon Delta, the national dramatic honorary fraternity.

The Speech Clinic

Those students who have speech problems may receive attention and aid through the College Speech Clinic, maintained under the direction of the Department of Speech. Trained speech specialists make an examination, give a diagnosis, plan a remedial program and carry out the retraining. The clinic has the active co-operation of the student health service and the counseling service in giving fullest possible aid. Students are urged to make use of this service.

Intercollegiate Debate

The Kansas State Debate Squad is open to all students, regardless of the particular school in which enrolled. Here the student participates in formal debate, and, when qualified, in tournament competition.

The record of the school debate teams has been bettered each year. The ability of KSC debaters is favorably known in many places in the United States in which contests are held.

Qualified upperclass debaters can become members of Delta Sigma Rho, national forensics honorary fraternity.

Athletics

Kansas State College is a member in good standing of the Missouri Valley Intercollegiate Athletic Association—otherwise known as the Big Seven Conference. The other members are University of Colorado, Iowa State College, University of Kansas, University of Missouri, University of Nebraska, and University of Oklahoma.

Kansas State participates in all intercollegiate sports on the Conference program. Varsity competition is open to all male students and supervised by a staff of coaches who are specialists.

Intercollegiate athletics are conducted at Kansas State College to provide:

- (1) A recreational and physical education program for approximately four hundred students trying out for the various teams;

- (2) Laboratory work for those specializing in physical education;

- (3) Recreation for non-participating students, faculty, and alumni;

(4) A stimulus to the intramural and other physical education programs;

(5) An educational experience which, to both participants and non-participants, is not duplicated in other lines of collegiate endeavor. Included in this experience are: (a) Sacrificing personal pleasure to the general welfare, as participants undergo the strict self-discipline and training necessary to attain the physical fitness required for success in these competitive activities. (b) Developing a spirit of self-reliance from competition in such team sports as football, baseball and basketball, and in participation in sports such as track, tennis, wrestling and golf, in which the player must rely principally upon himself. (c) Engendering his spirit of loyalty to coaches and fellow players that is exemplified in "teamwork." (d) Developing a devotion to the College as a whole, greater than that to any group within it. (e) Providing opportunities to both participants and non-participants, to develop a spirit of sportsmanship. (f) Promoting in players a sense of responsibility to the entire college which is judged by their conduct on or off the athletic court or field.

The Department of Physical Education sponsors a broad program of intramural athletics, supplementing intercollegiate athletics. Fraternities and independent clubs play full schedules to decide the championship in the various sports. Appropriate medals, plaques, and sweater awards are presented individual and team winners.

Under the auspices of the Women's Athletic Association, the women students of the College take part in a full intramural athletic program, with competent instruction by the faculty of the Department of Physical Education.

Loan Funds

Student loan activities are co-ordinated in the office of the executive secretary of the Alumni Association of Kansas State College, Anderson Hall. A student wishing to apply for a loan from any fund listed below should address his request to Kenney L. Ford, secretary, K.S.C. Alumni Association.

The State Board of Regents has established rules governing the administration of student loan funds. These rules include the following:

1. A student loan is made only when a note is signed by the borrower and one other responsible person, preferably the borrower's parents or guardian. This endorser must be recommended by his bank as of good financial standing and otherwise satisfactory as an endorser.

2. In general, 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.

3. The maximum total amount loaned from all loan funds to one individual usually shall not exceed \$250.

The Alumni Association of Kansas State College has created a loan fund and scholarship funds, chiefly from payments for life memberships in the association. Members pay the association \$3 a year, but on payment of \$50 in one sum they are relieved from further dues. If husband and wife are both eligible for membership, they may obtain joint membership by paying \$75. The loan fund so created 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. Interest is charged at the rate of five percent a year.

The Alumni Association administers many memorial units honoring individuals and organizations. All of these units are administered under

the same rules as stated above. However, the Dr. R. R. Dykstra Student Loan Fund for students in the School of Veterinary Medicine does not require an endorser on loans made to students in Veterinary Medicine from this fund.

The Dr. Arthur D. Weber Loan Fund for students in Animal Husbandry and members of Animal Husbandry judging teams charges no interest until student graduates or leaves college.

Other student loan funds are available which are not administered by the College. For women, some funds are provided by the American Association of University Women, the State Federation of Women's Clubs, the Women's Panhellenic, and P.E.O. Applicants for loans from these funds should address the organization from whom they wish to borrow.

For juniors and seniors, the Knights Templar Commandery has established a loan fund. Application should be made through a commandery where the applicant is known. The Order of the Eastern Star has a fund for juniors and seniors who are members or children of members. Applications should be sent to the Grand Secretary, the Order of the Eastern Star, National Reserve Building, Topeka, Kan.

Gifts, Memorials, and Bequests

The Kansas State College Endowment Association is incorporated under the laws of Kansas to accept and administer gifts and bequests to the College. Anyone wishing information about the Association may write to the Secretary of the Association, A. R. Jones, Kansas State College, who will be happy to send a booklet of information and to answer any specific questions that may be asked.

The booklet outlines some of the principal needs of the College, and explains fully how friends of the College may perpetuate their interests in Kansas State by sharing in the activities of the Association.

Scholarships

AGRICULTURE

BORDEN. The Borden Agricultural Scholarship will be awarded annually by the Borden Company Foundation, Inc., under normal conditions, and the amount of each annual award will be \$300. The scholarship will be presented to the senior in the School of Agriculture who, upon entering his senior year, has achieved the highest average grade of all similarly eligible students in all preceding college work, and who has completed two or more dairy subjects as a part of his college work. The scholarship is administered by the Head of the Department of Dairy Husbandry.

CARL RAYMOND GRAY. In honor of the late president of the Union Pacific Railroad, who initiated the award in 1921, scholarships of \$100 are awarded each year by the Union Pacific Railroad Company to one student in vocational agriculture and one member of a 4-H Club in each of the thirty-six counties in Kansas served by the railroad. Awards are made by a local committee in each county, and are based on quality and quantity of project work, records kept, character, interest, and scholastic standing. The scholarship may be used to enroll for a full-year course in agriculture, home economics, pre-veterinary medicine, or agricultural engineering.

FULTON BAG AND COTTON MILLS. Beginning with the fall of 1949, a new scholarship was made available to freshmen entering upon curriculums in the Department of Milling Industry. This award is known as the Fulton Bag and Cotton Mills Scholarship. An award of \$250 will be made to the most promising freshman entering the department. He must be a citizen of

the United States. If the student continues to maintain a high scholastic rating and shows evidence of leadership ability and extracurricular interests, the scholarship will be available to him throughout his college career and he will receive awards of \$250 during each of his sophomore, junior, and senior years. A new freshman award will be made each successive fall.

KROGER. Four scholarships of \$200 each are offered annually by the Kroger Company to boys and girls who are high school graduates and who have distinguished themselves in 4-H Clubs, vocational agriculture, or home economics. Two scholarships are available to boys and two to girls who expect to earn a degree either in agriculture or in home economics at Kansas State College. Application is made through the county agent, home demonstration agent, or teacher of vocational agriculture.

SEARS, ROEBUCK. Scholarships of \$150 are the annual gift of Sears, Roebuck and Company to leading high school graduates who have distinguished themselves in 4-H Clubs or vocational agriculture, and whose attendance at college is dependent on such an award. Winners of these scholarships must enroll in the School of Agriculture. Application is made through the County Agent, and the Dean of the School of Agriculture administers the scholarship.

ARCHITECTURE

CHARLES W. SHAVER SCHOLARSHIP FUND IN ARCHITECTURE. This fund shall be used and expended in such manner as selected and determined by the Head of the Department of Architecture to assist one or more students enrolled in the curriculum in architecture to pursue any suitable project which will contribute towards greater proficiency and interest in the professional aspects of architecture.

CHEMISTRY

H. H. KING. Scholarships of \$250 each were established in 1951 for two senior industrial chemistry majors who show promise in their chosen profession. Dr. J. H. Young, president, H. H. Robertson Company, Pittsburgh, Pa., is personally financing these scholarships in honor of his former chemistry professor, Dr. H. H. King. The scholarships are administered by the Department of Chemistry, and students are selected without application.

ECONOMICS AND SOCIOLOGY

AMERICAN BANKERS ASSOCIATION FOUNDATION FOR EDUCATION IN ECONOMICS. The American Bankers Association, in commemoration of its fiftieth anniversary, created the foundation to establish scholarships in economics and promote economic research, for the purpose of developing a sound public understanding of the business questions which underlie and vitally affect our national welfare and prosperity. The scholarships are administered by the Head of the Department of Economics and Sociology and others of the Department of Economics and Sociology.

ENGINEERING

WESTINGHOUSE ACHIEVEMENT SCHOLARSHIP IN ELECTRICAL ENGINEERING. An annual award of \$500 is given by Westinghouse to a junior student on the basis of high academic achievement and leadership. The scholarship is administered by a committee in the office of the Dean of the School of Engineering and Architecture.

MAGNOLIA PETROLEUM COMPANY SCHOLARSHIP. An annual award of \$750 is given by the Magnolia Petroleum Company to a student in electrical engineering for high achievement in scholarship and leadership. Any student of electrical engineering entering his senior year is eligible for this grant, and the recipient will be selected jointly by the School of Engineering and the Magnolia Petroleum Company.

GENERAL ELECTRIC PROFESSORS CONFERENCE ASSOCIATION SCHOLARSHIP. This is an annual award of \$500 to a student of high scholastic achievement, character, and potential, entering his senior year in electrical, industrial, aeronautical, chemical, or mechanical engineering. The award is granted

through a committee of the General Electric Professors Association in co-operation with the General Electric Company to a student enrolled at either the University of Nebraska, South Dakota State College, University of Kansas, or Kansas State College.

HOME ECONOMICS

BORDEN. A scholarship of \$300 is awarded annually by the Borden Company Foundation, Inc., to the senior student who has taken advanced courses in foods and nutrition and has maintained the highest scholastic rating. Selection is made without application by the committee on scholarships, School of Home Economics, on the records of students.

CARL RAYMOND GRAY. (See *Carl Raymond Gray* under *Agriculture*.)

KROGER. (See *Kroger* under *Agriculture*.)

SEARS, ROEBUCK. Ten scholarships of \$200 and five for \$100 are the annual gifts of the Sears, Roebuck Foundation to leading high school graduates who have distinguished themselves in their high school work and in community services, and whose attendance in college is dependent on such an award. Winners of these scholarships must enroll in the School of Home Economics. Application is made to the Dean, School of Home Economics, and is to be sustained by recommendation from Home Economics teachers and Home Demonstration Agents. Application blanks may be obtained from the Dean, School of Home Economics.

TECHNICAL JOURNALISM

FAY N. SEATON. A scholarship or scholarships, totaling not more than \$150 annually, are available each year to undergraduate or graduate students in the Department of Technical Journalism, from funds presented by Fay N. Seaton, Manhattan newspaper publisher. Winners of these "working" scholarships must perform appropriate service for the department in return for the scholarships.

KANSAS CITY PRESS CLUB. An annual scholarship of \$150 is awarded to a journalism student. To be eligible the student must be a member of the junior class, rank in the top half of his class in scholarship, be unable to continue in College through his senior year without working to augment his income, and must show promise of a successful career in newspaper or radio journalism. Nominations for the award shall be made before April 1 each year by the Head of the Department of Journalism or the chapter adviser of the undergraduate chapter of Sigma Delta Chi.

MUSIC

KATHERINE WAREHAM MUSIC SCHOLARSHIP. A scholarship of \$250 given annually for study in music upon satisfactory scholastic and music performance. The scholarship is renewable annually up to four years, administered by the Department of Music.

MU PHI EPSILON SCHOLARSHIP. A scholarship of \$52.50 to be given to a freshman girl majoring in music and to be applied to three semester credit hours of private music lessons. Selection is based upon recommendations by the high school music teacher. Information concerning this scholarship may be obtained from the Head of the Department of Music.

PRESSER FOUNDATION MUSIC SCHOLARSHIPS. These are scholarships for outstanding students enrolled in a curriculum in music. They are administered by the Department of Music.

MUSIC DEPARTMENT. Several scholarships are given annually to students who major in music. Awards are made on the basis of scholastic and musical aptitude. Applications should be made to the head of the Department of Music.

VETERINARY MEDICINE

BORDEN. A scholarship of \$300 a year is awarded by the Borden Company Foundation, Inc., to a student who has completed the third year of the four-year professional Curriculum in Veterinary Medicine with the highest grades

in courses of the first, second, and third years. The award is administered by the School of Veterinary Medicine.

4-H

CAPPER. Two scholarships of \$150 each are given annually by Arthur Capper to a boy and a girl standing high in leadership and general 4-H Club achievement in Kansas.

SPENCER CHEMICAL COMPANY. Ten scholarships of \$200 each are awarded annually by the Spencer Chemical Company to the 4-H Club members outstanding in soil conservation work. Winners are selected on the basis of general 4-H record, plan for preventing loss of soil and soil fertility, and soil conservation practices performed.

CARL RAYMOND GRAY. (See *Carl Raymond Gray* under *Agriculture*.)

KROGER. (See *Kroger* under *Agriculture*.)

SEARS, ROEBUCK. (See *Sears, Roebuck* under *Agriculture and Home Economics*.)

MISCELLANEOUS

LA VERNE NOYES. About twenty scholarships annually, each covering fees, from funds from the estate of La Verne Noyes are awarded to deserving and necessitous students who served in the Army or the Navy of the United States between April 6, 1917, and November 11, 1918, or are descended by blood from someone who so served. Enlistments must have been previous to May 11, 1918, unless active overseas, prearmistice service was rendered. The Committee on General Scholarships should have all applications by August 1,

ORDER OF EASTERN STAR. The Grand Chapter of Kansas, Order of the Eastern Star, has made available a scholarship of \$100, to be given on merit only to a junior for use in the senior year. The winner is selected by the college and approved by the Scholarship Board of the Grand Chapter. Those eligible are Masons, members of the Order of the Eastern Star, children of Masons of Kansas, and children of members of the Order of the Eastern Star of Kansas.

AMERICAN LEGION AUXILIARY. The Kansas Department of the American Legion Auxiliary has made available a scholarship of \$300 to be given to a male resident of Kansas for use in his senior year at Kansas State College. The winner will be selected by the College on the basis of scholarship, character, and personality. Applicants must be children of world war veterans and preference will be given to an orphan who is financially unable to continue his college education. Applications should be submitted to the Secretary of the General Scholarship Committee.

STAUFFER. Mr. and Mrs. Oscar Stauffer have made available a scholarship to be awarded each year to a Hope High School graduate who attends Kansas State College. The scholarship for the school year 1952-'53 will amount to \$200. The winner will be selected on the basis of scholarship, character and personality, need, and ability to profit from education and training at Kansas State College. Applications should be submitted to the Chairman of the all-College Committee on Scholarships not later than April 1 each year.

BERRY. This scholarship is in honor of Edward A. and Flora A. Berry who were pioneers in Marshall County. The annual award of \$100 is made to some boy from Marshall County and is based on economic need and on all-around human qualities, including background, character, leadership, personality, and scholarship. The scholarship is handled by the Chairman of the all-College Committee on Scholarships.

FINE ARTS SCHOLARSHIPS

Beginning in the fall of 1951, there were to be awarded annually in the fields of drama, art, and music, seven \$100 scholarships supported from income resulting from special fine arts attractions brought to the College. Half of each scholarship is paid at the beginning of the fall semester, and half at the beginning of the spring semester. Application should be made not later than May 1.

Drama

Two of the seven Fine Arts Scholarships are available to sophomores who have made outstanding records as freshmen at Kansas State College and who will major in drama.

One of the seven Fine Arts Scholarships is available to a junior who has given exceptional performance as a drama major during the sophomore year at Kansas State College.

Application should be made to the Director of the Kansas State Players.

Art

Two of the seven Fine Arts Scholarships are for junior or senior students majoring in painting, and enrolled in the Curriculum in Humanities (Art Adaptation). The creative ability of the candidates will be considered along with potential professional development. Application should be made to the Head of the Department of Art, or the head of the work in painting in the Department of Architecture.

Music

Two of the Fine Arts Scholarships are available to students majoring in the Department of Music. The awards will be made on the basis of exceptional musical ability. Auditions will be held during the spring semester to select the recipients of the awards, and application should be made to the Head of the Department of Music.

Prizes and Medals

PRIZES

Department of Mechanical Engineering. Payment of the first year's dues, Junior Membership, in the American Society of Mechanical Engineers, for the senior mechanical engineering students of outstanding scholastic and extracurricular attainments.

American Institute of Chemical Engineers. A certificate of merit to the sophomore in chemical engineering ranking highest in his freshman year.

American Society of Civil Engineers. Payment of the initiation fee into the American Society of Civil Engineers; to the civil engineer ranking highest during his senior year.

American Society of Mechanical Engineers. An award for outstanding leadership in the activities of the Student Branch of the Society.

Pi Tau Sigma. An award to the mechanical engineering sophomore who has done the most outstanding work in his freshman year.

American Society of Mechanical Engineers. A member of the student branch has the privilege of competing for four awards: (1) The Charles T. Main award of \$150 and a certificate made each year for the best undergraduate student paper on a topic selected by the society; (2) an annual award of \$25 and a certificate for each of two best papers, the one by an undergraduate student, the other by a graduate student; (3) one of the five \$10 to \$50 prizes offered at the annual regional student conference; and (4) an annual award by the Kansas City Section of the society.

Omicron Nu Scholarship Award. \$10; to the highest ranking freshman in the School of Home Economics.

Chi Omega. By the Kappa Alpha Chapter; \$25 to the woman ranking highest in sociology at the end of the first semester.

Klod and Kernel Klub. Cash prizes, trophies, merchandise, and subscription to farm papers; for grain judging.

Phi Beta Kappa. \$10; to the highest ranking eight-semester senior in the Curriculum in Arts and Sciences.

Journalism Memorial Fund. Each year two or more awards of \$25 each are made by the Journalism Memorial Fund Committee of the Department of Technical Journalism. These awards are made from funds contributed as memorials to graduate and former students of the Department who were casualties in World War II.

Capper. The leading student in technical journalism each year has his or her name engraved upon one of the several small shields surrounding a larger shield bearing the words: "Recognition for superior attainments in technical journalism. Presented by Arthur Capper to students in the Department of Technical Journalism, Kansas State College."

Women's Auxiliary of the American Veterinary Medical Association. An annual award of \$25 to be made to the fourth year student in veterinary medicine who has made the greatest contribution toward advancing the standing of his school on the college campus.

Kansas Veterinary Medical Association. Two gold medals to the outstanding advanced Veterinary ROTC students.

Kansas Veterinary Medical Association. A prize awarded to the fourth year students in veterinary medicine who have attained the highest scholastic average during the four years in the professional curriculum. First prize, \$15; second prize, \$10.

Lorentz Schmidt Prize in Architecture. An annual prize of \$25 to the student in architecture who makes the best progress during his second year.

Margaret Russel Scholarship Award. By Phi Alpha Mu; \$25 to the junior woman enrolled in the School of Arts and Sciences ranking highest at the close of the second semester of her sophomore year. To be eligible a student must have done her sophomore work in the School of Arts and Sciences in Kansas State College.

Quill Club. \$15; for the best short story in annual contest. College Poet Laureate award. Both awards open to undergraduate and graduate students.

MEDALS

Alpha Zeta. A gold medal to the agricultural student ranking highest in scholarship in his freshman year.

Alpha Kappa Psi. By the Alpha Omega Chapter; a scholarship medalion to the highest ranking senior man enrolled in the curriculum in business administration.

Alpha Mu Award. A bronze plaque to the milling student ranking highest in scholarship in his freshman year.

Alpha Rho Chi. A bronze medal to the graduating senior in the Department of Agriculture selected for leadership and professional merit.

American Institute of Architects. A silver medal is awarded to a graduating senior in recognition of excellence in scholarly standing in the Department of Architecture.

Block and Bridle Club. Gold, silver, and two bronze medals; for stock judging.

Forensics. By the Missouri Valley Forensic League; cash and medal awards in its annual tournament.

By other forensic groups; awards in their national and district tournaments.

By the Native Sons and Daughters of Kansas; a trophy in the annual Senator Capper Oratorical Contest.

Poultry Club. Names of winning students engraved on junior and senior division plaques; cash prizes, merchandise, and subscriptions to farm papers for excellence in judging poultry and poultry products.

Sigma Tau Scholarship Award. Gold, silver, and bronze medals to three sophomore engineering students ranking highest in their freshman year.

Air Force Association Medal. Awarded to the outstanding first-year Advanced Course Air ROTC student.

American Legion Medal. Awarded to the outstanding second-year Advanced Course ROTC student enrolled in Infantry.

Distinguished Military Student Badge. Every year the Commandant, with the concurrence of the College president and the deans, may designate certain outstanding ROTC students, Air or Army, as Distinguished Military Students, who are awarded a Distinguished Military Student badge.

Association of United States Army ROTC Medals. Awarded to the outstanding Infantry senior and Antiaircraft senior. United States Antiaircraft Association ROTC Medal. Awarded to the outstanding Antiaircraft junior. The United States Veteran Signal Corps Association Medal. Awarded to the outstanding student enrolled in the Signal Corps unit.

The Armed Forces Communication Association Medals. A gold medal is awarded to the outstanding Signal Corps senior, a silver medal is awarded to the outstanding Signal Corps junior, and a bronze medal is awarded to the outstanding Signal Corps sophomore.

Scabbard and Blade Award. To the outstanding sophomore ROTC student in the Air unit and in the Army unit (two awards).

Sons of American Revolution Medal. Awarded for excellence in leadership, military bearing, theoretical and practical ROTC work, Air or Army.

Student Dairy Club. Gold, silver, and bronze medals; for dairy judging.

The Summer Session

Purpose. During the summer the College offers on an accelerated basis regular College courses designed to meet the needs of the following persons: (1) Teachers who wish to grow in their profession, (2) Those who are candidates for certificates granted by the State Board of Education, (3) Superintendents and principals who desire to do research in the problems of public instruction, (4) Undergraduates who wish to continue their studies during the summer either to permit an accelerated program leading to early graduation or to make up work, (5) Those who are candidates for higher degrees, and (6) High school graduates about to begin college work.

Facilities. All facilities regularly available during the regular semester are also available during the summer session. Teachers employed for the summer session are regular staff members of the College who are employed for the session, or outstanding personalities who are brought to the campus from other institutions. A large number and variety of special workshops and conferences are scheduled during the summer session. All regular services of the College are available including the cafeteria, dormitories, counseling and testing services, etc. In addition a particularly inviting recreation program including parties, dances, tennis, other sports, free movies, lectures, and music is planned each summer.

The Session. The summer session at Kansas State College is scheduled for nine weeks as shown in the calendar in this Bulletin. This nine-week period includes time both for registration and examinations and permits the earning of nine credit hours of work. In response to student requests, the 1952-'53 summer session scheduled no classes on Saturdays. The adjustment from 5½-day week to a 5-day week has been accomplished by the use of four 60-minute periods with 10-minute intervals between classes. The first class starts at 7:30 in the morning. The other classes follow at 8:40, 9:50, and 11. Where credit hours for courses require only a 50-minute period for each class meeting, the morning class will conclude at the end of 50 minutes rather than 60 minutes, with 20 minutes until the next class meeting. In the afternoon, no change has been necessary for there were no Saturday afternoon classes formerly. Therefore, afternoon classes will continue to use a 50-minute class period beginning on the hour, with 10 minutes between classes. The change does not in any way reduce the quality or time devoted to class work but will permit teachers and other persons attending Summer School greater flexibility for weekend travel and recreation than was formerly possible.

The College will schedule additional courses not listed in this Bulletin if there is sufficient demand. The College also reserves the right to cancel any course for which a suitable number of students is not enrolled. This number is prescribed by the Board of Regents.

Although descriptions of all courses are given in this Bulletin, those interested in attending the summer session should write to the Director of Admissions for the special Summer School Catalogue giving a more exact list of the courses to be offered, the time each class meets, and other pertinent information about the summer session.

Undergraduate Degrees

To graduate, a student must complete a prescribed curriculum. Under special conditions such substitutions are allowed as the interests of the student demand. The total requirement for four-year undergraduate curriculums ranges from 120 to 142 semester hours and points, according to the curriculum taken. (A semester hour is one hour of recitation or lecture work, or two or three hours of laboratory a week, for one semester. When no ambiguity is involved, the term "hour" is used for "semester hour" in this catalogue.)

To be considered for an undergraduate degree, a student must have completed in residence twenty of his last thirty undergraduate hours, with not fewer than thirty hours of resident undergraduate work at this institution. Resident work includes all regularly scheduled class or laboratory instruction given by the regular College faculty but excluding extension courses and courses completed by special examination. In special cases, candidates will be considered who have completed three full years of work in this institution and have taken their last year of work in an institution approved by the faculty. A student's dean is empowered by the faculty to lift the residence requirements for the senior year for a student who completes curricular requirements for a degree on the basis of credits transferred from an accredited school of medicine, dentistry, or law. A student who has advanced credit accepted by this College for the equivalent of three semesters or more must, in order to qualify for the above privilege, maintain a grade point average of 1.75 in the College.

Seniors meeting the graduating requirement in hours but failing to meet it in points must take additional courses designated by the dean of the school in which their major work lies, until the requirement in points is met.

Candidates for degrees must make application to the Registrar and pay the commencement fee at least thirty days before the date of graduation. The candidate is responsible for complying with all requirements.

A candidate for graduation must be present in person, unless he is excused by the faculty on recommendation of his dean, to whom he must apply for the privilege of getting his degree *in absentia*.

Degrees

The Bachelor of Science degrees shown are conferred on completion of the following four-year curriculums:

IN THE SCHOOL OF AGRICULTURE

Agriculture, B. S. in Agriculture, page 66.
 Agricultural Administration, B. S. in Agriculture, page 68.
 Agricultural Education, B. S. in Agriculture, page 69.
 Dairy Manufacturing, B. S. in Agriculture, page 71.
 Horticulture, B. S. in Agriculture, page 72.
 Technical Agronomy, B. S. in Agriculture, page 80.
 Agricultural Journalism, B. S. in Agricultural Journalism, page 70.
 Landscape Design, B. S. in Landscape Design, page 74.
 Milling Administration, B. S. in Milling Industry, page 75.
 Milling Chemistry, B. S. in Milling Industry, page 76.
 Milling Technology, B. S. in Milling Industry, page 77.
 Feed Technology, B. S. in Feed Technology, page 78.

IN THE SCHOOL OF ARTS AND SCIENCES

Business Administration, B. S. in Business Administration, page 119.
 (with major in accounting), page 120.
 Chemistry, B. S. in Chemistry, page 121.
 Music (Applied), B. S. in Music (Applied), pages 124, 127.
 Music Education, B. S. in Music Education, pages 125, 126.
 Physical Education (Men), B. S. in Physical Education, page 128.
 Physical Education (Women), B. S. in Physical Education, page 129.
 Technical Journalism, B. S. in Technical Journalism, page 131.
 Biological Science, B. S., page 111.
 (with adaptation for pre-medicine), page 113.
 (with adaptation for medical technicians), page 112.
 Humanities, B. S., page 114.
 (with art adaptation), page 115.
 Physical Science, B. S., page 116.
 (Geophysics option), page 117.
 Social Science, B. S., page 118.
 Elementary Education, B. S. in Elementary Education, page 122.
 Geology (Applied), B. S., page 123.
 Physics, B. S., page 130.

IN THE SCHOOL OF ENGINEERING AND ARCHITECTURE

Agricultural Engineering, B. S. in Agricultural Engineering, page 219.
 Architectural Engineering, B.S. in Architectural Engineering, page 220.
 Architecture (5 years), B. S. in Architecture, page 221.
 Chemical Engineering, B. S. in Chemical Engineering, page 222.
 Civil Engineering, B. S. in Civil Engineering, page 223.
 Electrical Engineering, B. S. in Electrical Engineering, page 224.
 Industrial Arts, B. S. in Industrial Arts, page 227.
 Industrial Engineering, B. S. in Industrial Engineering, page 229.
 Mechanical Engineering, B. S. in Mechanical Engineering, page 230.
 (Aeronautical option), pages 231, 232.
 (Industrial option), page 231.
 (Petroleum Production option), page 231.
 (Technical option), page 231.
 Nuclear Engineering, B. S. in Nuclear Engineering, page 233.

IN THE SCHOOL OF HOME ECONOMICS

Home Economics, B. S. in Home Economics, page 267.

(with provision for specialization), page 269.

Dietetics and Institutional Management, B. S. in Home Economics, page 271.

Home Economics and Journalism, B. S. in Home Economics, page 273.

Home Economics and Nursing (5 years), B. S. in Home Economics, page 274.

Restaurant Management, B. S. in Restaurant Management, page 272.

IN THE SCHOOL OF VETERINARY MEDICINE

Veterinary Medicine, B. S. and D. V. M., page 296.

(for completion of 6-year combination of Pre-veterinary Curriculum in Veterinary Medicine)

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

The Graduate School

HAROLD HOWE, *Dean*

JAMES EDWARD ACKERT, *Dean Emeritus*

OFFERINGS OF THE GRADUATE SCHOOL

Major Fields for Master of Science

Major work leading to the degree Master of Science is offered in the following departments or fields:

Accounting	Genetics
Agricultural Economics	Geology
Agricultural Education	Government
Agricultural Engineering	History
Agronomy (Crops and Soils)	Home Economics Education
Animal Husbandry	Horticulture
Apiculture	Household Economics
Applied Mechanics	Industrial Arts
Architectural Engineering	Institutional Management
Architecture	Landscape Design
Art (Architecture)	Machine Design
Art (Home Economics)	Mathematics
Bacteriology	Mechanical Engineering
Botany and Plant Pathology	Milling Industry
Chemical Engineering	Modern Languages
Chemistry	Music
Child Welfare and Euthenics	Parasitology
Civil Engineering	Pathology (Veterinary)
Clothing and Textiles	Physical Education (Men)
Dairy Manufacturing	Physics
Dairy Production	Physiology (Veterinary)
Economics	Poultry Husbandry
Education	Psychology
Electrical Engineering	Shop Practice
English	Sociology
Entomology	Speech
Extension Education	Statistics
Farm Mechanics	Surgery and Medicine (Veterinary)
Foods and Nutrition	Technical Journalism
General Home Economics	Zoology

Minor graduate work is offered in each of the above departments or fields and in the departments of Physical Education (Women) and Anatomy (Veterinary).

Major Fields for Doctor of Philosophy

Major work leading to the degree Doctor of Philosophy is offered in the fields of:

Agronomy	Entomology
Animal Nutrition	Foods and Nutrition
Applied Mechanics	Genetics
Bacteriology	Milling Industry
Botany	Parasitology
Chemistry	Physics

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.

Assistantships and Fellowships

To facilitate research work, teaching, and the acquisition of advanced degrees, the College has established *graduate assistantships* and *graduate research assistantships* in most departments. These assistantships may be on the nine-months-a-year or twelve-months-a-year basis. They may be of either of two types: (1) Half-time appointments, which demand one-half of the time of the student for laboratory or research assistance or teaching during the employment period. The remainder of his time is given to advanced

study. No half-time assistant may receive more than ten hours of credit a semester. (2) Two-fifths time appointments, which demand approximately 40 percent of the student's time for laboratory, research, or teaching work. No two-fifths time assistant may receive more than twelve hours of credit a semester. Assistants on the twelve-months basis may receive not more than five hours of credit in a summer session if on half-time basis, nor more than six hours of credit in a summer session if on two-fifths time appointments.

One or more graduate assistantships or graduate research assistantships paying a salary fixed each year are maintained in each of the following fields: Agricultural Economics, Agricultural Engineering, Agronomy, Animal Husbandry, Applied Mechanics, Architecture and Allied Arts, Art (Home Economics), Bacteriology, Botany, Chemical Engineering, Chemistry, Child Welfare and Euthenics, Civil Engineering, Clothing and Textiles, Counseling, Dairy Husbandry, Economics, Education, Electrical Engineering, English, Entomology, Foods and Nutrition, Genetics, Geology, Government, History, Horticulture, Household Economics, Industrial Arts, Institutional Management, Mathematics, Mechanical Engineering, Milling Industry, Music, Parasitology, Pathology, Physics, Poultry Husbandry, Shop Practice, and Zoology.

Applications should be made annually before April 1, for the following academic year. Students desiring such appointments may obtain application blanks from the Dean of the Graduate School.

A number of *fellowships* are available each year. The stipends of fellowships vary in amount and the course load which may be carried by a fellow is established in each individual case.

GENERAL REGULATIONS

Admissions

Entrance Requirements. Admission to graduate study is granted on two bases: (1) Full standing and (2) provisional standing.

For admission to graduate study in *full standing*, the applicant must have been graduated from an institution whose requirements for the bachelor's degree are substantially equivalent to those of Kansas State College; must have an undergraduate average of B or better in the junior and senior years; and must have had undergraduate training substantially equivalent to that given by this College in the specific subject-matter field in which the applicant expects to do graduate work. Moreover, undergraduate training in closely related or supporting subjects must also be adequate to sustain advanced work in the field of the applicant's choice.

The applicant who does not meet all the requirements for admission to full standing in the Graduate School may be admitted to *provisional standing*. Such admission will be based on written application in which the circumstances involved are set forth. Upon receipt of this application, the student will be advised of any deficiencies or other conditions to be met to attain full standing. The student admitted to provisional standing will be admitted to full standing upon the completion of at least nine hours of work for graduate credit with a grade of B or better in three-fourths of such graduate work; and upon the removal of any course or subject-matter deficiencies which were specified at the time of his admission to provisional standing in the School.

Correspondence regarding admission to graduate study should be addressed to the Dean of the Graduate School, who will on request supply the required application blanks. Two copies of a transcript from each institution attended must be sent to the Dean of the Graduate School. The application and transcript should be filed with the Graduate Office at least one month before the time the student expects to enroll.

Admission to graduate study does not imply admission to candidacy for an advanced degree. Such candidacy is determined only after the student has demonstrated his ability to do graduate work.

Registration and Assignment. Students who have been admitted to the Graduate School register and pay their fees during the regular registration periods. (See the Graduate Calendar.) They obtain their assignments

from the Dean of the Graduate School. All new students, including graduate students, are required to take a comprehensive physical examination at the College prior to their initial enrollment.

Not more than sixteen credit hours, including those obtained from research, may be assigned in a single semester, nor more than nine hours during a summer session. If a part of the assignment is for undergraduate credit, a student may be assigned to seventeen hours during a semester or nine hours during a summer session. Full-time staff members of the College may not be assigned more than five hours in one semester, nor more than three hours in a summer session. (See section on Assistantships and Fellowships for limitations applying to students holding assistantships.)

These limitations apply to classes audited as well as classes for which credit is earned.

No student may drop a course or change his assignment except by formal reassignment, and for this he must apply to the Dean of the Graduate School.

Fees.* Graduate students are subject to the same fees as other students.

Graduate Study by Seniors. 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 Graduate School, be assigned one or more courses for graduate credit. In no case may such combination of courses exceed seventeen hours during a semester or nine hours during a summer session.

Requirements for Degrees

Graduate Credit. Courses numbered 800 to 999 in this BULLETIN are for graduate credit only. Courses numbered 400 to 799 are open to both graduate and undergraduate students. For graduate credit in such courses, the student shall be required to do work of graduate character. The nature and amount of such graduate work shall be determined by the instructor.

Graduate credit may not be earned by taking a special examination or by correspondence. However, previously matriculated graduate students may be enrolled, on an hourly basis, for a limited amount of research or problem work *in absentia* on the recommendation of the head of the department and with the approval of the Dean of the Graduate School. The fee is \$2.50 a semester hour. Resident faculty members and students are not eligible to pursue work *in absentia* except during periods when school is not regularly in session. One, two, or three semester hours of graduate credit in problem or research work may be earned between the close of the summer school and the beginning of the fall semester, provided permission is secured in advance from the major instructor and from the Dean of the Graduate School.

Grades. Graduate students' work is graded in eight classes: A, B, C, D, Condition, Incomplete, F, and Withdrawn. All Conditions and Incompletes except incompletes resulting from assignments to graduate courses designated in the catalog as research must be made up within a specified time if they are to be transformed into credited work. A candidate for an advanced degree must make a grade of B or better in three-fourths of the credit hours taken for the degree. For graduate credit the grade in a course must be C or better.

Major and Minor Subjects. Approximately two-thirds of the student's time is devoted to his major subject and one-third to one or more minor subjects. An exception may be made for master's candidates who plan to meet the requirement for the school administrator's certificate; such candidates may be permitted to take up to 24 hours of the 30 or 32 required credit hours within their major field. The word "subject" is used to designate a recognized field of study and is not defined by the limits of a department. For master's candidates, the nature and distribution of majors and minors within the program of study are approved by the Graduate Council, upon recommendation of the major instructor and the

* See section headed Fees, under General Information.

head of the major department. For doctor's candidates, the approval is made by the Council upon recommendation of the supervisory committee.

Master of Science. Candidates for the degree Master of Science (M. S.) are required to spend one academic year in residence, except under special conditions, when the residence may be reduced to one and one-half semesters, or three summer sessions of full graduate study. Subject to the approval of the major department, the candidate may choose either of the following two plans: (1) 30 semester hours of graduate credit *including a master's thesis* of six to ten semester hours; (2) 32 semester hours of graduate credit without a master's thesis but *including a written master's report* either of research or of problem work on a topic in the major field. For this report two semester hours of credit are given, and upon its completion it is submitted in duplicate to the major instructor for his approval and for that of the head of the major department and the Dean of the Graduate School. (See Graduate Calendar for dates on which thesis or report must be submitted.)

The subject of the master's thesis must be approved by the major instructor, the head of the department, and the Dean of the Graduate School. Ordinarily, preparation of the thesis requires one-fourth of the student's time and it may not exceed one-third of it. The completed thesis is submitted in triplicate to the major instructor for his approval and for that of the head of the major department and the Dean of the Graduate School. Detailed specifications for thesis preparation may be obtained from the office of the Dean of the Graduate School. If the student desires to publish all or part of his thesis before the master's degree is conferred, he must obtain the permission of the Graduate Council.

A candidate for the master's degree is subject to an *oral examination* covering the major and minor subjects and the thesis or report, by a committee selected from the instructors with whom major and minor work was taken, the head of the major department, the major instructor, and a member of the Graduate Council who serves as committee chairman.

All credits towards the master's degree, whether from Kansas State College or transferred, which have been acquired more than six years prior to the time the candidate receives his degree, require *validation* either by repeating the course or passing an advanced course based on the lapsed credit course, or by a validation examination, with questions and answers filed in the Graduate Office as a part of the record of the candidate until graduation. The method of the validation is to be determined by the department concerned, and the validation is to be completed at least two weeks before the oral examination. A grade of "B" is necessary for restoration of lapsed credits.

Doctor of Philosophy. At least three years of two semesters each of graduate study beyond the bachelor's degree, equivalent to 90 semester hours, including a doctor's dissertation, are required of candidates for the degree Doctor of Philosophy (Ph.D.). At least a year of this time must be spent in residence at the College. The candidate must also demonstrate to an authorized representative of the Department of Modern Languages *a reading proficiency in two foreign languages in the literature of his special field*. The choice of these two languages must be approved by the candidate's supervisory committee and by the Graduate Council, and the language requirements must be satisfied before preliminary examinations are taken.

For each student who plans to work toward the degree Doctor of Philosophy, a *supervisory committee* is chosen by the Dean of the Graduate School consisting of not fewer than five members, representing the major and minor fields. This committee aids the student in the preparation of his program of study (which must be approved by the Graduate Council) and has charge of all examinations except those on the language requirements. Before preliminary examinations are arranged, the student should have on file in the office of the Dean of the Graduate School a program of study signed by the supervisory committee.

Ordinarily, at the close of the second year of graduate study and at least

seven months before the date on which the student expects to receive his degree, *written preliminary examinations* must be passed by him in both his major and minor fields. An oral preliminary examination may be required by a department in addition to the written preliminary examination. When the student has passed these examinations, he is recommended by the supervisory committee to the Graduate Council for admission to candidacy for the degree Doctor of Philosophy. On completion of three years of graduate study as prescribed in the program of study and on submission of a dissertation to the Dean of the Graduate School, at least one month before commencement, the candidate is given the *final examination*.

Early in the graduate work a *dissertation* 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 reinterpreting previous knowledge. Three complete type-written copies of the dissertation approved by the supervisory committee shall be submitted to the Dean of the Graduate School at least one month before commencement. On completion of all requirements for the degree, two copies shall be placed in the College Library and the third copy filed with the head of the department in which major work is taken.

Before the doctor's degree is conferred, a candidate places on deposit with the Comptroller's Office the sum of \$100 as a guarantee that the dissertation will be published wholly or in part in a manner acceptable to the Dean of the Graduate School and the head of the department in which the work was done. If such publication is made within a period of three years following the granting of the degree, or if a letter of acceptance from the editor of an appropriate publication is received before the expiration of the three-year period, assuring publication at a later date, the \$100 deposit will be returned to the student upon consignment of twenty-five copies of the published dissertation paper or papers to the major department. If publication is not completed or provided for before the expiration of the three-year period, the College retains the \$100 deposit.

If publication of the dissertation, in whole or in part, is made before the degree is conferred, permission must first be obtained from the Graduate Council. When it is published, wholly or in part, either before or after the degree is conferred, the first page must carry as a footnote the appropriate one of the two following statements:

A dissertation presented in partial fulfillment of the requirements for the degree Doctor of Philosophy in _____ at Kansas State College.

or

Portion of a dissertation presented as partial fulfillment of the requirements for the degree Doctor of Philosophy in _____ at Kansas State College.

GENERAL INFORMATION

Graduate Loans

Loans to graduate students may be obtained from loan funds controlled by the College and also from the Alumni Loan Fund. The graduate student should not plan to borrow from these funds until he or she has demonstrated ability to do satisfactory graduate work at this College. Loans are made only when a note is signed by the borrower and one other responsible person, preferably the borrower's parent or guardian. This co-signer must be recommended by his bank as of good financial standing and otherwise satisfactory as a co-signer. Ordinarily the maximum loaned to any one student from these funds is \$250. Occasionally loans up to \$500 are made.

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 College. Additional information concerning the AAUW Graduate School Loan Fund may be obtained from the Dean of the Graduate School.

Graduate Work in the Summer School

All schools of the College offer graduate work in the Summer School. Only in certain departments, however, can a student complete requirements for the master's degree without spending one or two semesters in residence. For information about these cases, one should address the Dean of the Graduate School.

Students who enroll in *workshops*, scheduled concurrently with the summer session, may not enroll for courses in the regular summer session other than in problems and in research, except by permission of the Dean of the Graduate School and the heads of departments and instructors concerned. No combination of a summer session and workshop credit may be in excess of nine credit hours.

Full information concerning the courses offered is contained in the Summer School number of the Kansas State College Bulletin, which may be obtained upon application to the Director of Admissions of the College.

GRADUATE CALENDAR

(Graduate students should refer also to the Academic and Financial Calendar, page 4.)

FIRST SEMESTER, 1953-1954

September 8-10, Tuesday-Thursday—Physical examination for all graduate students enrolling for the first time at Kansas State College.
 September 8-10, 12:45 p. m., Tuesday-Thursday—Registration.
 September 11, 8:00 a. m., Friday—Classes begin.
 October 3, Saturday—Last day to enroll with full assignment.
 October 10, Noon, Saturday—Deficiency reports due in deans' offices (5th week).
 October 24, Noon, Saturday—Last day for dropping course without a withdrawal or failure being recorded (7th week).
 November 7, Noon, Saturday—Midsemester deficiency reports due in deans' offices (9th week).
 November 11, Wednesday—Armistice Day—Holiday.
 November 24, 10:00 p. m., Tuesday—Thanksgiving vacation begins.
 November 30, 8:00 a. m., Monday—Classes resume.
 December 1, Tuesday—Tentative copy of doctors' dissertations due in departmental offices.
 December 8, Tuesday—Tentative copy of doctors' dissertations due in graduate dean's office.
 December 17, Noon, Thursday—Tentative copies of masters' theses and reports due in departmental offices.
 December 19, Noon, Saturday—Christmas vacation begins.
 December 19, Noon, Saturday—Applications for degrees must be made on or before this date.
 January 4, 8:00 a. m., Monday—Classes resume.
 January 4, Noon, Monday—Final copies of doctors' dissertations due in graduate dean's office.
 January 4, 4:00 p. m., Monday—Tentative copies of masters' theses and reports due in graduate dean's office.
 January 8, 4:00 p. m., Friday—Last day subject may be dropped before end of semester.
 January 16, Noon, Saturday—Grades to registrar for candidates for degrees.
 January 18-22—Monday-Friday—Semester examinations.
 January 18, 3:00 p. m., Monday—Final copies of masters' theses and reports due in graduate dean's office. End of period for masters' oral examinations.
 January 20, 4:00 p. m., Wednesday—Senate meeting to approve candidates for degrees.
 January 23, 10:00 a. m., Saturday—Commencement.

SECOND SEMESTER, 1953-1954

January 25-27, Monday-Wednesday—Physical examinations for all graduate students enrolling for the first time at Kansas State College.
 January 25-27, 12:45 p. m., Monday-Wednesday—Registration.
 January 28, 8:00 a. m., Thursday—Classes begin.
 February 20, Saturday—Last day to enroll with full assignment.
 February 22, Monday—Washington's birthday—Holiday.
 February 27, Noon, Saturday—Deficiency reports due in deans' offices.
 March 13, Noon, Saturday—Last day for dropping courses without a withdrawal or failure being recorded (7th week).
 March 27, Noon, Saturday—Midsemester deficiency reports due in deans' offices (9th week).
 April 8, Noon, Thursday—Tentative copy of doctors' dissertations due in departmental offices.
 April 15, Noon, Thursday—Tentative copy of doctors' dissertations due in graduate dean's office.
 April 15, 10:00 p. m., Thursday—Easter vacation begins.
 April 20, 8:00 a. m., Tuesday—Classes resume.
 April 20, Noon, Tuesday—Tentative copies of masters' theses and reports due in departmental offices.
 April 23, 3:00 p. m., Friday—Applications for degrees must be made on or before this date.
 April 26, Noon, Monday—Tentative copies of masters' theses and reports due in graduate dean's office.
 May 12, Noon, Wednesday—Last day a subject may be dropped before end of semester.
 May 17-21, Monday-Friday—Semester examinations.

May 17, Noon, Monday—Grades to registrar for all candidates for degrees.

May 17, 3:00 p. m., Monday—Final copies of masters' theses and reports due in graduate dean's office. End of period for masters' oral examinations.

May 20, 11:00 a. m., Thursday—Senate meeting to approve candidates for degrees.

May 22, Saturday—Alumni Day.

May 23, Sunday—Commencement.

SUMMER SESSION, 1954

June 1-2, 8:00 a. m., Tuesday-Wednesday—Registration. Physical examinations for all graduate students enrolling for the first time at Kansas State College.

June 3, 7:00 a. m., Thursday—Classes begin.

June 12, Noon, Saturday—Last day to enroll with full assignment.

June 15, Noon, Tuesday—Tentative copy of doctors' dissertations due in departmental offices.

June 22, Noon, Tuesday—Tentative copy of doctors' dissertations due in graduate dean's office.

June 26, Noon, Saturday—Last day for dropping courses without a withdrawal or failure being recorded.

June 30, Noon, Wednesday—Final copies of doctors' dissertations due in graduate dean's office.

July 1, 3:00 p. m., Thursday—Applications for degree must be made on or before this date.

July 3, Noon, Saturday—Deficiency reports due in deans' offices.

July 5, Monday—Independence Day—Holiday.

July 6, Noon, Tuesday—Tentative copies of masters' theses and reports due in departmental offices.

July 12, Noon, Monday—Tentative copies of masters' theses and reports due in graduate dean's office.

July 26, 3:00 p. m., Monday—Final copies of masters' theses and reports due in graduate dean's office. End of period for masters' oral examinations.

July 26, 5:00 p. m., Monday—Grades to registrar for all candidates for degrees.

July 27, 4:00 p. m., Tuesday—Last day subject may be dropped before end of session.

July 28, 4:00 p. m., Wednesday—Senate meeting to approve candidates for degrees.

July 30, 5:00 p. m., Friday—Last day for examinations.

July 31, 10:00 a. m., Saturday—Commencement.

The School of Agriculture

ARTHUR D. WEBER, *Dean*

RAY IAMS THROCKMORTON, *Dean Emeritus*

LELAND EVERETT CALL, *Dean Emeritus*

CLYDE WILLIAM MULLEN, *Assistant Dean*

H. E. MYERS, *Assistant Dean*

The School of Agriculture prepares students for farming, for the scientific investigations of agricultural problems in state and national institutions, for agricultural extension work, for the teaching of agriculture, for service in industries closely related to agriculture, and for a variety of other public and private services of an agricultural nature.

The College owns 2,784 acres of land which are used for experimental work and instruction, and maintains large and well-equipped laboratories for soil and crop work. There is ample greenhouse space for problems and research work in crops and soil.

The College herds and flocks contain high-class representatives of the important breeds of dairy and beef cattle, poultry, hogs, horses, and sheep. The student becomes familiar with types and breeds by actual work with the stock.

Six of the four-year curriculums offered in this School lead to the degree Bachelor of Science in Agriculture. The four-year curriculums in Flour and Feed Milling Industries lead to the degree Bachelor of Science in Milling Industry or Feed Technology.

The four-year Curriculum in Landscape Design leads to the degree Bachelor of Science in Landscape Design.

The Curriculum in Agricultural Journalism leads to the degree Bachelor of Science in Agricultural Journalism.

Curriculum in Agriculture

Students choosing the Curriculum in Agriculture need not name the department in which they will major before the second semester of the sophomore year. They have their choice of numerous electives in soils, crops, agricultural economics, animal husbandry, dairy husbandry, horticulture, and poultry husbandry.

All electives in any of the departments must be officially approved by the Dean of the School of Agriculture and the head of the department in which the student majors.

A student may major not only in any department in the School of Agriculture but also in the departments of Botany, Entomology, Zoology, Bacteriology, Chemistry, or Agricultural Engineering. Substitutions may be made to meet definite objectives. See "Substitutions to Meet Certain Objectives," following the outline of Curriculum in Agriculture.

Any candidate for a degree in agriculture must have had at least six months of farm experience approved by the Dean of the School of Agriculture. Students in agricultural journalism, dairy manufacturing, landscape design, or floriculture and ornamental horticulture may substitute practical experience in their respective industries for farm experience.

A formal statement outlining farm experience or substitutions therefor 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 basic studies in soils, farm crops, livestock, dairying, poultry husbandry, horticulture, and agricultural economics, giving him a general knowledge of the whole range of agriculture. More than one-third of his time will have been devoted to strictly agricultural courses.

During his junior and senior years, the student continues his studies of fundamental science and begins to learn to apply science to agriculture.

Curriculum in Technical Agronomy

The Curriculum in Technical Agronomy is designed to provide training for students interested in professional work in agronomy. Three options are provided. See the curriculum outline.

Curriculum in Agricultural Education

The Curriculum in Agricultural Education is intended for those students who are interested in becoming teachers of vocational agriculture in Kansas high schools participating in federal Smith-Hughes and George-Deen funds. The curriculum as outlined on another page meets the requirements for the degree Bachelor of Science in Agriculture and at the same time meets the requirements for the state certificate for teaching vocational agriculture. This curriculum ordinarily may be completed in four years.

Curriculum in Agricultural Administration

The Curriculum in Agricultural Administration is planned to meet the needs of students preparing for industries closely related to farming, which require training in both agriculture and business principles. Among such industries and occupations are agricultural services, rural banking, development and sale of lands, processing and marketing of grains.

There is ample opportunity to elect business subjects such as accounting, business organization, credit and finance, business law, and marketing.

County Extension Work

The Curriculum in Agriculture and the Curriculum in Agricultural Administration are the two curriculums that can most readily be adapted for the training of students who desire to go into extension work. Such students should make their intentions known when their electives are being made out in the second semester of their sophomore years.

Curriculum in Dairy Manufacturing

The Curriculum in Dairy Manufacturing provides special training in the manufacture of dairy products. It affords the student an opportunity to specialize in dairy manufacturing and to select, by means of properly chosen electives, one of the three fields of specialization: (a) Dairy plant operator; (b) dairy plant manager; and (c) dairy products technician. Electives selected by the student must be approved in advance by the head of the Department of Dairy Husbandry and the Dean of the School of Agriculture.

Curriculum in Agricultural Journalism

This curriculum is for those who wish to obtain a broad knowledge of agriculture and the ability to disseminate that knowledge to others. Knowledge is power only as it comes into the possession of those who can use it. This curriculum gives training in the techniques of accurate and effective dissemination of information through newspapers, magazines, radio, speech, and other media of communication.

Graduates find attractive opportunities in the information service of the United States Department of Agriculture, state and federal extension services, state departments of agriculture, farm radio departments, agricultural experiment stations, farm organizations, advertising agencies, livestock publications, and many other agencies which employ information writers who know something about agriculture and who know the basic techniques of writing and editing.

By electing twelve additional hours in any department in the School of Agriculture the student can earn a major in that department.

The Curriculum in Agricultural Journalism meets the requirements of the standards of the American Association of Schools and Departments of Journalism. Students in this curriculum are eligible for professional journalistic organizations.

Pretheological Courses

In co-operation with various theological seminaries, Kansas State College offers an opportunity for students who are preparing for the rural ministry to carry elective courses in the School of Agriculture and in other schools of the College which may be accepted as patheological courses in a seminary.

Any person desiring to enter the rural ministry should acquaint himself with the requirements of the seminary of his choice. Special attention should be given to any language requirements.

Among the suggested electives that may be taken at Kansas State College would be courses in agricultural economics, economics, English literature, history and government, logic, philosophy, psychology, rural sociology, sociology, citizenship, and public speaking.

Persons desiring to prepare for the field of rural ministry will enter the Curriculum in Agricultural Administration. They should use the name of this curriculum in filling out information blanks in anticipation of enrollment in Kansas State College.

Curriculum in Landscape Design

The Curriculum in Landscape Design is planned for students who wish to be employed by professional landscape firms and various other private and public agencies. Special emphasis is given to plant materials, planting design, and the rendering of landscape plans. Those completing the curriculum are eligible to receive the degree of Bachelor of Science in Landscape Design.

Curriculum in Horticulture

This curriculum is designed to provide training for students interested in the various phases of horticulture either practical or professional. Students interested in general agriculture with a major in horticulture should enroll in the Curriculum in Agriculture. Students interested in the field of horticulture and intending to qualify for county agent work will pursue the Curriculum in Agriculture and take a major in horticulture. They should also include the course in Extension Organization and Policy among their electives.

Curriculums in Flour and Feed Milling Industries

The College offers four curriculums in the field of milling: (1) Curriculum in Milling Administration; (2) Curriculum in Milling Chemistry; (3) Curriculum in Milling Technology; (4) Feed Technology.

Students choosing the field of milling industry must so indicate at the time of assignment for the second semester of their freshman year in order to be assigned to proper chemistry courses.

Students who bring credits to this College from some other college or university and who choose one of the curriculums in milling, should indicate in which of the three curriculums in milling they expect to major.

Any candidate for a degree in milling industry must have had at least three months' experience in a wheat elevator, flour mill, bakery, or cereal chemistry laboratory, or the equivalent, before obtaining senior classification.

The new Curriculum in Feed Technology is outlined on another page along with other curriculums offered by the Department of Flour and Feed Milling Industries. It is intended to prepare graduates for highly responsible positions in the feed industry. By careful selection of elective courses, with the assistance of the head of the department, a student may be trained to become a specialist in operation, nutrition, or administration. The feed industry is a new and growing field offering new and unusual opportunities to graduates in this curriculum.

State Teacher's Certificate

By selecting the proper electives in the departments of Education and Psychology, the four-year Curriculum in Agriculture may lead to the

degree of Bachelor of Science in Agriculture and also qualify the graduate for the three-year Kansas state teacher's certificate, valid in any high school or other public school in the state, and renewable for life. To meet the professional requirements for the three-year Kansas state teacher's certificate and fulfill the requirements of the Curriculum in Agriculture would require time in excess of the usual four years.

State Certificates for Teachers of Vocational Agriculture

The Curriculum in Agricultural Education is designed to meet the needs of persons desiring to teach vocational agriculture in federally aided secondary schools. This curriculum leads to the degree Bachelor of Science in Agriculture and meets the requirements for teaching vocational agriculture in Kansas high schools participating in federal Smith-Hughes and George-Deen funds.

A total of twenty-one semester hours in the Department of Education and the Department of Psychology is required as follows:

Educ. 120, Prin. of Secondary Education	3
Educ. 505, Vocational Education	3
Educ. 255, Methods of Teaching Agriculture	3
Educ. 265, Teaching Participation in Agriculture	3
Psych. 310, General Psychology	3
Psych. 100, Educational Psychology I	3
Psych. 105, Educational Psychology II	3

A total of seventeen semester hours in the School of Engineering and Architecture is included in order to provide mechanical training necessary for the handling of farm shop problems. The mechanical courses together with semester hours follow:

Shop 180, Welding	1
Agr. Engg. 110, Farm Mechanics	2
Agr. Engg. 120, Farm Power	3
Agr. Engg. 115, Farm Machinery Repair	3
Agr. Engg. 410, Farm Building Construction	3
Agr. Engg. 415, Agricultural Engineering Applications	2
Agr. Engg. 405, Farm Mechanics Methods	3

Upon the completion of the Curriculum in Agricultural Education a person would qualify for the three-year Kansas state teacher's certificate, valid in any high school or other public school in the state. This certificate is valid for three years and may be renewed for life.

Agriculture in the Summer School

All departments in the College usually offer courses in the Summer School. Some are basic college courses, but graduate work particularly suited to high school teachers of vocational agriculture is emphasized. The Summer School number of the Kansas State College *Bulletin* may be obtained upon application to the Director of Admissions.

Home Study in Agriculture

The Department of Home Study of the Division of College Extension offers a number of college courses in agriculture which can be taken by correspondence. Such courses carry the same credit as resident college courses having the same description. These courses will be found especially advantageous to college students who desire to make up deficiencies or to gain certain credits during the summer vacation season. All courses given by correspondence are listed in the latter part of this catalogue under the title "Home Study" in the Division of College Extension.

Two-year Curriculum in Agriculture

Recognizing the desirability for many young men to obtain some college training and then return to the farm or find better employment wherever their additional training and education may lead them, the College has provided a two-year Curriculum in Agriculture. It is intended primarily for former servicemen and others who have attained an ad-

vanced age or who for other reasons do not care to take the time to go through college for a degree.

Admission and Graduation

Students who are high school graduates or who satisfy the entrance requirements of the College may enter upon the two-year Curriculum in Agriculture.

Those who complete the course will be awarded a certificate in recognition of their agricultural accomplishment.

Any student who has done satisfactory work and who at the end of two years may decide to go through for a degree in agriculture may do so by making up all back work required in the regular four-year curriculum of his choice. On this point there will be no exceptions. An outline of required courses in the curriculum may be found following the regular four-year curriculums.

Choice of Electives

The two-year Curriculum in Agriculture provides for sixteen hours of elective courses. It is required that at least six hours out of the sixteen shall be chosen from among cultural or liberalizing courses offered by any of the departments of the College.

The remaining ten hours may be selected from those fields in agriculture where the student may have a special interest. Electives may also be selected from the fields of farm mechanics, machinery repair, and gas and electric welding.

Curriculum in Agriculture

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Geol.	110	Gen. Geology	3	Speech	105	Oral Comm. I	2
Chem.	210	Chemistry I	5	Bot.	110	Gen. Botany	5
An. Husb.	106	El. of An. Husb. ....2 and		Chem.	230	Chem. II Rec.	3
An. Husb.	113	El. of An. Husb. Lab., 1 or		An. Husb.	106	El. of An. Husb. ....2 and	
Dairy Husb.	104	El. of Dairying	3	An. Husb.	113	El. of An. Husb. Lab., 1 or	
		Air Science .....1 or		Dairy Husb.	104	El. of Dairying	3
		Military	1			Air Science .....1 or	
Gen. Agr.	004	Freshman Assembly	0			Military	1
Gen. Agr.	003	Agr. Seminar*	0	Gen. Agr.	003	Agr. Seminar*	0
Phys. Ed.	010	Physical Education M	0	Phys. Ed.	010	Physical Education M	0
Total			15	Total			16

SOPHOMORE†

Hort.	110	El. of Hort. Rec.	2	Econ.	110	Economics I	3
Hort.	111	El. of Hort. Lab.	1	An. Husb.	155	Prin. of Feeding	3
Chem.	310	Org. Chemistry (Agr.) ..	3	Agron.	149	Soils	4 or
Chem.	315	Org. Chemistry Lab.	2	Agron.	106	Farm Crops	4
Agron.	149	Soils	4 or	Zool.	110	Gen. Zoology	5
Agron.	106	Farm Crops	4			Air Science .....1 or	
Poul. Husb.	104	Farm Poul. Prod. Rec. ..	2			Military	1
Poul. Husb.	105	Farm Poul. Prod. Lab. ..	1	Gen. Agr.	003	Agr. Seminar*	0
		Air Science .....1 or		Phys. Ed.	010	Physical Education M ..	0
		Military	1	Total			16
Gen. Agr.	003	Agr. Seminar*	0				
Phys. Ed.	010	Physical Education M ..	0				
Total			16	Total			16

JUNIOR

Math.	175	College Algebra	3 or	Ent.	210	Gen. Econ. Entomol.	3
Math.	130	Mathematics in Agr.	3	An. Husb.	405	Genetics	3 or
An. Husb.	405	Genetics	3 or	Bact.	140	Agr. Microbiology§	3
Bact.	140	Agr. Microbiology§	3	Tech. Jour.	305	Agr. Journalism	3
Physiol.	131	Anat. and Physiology‡, 3 or		Gen. Agr.	003	Agr. Seminar*	0
Bot.	510	Plant Physiology I	3			Elective	7
Agr. Econ.	206	Farm Organization	3	Total			16
Gen. Agr.	003	Agr. Seminar*	0				
Engl.	090	English Proficiency	0				
		Elective	5				
Total			17	Total			16

SENIOR

Gen. Stud.	250	Man and Cult. World I, 4		Gen. Stud.	260	Man and Cult. World II, 4	
Gen. Agr.	003	Agr. Seminar*	0	Gen. Agr.	003	Agr. Seminar*	0
		Elective	12			Elective	12
Total			16	Total			16

Number of hours required for graduation, 128.

* Four meetings each semester.

† 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 School of Agriculture, designating the department of the school in which he will major.

‡ Students who do not expect to major in animal husbandry, dairy husbandry, or poultry husbandry may take Plant Physiology I (Bot. 510) instead of Anatomy and Physiology (Physiol. 131).

§ Students expecting to take additional work in bacteriology, either for advanced work in soils or dairying, will take General Microbiology instead of Agricultural Microbiology.

Only students who have a year and a half of high-school algebra are eligible for College Algebra (Math. 175).

Electives

The electives in the Curriculum in Agriculture are grouped as follows:

	<i>Semester Hours</i>
Major Electives	12
These electives may be taken in any one of the departments of the School of Agriculture. In certain cases also a science department outside of the school 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 strengthen the student's preparation in agriculture.	
General Electives	17
These electives should be chosen 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 must include three hours of physics in their electives.	

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

SUBSTITUTION TO MEET CERTAIN OBJECTIVES

Students desiring to prepare themselves for scientific or special work in the field of agriculture may, with the approval of the Dean of the School 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, Zoology, Botany and Plant Pathology, Education, Agricultural Engineering, Modern Languages, and other approved departments, for twenty-five hours in the Curriculum in Agriculture; provided, that no student may receive a degree in agriculture who does not have at least twenty-five hours in technical agriculture in not fewer than three departments.

Curriculum in Agricultural Administration

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Math.	145	General Algebra	5
Speech	105	Oral Comm. I	2	Dairy Husb.	104	El. of Dairying	3 or
An. Husb.	106	El. of An. Husb. ....2 and		An. Husb.	106	El. of An. Husb. ....2 and	
An. Husb.	113	El. of An. Husb. Lab., 1	or	An. Husb.	113	El. of An. Husb. Lab.	1
Dairy Husb.	104	El. of Dairying	3	Compr.	160	Biol. in Rel. Man II	4
Compr.	150	Biol. in Rel. Man I	4	Compr.	120	Man's Phys. World II ..	4
Compr.	110	Man's Phys. World I	4			Air Science	1 or
		Air Science	1 or			Military	1
		Military	1	Gen. Agr.	003	Agr. Seminar*	0
Gen. Agr.	004	Freshman Assembly	0	Phys. Ed.	010	Physical Education M	0
Gen. Agr.	003	Agr. Seminar*	0				
Phys. Ed.	010	Physical Education M	0				
Total			17	Total			17

SOPHOMORE

Engl.	135	Written Comm. II	2	Agr. Econ.	203	Econ. of Farm Bus.	3
Econ.	110	Economics I	3	Agr. Econ.	597	Agr'l Econ. Stat.	3
Agron.	149	Soils	4 or	An. Husb.	155	Prin. of Feeding	3
Agron.	106	Farm Crops	4	Agron.	106	Farm Crops	4
Agr. Econ.	290	Rural Sociology	3	Agron.	149	Soils	4
Poul. Husb.	104	Farm Poul. Prod. Rec.,	2	Hort.	110	El. of Hort.	2
Poul. Husb.	105	Farm Poul. Prod. Lab.,	1	Hort.	111	El. of Hort. Lab.	1
		Air Science	1 or			Air Science	1 or
		Military	1			Military	1
Gen. Agr.	003	Agr. Seminar*	0	Gen. Agr.	003	Agr. Seminar*	0
Phys. Ed.	010	Physical Education M	0	Phys. Ed.	010	Physical Education M	0
Total			16	Total			17

JUNIOR

Agr. Econ.	212	Farm Accounting	3	Agr. Econ.	206	Farm Organization	3
Agr. Econ.	561	Land Economics	3	Agr. Econ.	218	Marketing Farm Prod. ..	3
Compr.	250	Man and Cult. World I,	4	Compr.	260	Man and Cult. World II,	4
Gen. Agr.	003	Agr. Seminar*	0	Tech. Journ.	305	Agr. Journalism	3
Engl.	090	English Proficiency	0	Gen. Agr.	003	Agr. Seminar*	0
		Elective	6			Elective	3
Total			16	Total			16

SENIOR

Gen. Agr.	003	Agr. Seminar*	0	Agr. Econ.	553	Agr. Econ. Summary	2
		Elective	16	Gen. Agr.	003	Agr. Seminar*	0
						Elective	14
Total			16	Total			16

Number of hours required for graduation, 131.

Electives

The electives in the Curriculum in Agricultural Administration are grouped as follows:

	Semester Hours
Major Electives	9
These electives are to be chosen from the courses in the Department of Agricultural Economics.	
Minor Agricultural Electives	15
These electives must be chosen from departments in the School of Agriculture and will directly strengthen the student's preparation in agriculture.	
General Electives	15
These electives should be chosen to meet individual needs and to round out the preparation provided by the rest of the student's curriculum.	

All electives must be officially approved before assignment, by both the Dean of the School of Agriculture and the head of the Department of Economics and Sociology.

* Four meetings each semester.

Curriculum in Agricultural Education

For 1957 Graduation

(For Vocational Agricultural Teachers)

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Bot.	120	Gen. Botany	5	Dairy Husb.	104	El. of Dairying	3
Educ.	310	Gen. Psychology	3	Chem.	110	General Chemistry	5
An. Husb.	106	Elem. of An. Husb.	2	Geol.	110	General Geology	3
An. Husb.	113	Elem. of An. Husb. Lab.,	1	Educ.	100	Educ. Psychology I	3
Shop	180	Welding	1			Air Science	1 or
		Air Science	1 or			Military	1
		Military	1	Gen. Agr.	003	Agr. Seminar*	0
Gen. Agr.	004	Freshman Assembly	0	Phys. Ed.	010	Physical Education M	0
Gen. Agr.	003	Agr. Seminar*	0				
Phys. Ed.	010	Physical Education M	0				
Total			16	Total			17

SOPHOMORE

Chem.	310	Org. Chemistry (Agr.),	3	Agron.	106	Farm Crops	4
Speech	105	Oral Comm. I	2	An. Husb.	155	Prin. of Feeding	3
Speech	205	Parl. Law	1	Econ.	110	Economics I	3
Hort.	110	El. of Horticulture Rec.,	2	Educ.	105	Educ. Psychology II	3
Hort.	111	El. of Horticulture Lab.,	1	Agr. Engg.	120	Farm Power	3
Agron.	149	Soils	4			Air Science	1 or
Agri. Engg.	110	Farm Mechanics	2			Military	1
		Air Science	1 or	Gen. Agr.	003	Agr. Seminar*	0
		Military	1	Phys. Ed.	010	Physical Education M	0
Gen. Agr.	003	Agr. Seminar*	0				
Phys. Ed.	010	Physical Education M	0				
Total			16	Total			17

JUNIOR

Agron.	160	Soil Management	3	Agr. Econ.	212	Farm Accounting	3
An. Husb.	197	Livestock Production	3	An. Husb.	204	El. of Meat Proc. and ..	2
An. Husb.	134	Prin. of Lvst. Sel.	3	An. Husb.	211	Meat Processing	<i>or 1</i>
Poul. Husb.	104	Farm Poul. Prod. Rec.,	2	Dairy Husb.	132	Milk Production	3
Poul. Husb.	105	Farm Poul. Prod. Lab.,	1	Ent.	210	Gen. Econ. Entomology,	3
Bot.	410	Plant Pathology I	3	Tech. Jour.	305	Agr. Journalism	3
Educ.	505	Voc. Education	3	Educ.	120	Prin. of Sec. Education,	3
Gen. Agr.	003	Agr. Seminar*	0	Agr. Engg.	115	Farm Machinery Repair,	3
Engl.	090	English Proficiency	0	Gen. Agr.	003	Agr. Seminar*	0
Total			18	Total			18

SENIOR

Agr. Econ.	218	Marketing Farm Prods.,	3	An. Husb.	225	An. Husb. Practicums ..	2
Agr. Econ.	206	Farm Organization	3	Agron.	114	Grain Gradg. and Judg.,	2
Educ.	255	Meth. of Teaching Agr.,	3	Poul. Husb.	439	Poul. Management	3
Agr. Engg.	410	Farm Bldgs. Constr.	3	Educ.	265	Tchg. Partic. in Agr.	3
Agr. Engg.	415	Agr. Engg. Applications,	2	Agr. Engg.	405	Farm Mechanics Meth. ..	3
Hist.	255	Amer. Government	3	Rural Soc.	240	Rural Sociology	3
Gen. Agr.	003	Agr. Seminar*	0	Gen. Agr.	003	Agr. Seminar*	0
Total			17	Total			16

Number of hours required for graduation, 135.

* Four meetings each semester.

Curriculum in Agricultural Journalism

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Gen. Stud.	150	Biol. in Rel. to Man I....	4	Gen. Stud.	160	Biol. in Rel. to Man II..	4
Gen. Stud.	110	Man's Phys. World I	4	Gen. Stud.	120	Man's Phys. World II..	4
An. Husb.	106	El. of An. Husb. 2 and		Dairy Husb.	104	El. of Dairying	3
An. Husb.	113	El. of An. Husb. Lab.	1	Hort.	110	El. of Hort.	2
		Air Science	1 or	Hort.	111	El. of Hort. Lab.	1
		Military	1			Air Science	1 or
Tech. Journ.	050	Tech. Journ. Lecture	0			Military	1
Gen. Agr.	004	Freshman Assembly	0	Tech. Journ.	050	Tech. Journ. Lecture	0
Gen. Agr.	003	Agr. Seminar*	0	Gen. Agr.	003	Agr. Seminar*	0
Phys. Ed.	010	Physical Education M....	0	Phys. Ed.	010	Physical Education M....	0
Total			15	Total			17

SOPHOMORE

Speech	105	Oral Comm. I	2	An. Husb.	155	Prin. of Feeding	3
Gen. Stud.	210	Introd. Soc. Sci. I	4	Gen. Stud.	220	Introd. Soc. Sci. II	4
Agron.	149	Soils	4	Agr. Engg.	125	Farm Machinery	3
Poul. Husb.	104	Farm Poul. Prod.	2	Tech. Journ.	225	Reporting II	3
Poul. Husb.	105	Farm Poul. Prod. Lab.,	1	Ent.	210	Gen. Econ. Entomol.	3
Tech. Journ.	305	Agr. Journalism	3			Air Science	1 or
		Air Science	1 or			Military	1
		Military	1	Tech. Journ.	050	Tech. Journ. Lecture	0
Tech. Journ.	050	Tech. Journ. Lecture	0	Gen. Agr.	003	Agr. Seminar*	0
Gen. Agr.	003	Agr. Seminar*	0	Phys. Ed.	010	Physical Education M....	0
Phys. Ed.	010	Physical Education M....	0				
Total			17	Total			17

JUNIOR

Econ.	110	Economics I	3	Agr. Econ.	206	Farm Organization	3
Agron.	106	Farm Crops	4	Agr. Econ.	218	Mktg. Farm Prod.	3
Tech. Journ.	465	Mag. Article Writing	2	Tech. Journ.	275	News Photography I	2
Tech. Journ.	255	Prin. of Advertising	3	Tech. Journ.	315	Radio News	2 or
Tech. Journ.	050	Tech. Journ. Lecture	0	Tech. Journ.	236	Rural Press	2
Gen. Agr.	003	Agr. Seminar*	0	Tech. Journ.	265	Editing	2
Engl.	090	English Proficiency	0	Tech. Journ.	050	Tech. Journ. Lecture	0
		Elective†	4	Gen. Agr.	003	Agr. Seminar*	0
						Elective†	4
Total			16	Total			16

SENIOR

Gen. Stud.	250	Man and Cult. World I, ..	4	Gen. Stud.	260	Man and Cult. World II, ..	4
Tech. Journ.	650	Journ. in a Free Soc. ...	3	Tech. Journ.	485	Interp. of Contemp. Aff., ..	3
Bot.	410	Plant Pathology I	3	Tech. Journ.	050	Tech. Journ. Lecture	0
Tech. Journ.	050	Tech. Journ. Lecture	0	Gen. Agr.	003	Agr. Seminar*	0
Gen. Agr.	003	Agr. Seminar*	0			Elective†	9
		Elective†	6				
Total			16	Total			16

Number of hours required for graduation, 130.

* Four meetings each semester.

† At least six additional hours in journalism are to be elected making a total of 27 hours in journalism.

Electives intended to strengthen the student in his fields of greatest interest may be selected from course offerings in agriculture, agricultural engineering, journalism, history and government, economics and sociology, speech and radio, graphic arts, including commercial illustration and any of the basic or applied sciences relating to agriculture.

Electives are to be chosen with the advice and approval of the Dean of the School of Agriculture and the head of the Department of Technical Journalism and Printing.

Curriculum in Dairy Manufacturing

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Gen. Stud.	150	Biol. in Rel. to Man I,	4	Speech	105	Oral Comm. I	2
Chem.	210	Chemistry I	5	Gen. Stud.	160	Biol. in Rel. to Man II,	4
Dairy Husb.	104	El. of Dairying	3	Chem.	230	Chemistry II Rec.	3
		Air Science	1 or	Chem.	250	Chemistry II Lab.	2 or
		Military	1	Dairy Husb.	118	Dairy Cattle Judg.	2
Gen. Agr.	004	Freshman Assembly	0	An. Husb.	106	El. of An. Husb.	2
Gen. Agr.	003	Agr. Seminar*	0	An. Husb.	113	El. of An. Husb. Lab. ..	1
Phys. Ed.	010	Physical Education M....	0			Air Science	1 or
						Military	1
				Gen. Agr.	003	Agr. Seminar*	0
				Phys. Ed.	010	Physical Education M....	0
Total			16	Total			17

SOPHOMORE

Dairy Husb.	125	Fund. Dairy Tech.	2	Dairy Husb.	139	Mkt. Milk and Dy. Insp., ..	4
Math.	175	College Algebra	3 or	An. Husb.	155	Prin. of Feeding	3
Math.	130	Mathematics in Agr.	3	Bact.	510	Dairy Bacteriology	3
Bact.	110	Gen. Microbiology	3	Bact.	515	Dairy Bact. Lab.	2
Chem.	310	Organic Chem. (Agr.) ..	3	Gen. Stud.	220	Introd. Soc. Sci. II	4
Gen. Stud.	210	Introd. Soc. Sci. I	4			Air Science	1 or
		Air Science	1 or			Military	1
		Military	1	Gen. Agr.	003	Agr. Seminar*	0
Gen. Agr.	003	Agr. Seminar*	0	Phys. Ed.	010	Physical Education M....	0
Phys. Ed.	010	Physical Education M....	0				
Total			16	Total			17

JUNIOR

Dairy Husb.	146	Butter Making	3	Dairy Husb.	132	Milk Production	3
Econ.	330	Prin. of Acc't'g	3	Dairy Husb.	181	Cheese Making	3
Psych.	310	Gen. Psychology	3	Dairy Husb.	188	Dairy Prod. Judg.	1
Gen. Agr.	003	Agr. Seminar*	0	Econ.	110	Econ. I	3
Engl.	090	English Proficiency	0	Gen. Agr.	003	Agr. Seminar*	0
		Elective†	8			Elective	7
Total			17	Total			17

SENIOR

Dairy Husb.	174	Ice Cream Making	3	Dairy Husb.	167	Cond. and Pwd. Mk.	3
Dairy Husb.	195	Adv. Dy. Prod. Judg.	1	Dairy Husb.	404	Dairy Seminar	1
Dairy Husb.	446	Dairy Plant Mgt.	2	Dairy Husb.	453	Tech. Controls	2
Engl.	155	Comm'l Corresp.	3	Psych.	705	Psych. Adv. and Sell'g, ..	3
Gen. Agr.	003	Agr. Seminar*	0	Gen. Agr.	003	Agr. Seminar*	0
		Elective	7			Elective	7
Total			16	Total			16

Number of hours required for graduation, 132.

* Four meetings each semester.

† Students not offering one unit of high school physics for entrance must include three hours of physics in their electives.

Only students who have a year and a half of high-school algebra are eligible for Math. 175, College Algebra.

Curriculum in Horticulture

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Bot.	110	Gen. Botany	5	Speech	105	Oral Comm. I	2
Geol.	110	Gen. Geology	3	Chem.	210	Chemistry I	5
Math.	130	Math. in Agr. ....3	or	Hort.	110	El. of Hort. Rec.	2
Math.	175	College Algebra*	3	Hort.	111	El. of Hort. Lab.	1
		Air Science	1 or	Econ.	330	Prin. of Acctg.	3
		Military	1			Air Science	1 or
Gen. Agr.	004	Freshman Assembly	0			Military	1
Gen. Agr.	003	Agr. Seminar†	0	Gen. Agr.	003	Agr. Seminar†	0
Phys. Ed.		Physical Educ. M or W ..	0	Phys. Ed.		Physical Educ. M or W ..	0
Total			14 or 15	Total			15 or 16

SOPHOMORE

Chem.	230	Chemistry II Rec.	3	Agron.	149	Soils	4
Hort.	153	Lands. Gardening	3	Chem.	310	Org. Chem. Agr.	3
Hort.	104	Plant Propagation	3	Econ.	110	Econ. I	3
Bot.	690	Tax. Bot. Fl. Pl.	3			Air Science	1 or
		Air Science	1 or			Military	1
		Military	1	Gen. Agr.	003	Agr. Seminar†	0
Gen. Agr.	003	Agr. Seminar†	0	Phys. Ed.		Physical Educ. M or W ..	0
Phys. Ed.		Physical Educ. M or W ..	0			Option A, B, C or D	6
		Option A, B, C or D	3	Total			16 or 17
Total			15 or 16	Total			16 or 17

JUNIOR

Bot.	510	Plant Phys. I	3	Bot.	550	Plant Phys. III	3
An. Husb.	405	Genetics	3	Gen. Stud.	260	Man and Cult. World II, ..	4
Bot.	410	Plant Path. I	3	Ento.	210	Gen. Ec. Entomol.	3
Gen. Stud.	250	Man and Cult. World I, ..	4	Hort.	411	Lit. of Hort.	2
Gen. Agr.	003	Agr. Seminar†	0	Gen. Agr.	003	Agr. Seminar†	0
Engl.	090	English Proficiency	0			Option A, B, C or D	5
		Option A, B, C or D	4	Total			17
Total			17	Total			17

SENIOR

Ento.	425	Hort. Entomol.	2	Hort.	404	Spraying	3
Agron.	530	Soil Fertility	3	Bot.	420	Hort. Crop Diseases	3
Hort.	425	Hort. Seminar	1	Tech. Journ.	305	Agr. Journalism	3
Gen. Agr.	003	Agr. Seminar†	0	Gen. Agr.	003	Agr. Seminar†	0
		Option A, B, C or D	11			Option A, B, C or D	8
Total			17	Total			17

Number of hours required for graduation, 128 or 132.

* One and one-half units of high-school algebra are required for College Algebra.

† Four meetings each semester.

Requirements

OPTION A (Floriculture)

	<i>Course</i>	<i>Sem. Hrs.</i>
Hort.	139 Plant Materials I	3
Hort.	132 Nursery Practice	3
Hort.	182 Gh. Cons. and Mgt.	3
Hort.	196 El. of Floriculture	3
Hort.	217 Comm. Floriculture I	3
Hort.	224 Comm. Floriculture II ..	3
Hort.	203 Floral Arrgt. I	2
	Social Science Courses*,	6
	Electives†	11

OPTION B (Ornamental Horticulture)

	<i>Course</i>	<i>Sem. Hrs.</i>
Hort.	132 Nursery Practice	3
Bot.	670 Plant Ecology	3
Hort.	139 Plant Materials I	3
Hort.	146 Plant Materials II	3
Hort.	453 Planting Design	2
Hort.	418 Arboriculture	3
	Social Science Courses*,	6
	Electives†	14

OPTION C (Pomology)

Hort.	Any Pomology Courses ..	9
Hort.	189 Veg. Gardening	3
Bact.	140 Agr. Microbiology	3
Hort.	175 Pres. Food by Freezing,	3
Dairy H.	104 El. of Dairying	3 or
Poul. H.	104 Farm Poul. Prod. Lec. 2 and	
Poul. H.	105 Farm Poul. Prod. Lab.,	1
	Social Science Courses*,	6
	Electives†	10

OPTION D (Vegetable Crops)

Hort.	Vegetable Courses	8
Hort.	175 Pres. Food by Freezing,	3
Hort.	160 Small Fruits	3
Bact.	140 Agr. Microbiology	3
Dairy H.	104 El. of Dairying	3 or
Poul. H.	104 Farm Poul. Prod. Lec. 2 and	
Poul. H.	105 Farm Poul. Prod. Lab.,	1
	Social Science Courses*,	6
	Electives†	11

* To be selected from courses offered by the departments of Economics and Sociology; History, Government and Philosophy; Citizenship; and Psychology.

† Students not offering one unit of high school physics for entrance must include three hours of Agricultural Physics among their electives.

Curriculum in Landscape Design*

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Bot.	120	Gen. Botany	5	Hort.	110	El. of Hort. Rec.	2
Gen. Stud.	110	Man's Phys. World I	4	Hort.	111	El. of Hort. Lab.	1
Engl.	125	Written Comm. I	3	Gen. Stud.	120	Man's Phys. World II....	4
Arch.	120	Freehand Draw. I	2	Engl.	135	Written Comm. II	2
Mach. Des.	110	Engg. Draw.	2	Sp.	105	Oral Comm. I	2
		Air Science	1 or	Arch.	124	Freehand Draw. II	2
		Military	1	Math.	190	Plane Trig.	3
Gen. Agr.	004	Freshman Assembly	0			Air Science	1 or
Gen. Agr.	003	Agr. Seminar†	0			Military	1
Phys. Ed.	010	Physical Education M..	0	Gen. Agr.	003	Agr. Seminar†	0
Phys. Ed.	055	Physical Education W ..	0	Phys. Ed.	010	Physical Education M..	0 or
				Phys. Ed.	055	Physical Education W ..	0
Total				16 or 17	Total		
					16 or 17		

SOPHOMORE

Hort.	150	Lands. Gardening	3	Geol.	130	Physiographic Geology ..	3
Arch.	230	El. of Arch. I	4	Arch.	234	El. of Arch. II	4
Arch.	105	Shades and Shadows	1	Arch.	110	Perspective Drawing	1
Arch.	285	Hist. Paintg. and Sculp.,	3	Arch.	200	Apprec. of Arch.	3
Bot.	410	Plant Pathology I	3	Arch.	130	Pencil Sketch	2
Bot.	690	Tax. Bot. Flrg. Plts.	3	Bot.	670	Plant Ecology	3
		Air Science	1 or			Air Science	1 or
		Military	1			Military	1
Gen. Agr.	003	Agr. Seminar†	0	Gen. Agr.	003	Agr. Seminar†	0
Phys. Ed.	010	Physical Education M..	0 or	Phys. Ed.	010	Physical Education M..	0 or
Phys. Ed.	055	Physical Education W ..	0	Phys. Ed.	055	Physical Education W ..	0
Total				17 or 18	Total		
					16 or 17		

JUNIOR

Hort.	474	Theo. Lds. Des.	2 or	Hort.	453	Planting Design	2 or
Hort.	446	Lands. Constr.	3	Hort.	439	Community Planning	3
Hort.	139	Plant Materials I	3	Hort.	146	Plant Materials II	3
Civ. Engg.	120	Surveying I	2	Ent.	210	Gen. Econ. Ent.	3
Agron.	149	Soils	4	Civ. Engg.	125	Surveying II	3
Arch.	160	Water Color I	2	Gen. Agr.	003	Agr. Seminar†	0
Gen. Agr.	003	Agr. Seminar†	0			Electives	5
Engl.	090	English Proficiency	0				
		Electives	3				
Total				16 or 17	Total		
					16 or 17		

SENIOR

Hort.	460	Lands. Design I	4	Hort.	467	Lands. Design II	4
Hort.	446	Lands. Constr.	3 or	Hort.	439	Community Planning ..	3 or
Hort.	470	Theo. Lands. Des.	2	Hort.	453	Planting Design	2
Gen. Stud.	210	Introd. Soc. Sci. I	4	Gen. Stud.	220	Introd. Soc. Sci. II	4
Gen. Agr.	003	Agr. Seminar†	0	Tech. Journ.	305	Agr. Journalism	3
		Electives	6	Gen. Agr.	003	Agr. Seminar†	0
						Electives	3
Total				16 or 17	Total		
					16 or 17		

Number of hours required for graduation: Women, 131; men, 135.

* See, Entrance to College, Requirements for.

† Four meetings each semester.

Curriculum in Milling Administration

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	210	Chemistry I	5	Chem.	230	Chemistry II Rec.	3
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Speech	105	Oral Comm. I	2	Ent.	165	Milling Entomology	4
Mach. Des.	110	Engg. Drawing	2	Hist.	145	Contemp. World Hist. ..	2
Math.	175	College Algebra	3	Math.	190	Plane Trigonometry	3
Mill. Ind.	111	Surv. of Mill. Ind.	1	Mill. Ind.	104	El. of Milling	2
		Air Science	1 or			Air Science	1 or
		Military	1			Military	1
Gen. Agr.	003	Agr. Seminar	0	Gen. Agr.	003	Agr. Seminar	0
Gen. Agr.	004	Freshman Assembly	0	Mill. Ind.	018	Milling Ind. Seminar* ..	0
Mill. Ind.	018	Milling Ind. Seminar* ..	0	Phys. Ed.	010	Physical Education M	0
Phys. Ed.	010	Physical Education M	0				
Total			17	Total			17

SOPHOMORE

Bot.	110	Gen. Botany	5	Econ.	110	Economics I	3
Econ.	300	Accounting	3	Econ.	310	Accounting II	3
Mill. Ind.	118	Flow Sheets	2	Psych.	310	Gen. Psychology	3
Phys.	110	Gen. Physics I	4	Mill. Ind.	125	Mill. Practice I	3
Speech	435	Pub. Discussion	2	Phys.	120	Gen. Physics II	4
		Air Science	1 or			Air Science	1 or
		Military	1			Military	1
Gen. Agr.	003	Agr. Seminar	0	Gen. Agr.	003	Agr. Seminar	0
Mill. Ind.	018	Milling Ind. Seminar	0	Mill. Ind.	018	Milling Ind. Seminar	0
Phys. Ed.	010	Physical Education M	0	Phys. Ed.	010	Physical Education M	0
Total			17	Total			17

JUNIOR

Agron.	135	Mkt. Grading Cer.	3	Econ.	120	Economics II	3
Econ.	440	Marketing	3	Econ.	130	Money and Banking	3
Chem.	310	Organic Chem. (Agr.) ..	3	Hist.	310	Business Law II	3
Hist.	295	Business Law I	3	Math.	340	Appl'd El. of Stat.	2
Math.	320	El. of Statistics	3	Mill. Ind.	460	Qual. Wht. and Flour....	3
Gen. Agr.	003	Agr. Seminar	0	Mill. Ind.	018	Milling Ind. Seminar	0
Mill. Ind.	018	Milling Ind. Seminar	0	Gen. Agr.	003	Agr. Seminar	0
Engl.	090	English Proficiency	0			Electives	3
		Electives	2				
Total			17	Total			17

SENIOR

Agr. Econ.	529	Grain Marketing	3	Gen. Stud.	260	Man and Cult. World II,	4
Engl.	155	Com'l Correspondence	3	Econ.	535	Labor Econ. I	3
Econ.	435	Bus. Org. and Fin.	3	Econ.	450	Sales Management	3
Gen. Stud.	250	Man and Cult. World I, ..	4	Sociol.	250	Sociology	3
Gen. Agr.	003	Agr. Seminar	0	Gen. Agr.	003	Agr. Seminar	0
Mill. Ind.	018	Milling Ind. Seminar	0	Mill. Ind.	018	Milling Ind. Seminar	0
		Electives	4			Electives	4
Total			17	Total			17

Number of hours required for graduation, 136.

Curriculum in Milling Chemistry

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	210	Chemistry I	5	Chem.	230	Chemistry II Rec.	3
Engl.	125	Written Comm. I	3	Chem.	250	Chemistry II Lab.	2
Speech	105	Oral Comm. I	2	Engl.	135	Written Comm. II	2
Mach. Des.	110	Engg. Drawing	2	Ent.	165	Mill. Entomology	4
Math.	175	College Algebra	3	Math.	190	Plane Trigonometry	3
Mill. Ind.	111	Survey of Mill. Ind.	1	Mill. Ind.	104	El. of Milling	2
		Air Science	1 or			Air Science	1 or
		Military	1			Military	1
Gen. Agr.	003	Agr. Seminar	0	Gen. Agr.	003	Agr. Seminar	0
Gen. Agr.	004	Freshman Assembly	0	Mill. Ind.	018	Milling Ind. Seminar	0
Mill. Ind.	018	Milling Ind. Seminar	0	Phys. Ed.	010	Physical Education M	0
Phys. Ed.	010	Physical Education M	0				
Total			17	Total			17

SOPHOMORE

Chem.	435	Quan. Anal.	4	Bact.	110	Gen. Microbiology	3
Bot.	110	Gen. Botany	5	Gen. Stud.	260	Man and Cult. World II, ..	4
Gen. Stud.	250	Man and Cult. World I, ..	4	Math.	215	Anal. Geom. and Calc. I, ..	4
Phys.	110	Gen. Physics I	4	Phys.	120	Gen. Physics II	4
		Air Science	1 or			Air Science	1 or
		Military	1			Military	1
Gen. Agr.	003	Agr. Seminar	0	Gen. Agr.	003	Agr. Seminar	0
Mill. Ind.	018	Milling Ind. Seminar	0	Mill. Ind.	018	Milling Ind. Seminar	0
Phys. Ed.	010	Physical Education M	0	Phys. Ed.	010	Physical Education M	0
Total			18	Total			16

JUNIOR

Econ.	110	Economics I	3	Chem.	515	Organic Chem. II	5
Agron.	135	Mkt. Grad. of Cer.	3	Math.	245	Anal. Geom. and Calc. III, ..	4
Chem.	510	Organic Chem. I	5	Mill. Ind.	425	Flour and Feed Anal.	3
Math.	230	Anal. Geom. and Calc. II, ..	4	Mill. Ind.	460	Qual. Wht. and Flr.	3
Mill. Ind.	118	Flow Sheets	2	Mill. Ind.	018	Milling Ind. Seminar	0
Engl.	090	English Proficiency	0	Gen. Agr.	003	Agr. Seminar	0
Gen. Agr.	003	Agr. Seminar	0			Elective	3
Mill. Ind.	018	Milling Ind. Seminar	0				
Total			17	Total			18

SENIOR

Chem.	485	Phys. Chem. I Rec.	3	Chem.	650	Gen. Biochem.	5
Chem.	490	Phys. Chem. I Lab.	2	Chem.	495	Phys. Chem. II Rec.	3
Mill. Ind.	481	Expt. Baking I	3	Chem.	600	Phys. Chem. II Lab.	2
Gen. Agr.	003	Agr. Seminar	0	Gen. Agr.	003	Agr. Seminar	0
Mill. Ind.	018	Milling Ind. Seminar	0	Mill. Ind.	018	Milling Ind. Seminar	0
Mill. Ind.	446	Adv. Wht. and Flr. Test, ..	3	Mill. Ind.	125	Mill. Practice I	3
		Elective	6			Elective	3
Total			17	Total			16

Number of hours required for graduation, 136.

Curriculum in Milling Technology

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	210	Chemistry I	5	Chem.	230	Chemistry II Rec.	3
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Speech	105	Oral Comm. I	2	Ent.	165	Mill. Entomology	4
Mach. Des.	110	Engg. Drawing	2	Mach. Des.	115	Desc. Geom.	2
Math.	175	College Algebra	3	Math.	190	Plane Trigonometry	3
Mill. Ind.	111	Survey of Mill. Ind.	1	Mill. Ind.	104	El. of Milling	2
		Air Science	1 or			Air Science	1 or
		Military	1			Military	1
Gen. Agr.	003	Agr. Seminar	0	Gen. Agr.	003	Agr. Seminar	0
Gen. Agr.	004	Freshman Assembly	0	Mill. Ind.	018	Milling Ind. Seminar	0
Mill. Ind.	018	Milling Ind. Seminar	0	Phys. Ed.	010	Physical Education M	0
Phys. Ed.	010	Physical Education M ..	0				
Total			17	Total			17

SOPHOMORE

Bot.	110	Gen. Botany	5	Econ.	110	Economics I	3
Math.	215	Anal. Geom. and Calc. I, ..	4	Mach. Des.	129	Mach. Drawing I	2
Mill. Ind.	118	Flow Sheets	2	Math.	230	Anal. Geom. and Calc. II, ..	4
Phys.	130	Engg. Phys. I	5	Mill. Ind.	125	Mill. Practice I	3
		Air Science	1 or	Phys.	140	Engg. Phys. II	5
		Military	1			Air Science	1 or
Gen. Agr.	003	Agr. Seminar	0			Military	1
Mill. Ind.	018	Milling Ind. Seminar	0	Gen. Agr.	003	Agr. Seminar	0
Phys. Ed.	010	Physical Education M	0	Mill. Ind.	018	Milling Ind. Seminar	0
				Phys. Ed.	010	Physical Education M	0
Total			17	Total			17

JUNIOR

Agron.	135	Mkt. Grad. of Cer.	3	Ap. Mech.	405	Applied Mech.	4
Chem.	310	Organic Chem. (Agr.) ..	3	Econ.	465	Labor Mgt.	2
Math.	245	Anal. Geom. and Calc. III, ..	4	Mach. Des.	130	Mechanism	3
Mill. Ind.	453	Mill. Practice II	3	Mech. Eng.	130	Air Cond. A	3
Mill. Ind.	018	Milling Ind. Seminar	0	Mill. Ind.	460	Qual. Wht. and Flr.	3
Gen. Agr.	003	Agr. Seminar	0	Mill. Ind.	018	Milling Ind. Seminar	0
Engl.	090	English Proficiency	0	Gen. Agr.	003	Agr. Seminar	0
		Elective	4			Elective	2
Total			17	Total			18

SENIOR

Ap. Mech.	410	Mech. of Matl. I Rec.	4	Gen. Stud.	260	Man and Cult. World II, ..	4
Gen. Stud.	250	Man and Cult. World I, ..	4	Elec. Eng.	120	Elec. Engg. C Rec.	2
Mill. Ind.	404	Milling Tech. I	2	Elec. Eng.	124	Elec. Engg. C Lab.	1
Mill. Ind.	439	Adv. Flow Sheets	2	Mill. Ind.	418	Flr. and Feed Mill. Con., ..	3
Mill. Ind.	481	Expt. Baking I	3	Mill. Ind.	411	Milling Tech. II	2
Mill. Ind.	018	Milling Ind. Seminar	0	Mill. Ind.	018	Milling Ind. Seminar	0
Gen. Agr.	003	Agr. Seminar	0	Gen. Agr.	003	Agr. Seminar	0
		Elective	2			Elective	4
Total			17	Total			16

Number of hours required for graduation, 136.

Curriculum in Feed Technology

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	210	Chemistry I	5	An. Husb.	106	El. of An. Husb. Lec.	2
Dairy Husb.	104	El. of Dairy	3	An. Husb.	113	El. of An. Husb. Lab. ..	1
Engl.	125	Written Comm. I	3	Chem.	230	Chemistry II Rec.	3
Mach. Des.	110	Engineering Drawing	2	Chem.	250	Chemistry II Lab.	2
Math.	175	College Algebra	3	Engl.	135	Written Comm. II	2
		Air Science	1	Math.	190	Plane Trigonometry	3
		Military	1	Mill. Ind.	200	El. of Feed Manufacture, 3	
Gen. Agr.	003	Agr. Seminar	0			Air Science	1
Gen. Agr.	004	Freshman Assembly	0			Military	1
Mill. Ind.	018	Milling Ind. Seminar	0	Gen. Agr.	003	Agr. Seminar	0
Phys. Ed.	010	Physical Education M	0	Mill. Ind.	018	Milling Ind. Seminar	0
				Phys. Ed.	010	Physical Education M	0
Total			17	Total			17

SOPHOMORE

Botany	110	Gen. Botany	5	Chem.	330	Gen. Org. Chemistry	5
Mill. Ind.	118	Flow Sheets	2	Ent.	165	Mill. Entomology	4
Physics	110	General Physics I	4	Econ.	110	Economics I	3
Poul. Husb.	104	Farm Poul. Prod. Rec., 2		Physics	120	General Physics II	4
Poul. Husb.	105	Farm Poul. Prod. Lab., 1				Air Science	1
Speech	105	Oral Comm. I	2			Military	1
		Air Science	1	Gen. Agr.	003	Agr. Seminar	0
		Military	1	Mill. Ind.	018	Milling Ind. Seminar	0
Gen. Agr.	003	Agr. Seminar	0	Phys. Ed.	010	Physical Education M	0
Mill. Ind.	018	Milling Ind. Seminar	0				
Phys. Ed.	010	Physical Education M	0				
Total			17	Total			17

JUNIOR

Agron.	135	Mkt. Grading Cereals	3	Chem.	730	Prin. of An. Nutrition ..	3
An. Husb.	155	Prin. of Feeding	3	Econ.	465	Labor Management	2
Physiol.	131	Anat. and Physiology	3	Mill. Ind.	210	Feed Formul. and	
Speech	115	Oral Comm. II	2			Blending	3
Engl.	090	English Proficiency	0	Mill. Ind.	018	Milling Ind. Seminar	0
Gen. Agr.	003	Agr. Seminar	0	Gen. Agr.	003	Agr. Seminar	0
Mill. Ind.	018	Milling Ind. Seminar	0			Option	6
		Option	4			Elective	3
		Elective	2				
Total			17	Total			17

SENIOR

Gen. Stud.	250	Man and Cult. World I ..	4	Engl.	155	Comm'l Correspondence ..	3
Mill. Ind.	600	Feed Technology I	3	Gen. Stud.	260	Man and Cult. World II, 4	
Mill. Ind.	018	Milling Ind. Seminar	0	Speech	435	Public Discussion	2
Gen. Agr.	003	Agr. Seminar	0	Mill. Ind.	018	Milling Ind. Seminar	0
		Options	7	Gen. Agr.	003	Agr. Seminar	0
		Elective	3			Option	5
						Elective	3
Total			17	Total			17

Number of hours required for graduation, 136.

Options for the Curriculum in Feed Technology

Students majoring in the Curriculum in Feed Technology must choose Option A, B, or C.

OPTION A (Operation)

<i>Course</i>			<i>Sem. Hrs.</i>	<i>Course</i>			<i>Sem. Hrs.</i>
App. Mech.	105	Applied Mechanics A	3	Mach. Des.	115	Descriptive Geometry	2
App. Mech.	120	Strength of Materials A, Rec.	3	Mach. Des.	120	Machine Drawing I	2
Chem.	435	Quantitative Analysis	4	Mach. Des.	130	Mechanism	3
Chem.	650	General Biochemistry	5	Math.	215	Anal. Geom. and Calc. I, ..	4
Elec. Eng.	120	Electrical Engineering		Math.	230	Anal. Geom. and Calc. II, ..	4
		C, Rec.	2	Mill. Ind.	601	Feed Technology II	3
Elec. Eng.	124	Electrical Engineering		Mill. Ind.	418	Flr. and Feed Mill Con., ..	3
		C, Lab.	1	Mill. Ind.	425	Flr. and Feed Analysis ..	3

OPTION B (Nutrition)

Bact.	110	Gen. Bacteriology	3	Fds. Nutr.	412	Human Nutrition	3
Chem.	435	Quantitative Analysis	4	Math.	320	Elements of Statistics	3
Chem.	650	Gen. Biochemistry	5	Math.	340	Applied Elements of Statistics	2
Chem.	740	Lab. Tech. in An. Nutr., ..	2	Mill. Ind.	425	Flour and Feed Analysis, ..	3
Chem.	705	Vitamins	2	Poul. Husb.	404	Nutrition of the Fowl	3
Chem.	475	Chemical Toxicology	3				
Dairy Husb.	418	Feeding and Mgt. of Dy. Cattle	3				

OPTION C (Administration)

Chem.	435	Quantitative Analysis	4	Econ.	440	Marketing	3
Chem.	650	General Biochemistry	5	Econ.	450	Sales Management	3
Chem.	740	Lab. Technic in Animal Nutrition	2	Educ.	310	Gen. Psychology	3
Econ.	130	Money and Banking	3	Hist.	295	Business Law I	3
Econ.	330	Principles of Accounting, ..	3	Math.	320	Elements of Statistics ..	3
Econ.	405	Bus. Organization and Finance	3	Math.	340	Applied Elements of Statistics	2
				Mill. Ind.	425	Flour and Feed Analysis, ..	3

Curriculum in Technical Agronomy

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Math.	175	College Algebra	3	Math.	190	Pl. Trigonometry	3
Chem.	210	Chemistry I	5	Chem.	230	Chemistry II Rec.	3
		Air Science	1 or	Chem.	250	Chemistry II Rec.	2
		Military	1	Bot.	110	Gen. Botany	5
Geol.	110	Gen. Geology	3			Air Science	1 or
An. Husb.	106	El. of An. Husb.	2			Military	1
Gen. Agr.	003	Agr. Seminar*	0	Gen. Agr.	003	Agr. Seminar*	0
Gen. Agr.	004	Freshman Assembly	0	Phys. Ed.	010	Physical Education M ...	0
Phys. Ed.	010	Physical Education M ...	0				
Total			17	Total			16

SOPHOMORE

Phys.	110	Gen. Physics I	4	Zool.	110	Gen. Zoology	5
Econ.	110	Economics I	3	Agron.	149	Soils	4
Agron.	106	Farm Crops	4	Psychol.	310	Gen. Psychology	3
Chem.	330	Gen. Org. Chem.	5 or	Speech	105	Oral Comm. I	2
Chem.	510	Org. Chem. I	5			Air Science	1 or
		Air Science	1 or			Military	1
		Military	1	Gen. Agr.	003	Agr. Seminar*	0
Gen. Agr.	003	Agr. Seminar*	0	Phys. Ed.	010	Physical Education M ...	0
Phys. Ed.	010	Physical Education M ...	0			Option A, B, or C	2
Total			17	Total			17

JUNIOR

Bot.	510	Plant Physiology I	3	An. Husb.	155	Princ. of Feeding	3
Engl.	445	Sci. Report Writ.	3	Bact.	110	Gen. Microbiology	3
An. Husb.	405	Genetics	3	Gen. Agr.	003	Agr. Seminar*	0
Gen. Agr.	003	Agr. Seminar*	0			Option A, B, or C	11
Engl.	090	Engl. Proficiency	0				
		Option A, B, or C	8				
Total			17	Total			17

SENIOR

Gen. Stud.	250	Man and Cult. World I, ..	4	Gen. Stud.	260	Man and Cult. World II, ..	4
Gen. Agr.	003	Agr. Seminar*	0	Gen. Agr.	003	Agr. Seminar*	0
		Option A, B, or C	13			Option A, B, or C	13
Total			17	Total			17

Number of hours required for graduation, 135.

* Four meetings each semester.

The Curriculum in Technical Agronomy is designed to provide training for students interested in professional work in agronomy. Three options are provided so that students may specialize. Option A (Soil Science) is to prepare students for professional work in soils at the bachelor's level and for graduate work. Option B (Applied Agronomy and Soil Conservation) is to prepare students for professional work in the general fields of agronomy. Option C (Crop Science) is to prepare students for specialized professional work in crops and for graduate work.

A student who is interested in general agriculture with major work in agronomy should enroll in the Curriculum in Agriculture.

This curriculum leads to the degree, Bachelor of Science in Agriculture.

OPTION A (Soil Science)

Agron.		Any courses in soils	12	Phys.	120	Gen. Physics II	4
Math.	215,			Math.	320	El. Statistics	3
	230, 245	Anal. Geo. and Calc.	12			Electives	12
Chem.	435	Quant. Anal.	4 or				
Chem.	450	Quant. Anal. I	4				

OPTION B (Applied Agronomy and Soil Conservation)

Agron.		Any courses in crops	6	Agr. Econ.	557	Production Econ.	3 or
Agron.		Any courses in soils	6	Agr. Econ.	206	Farm Org.	3
Hort.	110, 111	El. of Hort.	3	Bot.	401	Plant Path. I	3
				Ento.	210	Gen. Ec. Entomol.	3
						Electives	23

OPTION C (Crop Science)

Agron.		Any courses in crops	12	Hort.	110, 111	El. Hort.	3
Agron.	160	Soil Management	3	Agr. Econ.	557	Production Econ.	3 or
Math.	320	El. Statistics	3	Agr. Econ.	206	Farm Org.	3
				Bot.	410	Plant Path. I	3
				Ento.	210	Gen. Ec. Entomol.	3
						Electives	17

Two-year Curriculum in Agriculture

FIRST YEAR

FIRST SEMESTER

		Course	Sem. Hrs.
Engl.	125	Written Comm. I	3
Hort.	110	El. of Hort. Rec.*....	2 and
Hort.	111	El. of Hort. Lab.*	1
Agron.	102	General Crops*	4
An. Husb.	106	El. of An. Husb.*	2 and
An. Husb.	113	El. of An. Husb. Lab.*..	1
		Air Science	1 or
		Military	1
Gen. Agr.	004	Freshman Assembly	0
Gen. Agr.	003	Agr. Seminar†	0
Phys. Ed.	010	Physical Education M	0
		Elective‡	2

Total 16

SECOND SEMESTER

		Course	Sem. Hrs.
Engl.	135	Written Comm. II	2
Speech	105	Oral Comm. I	2
Agron.	142	Soils and Fertilizers	3
Dairy Husb.	104	El. of Dairying*	3
Poul. Husb.	104	Farm Poul. Prod. Rec.*..	2
Poul. Husb.	105	Farm Poul. Prod. Lab.*..	1
		Air Science	1 or
		Military	1
Gen. Agr.	003	Agr. Seminar†	0
Phys. Ed.	010	Physical Education M	0
		Elective‡	2

Total 16

SECOND YEAR

An. Husb.	155	Prin. of Feeding (SC) ..	3	Ent.	210	Gen. Econ. Entomol.	3
Bot.	310	Plant Diseases	3	Agr. Ec.	206	Farm Organization	3
Econ.	110	Economics I	3	Agr. Engg.	125	Farm Machinery	3
		Air Science	1 or			Air Science	1 or
		Military	1			Military	1
Phys. Ed.	010	Physical Education M	0	Phys. Ed.	010	Physical Education M	0
Gen. Agr.	003	Agr. Seminar†	0	Gen. Agr.	003	Agr. Seminar†	0
		Elective‡	6			Elective‡	6

Total 16

Total 16

Credit hours required for completion, 64.

* If the student has had satisfactory high school work in these courses or related courses and can demonstrate a satisfactory knowledge of the subject, he may substitute other courses with the approval of the head of the department and the Dean of the School of Agriculture.

† Four meetings each semester.

‡ See description of the two-year Curriculum in Agriculture (page 64) for suggestions in the selection of electives.

AGRICULTURAL ECONOMICS

Section of Economics and Sociology

GEORGE MONTGOMERY, *Head of Department*

Instruction in agricultural economics and rural sociology is offered in the School of Agriculture. Instruction in economics, sociology, accounting, and business administration is offered in the School of Arts and Sciences.

Research in agricultural economics and rural sociology provides new and current information concerning the economic and social problems of rural life. This information and inspection trips are used to supplement textbooks and reference materials for classroom purposes. Opportunity for capable students to assist with research projects on a part time basis provides additional understanding of economic problems and relationships. Students have an opportunity to learn of the principles and economic forces involved in farm management, marketing, taxation, land utilization, agricultural finance, economic co-operation and rural life.

COURSES IN AGRICULTURAL ECONOMICS

FOR UNDERGRADUATE CREDIT

203. Economics of the Farm Business. 3 semester hours. Each semester.
The application of economic principles to agricultural production and marketing problems with emphasis on the farm as a firm; combination of resources; costs and revenue; the forces which determine farm prices; the role of farm prices. Prerequisite: Econ. 110, Math. 145 or 175, or consent of the instructor.

206. Farm Organization. 3 semester hours. Each semester.
Economic forces affecting the organization and operation of the farm business. Two hours of recitation and three hours of laboratory a week. Prerequisite: Econ. 110, Agron. 149, An. Husb. 155.

212. Farm Accounting. 3 semester hours. Each semester.
Double and single entry systems of farm accounts. Analysis and interpretation of farm records. Farm income tax returns. Practice in analyzing a farm record and making a tax return. Prerequisite: Econ. 110.

218. Marketing of Farm Products. 3 semester hours. Each semester.
An introduction to marketing functions, types of agencies involved in marketing, market organization and regulation, marketing efficiency and price-making forces. Prerequisite: Econ. 110.

FOR UNDERGRADUATE AND GRADUATE CREDIT

529. Grain Marketing. 3 semester hours. Each semester.
Price influences and relationships, buying and selling problems, domestic and export trade; grain trade organization and regulation. Three hours of recitation a week. Prerequisite: Econ. 110.

533. Advanced Farm Organization. 3 semester hours. Second semester.
Advanced studies of factors affecting the successful organization and operation of farms. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agr. Econ. 206.

537. Agricultural Policy. 3 semester hours. Each semester.
A study dealing with the economic problems of agriculture with emphasis on the influence of private and governmental policies on such problems. Attention will be directed toward analyzing the effects of different types of private and governmental policies on the agricultural industry. Prerequisite: Econ. 110; senior standing.

- 541. Agricultural Industries.** 2 semester hours. Second semester, odd-numbered years.
Study of geographic, economic, and social factors controlling the establishment and maintenance of the major agricultural industries. Offered in 1952-'53 and alternate years thereafter. Two hours of recitation a week. Prerequisite: Econ. 110; junior standing.
- 545. Conservation of Natural Resources.** 2 semester hours. Second semester, even-numbered years.
Offered in 1953-'54 and alternate years thereafter. Two hours of recitation a week. Prerequisite: Econ. 110; junior standing.
- 549. World Agriculture.** 3 semester hours. Second semester.
World production and demand, present and potential, of agricultural commodities. World trade in agricultural products with emphasis upon factors affecting agricultural trade. Special effort will be made to supply information of value to those interested in United States foreign service or in commercial work with agencies engaged in foreign agriculture. Three hours of recitation a week. Prerequisite: Econ. 110 or Compr. 160; senior standing.
- 553. Agricultural Economics Summary.** 2 semester hours. Each semester.
Summarization and correlation of courses pursued in college; problems requiring application of principles and broad understanding of the field; contemporary economic developments. Two hours of recitation a week. Prerequisite: Senior standing.
- 557. Production Economics.** 3 semester hours. Each semester.
The principles underlying the combination of elements of production with particular reference to agriculture. Three hours of recitation a week. Prerequisite: Econ. 110.
- 561. Land Economics.** 3 semester hours. Each semester.
Relation of population to land supply; property rights in land; land tenure; land utilization including conservation; land valuation; land taxation. Three hours of recitation a week. Prerequisite: Econ. 110.
- 565. Economics of Land Utilization.** 3 semester hours. Second semester.
An economic analysis of alternative uses and practices for farmland, economics of soil conservation, land classification and its relationship to economic productivity. Three hours of recitation and one or two field trips. Prerequisite: Econ. 110, Agron. 149; junior standing.
- Land Law.** See Hist. 735.
- 569. Agricultural Finance.** 3 semester hours. Second semester.
Sources and use of credit for purchase of farm land and to finance farm operations. Three hours of recitation a week. Prerequisite: Econ. 110.
- 573. Market Prices.** 3 semester hours. Second semester.
Explanation of price analysis and forces determining prices. Three hours of recitation a week. Prerequisite: Econ. 110.
- 577. Farmer Movements.** 3 semester hours. Second semester.
Principles underlying successful organizations for farmers. Policies of the principal general farm organizations. Three hours of recitation a week. Prerequisite: Econ. 110.
- 581. Livestock Marketing.** 3 semester hours. Each semester.
Livestock marketing services, functions, and prices. Three hours of recitation a week. Prerequisite: Econ. 110.
- 585. Principles of Co-operation.** 3 semester hours. First semester.
Principles underlying successful co-operative activities. Three hours of recitation a week. Prerequisite: Econ. 110.

- 589. Marketing of Dairy Products.** 3 semester hours. Second semester. Factors affecting prices; dairy marketing organizations. Three hours of recitation a week. Prerequisite: Econ. 110.
- 593. Egg and Poultry Marketing.** 3 semester hours. First semester, 1954-'55, and even years. Marketing organization, regulations, and efficiency; factors influencing prices. Three hours of recitation a week. Prerequisite: Econ. 110.
- 597. Agricultural Economic Statistics.** 3 semester hours. First semester. A study of the principles and methods involved in the collection, analysis, interpretation, and presentation of statistical materials with special reference to agricultural economic data. Prerequisite: Econ. 110.
- 601. Agricultural Economic Problems.** Credit to be arranged. Each semester and summer. Prerequisite: Consult instructor.

FOR GRADUATE CREDIT

- 835. Research in Agricultural Economics.** Credit to be arranged. Each semester and summer. Individual research problems which may be used for a master's degree. Prerequisite: Consult instructor.
- 840. Seminar in Economic Research.** 3 semester hours. First semester. The scientific reasoning underlying the selection of research problems, the formulation and testing of hypotheses, and the evaluation and presentation of results. Three hours of recitation a week. Prerequisite: Consent of instructor.

COURSES IN RURAL SOCIOLOGY

FOR UNDERGRADUATE CREDIT

- 290. Rural Sociology.** 3 semester hours. Each semester and summer. Social and cultural life of rural people, principal groups, institutions and organizations and their functioning in communities.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 700. Advanced Rural Sociology.** 3 semester hours. Second semester. The development of rural sociology. Comparative rural life in the United States and other countries through the use of case studies of rural social organization and cultures. Prerequisite: Rural Soc. 290.

FOR GRADUATE CREDIT

- 925. Research in Rural Sociology.** Credit to be arranged. Each semester and summer. Prerequisite: Soc. 250, Rural Soc. 700.

AGRONOMY

R. V. OLSON, *Head of Department*

The farm used by the Department of Agronomy comprises 320 acres of medium rolling upland soil. 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 opportunity for study and investigation.

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. Greenhouse space is provided for problems and research work in crops and soils.

COURSES IN FARM CROPS**FOR UNDERGRADUATE CREDIT****102. General Crops.** 4 semester hours. First semester.

Importance, distribution, and production of the principal field crops and a study of the species and varietal types that occur in each. Three hours of recitation and three hours of laboratory a week. Prerequisite: Enrollment in the Two-year Curriculum in Agriculture.

106. Farm Crops. 4 semester hours. Each semester and summer.

Distribution, importance, characteristics, and production of the common field crops. Study of species and types of principal field crops. Three hours of recitation and three hours of laboratory a week. Prerequisite: Bot. 110 or Compr. 160.

107. Farm Crops Laboratory. 1 semester hour. Each semester.

For students who have credit in course 3-A, Farm Crops A in Home Study Department. Study of species and types of principal field crops. Three hours of laboratory a week. Prerequisite: Bot. 110 or Compr. 160.

108. Forage Crops. 3 semester hours. First semester.

Adaptation, cultural methods, production, preservation, and utilization of grasses, legumes, and other forage species. Three hours recitation a week. Prerequisite: Agron. 106.

114. Grain Grading and Judging. 2 semester hours. Second semester.

Application of the Federal Standards for grading farm crops and judging of grains and other crop products. Six hours of laboratory a week. Prerequisite: Agron. 106.

121. Seed Testing. 2 semester hours. First semester.

Offered in 1954-'55 and alternate years thereafter. Laboratory testing of seeds, including identification, purity, and germination. Six hours of laboratory a week. Prerequisite: Bot. 110 or Compr. 160.

128. Advanced Grain Judging. 2 semester hours. First semester.

Commercial grading and judging of field crops and identification of the principal types and varieties. Six hours of laboratory a week. Prerequisite: Agron. 114.

135. Market Grading of Cereals. 3 semester hours. First semester.

Market grades of cereals and factors that influence them. One hour of recitation and six hours of laboratory a week. Prerequisite: Mill. Ind. 104.

FOR GRADUATE AND UNDERGRADUATE CREDIT**404. Crop Improvement.** 2 semester hours. First semester.

Methods of pure seed production and breeding of agricultural crops. Two hours of recitation a week. Prerequisite: Agron. 106.

412. Pasture Management. 3 semester hours. Second semester.

Establishment, management, and utilization of tame and native pastures. Three hours of recitation a week. Prerequisite: Agron. 106.

418. Principles of Agronomic Experimentation. 3 semester hours. First semester.

Methods and principles of research and statistical analysis of experimental data. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 106, 149.

425. Methods of Plant Breeding. 3 semester hours. Second semester.

The application of principles and methods of breeding field crops, including laboratory, greenhouse, and field procedures. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 106, An. Husb. 405, Bot. 410.

432. Plant Genetics. 3 semester hours. First semester.

An advanced course dealing with genetic principles as applied to

- plant species. Three hours of recitation a week. Prerequisite: An. Husb. 405.
- 439. Crop Problems.** Credit to be arranged. Each semester and summer. Prerequisite: Agron. 106, 149.
Studies may be chosen in the fields of:
Genetics, Crop Improvement, Pasture Improvement, Ecology, Weed Control, Physiology, Production.
- 447. Crop Ecology.** 3 semester hours. Second semester.
Study of climatic factors and their effect on production and geographic distribution of crops in regions and countries. Three hours of recitation a week. Prerequisite: Agron. 106, 149, or consent of instructor.
- 454. Special Crops.** 3 semester hours. First semester.
Growth habits, production methods and classification of fiber, sugar, root, tuber, oil, stimulant and sedative crops. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 106.
- 461. Weed Control.** 3 semester hours. Second semester.
Identification, growth habits, and methods of control of weeds, two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 106.
- 467. Identification of Pasture Plants.** 1 semester hour. Second semester.
Field and laboratory study of range and pasture plants with special emphasis on grasses and their distinguishing characteristics. Three hours of laboratory a week. Prerequisite: Consult instructor.
- 474. Pasture and Range Surveys.** 2 semester hours. Second semester.
A study of the methods of range survey and the evaluation of pasture practices. One hour of recitation and three hours of laboratory a week. Prerequisite: Agron. 411, 467.
- 605. Advanced Crop Ecology.** 3 semester hours. First semester.
Principles of growth and development of crop plants in relation to environment. Three hours of recitation a week. Prerequisite: Agron. 447.
Genetics Seminar. (See An. Husb. 426.)
- FOR GRADUATE CREDIT
- 838. Agronomy Seminar.** 1 semester hour. Each semester.
A discussion of agronomic developments. Prerequisite: Graduate standing.
- 901. Research in Crops.** Credit to be arranged. Each semester and summer.
Special problems which may extend through the year and furnish data for a master's or doctor's thesis. Prerequisite: Consult instructor.
- 907. Application of Cytogenetic Principles to Plant Breeding.** 3 semester hours. Second semester.
Cytogenetics, including aneuploidy and polyploidy, chromosomal alterations, and interspecific hybridization as applied to plant breeding. Two hours of recitation and three hours laboratory a week. Prerequisite: Bot. 610, Agron. 432.
- 913. Topics in Plant Breeding.** 2 semester hours. Second semester.
Discussion and lectures on important papers and contributions in this field. Prerequisite: Consent of instructor.
- 919. Topics in Plant Genetics.** 2 semester hours. First semester.
Discussion and lectures on important papers and contributions in this field. Prerequisite: Consent of instructor.

925. Advanced Forage Crops. 3 semester hours. First semester.

Important forage crops species are studied throughout current literature with regard to growth characteristics, utilization and breeding procedures. Three hours recitation a week. Prerequisite: Agron. 108.

931. Photo- and Thermoperiodism of Crop. Credit to be arranged. When scheduled or on request.

Influence of light periodicity and temperatures on the character of growth of crops, whether vegetative or reproductive. One hour recitation a week and assigned reading. Prerequisite: Agron. 605 or consent of instructor.

937. Crop Hardiness. Credit to be arranged. When scheduled or on request.

A study of factors in hardiness of crops to cold, heat and drought and the production of crops under conditions of adverse temperatures and water deficit. One hour recitation a week and assigned reading. Prerequisite: Agron. 605 or consent of instructor.

943. World Crop Production. Credit to be arranged. When scheduled or on request.

Production of crops in different parts of the world in relation to natural conditions. Prerequisite: Agron. 447 or consent of the instructor.

COURSES IN SOILS**FOR UNDERGRADUATE CREDIT****142. Soils and Fertilizers.** 3 semester hours. Second semester.

A general course in soils dealing with the practical management problems. Three hours of recitation a week. Prerequisite: Enrollment in the Two-year Curriculum in Agriculture.

149. Soils. 4 semester hours. Each semester.

Fundamental principles underlying the formation, fertility, and management of soils. Three hours of recitation and three hours of laboratory a week. Prerequisite: Chem. 210, Geol. 110, or Compr. 120.

150. Soils Laboratory. 1 semester hour. Each semester.

For students transferring from Two-year Agriculture only. Field trips, fertility analysis, and use of soil survey maps. Three hours of laboratory a week. Prerequisite: Chem. 210, Geol. 110, or Compr. 120.

160. Soil Management. 3 semester hours. Each semester.

Nitrogen maintenance, crop rotations, water erosion control, and use of lime, manure, and commercial fertilizers under high rainfall conditions in Kansas. Three hours of recitation a week. Prerequisite: Agron. 106, 149.

170. Dryland Soil Management. 2 semester hours. Each semester.

Water conservation, wind erosion control, soil management and soil use under low rainfall conditions in Kansas. Two hours of recitation a week. Prerequisite: Agron. 106, 149.

FOR GRADUATE AND UNDERGRADUATE CREDIT**502. Management of Irrigated Soils.** 2 semester hours. Second semester.

Evaluating soils for irrigation. Water application in relation to soils and crops. Principles of soil management as applied to irrigated lands. Reclamation and management of saline and alkali soils. Two hours of recitation a week. Prerequisite: Agron. 106, 149.

509. Development and Classification of Soils. 3 semester hours. Second semester.

Influence of soil-forming agencies on soil characteristics and methods of classifying and mapping soils. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 149.

- 516. Soil Problems.** Credit to be arranged. Each semester and summer. Prerequisite depends on the problem assigned.

Studies may be chosen in the fields of:

Chemistry, Physics, Conservation, Fertility, Development and Classification.

- 519. Chemical Fertilizers.** 3 semester hours. First semester. Manufacturing, processing and using chemical fertilizers. Study of the properties and characteristics of chemical fertilizers including the principles affecting the use of such materials. Three hours of recitation a week. Prerequisite: Agron. 149.
- 523. Chemical Properties of Soils.** 3 semester hours. First semester. A study of soils as a chemical and colloidal system, including their chemical and mineralogical composition and reactions occurring in them. Three hours of recitation a week. Prerequisite: Agron. 149.
- 530. Soil Fertility.** 3 semester hours. First semester. Fundamentals of soil fertility. Three hours of recitation a week. Prerequisite: Agron. 149, Bot. 510.
- 537. Soil Physics.** 3 semester hours. Second semester. A study of the physical properties of soils, including methods of physical analysis and ways of improving soil tilth. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 149, Math. 175, Phys. 110.
- 544. Soil Analysis Applications.** 3 semester hours. First semester. Theories and procedures for the chemical analysis of soils. Applications of analysis in soil fertility evaluations and in research work are discussed. One hour of recitation and six hours of laboratory a week. Prerequisite: Agron. 149, Chem. 435, 450, or 455.

FOR GRADUATE CREDIT

- 808. Research in Soils.** Credit to be arranged. Each semester and summer. Special problems which may extend throughout the year and furnish data for a master's or doctor's thesis. Prerequisite: Consult instructor.
- 815. Soil Physical Chemistry.** 3 semester hours. Second semester. Application of physical chemistry to soils. Cation and anion equilibria, cation activities, electrokinetics, sorption and other physico-chemical reactions in soils. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 523, 537, Chem. 595.
- 822. Advanced Soil Physics.** 3 semester hours. First semester. An advanced study of prominent theories concerning the physical behavior of soils. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 537, Math. 245, Phys. 120.
- 829. Wind Erosion.** 3 semester hours. First semester. A study of the physics and dynamics of erosion of soil by wind and its relation to soil properties. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 537, Math. 245, Phys. 120.
- 838. Agronomy Seminar.** 1 semester hour. Each semester. A discussion of agronomic developments. Prerequisite: Graduate standing.
- 845. Soil Genesis.** 2 semester hours. Second semester. Theories of soil formation processes. Two hours of recitation a week. Prerequisite: Agron. 509.
- 852. Soil Mineralogy.** 2 semester hours. Second semester. Mineralogical investigations of soils with special emphasis on the microscopic examination and identification of the sand and silt fractions. Six hours of laboratory a week. Prerequisite: Geol. 575, Agron. 149.

ANIMAL HUSBANDRY

RUFUS F. COX, *Head of Department*

The courses in the Department of Animal Husbandry give the student special instruction in the selection, breeding, feeding, management, and marketing of all classes of livestock.

The animal husbandry farm and pastures consist of 1,810 acres of land which are devoted to the maintenance of herds and flocks of purebred cattle, sheep, hogs, and horses, and to experimental projects with meat animals. All animals maintained by the department are used for class work.

The laboratory of the animal husbandry student is the feed lot, the judging pavilion, and the abattoir, where the animal can be studied from the standpoint of the breeder, the feeder, and the packer.

FOR UNDERGRADUATE CREDIT

- 106. Elements of Animal Husbandry.** 2 semester hours. Each semester and alternate summers.

A survey of the field of animal husbandry, with special emphasis on the importance of livestock as a major phase of agriculture. Two hours of recitation a week.

- 113. Elements of Animal Husbandry Laboratory.** 1 semester hour. Each semester and alternate summers.

Three hours of laboratory a week. A study of market types and classes of livestock.

- 120. Animal Husbandry A.** 2 semester hours. First semester. Two hours of lecture a week.

Introduction and present status of livestock in the United States; livestock markets, breeds of livestock; purebred livestock production. Open only to students pursuing the Curriculum in Veterinary Medicine.

- 127. Livestock Judging A.** 1 semester hour. First semester. Three hours of laboratory a week.

Open only to students pursuing the Curriculum in Veterinary Medicine.

- 134. Principles of Livestock Selection.** 3 semester hours. First semester. One hour of recitation and six hours of laboratory a week.

Origin, development, characteristics, and adaptation of different breeds of livestock, with special emphasis on the selection of breeding animals. Prerequisite: An. Husb. 113 and junior standing.

- 141. Judging Farm Animals.** 2 semester hours. Second semester. Six hours of laboratory a week.

Advanced work in the judging of beef cattle, sheep, swine, and horses. Prerequisite: An. Husb. 134 or consent of instructor.

- 148. Form and Function in Livestock.** 2 semester hours. First semester.

A detailed study of animal form and type; influence of type upon function; special training in presenting orally the relative merits of animals of all breeds. Six hours of laboratory a week. Prerequisite: An. Husb. 141.

- 155. Principles of Feeding.** 3 semester hours. Each semester and summer.

The digestive system and processes of nutrition; origin, chemical analysis, and feeding values of different feeds; nutritive requirements for maintenance, growth, and production of farm animals. Three hours of recitation a week. Prerequisite: Chem. 310 or equivalent.

- 162. Livestock Feeding.** 3 semester hours. Second semester.

A résumé of digestion and nutrition dealing primarily with practical feeding. Open only to students in the Curriculum of Veterinary Medicine. Three hours of recitation a week. Prerequisite: Chem. 330, Physiol. 435.

- 169. Beef Cattle Production.** 3 semester hours. Second semester. Three hours of recitation a week. Prerequisite: An. Husb. 155.
- 176. Swine Production.** 3 semester hours. Second semester. Three hours of recitation a week. Prerequisite: An. Husb. 155.
- 183. Sheep Production.** 3 semester hours. First semester. Three hours of recitation a week. Prerequisite: An. Husb. 155.
- 190. Horse Production.** 2 semester hours. First semester. Two hours of recitation a week. Prerequisite: An. Husb. 155.
- 197. Livestock Production.** 3 semester hours. First semester and summer.
Open only to juniors and seniors not majoring in animal husbandry. Practical insight into the production of beef cattle, horses, swine, and sheep. Three hours of recitation a week. Prerequisite: An. Husb. 155.
- 204. Elements of Meat Processing.** 2 semester hours. Each semester and summer.
Meat consumption, principles of processing, curing, and freezing. Two hours of lecture and recitation per week. Prerequisite: An. Husb. 106, 113.
- 211. Meat Processing.** 1 semester hour. Each semester.
Killing, dressing, cutting, curing, packaging, and freezing meat and meat products. Field trip. Three hours of laboratory a week. Prerequisite: An. Husb. 106, 113.
- 218. Meats H. E.** 1 semester hour. Each semester.
For juniors and seniors in home economics. Selecting, cutting, and curing meats; grading carcasses; uses of the various cuts. At least one field trip. Three hours of laboratory a week.
- 225. Animal Husbandry Practicums.** 2 semester hours. Second semester.
Open only to students majoring in animal husbandry and to students pursuing the Curriculum in Agricultural Education. Manual phases of livestock management. Six hours of laboratory a week.
- FOR GRADUATE AND UNDERGRADUATE CREDIT
- 405. Genetics.** 3 semester hours. Each semester and summer.
Variation, Mendelian inheritance, and related subjects. Three hours of lecture a week. Prerequisite: Zool. 110 or Bot. 110.
- 412. Advanced Genetics.** 3 semester hours. Second semester.
Particular attention is given to the relation of chromosomes to heredity. Three hours of recitation a week. Prerequisite: An. Husb. 405.
- 413. Advanced Genetics Laboratory.** 1 semester hour. Second semester.
Three hours of laboratory a week. Special attention given to the compilation and keeping of genetics data. To be taken concurrently with or subsequent to An. Husb. 412.
- 419. Animal Breeding.** 3 semester hours. Second semester.
Physiology of reproduction; present status of livestock improvement; function of purebred livestock; breeding systems and practices; application of principles of genetics to problems of animal breeding. Three hours of recitation a week. Prerequisite: An. Husb. 405.
- 426. Genetics Seminar.** 1 semester hour. Each semester.
Study and criticism of genetic experiments with animals and plants and of the biological and mathematical methods employed. One hour of recitation a week. Prerequisite: An. Husb. 405 or Zool. 620.
- 440. Research in Genetics.** Credit to be arranged. Each semester and summer.
Problems in which small mammals are used as the experimental animals. Prerequisite: An. Husb. 412.

447. Animal Nutrition. 3 semester hours. First semester.

Science of animal nutrition with special attention to recent discoveries in this field. Three hours of recitation a week. Prerequisite: An. Husb. 155.

454. Animal Husbandry Seminar. 1 semester hour. Second semester.

Open only to senior and graduate students majoring in animal husbandry. One hour of recitation a week. Prerequisite: An. Husb. 155.

462. The American Livestock Industry. 3 semester hours. Second semester.

The origin, development, and economic significance of the livestock industry of the United States. Assigned readings, reports, conferences, and lectures. Prerequisite: An. Husb. 106, 155; senior or graduate standing.

468. Principles of Animal Husbandry Experimentation. 2 semester hours. Second semester.

Conducting and interpreting experiments involving the use of animals. Two hours of recitation a week. Prerequisite: An. Husb. 155, 405.

475. Classification and Grading of Meats. 1 semester hour. First semester.

Grading; nutritive values; factors influencing quality; dressing percentages; identification of meats from different animals. Three hours of laboratory a week. Prerequisite: An. Husb. 204, 211.

478. Institutional Meats. 2 semester hours. One hour recitation. Three hours laboratory per week. Spring semester, 1954-'55, and alternate years. Prerequisite: An. Husb. 218 and junior standing.

Particular attention will be given to grades, brands, wholesale cuts, institutional cuts, fabricated meats, serving portions, shrinkage and variety meats. Emphasis given to costs and prices as related to menus. Field trip required.

482. Meat Practicums. 2 semester hours. Second semester.

Includes studies of the correlation of type, degree of finish, and other factors in the live animal, with carcass factors, particularly with reference to muscular development, skeleton, grading, and cutting and boning yields. Six hours of laboratory a week. Prerequisite: An. Husb. 204, 211.

485. Meat Packing Plant Operation. 3 or 6 semester hours. Summer session.

Six weeks of supervised study for each three hours of credit, in a commercial meat packing plant.

489. Wool Grading and Classification. 1 semester hour. First semester.

Three hours of laboratory a week. A study of the factors determining the commercial classes and grades of wool and the desired fleece qualities of the various breeds of sheep. Practice in judging and scoring fleeces. Prerequisite: Concurrent with or subsequent to An. Husb. 183.

490. Advanced Wool Grading and Classification. 1 semester hour. First semester. Three hours of laboratory a week.

Advanced work in the grading and classification of commercial and purebred fleeces, with particular emphasis on the grading procedures used by commercial wool marketing agencies. Laboratory exercises designed to acquaint the student with the physical properties of wool as they may affect its grading and classification. Prerequisite: An. Husb. 183, 489.

496. Animal Husbandry Problems. Credit to be arranged. Each semester and summer.

Prerequisite: An Husb. 155 and other courses; consult instructor. Work is offered in:

Animal Breeding, Animal Nutrition, Beef Cattle Production, Horse Production, Livestock Selection, Meats, Sheep Production, Swine Production.

503. Problems in Training Agricultural Judging Teams. 2 semester hours. Summer.

A seminar course in training agricultural judging teams. Ten hours of recitation a week. Prerequisite: An. Husb. 113, Agron. 114, Poult. Husb. 104, 105, Dairy Husb. 104, and one year's teaching experience.

512. Animal Husbandry Literature. Credit to be arranged. Each semester and summer.

Preparation of abstracts and reports from scientific journals on current research in the field of Animal Husbandry. Prerequisite: Graduate standing or permission of instructor.

FOR GRADUATE CREDIT

804. Research in Animal Husbandry. Credit to be arranged. Each semester and summer.

Special problems in genetics and in the production of all kinds of livestock except dairy cattle. Prerequisite: Consult instructor.

811. Problems in Beef Cattle Production. 3 semester hours. Summer.

Eighteen hours of recitation a week. Prerequisite: Graduate standing and one year's experience in county agent work or in teaching vocational agriculture. Offered in 1952 and every third year thereafter.

818. Problems in Sheep Production. 3 semester hours. Summer.

Eighteen hours of recitation a week. Prerequisite: Graduate standing and one year's experience in county agent work or in teaching vocational agriculture. Offered in 1953 and every third year thereafter.

825. Problems in Swine Production. 3 semester hours. Summer.

Eighteen hours of recitation a week. Prerequisite: Graduate standing and one year's experience in county agent work or in teaching vocational agriculture. Offered in 1951 and every third year thereafter.

832. The Wool Industry. 3 semester hours. Second semester.

Supply and demand; production; marketing; manufacturing. Two hours of recitation and three hours of laboratory a week. Prerequisite: An. Husb. 183.

DAIRY HUSBANDRY

F. W. ATKESON, *Head of Department*

The Department of Dairy Husbandry, with its modern dairy barn and dairy products processing plant, is well equipped to train men for key positions in the dairy industry.

A wider application of science to the problem of milk production and manufacturing of dairy products requires technically trained men. Courses in bacteriology, chemistry, mathematics, accounting, engineering, and commercial subjects provide excellent background for the dairy courses.

Instruction in dairy production includes dairy cattle feeding, management, breeding, milk production, and judging. A purebred herd of Holstein, Guernsey, Jersey, and Ayrshire cattle owned by the College provides animals for dairy cattle judging classes and for feeding and breeding experiments.

The four-year curriculum in Dairy Manufacturing is designed to prepare students for positions as dairy plant managers, superintendents, sales managers, equipment and supply technicians, dairy products graders, inspectors and sanitarians, executives, research and technical workers, and teachers.

FOR UNDERGRADUATE CREDIT

- 104. Elements of Dairying.** 3 semester hours. Each semester.
Problems of the milk producer and manufacturer; feeding, handling, breeding, and selecting of dairy cattle; composition and properties of milk; manufacture of dairy products. Two hours of recitation and three hours of laboratory a week.
- 111. Dairy Cattle Judging for Veterinary Students.** 1 semester hour.
Second semester.
Three hours of laboratory a week.
- 113. Techniques in Teaching Dairy Cattle Judging.** 1 semester hour.
First semester.
This course is designed especially to meet the needs of future vocational agriculture instructors, 4-H club leaders and others who might be teaching Dairy Cattle Judging. Three hours of laboratory a week. (Fall, 1954)
- 118. Dairy Cattle Judging.** 2 semester hours. Second semester. Six hours of laboratory a week. Prerequisite: Dairy Husb. 104.
- 125. Fundamentals of Dairy Technology.** 2 semester hours. First semester.
A thorough study of the properties of major milk constituents, methods of analysis; quality tests, standardization, and manufacturing processes. One hour of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 104, Chem. 210; sophomore standing.
- 132. Milk Production.** 3 semester hours. First semester.
Handling the dairy herd, construction of dairy barns and buildings; other subjects concerning the dairy farmer. Three hours of recitation a week. Prerequisite: Dairy Husb. 104, An. Husb. 155 or 162.
- 139. Market Milk and Dairy Inspection.** 4 semester hours. Second semester.
A study of the problems of the milk-plant operator including the production, procurement, processing, selling and quality control. Inspection of farms and milk plants. Two hours of recitation and six hours of laboratory a week. Prerequisite: Dairy Husb. 125, Bact. 110.
- 146. Butter Making.** 3 semester hours. First semester.
The butter industry; cream production and care on the farm and in the plant; manufacturing, marketing, and food value of butter. Sampling and grading cream, butter analysis and tests, preparation of cream for churning, manufacturing of butter. Offered in 1953-'54 and alternate years thereafter. Two hours of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 104, 125, Bact. 110.
- 153. Dairy Inspection for Veterinary Students.** 2 semester hours. First semester.
Composition and properties of milk; clean milk production; study of state and city ordinances affecting milk and dairy products. Testing of milk and dairy products; preparation and testing of chemical disinfectants; scoring of dairy farms and milk plants. One hour of recitation and three hours of laboratory a week.
- 160. Advanced Dairy Cattle Judging.** 1 semester hour. First semester.
Continuation of Dairy Husbandry 118; visits to some of the best farms in the state. Three hours of laboratory a week. Prerequisite: Dairy Husb. 118.
- 167. Condensed and Powdered Milk.** 3 semester hours. Second semester.
History, methods, condensing machinery, and powdered milk industry. Condensing milk in the College plant. Offered in 1954-'55

and alternate years. Two hours of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 104, 125, Bact. 110.

174. Ice Cream Making. 3 semester hours. First semester.

Theory and practice in the manufacture of frozen dairy foods. Offered in 1954-'55 and alternate years. Two hours of recitation and three hours of laboratory work a week. Prerequisite: Dairy Husb. 125, Bact. 110.

181. Cheese Making. 3 semester hours. Second semester.

Theory and practice in the manufacture of various types of cheese. Offered in 1953-'54 and alternate years. Two hours of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 125, Bact. 110.

188. Dairy Products Judging. 1 semester hour. Second semester.

Three hours of laboratory a week. Prerequisite: Dairy Husb. 104.

195. Advanced Dairy Products Judging. 1 semester hour. First semester.

Three hours of laboratory a week. Continuation of Dairy Husb. 188.

203. Artificial Breeding. 2 semester hours. First semester.

A study of techniques employed in the artificial breeding of cattle. One hour lecture and three hours of laboratory a week. Prerequisite: Junior standing. Fall, 1954.

FOR GRADUATE AND UNDERGRADUATE CREDIT

404. Dairy Seminar. 1 semester hour. Second semester.

Study of dairy periodicals, bulletins, books, other dairy literature. One hour of recitation a week. Prerequisite: Dairy Husb. 104, 132.

411. Milk Secretion and Reproduction. 3 semester hours. Second semester.

Study of the physiology of the processes involved in milk secretion and reproduction and the related internal secretions. Managed milking studies, types of milking machines, mastitis preventive practices; breeding efficiency studies, breeding records, systems, and artificial breeding practices. Two hours of recitation and three hours of laboratory a week. Offered in 1954-'55 and alternate years thereafter. Prerequisite: Senior standing in Dairy Husbandry.

419. Dairy Cattle Nutrition. 3 semester hours. First semester.

Application of principles of nutrition to practical feeding of dairy cattle. Exercises in practical feeding problems, designing and balancing rations. Two hours of lecture and three hours of laboratory a week. Prerequisite: Dairy Husbandry 104, Animal Husbandry 155.

420. Dairy Cattle Management. 2 semester hours. Second semester.

Production practices, record keeping, labor saving equipment, milking systems, fitting and showing, stabling methods, dairy farm planning and analysis, field study trip. One hour lecture and three hours of laboratory a week. Prerequisite: Dairy Husb. 132.

425. Dairy Cattle Breeding and Selection. 3 semester hours. First semester.

History of breeds and families; inheritance of milk secretion; bull indexes; selection of herd sire; systems of breeding. Herdbook studies, pedigree writing and analysis. Two hours of recitation and three hours of laboratory a week. Offered in 1953-'54 and alternate years thereafter.

432. Dairy Production Problems. Credit to be arranged. Each semester and summer.

Prerequisite: Dairy Husb. 104, 118, 132, An. Husb. 155.

439. Dairy Manufacturing Problems. Credit to be arranged. Each semester.

Prerequisite: Dairy Husb. 104, 146.

446. Dairy Plant Management. 2 semester hours. First semester. Offered in 1954-'55 and alternate years thereafter. Two hours of recitation a week. Prerequisite: Dairy Husb. 125, 146.

453. Technical Control of Dairy Products. 2 semester hours. Second semester.

Co-ordination of the role of the dairy control laboratory in maintaining constant check in quality, purity and wholesomeness of all dairy products and ingredients most commonly used in their manufacture. Efficiency of sterilizing agents, washing powders, and related materials. Plant sanitation. Two three-hour laboratory periods a week. Required of all students pursuing the Curriculum in Dairy Manufacturing. Prerequisite: Dairy Husb. 125; senior standing in dairy manufacturing or graduate standing.

FOR GRADUATE CREDIT

804. Research in Dairy Husbandry. Credit to be arranged. Each semester. Special investigation in dairy production or manufacturing which may be used as a basis for master's thesis. Prerequisite: Consult instructor.

Dairy Mechanics. (See Agr. Engg. 455.)

Dairy Bacteriology. (See Bact. 510.)

Chemistry of Milk. (See Chem. 700.)

Marketing of Dairy Products. (See Agr. Econ. 589.)

Genetics Seminar. (See An. Husb. 426.)

ENTOMOLOGY

_____, *Head of Department*

Entomology is the study of insects and their near relatives. Economic entomology stresses their relations to plants and animals, including man. The courses in this department fall into two groups: (1) Broad, general, cultural courses suitable for any students, such as 105, 110, 210, 410, and 650; (2) professional courses which include most of the remainder. They provide training in this field for research, resident, and extension teaching, plant and animal inspection, industrial and commercial pest control, and administration in the services of colleges, experiment stations, other agencies of the states and the federal government, industry, and private practice.

Courses listed for alternate years will be given in unscheduled years if a sufficient number of students to fill a class indicate to the head of the department before the middle of the previous semester in which the course is to be offered that they desire to register for them.

For a minor, the following courses should be completed: 105, 110, or 210, and five or six additional credit hours.

For a major, in addition to the minor, professional courses and a broad, basic training in agriculture and the biological and physical sciences are needed to provide a satisfactory foundation for graduate work.

FOR UNDERGRADUATE CREDIT

105. General Entomology. 3 semester hours. Each semester and summer.

A basic study of insects and related arthropods as animals, their classification, behavior, and relations to plants and animals, including man.

110. General Entomology Laboratory. 1 semester hour. Each semester and summer.

Three hours of laboratory a week. Prerequisite: Ent. 105 or concurrent registration.

165. Milling Entomology. 4 semester hours. Second semester.

Elementary structure, life histories, classification, and control of insects and their near relatives; insect and rodent pests of flour mills, elevators, granaries, warehouses and bakeries, and standard methods of mill and granary sanitation. Laboratory provides opportunities for basic studies and practical experience in mill sanitation. Three hours of recitation and three hours of laboratory a week.

210. General Economic Entomology. 3 semester hours. Each semester and summer.

Elementary anatomy, physiology, and classification of insects; the life histories, habits, and control recommendations for the more important insect pests. Two hours of recitation and three hours of laboratory a week.

FOR UNDERGRADUATE AND GRADUATE CREDIT

410. Advanced General Entomology. 3 semester hours. Second semester.

Broad biological aspects of the subject; understanding of the relation of insects to the complex environmental factors; the various subdivisions of entomology. Prerequisite: Ent. 105, 110, or 210, Zool. 110. Offered next in 1954-'55 and in alternate years.

425. Horticultural Entomology. 2 semester hours. First semester.

Injurious insects of the vegetable garden, shade trees, flowering and greenhouse plants, deciduous and citrus orchards; methods of control; insecticides. Prerequisite: Ent. 105 and 110 or 210.

440. Staple Crop Entomology. 3 semester hours. Second semester.

Important economic insects of field crops, and methods of dealing with them. Two hours of recitation and three hours of laboratory a week. Prerequisite: Ent. 105, 110, or 210.

455. Medical Entomology. 3 semester hours. First semester.

Insects and other arthropods as parasites and disseminators of disease; life cycles, biology, and control of insect parasites of man and animals. Two hours of recitation and three hours of laboratory a week. Prerequisite: Ent. 105, 110, or 210 and Zool. 110.

470. Insect Ecology. 2 semester hours. Second semester.

Influence of light, temperature, pressure, moisture, evaporation, air movements, food relations, biotic and other conditions of soil atmosphere. Prerequisite: Ent. 105, 110 or 120 and Zool. 110.

485. Insect Control by Host Plant Resistance. 2 semester hours. First semester.

Resistance of varieties of crop plants to insect attack and their utilization in insect control; insect habits and physiology in relation to the cause of resistance and methods of breeding resistant varieties of crops. Prerequisite: An. Husb. 405, Ent. 105, 110, or 210.

515. External Insect Morphology. 3 semester hours. First semester.

External anatomy of representative insects belonging to a number of orders; structure of the exoskeleton; a basis for taxonomy and hexapod morphology. One hour of recitation and six hours of laboratory a week. Prerequisite: Ent. 105, 110 or 210.

530. Internal Insect Morphology. 3 semester hours. Second semester.

Internal anatomy of representative insects; plan and structure of the internal systems. One hour of recitation and six hours of laboratory a week. Prerequisite: Ent. 515. Offered in 1953-'54 and alternate years.

545. Insect Physiology. 3 semester hours. Second semester.

Physiology of the cell, respiration, metabolism, reproduction, muscular action, nervous responses, sense organs and senses, circulation,

glandular system, metamorphosis, and effects of insecticides. Prerequisite: Ent. 530, Zool. 480. Offered next in 1954-'55 and in alternate years.

575. Principles of Taxonomy. 1 semester hour. Second semester.

Determination of major orders of insects; taxonomic literature; use of catalogues. Prerequisite: Ent. 105, 110 or 210, 515 and Zool. 110.

590. Taxonomy of Insects I. 2 semester hours. Second semester.

Determination of major orders of insects; taxonomic literature; use of catalogues. Six hours of laboratory a week. Prerequisite: Ent. 575 or concurrent registration.

605. Taxonomy of Insects II. 3 semester hours. Second semester and Summer School.

Intensive study of a selected group of insects. Nine hours of laboratory a week. Prerequisite: Ent. 590.

620. Taxonomy of Immature Insects. 2 semester hours. First semester.

Classification and bionomics of immature stages of insects; practice in their identification. Six hours of laboratory a week. Prerequisite: Ent. 590. Offered in 1953-'54 and alternate years.

650. General Bee Culture. 3 semester hours. Second semester and summer.

Structure, life history, general behavior, activities, and products of the honeybee; practice beekeeping; bee diseases and their eradication and control; relation of bees to agriculture and horticulture. Two hours of recitation and three hours of laboratory a week. Prerequisite: Ent. 105 and 110, or 210.

665. Advanced Bee Culture I. 3 semester hours. First semester.

Requeening; wintering; honey extraction and marketing. Two hours of recitation and three hours of laboratory a week. Prerequisite: Ent. 650. Offered next in 1954-'55 and in alternate years.

670. Advanced Bee Culture II. 3 semester hours. Second semester.

Honey plant and beekeeping regions; swarm control and colony division; queen rearing and introduction; honey production. Two hours of recitation and three hours of laboratory a week. Prerequisite: Ent. 650. Offered next in 1954-'55 and in alternate years.

710. Insect Toxicology. 3 semester hours. Second semester.

A study of chemical pest control with emphasis on the origin, chemical and physical properties, toxicology, and contemporary uses of the insecticides and other materials employed in this field. Prerequisite: Ent. 105 and 110, or 210; and a course in organic chemistry. Offered in 1953-'54 and alternate years.

750. Entomological and Zoological Literature. 2 semester hours. First semester.

A study of bibliographies, biological journals and keys to the literature of all types in the zoological sciences; the preparation and publication of technical papers. Especial emphasis is given to the best time-saving aids and methods for all aspects of library work, for thesis preparation by members of the class, and students beginning to specialize in any phase of the animal sciences. Prerequisite: Ent. 105 and 110, or 210 and Zool. 110.

765. Zoology and Entomology Seminar. 1 semester hour. Each semester.

Prerequisite: Consult seminar committee.

799. Problems in Entomology. Credit to be arranged. Each semester and summer.

For non-thesis studies.

Work is offered in apiculture, economic entomology, and taxonomy and morphology. Prerequisite: Basic courses in the specific area.

FOR GRADUATE CREDIT

999. Research in Entomology. Credit to be arranged. Each semester and summer.

Work is offered in apiculture, economic entomology, insect physiology, medical entomology, pest control technology, taxonomy, and morphology. Prerequisite: At least nine hours of entomology and basic work in zoology, botany, bacteriology, chemistry, and mathematics.

FLOUR AND FEED MILLING INDUSTRIES

JOHN A. SHELLENBERGER, *Head of Department*

The Department of Flour and Feed Milling Industries prepares students for careers in various phases of cereal technology. The curriculums include Milling Administration, Milling Chemistry, Milling Technology, and Feed Technology. The Curriculum in Feed Technology has three options: (1) Administration; (2) Operation; and (3) Nutrition.

The department has a complete mill of 170 hundredweight daily capacity as well as several experimental mill units. These are specially equipped for student training and research in milling technology.

A completely modern pilot plant bakery for student training and research is available. This plant is fully equipped with dough mixers, proofing cabinets, oven, and other equipment required for baking tests. The physical dough testing laboratory offers special opportunities for student training and research. The chemical laboratories have the usual chemical apparatus for wheat, flour, and feed testing and special equipment for advanced problems.

A new building is being constructed to house a pilot plant formula-feed mill which will include various types of grinders, pelleting machines, blenders, packaging machines, and laboratories.

FOR UNDERGRADUATE CREDIT

018. Milling Industry Seminar. Required. Each semester.

Discussion of problems of interest to all students in flour and feed milling industries. One lecture each month.

104. Elements of Milling. 2 semester hours. Each semester and summer.

Introduction to milling processes. One hour of lecture, two hours of laboratory and one hour of unassembled laboratory a week.

111. Survey of Milling. 1 semester hour. First semester.

A general survey of the milling industry field. One hour of lecture a week.

118. Flow Sheets. 2 semester hours. Each semester and summer.

The construction and assembling of a flow sheet. Six hours of laboratory a week. Prerequisite: Mill. Ind. 104, Mach. Des. 110.

125. Milling Practice I. 3 semester hours. Each semester and summer.

A study of milling machinery and methods of operating the 170 hundredweight flour mill. One hour of lecture and six hours of laboratory a week. Prerequisite: Mill. Ind. 118.

200. Elements of Feed Manufacture. 3 semester hours. Second semester.

An introduction to feed milling processes. Two hours of lecture and three hours of laboratory a week.

210. Feed Formulation and Blending. 3 semester hours. Second semester.

Calculating formulas and operating batch and continuous feed mixing systems. One hour of lecture and six hours of laboratory a week. Prerequisite: Mill. Ind. 118.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 404. Milling Technology I.** 2 semester hours. First semester.
Technical study of special phases of wheat conditioning and flour milling. Six hours of laboratory a week. Prerequisite: Mill. Ind. 125.
- 411. Milling Technology II.** 2 semester hours. Second semester.
A study of physical, chemical and engineering principles used in control of flour mill operation. Six hours of laboratory a week. Prerequisite: Mill. Ind. 404.
- 418. Flour and Feed Mill Construction.** 3 semester hours. Second semester.
The design and layout of flour and feed plants. Eight hours laboratory and one hour unassembled laboratory a week. Prerequisite: Mill. Ind. 453 or 210, Mach. Des. 120, 130.
- 425. Flour and Feed Analysis.** 3 semester hours. Second semester.
Methods of analysis and quantitative tests of flour and feeds composition. Eight hours of laboratory a week and one hour unassembled laboratory a week.
- 432. Plant Enzymes.** 2 semester hours. First semester.
Theories of enzyme action and the function of enzymes. Commercial methods of manufacture and industrial uses of enzymes with special emphasis on the application of enzymes to the cereal industry. Two hours of lecture per week. Prerequisite: Chem. 330, 650.
- 439. Advanced Flow Sheets.** 3 semester hours. First semester.
The design of flows for various cereal processing methods. Six hours of laboratory a week. Prerequisite: Mill. Ind. 118.
- 446. Advanced Wheat and Flour Testing.** 3 semester hours. First semester.
Physical and chemical methods used in testing wheat and flour. One hour lecture and six hours of laboratory a week. Prerequisite: Mill. Ind. 425.
- 453. Milling Practice II.** 3 semester hours. First semester.
A study of roll surfaces and their effect on break release, bolting surface in relation to over- and under-bolting, millwright work, lubrication and power requirements. One hour of lecture and six hours of laboratory a week. Prerequisite: Mill. Ind. 125.
- 460. The Qualities of Wheat and Flour.** 3 semester hours. Second semester.
The qualities of wheat and flour as affected by growth, storage and physical, chemical and biological factors. Three hours lecture a week. Prerequisite: Chem. 310 or 330.
- 467. Cereal Products Sanitation.** 2 semester hours. First semester.
Sanitation problems and control methods in cereal technology. One hour lecture and three hours laboratory a week. Prerequisite: Mill. Ind. 125, Ent. 165.
- 474. Milling Industry Problems.** Credit to be arranged. Each semester and summer.
Prerequisite: Consent of staff.
- 481. Experimental Baking I.** 3 semester hours. First semester.
Practice in laboratory baking tests, comparison of methods, formulas and flours; interpretation of results. One hour of lecture and six hours of laboratory a week. Prerequisite: Chem. 310.
- 488. Experimental Baking II.** 3 semester hours. Second semester.
Practice in bakery methods of producing breads and pastries. One hour of lecture and six hours of laboratory a week. Prerequisite: Mill. Ind. 481.

600. Feed Technology I. 3 semester hours. First semester.

Study of technical phases of feed manufacture such as the operation of pellet machines, molasses mixers, hammer mills, and other equipment. One lecture and six hours of laboratory a week. Prerequisite: Mill. Ind. 210.

601. Feed Technology II. 3 semester hours. Second semester.

Advanced study of the engineering principles used in feed manufacture. One hour of lecture and six hours of laboratory a week. Prerequisite: Mill. Ind. 600.

FOR GRADUATE CREDIT

804. Research in Milling Industry. Credit to be arranged. Each semester and summer.

Research may be used as basis for the graduate thesis. Prerequisite: Consult staff.

811. Graduate Seminar in Milling Industry. 1 semester hour. Each semester.

Discussion of technical problems in the cereal industry. One hour of recitation a week. Attendance required of all graduate students in milling industry.

GENERAL AGRICULTURE

ARTHUR D. WEBER, *Dean*

CLYDE W. MULLEN, *Assistant Dean*

003. Agricultural Seminar. Required. Each semester.

Four meetings each semester. Programs presented by students, members of faculty, and invited speakers.

004. Freshman Assembly. Required of freshmen. First semester.

A survey of fields of opportunity in agriculture.

109. Agricultural Student Journalism. 1 semester hour. Each semester. Maximum, 4 semester hours of credit.**HORTICULTURE**

WM. F. PICKETT, *Head of Department*

The Curriculum in Horticulture provides for training in either practical or professional work in ornamental horticulture, floriculture, vegetable crops, and fruit growing. The Curriculum in Landscape Design leads to the degree Bachelor of Science in Landscape Design, and is intended for students who wish training in design and drafting.

The horticultural farm, the campus, the greenhouses, and the research laboratories provide plant materials and equipment for instructional and research use. The Master of Science degree may be earned in any of the fields mentioned above.

COURSES IN GENERAL HORTICULTURE

FOR UNDERGRADUATE CREDIT

104. Plant Propagation. 3 semester hours. First semester.

Principles and practices of propagating horticultural plants. Two hours of recitation and three hours of laboratory a week. Prerequisite: Bot. 110.

110. Elements of Horticulture Recitation. 2 semester hours. Each semester and summer.

Principles and practices in the several phases of horticulture. Two hours of recitation a week. Prerequisite: Bot. 110 or Gen. Stud. 150.

- 111. Elements of Horticulture Laboratory.** 1 semester hour. Each semester.

Study of horticultural plants, including identification, propagation, pruning, spraying, transplanting, cover crops, and fruit varieties. Three hours of laboratory a week. To be taken concurrently with Hort. 110 if possible. Prerequisite: Bot. 110 or Gen. Stud. 150.

- 132. Nursery Practice.** 3 semester hours. Second semester.

Tree seed; planting practice, regeneration. Two hours of recitation and three hours of laboratory a week. Prerequisite: Bot. 110.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 404. Spraying.** 3 semester hours. Second semester.

Spray machinery; chemical properties; insecticides; fungicides; spray dates; fumigation. Two hours of recitation and three hours of laboratory a week. Prerequisite: Junior or senior classification.

- 411. Literature of Horticulture.** 2 semester hours. Second semester.

Books and publications are reviewed and bibliographies prepared. Open only to junior, senior, and graduate students in horticulture. Offered in 1954-'55 and alternate years. Two hours of recitation a week.

- 418. Arboriculture.** 3 semester hours. Second semester.

Principles and practices of caring for ornamental plantings; transplanting, pruning, tree surgery, fertilizing, diagnosis of pests. Two hours of recitation and three hours of laboratory a week. Prerequisite: Consult instructor.

- 425. Horticulture Seminar.** 1 semester hour. Each semester.

Critical discussion of horticultural publications and of experimental and research projects under way at this and other experiment stations. May not be taken for more than three credit hours. Open only to junior, senior, and graduate students in horticulture. One hour of recitation a week.

- 432. Horticultural Problems.** Credit to be arranged. Each semester and summer.

Investigations and reports in pomology, olericulture, floriculture, ornamental horticulture, or landscape design. Prerequisite: Consult instructor.

FOR GRADUATE CREDIT

- 801. Research in Horticulture.** Credit to be arranged. Each semester and summer.

Problems in pomology, olericulture, floriculture, ornamental horticulture, or landscape design. Data collected may form basis for a master's thesis. Prerequisite: Consult instructor.

COURSES IN LANDSCAPE DESIGN

FOR UNDERGRADUATE CREDIT

- 139. Plant Materials I.** 3 semester hours. First semester.

Perennials and annuals for general ornamental planting; planting plans. Two hours of recitation and three hours of laboratory a week. Prerequisite: Bot. 110.

- 146. Plant Materials II.** 3 semester hours. Second semester.

Trees, shrubs, vines for ornamental planting; planting plans and reports. Two hours of recitation and three hours of laboratory a week. Prerequisite: Bot. 110.

- 153. Landscape Gardening.** 3 semester hours. First semester and summer.

An introductory course in the fundamental principles of landscape design. Three hours of recitation a week.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 439. Community Planning.** 3 semester hours. Second semester.
Growth and development of cities and towns; land subdivision. Offered in 1953-'54 and alternate years thereafter. One hour of recitation and six hours of laboratory a week. Prerequisite: Hort. 474.
- 446. Landscape Construction.** 3 semester hours. First semester.
Topographic maps; grading plans, structures, sewerage, water supply, lighting, and drainage on the private estate. Offered in 1954-'55 and alternate years. Two hours of recitation and three hours of laboratory a week.
- 453. Planting Design.** 2 semester hours. Second semester.
The use of plants in landscape composition. Perspective and elevational sketches and plans. Offered in 1954-'55 and alternate years. Six hours of laboratory a week. Prerequisite: Hort. 146.
- 460. Landscape Design I.** 4 semester hours. First semester.
Elementary designing of the home grounds; country estates; special gardens; sketch problems. Twelve hours of laboratory a week. Prerequisite: Hort. 146, 153.
- 467. Landscape Design II.** 4 semester hours. Second semester.
Advanced course in designing of large parks, cemeteries, golf courses, educational groups and high-class land subdivisions. Sketch problems. Twelve hours of laboratory a week. Prerequisite: Hort. 460, 474.
- 474. Theory of Landscape Design.** 2 semester hours. First semester.
The economic and esthetic theory of design; taste, character, historic style, and composition; natural elements in design. Two hours of recitation a week. Offered in 1953-'54 and alternate years. Prerequisite: Hort. 153.

COURSES IN POMOLOGY

FOR UNDERGRADUATE CREDIT

- 160. Small Fruits.** 2 semester hours. Second semester.
Growing, harvesting, and marketing small fruits. Two hours of recitation a week. Prerequisite: Bot. 110 or Gen. Stud. 150.
- 161. Small Fruits Laboratory.** 1 semester hour. Second semester.
Culture, propagation, pruning, pest control, transplanting, mulching, fertilizing, varieties. Three hours of laboratory a week. Preferably to be taken concurrently with Hort. 160. Prerequisite: Bot. 110 or Gen. Stud. 150.
- 168. Systematic Pomology.** 3 semester hours. First semester.
Technical study of fruit varieties, varietal relationship, pomological nomenclature, variety description, artificial and natural systems of variety classification, judging. Two hours of recitation and three hours of laboratory a week. Offered in 1953-'54 and alternate years. Prerequisite: Hort 110, 111.
- 175. Preserving Food by Freezing.** 3 semester hours. First semester.
Selection and preparation of foods for freezing; managing and operating frozen food locker plants; selecting and using home-frozen food cabinets; judging of frozen foods prepared and stored by various methods. Two hours of recitation and three hours of laboratory a week.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 481. Practical Pomology.** 3 semester hours. Second semester.
Applied orcharding; manufacturing products; finances; marketing; grading and packing fruits; identification of fruit plant varieties; advanced pruning. Two hours of recitation and three hours of laboratory a week. Offered in 1954-'55 and alternate years. Prerequisite: Hort. 110, 111.

488. Advanced Pomology. 3 semester hours. First semester.

A course in fruit production. Two hours of recitation and three hours of laboratory a week. Offered in 1954-'55 and alternate years. Prerequisite: Hort. 110, 111.

COURSES IN VEGETABLE GARDENING AND FLORICULTURE**FOR UNDERGRADUATE CREDIT****182. Greenhouse Construction and Management.** 3 semester hours. Second semester.

Greenhouse construction, ventilation, soils, and water. Two hours of recitation and three hours of laboratory a week.

189. Vegetable Gardening. 3 semester hours. Second semester.

Principles underlying vegetable production for the home or local market, special attention given to farm gardens, varieties, planting schedules, and crop rotations. Two hours of recitation and three hours of laboratory a week.

196. Elements of Floriculture. 3 semester hours. First semester.

Care of pot plants in the greenhouse and home. Two hours of recitation and three hours of laboratory a week.

203. Floral Arrangement I. 2 semester hours. First semester.

Floral arrangement in the home; care and uses of cut flowers and potted plants. Consult instructor for prerequisites. One hour of recitation and three hours of laboratory a week.

210. Floral Arrangement II. 2 semester hours. Second semester.

Floral merchandising, sources of supplies; floral design; the commercial flower shop. One hour of recitation and three hours of laboratory a week. Consult instructor for prerequisites.

217. Commercial Floriculture I. 3 semester hours. First semester.

Principles underlying the culture of greenhouse crops. Two hours of recitation and three hours of laboratory a week.

224. Commercial Floriculture II. 3 semester hours. Second semester.

Two hours of recitation and three hours of laboratory a week. Prerequisite: Hort. 217.

FOR UNDERGRADUATE AND GRADUATE CREDIT**495. Market Gardening.** 3 semester hours. First semester.

Competitive areas, market requirements, harvesting, grading, packing, sources of market supplies, and prices. Two hours of recitation and three hours of laboratory a week. Offered in 1954-'55 and alternate years. Prerequisite: Agron. 149, Hort. 189.

502. Vegetable Cash Crops. 2 semester hours. First semester.

Vegetable crops grown in Kansas principally as cash crops; potatoes, sweet potatoes, watermelons, and cantaloupes. Two hours of recitation a week. Offered in 1953-'54 and alternate years. Prerequisite: Agron. 149, Hort. 189.

POULTRY HUSBANDRY

LOYAL F. PAYNE, Head of Department

The poultry plant, occupying about forty acres and situated just north of the northeast corner of the College campus, is devoted to the breeding, rearing, and management of the stock used for class and experimental work.

FOR UNDERGRADUATE CREDIT**104. Farm Poultry Production Lecture.** 2 semester hours. Each semester.

An introductory course presenting numerous phases of poultry production, processing, management, marketing. Two hours of recitation a week.

105. Farm Poultry Production Laboratory. 1 semester hour. Each semester.

Practical work, identifying breeds and varieties, judging and selecting laying stock and breeding stock; study of poultry houses and equipment; market dressing. Three hours of laboratory a week.

112. Poultry Judging. 3 semester hours. First semester.

Production characteristics and evolution of present breeds and types. Judging the standard breeds and varieties by comparison; judging hens for egg and meat production on the basis of certain physical characteristics. One hour of recitation and six hours of laboratory a week. Prerequisite: Poul. Husb. 104, 105.

119. Market Poultry and Eggs. 4 semester hours. First semester.

Methods of handling market eggs and live and dressed poultry. Candling, grading, and preservation of eggs; killing, dressing, grading, and packing market poultry. Two hours of recitation and six hours of laboratory a week. Offered in 1953-'54 and alternate years. Prerequisite: Poul. Husb. 104, 105.

126. Hatchery Management. 3 semester hours. Second semester.

Development of the chick; metabolism; survey of the literature on incubation, brooding, and hatchery management; actual care of an incubator and a brooder. Two hours of recitation and three hours of laboratory. Prerequisite: Poul. Husb. 104, 105.

133. Poultry Practicums. 2 semester hours. Second semester.

Especially designed for students in the Curriculum in Agricultural Education. Poultry judging and practical poultry management as applied to vocational education. One hour of recitation and three hours of laboratory a week. Prerequisite: Poul. Husb. 104, 105.

FOR UNDERGRADUATE AND GRADUATE CREDIT

404. Nutrition of the Fowl. 3 semester hours. Second semester.

Designed for advanced students. The nutritive requirements of the fowl are considered, together with metabolism of nutrients, respiration, digestion, and excretion. Poultry feeds, the compilation of rations, and feeding practices are discussed. The feeding and care of chicks on deficient diets for a period of several weeks provide practical application of nutrition problems. Two hours of recitation and three hours of laboratory a week. Prerequisite: Poul. Husb. 104, 105, An. Husb. 155.

411. Avian Metabolism. 3 semester hours. First semester.

Special emphasis on the physiological processes in reproduction, digestion, absorption, circulation, respiration, excretion and internal secretions. Three hours of recitation a week. Offered in 1954-'55 and alternate years. Prerequisite: Poul. Husb. 104, 105, Zool. 110, Special Anatomy 401.

418. Poultry Problems. 2 semester hours. Each semester.

Investigations of a practical nature which may be continued into the next semester if necessary. The area of study might include incubation, brooding, feeding, management, breeding, survey of literature, or closely related subjects. Prerequisite: Poul. Husb. 104, 105; consult instructors.

425. Poultry Genetics. 2 semester hours. Second semester.

A study of inherited characteristics in poultry. Two hours of recitation a week. Offered in 1954-'55 and alternate years. Prerequisite: An. Husb. 405.

432. Poultry Genetics Laboratory. 1 semester hour. Second semester.

Exercises in practical poultry breeding problems. Included are

analyses of records and selection of breeding stock. Three hours of laboratory a week. Offered in 1954-'55 and alternate years. Prerequisite: Poul. Husb. 104, 105, An. Husb. 405.

439. Poultry Management. 3 semester hours. Second semester.

A detailed study of all phases of farm and commercial flocks, including cost of production. Three hours of recitation a week. Prerequisite: Poul. Husb. 104, 105; senior or graduate standing.

446. Poultry Seminar. 1 semester hour. First semester.

Required of all juniors majoring in poultry husbandry and continued into the senior year. Also required of graduate students. One hour of recitation or conference a week. Prerequisite: Poul. Husb. 104, 105.

453. Poultry Industry Training. 3 semester hours. Summer session.

Nine weeks of supervised practical experience in an approved commercial poultry plant, hatchery or farm. The employer and resident instructor will collaborate in arriving at a grade. Open to upper classmen and graduate students. Prerequisite: Poul. Husb. 104, 105, 112, 119, 126.

FOR GRADUATE CREDIT

801. Research in Poultry Husbandry. Credit to be arranged. Each semester.

Investigations which may form the basis of a master's or doctor's thesis. Conferences by appointment. Prerequisite: Poul. Husb. 104, 105, 112, 119, 126; consult instructors.

Advanced (Poultry) Farm Organization. (See Agr. Econ. 533.)

Poultry Sanitation. (See Bact. 440.)

Special (Poultry) Anatomy. (See Anat. 401.)

Genetics Seminar. (See An. Husb. 426.)

The Agricultural Experiment Station

ARTHUR D. WEBER, *Director*

RAY IAMS THROCKMORTON, *Director Emeritus*

LELAND EVERETT CALL, *Director Emeritus*

HAROLD E. MYERS, *Associate Director*

C. PEAIRS WILSON, *Assistant Director*

The Kansas Agricultural Experiment Station was organized under the provision of an act of congress, approved March 2, 1887, which is commonly known as the Hatch act.

Two days later, March 4, 1887, the legislature of Kansas adopted a resolution accepting the conditions of the Hatch act, and vesting the responsibility of carrying out its provisions in the Board of Regents of Kansas State College.

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, approved March 16, 1906, which provided a sum beginning with \$5,000, and increasing each year by \$2,000 over the preceding year for five years. Since this time the annual appropriation has been \$15,000. Under the Adams act, experiments entered upon must be approved by the Office of Experiment Stations of the United States Department of Agriculture.

The Purnell act, approved February 24, 1925, 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 Purnell act 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.

A fourth act authorizing support for the agricultural experiment stations is the Bankhead-Jones act, approved June 29, 1935. This act authorizes appropriations to the land-grant colleges for research, based upon the rural population of the various states. The amount available to Kansas was approximately \$12,000 for the fiscal year, and amounts now to approximately \$57,000 annually. The Bankhead-Jones act states specifically that the research authorized shall be in addition to research provided for under existing laws, and that no allotment of funds shall be made to a state for any fiscal year in excess of the amount which the state makes available for such fiscal year out of its own funds for research.

The Research and Marketing act, approved August 14, 1946, is an amendment to the Bankhead-Jones act and places emphasis on research in the marketing of agricultural products. It provides for co-operation in research on regional and national levels. The amount of funds directly available to Kansas was approximately \$67,600 for the 1949-'50 fiscal year. In addition, some \$16,000 is received by Kansas to aid in the support of regional projects.

The station also receives support from funds provided by the Kansas Legislature from fees and from commercial organizations.

The Agricultural Experiment Station is an agency organized to conduct fundamental and applied research, in the broad field of agriculture and related sciences. It devotes its attention largely to the solution of problems related to the farm and the farm home.

Farms, livestock, laboratories, and general equipment of the College are directly available to the use of the station.

More than 200 projects covering practically all phases of agricultural investigation are being studied by the members of the station staff. Results of this work are published in the form of scientific papers and bulletins and circulars intended primarily for the general reader.

All bulletins and other publications from the Agricultural Experiment Station are sent without charge to citizens of the state. Any person in the state may have his name placed on the permanent mailing list of the station.

Letters of inquiry and general correspondence should be addressed to Agricultural Experiment Station, Manhattan, Kansas.

BRANCH AGRICULTURAL EXPERIMENT STATIONS

FORT HAYS BRANCH STATION

Land occupied by this station is part of what was originally the Fort Hays military reservation. A bill was approved by congress March 28, 1900, setting aside this reservation for experimental and educational purposes. By act of the state legislature, approved February 7, 1901, the act of congress donating this land and imposing 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 work of this station may be divided into two divisions: (a) Experimental projects; (b) general farm and livestock work. Investigations are confined primarily to the study of problems peculiar to the western half of the state where rainfall is limited. Facilities of the station are also being used for the growing of large quantities of pure seed of the strains and varieties which are 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. The land has been leased for a term of 99 years to the Kansas Agricultural Experiment Station as an experimental and demonstration farm. In 1937 and 1939 the state purchased 235 acres adjoining the original tract, thus making a total of 555 acres available to the station. Investigations in irrigation, dry-land farming, dairying, and lamb feeding are conducted at this station.

COLBY BRANCH STATION

The legislature of 1913 provided for the establishment of a branch experiment station near Colby, Kan. It is located on a tract of 594 acres. The original tract of land was purchased by Thomas county and deeded to the state. In 1941 the state purchased an additional 320 acres. Operations at the Colby station were begun in March, 1914. Cropping experiments are being conducted under dry-land conditions. The primary purpose of the Colby station is to determine the best methods of developing the agriculture of northwestern Kansas.

TRIBUNE BRANCH STATION

At the Tribune station experimental and demonstration work is conducted for the benefit of the surrounding western territory. Special attention is paid to the problems of producing crops under conditions of limited rainfall.

The School of Arts and Sciences

RODNEY W. BABCOCK, *Dean*

ALVIN B. CARDWELL, *Associate Dean*

ORVAL EBBERTS, *Assistant to the Dean*

JOE EISENBACH, JR., *Assistant to the Dean*

In the land-grant colleges emphasis is placed on the sciences and professional and vocational subjects. All types of education should also include preparation for the discharge of one's duties to the state and to the community. It is the province of the departments grouped in this School of the College to give this basic scientific and cultural training.

Curriculum in Biological Science

This curriculum provides for those who wish major work in bacteriology, botany, entomology, and zoology. The college training for medical technicians can be obtained in this curriculum, varying from the minimum requirements in two years to a four-year course leading to a degree. Students who desire general work for admission to a school of dentistry or human medicine should enroll in this curriculum. By selection of courses in education, the graduate becomes eligible for a three-year renewable-for-life certificate issued by the State Board of Education, valid for teaching in any public school in Kansas.

Curriculum in Humanities

This curriculum offers opportunity for major work in English, languages, nonprofessional music, speech (including dramatics and radio), and general education. There is also opportunity for those who wish a diversified major in the natural sciences. The graduate who has selected suitable courses in education becomes eligible for a three-year renewable-for-life certificate issued by the State Board of Education valid for teaching in any secondary school in Kansas.

Curriculum in Humanities (Art Adaptation)

This curriculum offers opportunity for major work in art, training for either professional work in the field of art or for teaching. The graduate who has selected suitable courses in education becomes eligible for a three-year renewable-for-life certificate issued by the State Board of Education valid for teaching in any secondary school in Kansas.

Curriculum in Physical Science

This curriculum provides for the needs of students who wish major work in mathematics, statistics, chemistry, physics, or geology. Those who wish more specialized training in chemistry or physics should enroll in one of the industrial curriculums. By selection of courses in education, the graduate becomes eligible for a three-year renewable-for-life certificate issued by the State Board of Education, valid for teaching in any public school in Kansas.

Curriculum in Social Science

This curriculum is designed especially to provide for the needs of students who wish major work in economics, sociology, psychology, personnel management and guidance, and history and government. There is also opportunity for those who wish a diversified major in the natural sciences. Students who expect to enter a school of law should enroll in this curriculum and consult the special adviser for their work. The graduate who has selected suitable courses in education becomes eligible for a three-year renewable-for-life certificate issued by the State Board of Education valid for teaching in any secondary school in Kansas.

Curriculum in Business Administration

The Curriculum in Business Administration offers professional training in business to students who expect to enter industry and commerce upon graduation. Majors in accounting, marketing, finance, labor management, and general business are offered for students who desire specialization in these fields. The major in accounting provides a sequence of courses which includes all the academic work needed to qualify for the examination for a Certified Public Accountant. The majors in marketing, finance, labor management, and general business are designed to give the student an academic and practical background in these respective fields.

Curriculum in Chemistry

Demand of the students for a curriculum planned especially to give chemical training is such that a formulation has been made to meet the needs of those who desire to specialize in industrial chemistry. The facilities of the Department of Chemistry, reinforced by opportunities for practical work in connection with the research of the experiment stations, provide for this specialized training.

Curriculum in Elementary Education

This four-year curriculum is designed to meet the needs of students preparing for teaching in the elementary schools. The student who selects appropriate elective courses will qualify for a Degree Elementary Certificate issued by State Board of Education, valid for teaching in any elementary school in Kansas.

Curriculum in Applied Geology

This curriculum is designed especially for students who expect to become professional geologists in order to work for such organizations as oil companies, the United States Geological Survey, State Geological Surveys, the State Highway Commission, and other agencies which employ applied geologists.

The Curriculum in Physical Science also offers a major in geology; and students who expect to teach or to major in such fields of geology as paleontology, mineralogy, and petrology should enroll in this curriculum.

Curriculums in Music

A four-year Curriculum in Music Education is offered, with specialization in voice, instrument, or public school band or orchestra. Students who complete this curriculum are awarded the degree Bachelor of Science in Music Education, and are eligible to receive a special state certificate to teach music and permission to teach any nonmusic subjects in which they have completed fifteen or more college hours. If sufficient extra hours are completed so that not more than forty hours in music are submitted to the State Board of Education, the student is eligible to receive the state three-year renewable-for-life certificate.

A four-year curriculum is offered in applied music, which prepares the student with a major in voice, piano, violin, organ, or other instrument, and with a minor in another of these subjects. Students who complete this curriculum are awarded the degree Bachelor of Music, and are eligible to receive a three-year special state certificate in music, renewable for three-year terms, if they have elected the required subjects in education.

Curriculums in Physical Education

The theoretical and practical instruction given in these curriculums prepares students for the teaching of physical and health education and the coaching of athletic games. The curriculums are also planned to enable the student to elect work in some other subject which may be taken in connection with physical education.

Curriculum in Physics

The fundamental importance of physics in modern technical developments is widespread. This curriculum offers professional training for the student who wishes to enter an industrial position or to continue study in a graduate school.

Curriculum in Technical Journalism

The curriculum presents such subjects as will enable the writer to see his work in proper perspective, to obtain authoritative knowledge of some field of technical activity, and to write acceptably. It offers fundamental studies of literary, social, and scientific character. The student selects subjects in agriculture, mechanic arts, applied science, or home economics, depending on the portion of the field of technical journalism which he desires to enter. Theory and practice of journalism are presented in courses extending through the sophomore, junior, and senior years. Students may take additional electives in journalism.

Students who plan to go into agricultural journalism should enroll in the Curriculum in Agricultural Journalism. Students who plan to go into home economics journalism should enroll in the Curriculum in Home Economics and Journalism.

Curriculum in Biological Science

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Gen. Stud.	250	Man and Cult. World I,	4	Sp.	105	Oral Comm. I	2
Chem.	210	Chemistry I* or	5	Gen. Stud.	260	Man and Cult. World II,	4
Chem.	110	General Chemistry	5	Chem.	330	Gen. Organic Chemistry,	5
		Elective and Option	3			Elective and Option	2
		Air Science or				Air Science or	
		Military Science	1			Military Science	1
		Physical Education	0			Physical Education	0
Total			15 or 16	Total			15 or 16

SOPHOMORE

Gen. Stud.	210	Introd. Soc. Sci. I	4	Gen. Stud.	220	Introd. Soc. Sci. II	4
Bot.	110	General Botany	5	Bact.	250	Bacteriology	5
Zool.	110	General Zoology	5	Ent.	105	General Entomology	3
		Air Science or		Ent.	110	Gen. Entomology Lab. ..	1
		Military Science	1	Geog.	210	Principles of Geography, ..	3
		Physical Education	0			Air Science or	
						Military Science	1
						Physical Education	0
Total			14 or 15	Total			16 or 17

JUNIOR

An. Husb.	405	Genetics	3	Elective, option, major.. 15			
		Elective, option, major..	12				
Engl.	090	English Proficiency	0				
Total			15	Total			15

SENIOR

Elective, option, major.. 15		Elective, option, major.. 15	
Total 15		Total 15	

Number of hours required for graduation: 120 or 124 (men).

Option and Majors:

Bacteriology: Chem. 230, 250, 435, 505, 650; Math. 175, 190; Phys. 110, 120; Bact. 610, 640 or 710, 670, and 8 additional hours in bacteriology.

Botany: 19 hours in 400-799 group.

Entomology: Math. 175, 190, and 20 hours in 400-799 group in entomology.

Medical Technician: See Adaptation of Curriculum.

Physiological Botany: Math. 175, 190, and 19 hours in 400-799 group in botany.

Physiology: Math. 175, 190, and 19 hours in 400-799 group in physiology and zoology.

Premedical: See Adaptation of Curriculum.

Zoology: 19 hours in 400-799 group.

* Chemistry I required of students who major in bacteriology.

Adaptation of Curriculum

in Biological Science for Medical Technicians or Public Health Laboratory Scientists

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		<i>Course</i>	<i>Sem. Hrs.</i>			<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Gen. Stud.	250	Man and Cult. World I,	4	Gen. Stud.	260	Man and Cult. World II,	4
Chem.	210	Chemistry I	5	Chem.	230	Chemistry II Rec.	3
Math.	175	College Algebra	3	Chem.	250	Chemistry II Lab.	2
		Air Science <i>or</i>		Math.	190	Plane Trigonometry	3
		Military Science	1	Sp.	105	Oral Comm. I	2
		Physical Education	0			Air Science <i>or</i>	
						Military Science	1
						Physical Education	0
Total			15 or 16	Total			16 or 17

SOPHOMORE

Chem.	505	Organic Chemistry	5	Chem.	435	Quant. Analysis	4
Phys.	110	General Physics I	4	Phys.	120	General Physics II	4
Zool.	110	General Zoology	5	Bact.	250	Bacteriology	5
		Elective	1	Geog.	210	Prin. of Geography	3
		Air Science <i>or</i>				Air Science <i>or</i>	
		Military Science	1			Military Science	1
		Physical Education	0			Physical Education	0
Total			15 or 16	Total			16 or 17

JUNIOR

Gen. Stud.	210	Introd. Soc. Sci. I	4	Gen. Stud.	220	Introd. Soc. Sci. II	4
Bact.	610	Bact. of Human		Bact.	670	Immunology	5
		Diseases	5	Zool.	465	Human Physiology	4
Chem.	650	General Biochemistry ..	5	Zool.	525	Human Parasit. Rec.	3
Bact.	270	Hematology	3	Zool.	540	Human Parasit. Lab.	1
Engl.	090	English Proficiency	0				
Total			17	Total			17

SENIOR

Number of semester hours required for graduation: 96 or 100 (men), from Kansas State College, plus an equivalent of 24 hours' credit taken during twelve months' study at an approved hospital or laboratory.

Adaptation of Curriculum in Biological Science for Premedicine

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		<i>Course</i>	<i>Sem. Hrs.</i>			<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Gen. Stud.	250	Man and Cult. World I,	4	Sp.	105	Oral Comm. I	2
Chem.	210	Chemistry I	5	Gen. Stud.	260	Man and Cult. World II,	4
Math.	175	College Algebra	3	Chem.	230	Chemistry II Rec.	3
		Air Science <i>or</i>		Chem.	250	Chemistry II Lab.	2
		Military Science	1	Math.	190	Plane Trigonometry	3
		Physical Education	0			Air Science <i>or</i>	
						Military Science	1
						Physical Education	0
Total			15 or 16	Total			16 or 17

SOPHOMORE

Gen. Stud.	210	Introd. Soc. Sci. I	4	Gen. Stud.	220	Introd. Soc. Sci. II	4
Zool.	110	General Zoology	5	Zool.	405	Compar. Anatomy	4
Phys.	110	General Physics I	4	Phys.	120	General Physics II	4
Mod. Lang.	110	Tech. German I	3	Mod. Lang.	120	Tech. German II	3
		Air Science <i>or</i>				Air Science <i>or</i>	
		Military Science	1			Military Science	1
		Physical Education	0			Physical Education	0
Total			16 or 17	Total			15 or 16

JUNIOR

Mod. Lang.	125	Tech. German III	3	Chem.	435	Quant. Analysis	4
Chem.	505	Organic Chemistry	5	Zool.	420	Embryology	4
An. Husb.	405	Genetics	3	Ent.	105	General Entomology	3
Engl.	245	Amer. Literature I	3	Ent.	110	Gen. Entomology Lab. ..	1
		Elective	1	Psych.	310	General Psychology	3
Engl.	090	English Proficiency	0				
Total			15	Total			15

SENIOR

Bot.	110	General Botany	5	Bact.	250	Bacteriology	5
		Elective	9	Geog.	210	Prin. of Geog.	3
						Elective	6
Total			14	Total			14

Number of hours required for graduation; 120 or 124 (men).

Curriculum in Humanities

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Sp.	105	Oral Comm. I	2	Gen. Stud.	120	Man's Phys. World II ..	4
Gen. Stud.	110	Man's Phys. World I	4	Hist.	130	Civilization II	3
Hist.	115	Civilization I	3	Psych.	310	General Psychology	3
		Modern Language	3			Modern Language	3
		Air Science <i>or</i>				Air Science <i>or</i>	
		Military Science	1			Military Science	1
		Physical Education	0			Physical Education	0
Total			15 or 16	Total			15 or 16

SOPHOMORE

Gen. Stud.	150	Biol. in Rel. to Man I..	4	Gen. Stud.	160	Biol. in Rel. to Man II..	4
Engl.	215	Engl. Literature I	3	Engl.	225	Engl. Literature II	3
		Modern Language	3			Modern Language	3
		Elective and Major	5	Math.	125	Math. of Human Affairs,	3
		Air Science <i>or</i>				Elective and Major	2
		Military Science	1			Air Science <i>or</i>	
		Physical Education	0			Military Science	1
						Physical Education	0
Total			15 or 16	Total			15 or 16

JUNIOR

Gen. Stud.	210	Introd. Soc. Sci. I	4	Gen. Stud.	220	Introd. Soc. Sci. II	4
Engl.	245	American Literature I ..	4	Engl.	255	American Literature II..	3
		Elective and Major	8	Mus.	250	App. of Music	2
Engl.	090	English Proficiency	0			Elective and Major	6
Total			15	Total			15

SENIOR

Arch.	200	App. of Architecture	<i>or</i>	Elective and Major				15
Arch.	285	Hist. of Pntng. and						
		Sculpt.	3					
		Elective and Major	12					
Total			15	Total				15

Number of hours required for graduation: 120 or 124 (men).

Majors, including curricular requirements:

- English: 30 hours subsequent to Engl. 125 and 135.
- Speech (radio, dramatics): 27 hours subsequent to Sp. 105.
- Language: 30 hours.
- Art: 30 hours.
- Science (biological and physical): 30 hours.
- Music: 30 hours.

Curriculum in Humanities (Art Adaptation)**FRESHMAN****FIRST SEMESTER**

		<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	125	Written Comm. I	3
Gen. Stud.	110	Man's Phys. World I	4
Hist.	115	Civilization I	3
Arch.	120	Freehand Drawing I	2
Arch.	210	Pict. Composition I	2
		Air Science <i>or</i>	
		Military Science	1
		Physical Education	0

Total 14 or 15

SECOND SEMESTER

		<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	135	Written Comm. II	2
Gen. Stud.	120	Man's Phys. World II ..	4
Hist.	130	Civilization II	3
Sp.	105	Oral Comm. I	2
Arch.	124	Freehand Drawing II ..	2
Arch.	214	Pict. Composition II	2
		Air Science <i>or</i>	
		Military Science	1
		Physical Education	0

Total 15 or 16

SOPHOMORE

Gen. Stud.	150	Biol. in Rel. to Man I ..	4
Psych.	310	General Psychology	3
		Modern Language	3
Arch.	160	Water Color I	2
Arch.	170	Life Drawing I	2
		Air Science <i>or</i>	
		Military Science	1
		Physical Education	0

Total 14 or 15

Gen. Stud.	160	Biol. in Rel. to Man II,	4
Math.	125	Math. of Human Affairs,	3
		Modern Language	3
Arch.	164	Water Color II	2
Arch.	174	Life Drawing II	2
		Air Science <i>or</i>	
		Military Science	1
		Physical Education	0

Total 14 or 15

JUNIOR

Gen. Stud.	210	Introd. Soc. Sci. I	4
Engl.	215	Engl. Literature I	3
		Modern Language	3
Arch.	180	Oil Painting I	2
Engl.	090	English Proficiency	0
		Elective	4

Total 16

Gen. Stud.	220	Introd. Soc. Sci. II	4
Engl.	225	Engl. Literature II	3
		Modern Language	3
Arch.	184	Oil Painting II	2
		Elective	4

Total 16

SENIOR

Psych.	765	Psychology of Art	3
Arch.	285	Hist. of Pntng. and	
		Sculpt.	3
		Elective	9

Total 15

Engl.	245	Amer. Literature I	3
Arch.	200	App. of Architecture	3
Mus.	250	App. of Music	2
		Elective	8

Total 16

Number of hours required for graduation: 120 or 124 (men).

Electives, if desired, may be chosen from Arch. 130, 135, 140, 145, 150, 218, 220, 405, 420, 424, 440, 444, and Art 100, 102, 104, 106, 117, 119, 121, 123, 125, 130, 132, 134, 136, 138, 140, 401, 402, 405, 412, 415, 417, 430, 431, 432, 434, 435, 443, 448.

Curriculum in Physical Science

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Chem.	210	Chemistry I	5	Sp.	105	Oral Comm. I	2
Geol.	110	General Geology	3	Chem.	230	Chemistry II Rec.	3
Math.	175	College Algebra	3	Math.	190	Plane Trigonometry	3
		Elective	3			Elective	5
		Air Science <i>or</i>				Air Science <i>or</i>	
		Military Science	1			Military Science	1
		Physical Education	0			Physical Education	0
Total			15 or 16	Total			15 or 16

SOPHOMORE

Gen. Stud.	150	Biol. in Rel. to Man I..	4	Gen. Stud.	160	Biol. in Rel. to Man II,	4
Psych.*	310	General Psychology	3	Econ.	110	Economics I	3
Math.*	215	Anal. Geom. and Calc. I,	4	Math.*	230	Anal. Geom. and Calc. II,	4
Phys.	110	General Phys. I	4	Phys.	120	General Physics II	4
		Air Science <i>or</i>				Air Science <i>or</i>	
		Military Science	1			Military Science	1
		Physical Education	0			Physical Education	0
Total			15 or 16	Total			15 or 16

JUNIOR

Gen. Stud.	250	Man and Cult. World I..	4	Gen. Stud.	260	Man and Cult. World II,	4
		Elective and Major	11	Govt.	255	American Government	3
Engl.	090	English Proficiency	0			Elective and Major	8
Total			15	Total			15

SENIOR

Elective and Major	15	Elective and Major	15
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Number of hours required for graduation: 120 or 124 (men).

Majors:

Chemistry: Chem. 250, 450, 455, 510, 515, 585, 590, 595.
Geology: Geol. 130, 425, 455, 515, and 7 selected hours.
Mathematics: Math. 245, 600 and 9 hours normally selected from 415, 525, 460, 615, 620.
Physics: Math. 245, Phys. 320, 410, 420, 430, 450, 460, 470, 480, 560.
Seniors enroll for Phys. 740 for two semesters.
Statistics: Math. 245, 320, 340, 600, 615, 745, and 6 hours selected from 400-799 group in statistics.
A nine-hour proficiency in German is urged but not required.

* Statistics majors replace Psych. 310 by Math. 320. Geology majors replace Math. 215, 230 by Geol. 405, 415.

Curriculum in Physical Science

Geophysics Option

FRESHMAN

FIRST SEMESTER

		<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	125	Written Comm. I	3
Chem.	210	Chemistry I	5
Math.	175	College Algebra	3
Math.	190	Plane Trigonometry	3
		Elective	1
		Air Science or	
		Military Science	1
		Physical Education	0

Total 15 or 16

SECOND SEMESTER

		<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	135	Written Comm. II	2
Sp.	105	Oral Comm. I	2
Chem.	230	Chemistry II Rec.	3
Chem.	250	Chemistry II Lab.	2
Mach. Des.	110	Engg. Draw.	2
Math.	215	Anal. Geom. and Calc. I, 4	
		Air Science or	
		Military Science	1
		Physical Education	0

Total 15 or 16

SOPHOMORE

Gen. Stud.	150	Biol. in Rel. to Man I. 4	
Geol.	110	Gen. Geology	3
Math.	230	Anal. Geom. and Calc. II, 4	
Phys.	130	Engg. Physics I	5
		Air Science or	
		Military Science	1
		Physical Education	0

Total 16 or 17

Gen. Stud.	160	Biol. in Rel. to Man II, 4	
Mod. Lang.	300	Spanish I	3
Math.	245	Anal. Geom. and Calc. III, 4	
Phys.	140	Engg. Physics II	5
		Air Science or	
		Military Science	1
		Physical Education	0

Total 16 or 17

JUNIOR

Geol.	405	Historical Geology	4
Math.	600	Differential Equations ..	3
Gen. Stud.	210	Introd. Soc. Sci. I	4
Elec. Engg.	120	Elec. Engg. C Rec.	2
Elec. Engg.	124	Elec. Engg. C Lab.	1
Mod. Lang.	310	Spanish II	3
Engl.	090	English Proficiency	0

Total 17

Geol.	515	Structural Geology	4
Mod. Lang.	320	Spanish III	3
Gen. Stud.	220	Introd. Soc. Sci. II	4
Phys.	470	Elec. and Mag.	3
Phys.	480	Elec. and Mag. Lab.	1
Civ. Engg.	120	Surveying I	2

Total 17

SENIOR

Gen. Stud.	250	Man and Cult. World I ..	4
Phys.	615	Geophysics	3
Geol.	535	Petroleum Geology	4
Govt.	325	Law for Engineers	2
		Elective	4

Total 17

Gen. Stud.	260	Man and Cult. World II, 4	
Phys.	515	Electronic Physics I	4
Geol.	445	Aerial Phototopography..	3
Geol.	425	Field Methods	3
		Elective	3

Total 17

Number of hours required for graduation: 130 or 134 (men).

Curriculum in Social Science

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	2	Engl.	135	Written Comm. II	2
Sp.	105	Oral Comm. I	2	Gen. Stud.	120	Man's Phys. World II ..	4
Gen. Stud.	110	Man's Phys. World I	4	Hist.	130	Civilization II	3
Hist.	115	Civilization I	3	Psych.	310	General Psychology	3
		Option	3			Option	3
		Air Science or				Air Science or	
		Military Science	1			Military Science	1
		Physical Education	0			Physical Education	0
Total			15 or 16	Total			15 or 16

SOPHOMORE

Gen. Stud.	150	Biol. in Rel. to Man I ..	4	Gen. Stud.	160	Biol. in Rel. to Man II,	4
Econ.	110	Economics I	3	Econ.	120	Economics II	3
Engl.	215	Engl. Literature I	3	Soc.	250	Sociology	3
		American History Elect.,	3			History Elective	3
		Option or Elective	2			Option	2
		Air Science or				Air Science or	
		Military Science	1			Military Science	1
		Physical Education	0			Physical Education	0
Total			15 or 16	Total			15 or 16

JUNIOR

Govt.	255	American Government ..	3	Engl.	245	Amer. Literature I	3
		Economics Elective	3			Sociology Elective	3
Math.	125	Math. of Human Affairs,	3			Elective and Major	9
		Elective and Major	6				
Engl.	090	English Proficiency	0				
Total			15	Total			15

SENIOR

Elective and Major 15 Elective and Major 15

Number of hours required for graduation: 120 or 124 (men).

Option: 8 to 10 hours in a modern language, psychology, philosophy, speech, geography, or history.

Majors:

Economics: Math. 320, Hist. 205, Sp. 115, and 15 hours of economics in addition to curricular requirements.

History: 3 hours of government and 12 hours of history in addition to curricular requirements.

Government: Govt. 270 and 18 hours of government in addition to curricular requirements.

Law: Curriculum adapted in consultation with Department of History, Government and Philosophy.

Philosophy: Phil. 65, 755, 760, and 12 hours of philosophy in addition to curricular requirements.

Psychology: Psych. 605, 615, 635, 665, 685, and 9 selected hours. Replace Gen. Stud. 150, 160, Econ. 120, and Math. 125, by Educ. 405, Math. 175, Zool. 110, 465.

Sociology: 12 hours in addition to curricular requirements.

Science (biological and physical): 30 hours including curricular requirements.

Curriculum in Business Administration**FRESHMAN**

FIRST SEMESTER				SECOND SEMESTER			
		<i>Course</i>	<i>Sem. Hrs.</i>			<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Gen. Stud.	110	Man's Phys. World I	4	Gen. Stud.	120	Man's Phys. World II	4
Acctg.	300	Accounting I	3	Acctg.	310	Accounting II	3
Math.	145	General Algebra	5	Hist.	205	American Ind. History..	3
		Air Science <i>or</i>		Geog.	210	Prin. of Geography	3
		Military Science	1			Air Science <i>or</i>	
Econ.	020	Bus. Adm. Orientation ..	0			Military Science	1
		Physical Education	0	Econ.	030	Bus. Adm. Lecture	0
						Physical Education	0
Total			15 or 16	Total			15 or 16

SOPHOMORE

Sp.	105	Oral Comm. I	2	Psych.	310	General Psychology	3
Gen. Stud.	150	Biol. in Rel. to Man I..	4	Gen. Stud.	160	Biol. in Rel. to Man II..	4
Econ.	110	Economics I	3	Econ.	120	Economics II	3
Engl.	155	Com'l Correspondence	3	Soc.	250	Sociology	3
Acctg.	320	Int. Accounting <i>or</i>				Elective	2
Acctg.	730	Cost Accounting	3			Air Science <i>or</i>	
		Air Science <i>or</i>				Military Science	1
		Military Science	1	Econ.	030	Bus. Adm. Lecture	0
Econ.	030	Bus. Adm. Lecture	0			Physical Education	0
		Physical Education	0				
Total			15 or 16	Total			15 or 16

JUNIOR

Gen. Stud.	250	Man and Cult. World I ..	4	Gen. Stud.	260	Man and Cult. World II,	4
Econ.	130	Money and Banking	3	Econ.	405	Bus. Org. and Finance ..	3
Govt.	295	Business Law I	3	Govt.	310	Business Law II	3
Econ.	440	Marketing	3			Elective	5
		Elective	2	Econ.	030	Bus. Adm. Lecture	0
Econ.	030	Bus. Adm. Lecture	0				
Engl.	090	English Proficiency	0				
Total			15	Total			15

SENIOR

Econ.	470	Public Finance	3	Econ.	510	Bus. Adm. Summary	2
Math.	320	Elements of Statistics ..	3	Govt.	255	American Government ..	3
		Elective	9			Elective	10
Econ.	030	Bus. Adm. Lecture	0				
Total			15	Total			15

Number of hours required for graduation: 120 or 124 (men).

At least 10 semester hours of electives are to be chosen from Acctg. 320, 730, 735, 740, 745, 750, 755, 760, 765, 770, 775, 780, 785; Ag. Econ. 557; Econ. 410, 415, 420, 425, 430, 435, 445, 450, 455, 460, 465, 475, 480, 485, 490, 495, 500, 505; Engl. 165; Govt. 720; Hist. 465; Math 160; Psych. 705, 715, 720, 725, 730, 745; Shop 410; Soc. 625, 640; Tech. Journ. 245, 255. Majors in marketing will include Econ. 435, 445, 450; majors in finance will include Econ. 410, 435; majors in labor management will include Econ. 455, 460, 465.

Curriculum in Business Administration
(Major in Accounting)

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Gen. Stud.	110	Man's Phys. World I	4	Gen. Stud.	120	Man's Phys. World II ..	4
Acctg.	300	Accounting I	3	Acctg.	310	Accounting II	3
Math.	145	General Algebra	5	Hist.	205	American Ind. History ..	3
		Air Science <i>or</i>		Math.	160	Math. of Finance	3
		Military Science	1			Air Science <i>or</i>	
Econ.	020	Bus. Adm. Orientation..	0			Military Science	1
		Physical Education	0	Econ.	030	Bus. Adm. Lecture	0
						Physical Education	0
Total			15 or 16	Total			15 or 16

SOPHOMORE

Sp.	105	Oral Comm. I	2	Psych.	310	General Psychology	3
Gen. Stud.	150	Biol. in Rel. to Man I..	4	Gen. Stud.	160	Biol. in Rel. to Man II,	4
Econ.	110	Economics I	3	Econ.	120	Economics II	3
Acctg.	320	Int. Accounting	3	Acctg.	740	Valuation Accounting	3
Acctg.	730	Cost Accounting	3	Acctg.	735	Adv. Cost Acctg.	2
		Air Science <i>or</i>				Air Science <i>or</i>	
		Military Science	1			Military Science	1
Econ.	030	Bus. Adm. Lecture	0	Econ.	030	Bus. Adm. Lecture	0
		Physical Education	0			Physical Education	0
Total			15 or 16	Total			15 or 16

JUNIOR

Gen. Stud.	250	Man and Cult. World I..	4	Gen. Stud.	260	Man and Cult. World II,	4
Econ.	130	Money and Banking	3	Econ.	405	Bus. Org. and Finance ..	3
Govt.	295	Business Law I	3	Govt.	310	Business Law II	3
Acctg.	745	Adv. Accounting	3	Acctg.	755	Tax Accounting	3
Acctg.	750	Govt. Accounting	2			Elective	2
Econ.	030	Bus. Adm. Lecture	0	Econ.	030	Bus. Adm. Lecture	0
Engl.	090	English Proficiency	0				
Total			15	Total			15

SENIOR

Econ.	470	Public Finance	3	Econ.	510	Bus. Adm. Summary	2
Math.	320	Elements of Statistics ..	3	Govt.	255	American Government ..	3
		Elective	9	Engl.	155	Com'l Correspondence	3
						Elective	7
Total			15	Total			15

Number of hours required for graduation: 120 or 124 (men).

Electives: Those preparing for the examination for Certified Public Accountant should take other accounting courses from the special business electives as listed in the Curriculum in Business Administration.

Curriculum in Chemistry

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Chem.	210	Chemistry I	5	Sp.	105	Oral Comm. I	2
Math.	190	Plane Trigonometry	3	Chem.	230	Chemistry II Rec.	3
Math.	175	College Algebra	3	Chem.	270	Qual. Analysis	3
Mach. Des.	110	Engg. Drawing	2	Math.	215	Anal. Geom. and Calc. I, ..	4
		Air Science <i>or</i>				Elective	2
		Military Science	1			Air Science <i>or</i>	
Chem.	095	Chem. Seminar	0	Chem.	095	Military Science	1
		Physical Education	0			Chem. Seminar	0
						Physical Education	0
Total			16 or 17	Total			16 or 17

SOPHOMORE

Chem.	450	Quant. Analysis I	4	Chem.	455	Quant. Analysis II	4
Math.	230	Anal. Geom. and Calc. II, ..	4	Math.	245	Anal. Geom. and Calc. III, ..	4
Phys.	130	Engg. Physics I	5	Phys.	140	Engg. Physics II	5
Mod. Lang.	110	Tech. German I	3	Mod. Lang.	120	Tech. German II	3
		Air Science <i>or</i>				Air Science <i>or</i>	
		Military Science	1			Military Science	1
Chem.	095	Chem. Seminar	0	Chem.	095	Chem. Seminar	0
		Physical Education	0			Physical Education	0
Total			16 or 17	Total			16 or 17

JUNIOR

Chem.	510	Organic Chemistry I	5	Chem.	515	Organic Chemistry II	5
Chem.	585	Phys. Chemistry I Rec., ..	3	Chem.	595	Phys. Chemistry II Rec., ..	3
Chem.	590	Phys. Chemistry I Lab., ..	2	Chem.	600	Phys. Chemistry II Lab., ..	2
Gen. Stud.	210	Introd. Soc. Sci. I	4	Gen. Stud.	220	Introd. Soc. Sci. II	4
Mod. Lang.	125	Tech. German III	3			Elective	3
Chem.	095	Chem. Seminar	0	Chem.	095	Chem. Seminar	0
Engl.	090	English Proficiency	0				
Total			17	Total			17

SENIOR

Chem. Eng.	450	Inorganic Technology* ..	2	Chem.	405	Inorganic Chemistry	3
Chem.	480	Instrumental Math. in ..		Chem.	700	Problems in Chemistry ..	3
		Chem. Analysis	3	Gen. Stud.	160	Biol. in Rel. to Man II <i>or</i> ..	
Gen. Stud.	150	Biol. in Rel. to Man I <i>or</i> ..		Gen. Stud.	260	Man and Cult. World II, ..	4
Gen. Stud.	250	Man and Cult. World I ..	4			Elective	7
		Chemistry Elective	5	Chem.	090	Inspection Trip	0
		Elective	3	Chem.	095	Chem. Seminar	0
Chem.	095	Chem. Seminar	0				
Total			17	Total			17

Number of hours required for graduation: 132 or 136 (men).

* Chem. Eng. 455 may be substituted and taken in the second semester of the senior year.

Curriculum in Elementary Education

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Sp.	105	Oral Comm. I	2	Gen. Stud.	120	Man's Phys. World II	4
Gen. Stud.	110	Man's Phys. World I	4	Phys. Ed.	180	Community Health	1
Psych.	310	General Psychology	3	Phys. Ed.	135	Personal Hygiene	2
		Elective	3			Elective	6
		Air Science or				Air Science or	
		Military Science	1			Military Science	1
		Physical Education	0			Physical Education	0
Total			15 or 16	Total			15 or 16

SOPHOMORE

Gen. Stud.	150	Biol. in Rel. to Man I ..	4	Gen. Stud.	160	Biol. in Rel. to Man II..	4
Educ.	100	Educ. Psychology I:		Educ.	105	Educ. Psychology II:	
		Pupil Development ..	3			Learning	3
Art	190	Elementary School Art ..	3	Art	192	Crafts for Elementary	
		Elective	6			School Teachers	3
		Air Science or		Phys. Ed.	280	Playground Management	
		Military Science	1			and Games	3
		Physical Education	0			Elective	3
						Air Science or	
						Military Science	1
						Physical Education	0
Total			16 or 17	Total			16 or 17

JUNIOR

Gen. Stud.	210	Introd. Soc. Sci. I	4	Gen. Stud.	220	Introd. Soc. Sci. II	4
Psych.	625	Psych. of Exc. Children,	3	Engl.	205	Children's Literature	3
Educ.	300	Prin. of Elem. Educ.	3	Mus.	110	Materials and Methods in	
Engl.	090	English Proficiency	0			Sch. Music for Elem.	
		Elective	6			Teachers	3
				Educ.	350	Science in the Elem.	
						School	3
						Elective	3
Total			16	Total			16

SENIOR

Gen. Stud.	250	Man and Cult. World I..	4	Gen. Stud.	260	Man and Cult. World II,	4
Educ.	355	Reading and Language		Educ.	390	Methods, Materials, and	
		Arts	3			Tch. Part. in Elem.	
Educ.	360	Social Studies in the				School	6
		Elem. School	3			Elective	6
Educ.	415	Educational Sociology	3				
		Elective	3				
Total			16	Total			16

Number of hours required for graduation: 126 or 130 (men).

NOTE: The selection of electives must be planned so that there will be at least twenty-four semester hours of elective and required courses in one of the following fields: art and music, biological science, English and speech, home economics, physical science and mathematics, social science. Courses in one of these fields used as a part of the forty-five hour state department general education requirement may also be counted toward the requirement of twenty-four semester hours. The comprehensive course in the field of concentration, however, may be replaced by departmental courses in the field in order that there may be no duplication.

Curriculum in Geology (Applied)**FRESHMAN****FIRST SEMESTER**

		<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	125	Written Comm. I	3
Chem.	210	Chemistry I	5
Geol.	110	General Geology	3
Math.	175	College Algebra	3
Mach. Des.	110	Engg. Drawing	2
		Air Science <i>or</i>	
		Military Science	1
		Physical Education	0

Total 16 or 17

SECOND SEMESTER

		<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	135	Written Comm. II	2
Chem.	230	Chemistry II Rec.	3
Chem.	250	Chemistry II Lab.	2
Geol.	405	Historical Geology	4
Mach. Des.	115	Desc. Geometry	2
Math.	190	Plane Trigonometry	3
		Air Science <i>or</i>	
		Military Science	1
		Physical Education	0

Total 16 or 17

SOPHOMORE

Civ. Engg.	120	Surveying I	2
Phys.	110	General Physics I	4
Sp.	105	Oral Comm. I	2
Gen. Stud.	150	Biol. in Rel. to Man I ..	4
Geol.	415	Cryst. and Min.	4
		Air Science <i>or</i>	
		Military Science	1
		Physical Education	0

Total 16 or 17

Math.	260	Plane Anal. Geom.	4
Phys.	120	General Physics II	4
Gen. Stud.	160	Biol. in Rel. to Man II, ..	4
Geol.	455	Invert. Paleontology	4
		Air Science <i>or</i>	
		Military Science	1
		Physical Education	0

Total 16 or 17

JUNIOR

Civ. Engg.	131	Surveying III	3
Geol.	425	Field Methods in Geol. ..	3
Gen. Stud.	210	Introd. Soc. Sci. I	4
Geol.	130	Physiographic Geology ..	3
Engl.	090	English Proficiency	0
		Elective	4

Total 17

Phys.	615	Geophysics	3
Geol.	515	Structural Geology	4
Gen. Stud.	220	Introd. Soc. Sci. III	4
Geol.	495	Strat. Geology	4
		Elective	2

Total 17

SENIOR

Gen. Stud.	250	Man and Cult. World I ..	4
Geol.	445	Aerial Phototopography ..	3
Civ. Engg.	450	Transportation Engg.	5
Ap. Mech.	140	Found. Materials	3
		Elective	2

Total 17

Gen. Stud.	260	Man and Cult. World II, ..	4
Geol.	565	Applied Geology	3
Geol.	575	Optical Mineralogy	4
		Elective	6

Total 17

Number of hours required for graduation: 132 or 136 (men).

Curriculum in Music (Applied)
(Instrument Major)

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	140	Written Comm. IIB	3
Mus.	150	Theory of Music I	3	Mus.	155	Theory of Music II	3
		Major Instrument	4			Major Instrument	4
		Minor Instrument	1			Minor Instrument	1
Phys.	240	Physics for Musicians	2	Mus.	250	Appreciation of Music ..	2
Sp.	105	Oral Comm. I	2	Psych.	310	General Psychology	3
		Air Science or				Air Science or	
		Military Science	1			Military Science	1
		Physical Education	0			Physical Education	0
Total			15 or 16	Total			16 or 17

SOPHOMORE

Gen. Stud.	110	Man's Phys. World I or		Gen. Stud.	120	Man's Phys. World II or	
Gen. Stud.	150	Biol. in Rel. to Man I or		Gen. Stud.	160	Biol. in Rel. to Man II or	
Gen. Stud.	210	Introd. Soc. Sci. I	4	Gen. Stud.	220	Introd. Soc. Sci. II	4
Mod. Lang.	130	German I or		Mod. Lang.	140	German II or	
Mod. Lang.	210	French I	3	Mod. Lang.	220	French II	3
Mus.	080	Piano Ensemble	0	Mus.	080	Piano Ensemble	0
Mus.	160	Theory of Music III	3	Mus.	165	Theory of Music IV	3
Mus.	270	Laboratory Orchestra	0	Mus.	270	Laboratory Orchestra	0
Mus.	335	Instrumental Ensemble ..	1	Mus.	335	Instrumental Ensemble ..	1
		Major Instrument	4			Major Instrument	4
		Minor Instrument	1			Minor Instrument	1
		Air Science or				Air Science or	
		Military Science	1			Military Science	1
		Physical Education	0			Physical Education	0
Total			16 or 17	Total			16 or 17

JUNIOR

Mod. Lang.	150	German III or		Mus.	080	Piano Ensemble	0
Mod. Lang.	230	French III	3	Mus.	175	Counterpoint II	2
Mus.	080	Piano Ensemble	0	Mus.	195	History of Music II	2
Mus.	170	Counterpoint I	2	Mus.	222	Theory of Conducting ..	2
Mus.	190	History of Music I	2	Mus.	270	Laboratory Orchestra ..	1
Mus.	270	Laboratory Orchestra	0	Mus.	320	Junior Recital	1
Mus.	335	Instrumental Ensemble ..	1	Mus.	335	Instrumental Ensemble ..	1
		Major Instrument	4			Major Instrument	4
		Elective	4			Elective	3
Engl.	090	English Proficiency	0				
Total			17	Total			16

SENIOR

Mus.	180	Music Form and		Mus.	186	Instr. and Orchest. II ..	2
		Analysis	2	Mus.	215	Composition II	2
Mus.	183	Instr. and Orchest. I	2	Mus.	325	Senior Recital	2
Mus.	210	Composition I	2	Mus.	335	Instrumental Ensemble ..	1
Mus.	335	Instrumental Ensemble ..	1	Mus.	430	Prac. Tch. in App. Music	1
Mus.	425	Meth. and Mat. for				Major Instrument	4
		Studio	1			Elective (Mus. Lit.)	2
		Major Instrument	4			Elective	2
		Elective (Mus. Lit.)	2				
		Elective	2				
Total			16	Total			16

Number of hours required for graduation: 120 or 124 (men).

Music organization to be selected on advice of the department. Recital attendance and music organization required each semester. Majors in organ elect courses, Mus. 208, Organ Registration, and Mus. 204, Service Playing. If piano or organ is not the major instrument, the student will elect piano as the minor instrument. Two hours practice per day required in major instrument; one hour per day, minor instrument.

Curriculum in Music Education

(Instrument Major)

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Gen. Stud.	150	Biol. in Rel. to Man I ..	4	Gen. Stud.	160	Biol. Rel. to Man II	4
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. IIB	3
Mus.	150	Theory of Mus. I	3	Mus.	155	Theory of Music II	3
Mus.	230	Orchestral Inst. I		Mus.	235	Orchestral Inst. II	
		(String)	1			(String)	1
Mus.	250	Apprec. of Music	2			Major Applied	1
		Major Applied	1	Mus.	275	Minor Applied, Piano ..	1
Mus.	275	Minor Applied, Piano	1	Sp.	105	Oral Comm. I	2
		Air Science <i>or</i>				Air Science <i>or</i>	
		Military Science	1			Military Science	1
		Physical Education	0			Physical Education	0
Total				15 or 16	Total		
					15 or 16		

SOPHOMORE

Gen. Stud.	210	Intro. Soc. Sci. I	4	Gen. Stud.	220	Intro. Soc. Sci. II	4
Mus.	080	Piano Ensemble	0	Mus.	080	Piano Ensemble	0
Mus.	160	Theory of Mus. III	3	Mus.	116	School Music I	3
		Major Applied	1	Mus.	165	Theory of Music IV	3
		Minor Applied, Strings ..	1			Major Applied	1
Mus.	240	Orch. Inst. II (Wood-				Minor Applied, Strings ..	1
		winds)	1	Mus.	245	Orch. Inst. IV (Brass)..	1
Phys.	240	Physics for Musicians ..	2	Mus.	270	Laboratory Orchestra	0
Psych.	310	General Psychology	3	Psych.	100	Educational Psych. I	3
		Air Science <i>or</i>				Air Science <i>or</i>	
		Military Science	1			Military Science	1
		Physical Education	0			Physical Education	0
Total				15 or 16	Total		
					16 or 17		

JUNIOR

Gen. Stud.	250	Man and Cult. World I ..	4	Gen. Stud.	260	Man and Cult. World II,	4
Mus.	080	Piano Ensemble	0	Educ.	246	Teach. Part. in Music ..	2
		Major Applied	1	Mus.	080	Piano Ensemble	0
		Minor Applied, Wood-				Major Applied	1
		winds	1			Minor Applied, Wood-	
Mus.	121	School Music II	3			winds	1
Mus.	170	Counterpoint I	2	Mus.	132	Instrumental Methods	3
Mus.	247	Orch. Inst. V		Mus.	175	Counterpoint II	2
		(Percussion)	1	Mus.	195	History of Music II	2
Mus.	270	Laboratory Orchestra ..	0	Mus.	222	Theory of Conducting ..	2
Mus.	273	Laboratory Chorus	0	Mus.	270	Laboratory Orchestra ..	0
Psych.	105	Educational Psych. II ..	3	Mus.	273	Laboratory Chorus	0
Engl.	090	English Proficiency	0				
Mus.	190	History of Music I	2				
Total				17	Total		
					17		

SENIOR

Educ.	120	Prin. Sec. Educ.	3	Educ.	246	Teach. Part. in Music	2
Educ.	246	Teach. Part. in Music ..	2	Educ.	455	Extraclass Activities	3
Mus.	180	Music Form and		Mus.	186	Instr. and Orchest. II ..	2
		Analysis	2			Major Applied	1
Mus.	183	Instr. and Orchest. I ..	2			Minor Applied, Brass	1
		Major Applied	1	Mus.	270	Laboratory Orchestra ..	1
		Minor Applied, Brass ..	1	Mus.	273	Laboratory Chorus	1
Mus.	270	Laboratory Orchestra ..	1	Sp.	535	Dramatic Production I ..	2
Mus.	273	Laboratory Chorus	1			Elective (Sociology)	3
Mus.	435	Techniques of Marching					
		Band	2				
		Electives	2				
Total				17	Total		
					16		

Number of hours required for graduation: 128 or 132 (men).

Substitution in voice or instrument may be made when the minor applied duplicates the major applied. Recital attendance and participation in a musical organization are required each semester.

Curriculum in Music Education
(General Supervision)

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Gen. Stud.	150	Biol. in Rel. to Man I ..	4	Gen. Stud.	160	Biol. in Rel. to Man II,	4
Engl.	125	Written Comm. I	3	Engl.	140	Written Comm. IIB	3
Mus.	150	Theory of Music I	3	Mus.	155	Theory of Music II	3
Mus.	230	Orch. Inst. I (String)..	1	Mus.	235	Orch. Inst. II (String)..	1
Mus.	250	Appreciation of Music ..	2	Mus.	275	Piano	1
Mus.	275	Piano	1	Mus.	279	Voice	1
Mus.	279	Voice	1	Sp.	105	Oral Comm. I	2
		Air Science or				Air Science or	
		Military Science	1			Military Science	1
		Physical Education	0			Physical Education	0
Total				15 or 16	Total		
					15 or 16		

SOPHOMORE

Gen. Stud.	210	Intro. Soc. Sci. I	4	Gen. Stud.	220	Intro. Soc. Sci. II	4
Mus.	080	Piano Ensemble	0	Educ.	100	Educ. Psychology I	3
Mus.	160	Theory of Music III	3	Mus.	080	Piano Ensemble	0
Mus.	240	Orch. Inst. III (Wood-		Mus.	116	School Music I	3
		winds)	1	Mus.	165	Theory of Music IV	3
Mus.	270	Laboratory Orchestra ..	0	Mus.	245	Orch. Inst. IV (Brass) ..	1
Mus.	273	Laboratory Choir	0	Mus.	270	Laboratory Orchestra ..	0
Mus.	275	Piano	1	Mus.	273	Laboratory Choir	0
Mus.	279	Voice	1	Mus.	275	Piano	1
Phys.	240	Physics for Musicians ..	2	Mus.	279	Voice	1
Psych.	310	General Psychology	3			Air Science or	
		Air Science or				Military Science	1
		Military Science	1			Physical Education	0
		Physical Education	0				
Total				15 or 16	Total		
					16 or 17		

JUNIOR

Gen. Stud.	250	Man and Cult. World I,	4	Gen. Stud.	260	Man and Cult. World II,	4
Educ.	105	Educ. Psychology II	3	Educ.	246	Teaching Part. in Music,	2
Mus.	080	Piano Ensemble	0	Mus.	080	Piano Ensemble	0
Mus.	121	School Music II	3	Mus.	132	Instrumental Methods ..	3
Mus.	170	Counterpoint I	2	Mus.	175	Counterpoint II	2
Mus.	190	History of Music I	2	Mus.	195	History of Music II	2
Mus.	247	Orch. Inst. V		Mus.	225	Theory of Conducting ..	2
		(Percussion)	1	Mus.	270	Laboratory Orchestra ..	0
Mus.	270	Laboratory Orchestra ..	0	Mus.	273	Laboratory Choir	0
Mus.	273	Laboratory Choir	0	Mus.	279	Voice	1
Mus.	279	Voice	1			Music Minor (String) ..	1
		Music Minor (String)	1				
Engl.	090	English Proficiency	0				
Total				17	Total		
					17		

SENIOR

Educ.	120	Prin. of Sec. Educ.	3	Educ.	246	Teaching Part. in Music,	2
Educ.	246	Teaching Part. in Music,	2	Educ.	455	Extraclass Activities ..	3
Mus.	180	Musical Form and		Mus.	186	Instr. and Orchest. II,	2
		Analysis	2	Mus.	270	Laboratory Orchestra ..	1
Mus.	183	Inst. and Orchest. I	2	Mus.	273	Laboratory Choir	1
Mus.	270	Laboratory Orchestra ..	1	Mus.	279	Voice	1
Mus.	273	Laboratory Choir	1			Music Minor (Brass) ..	1
Mus.	279	Voice	1	Sp.	535	Dramatic Production I,	2
		Music Minor (Wood-				Music Elective	4
		wind)	1				
		Social Science Elective,	3				
Total				16	Total		
					17		

Number of hours required for graduation: 128 or 132 (men).

Recital attendance and participation in a musical organization are required each semester.

Curriculum in Music (Applied)**(Voice Major)****FRESHMAN****FIRST SEMESTER**

		<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	125	Written Comm. I	3
Mus.	150	Theory of Music I	3
Mus.	275	Piano	1
Mus.	279	Voice	4
Phys.	240	Physics for Musicians ..	2
Sp.	105	Oral Comm. I	2
		<i>Air Science or</i>	
		Military Science	1
		Physical Education	0

Total 15 or 16

SECOND SEMESTER

		<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	140	Written Comm. IIB	3
Mus.	155	Theory of Music II	3
Mus.	250	Appreciation of Music ..	2
Mus.	275	Piano	1
Mus.	279	Voice	4
Psych.	310	General Psychology	3
		<i>Air Science or</i>	
		Military Science	1
		Physical Education	0

Total 16 or 17

SOPHOMORE

Mod. Lang.	210	French I	3
Mus.	080	Piano Ensemble	0
Mus.	160	Theory of Music III	3
Mus.	275	Piano	1
Mus.	279	Voice	4
Mus.	330	Vocal Ensemble	1
		Elective (Literature) ..	3
		<i>Air Science or</i>	
		Military Science	1
		Physical Education	0

Total 15 or 16

Mod. Lang.	220	French II	3
Mus.	080	Piano Ensemble	0
Mus.	165	Theory of Music IV	3
Mus.	275	Piano	1
Mus.	279	Voice	4
Mus.	330	Vocal Ensemble	1
		Elective (Literature) ..	3
		<i>Air Science or</i>	
		Military Science	1
		Physical Education	0

Total 15 or 16

JUNIOR

Gen. Stud.	110	Man's Phys. World I <i>or</i>	
Gen. Stud.	150	Biol. in Rel. to Man I <i>or</i>	
Gen. Stud.	210	Introd. Soc. Sci. I	4
Mod. Lang.	130	German I	3
Mus.	080	Piano Ensemble	0
Mus.	170	Counterpoint I	2
Mus.	190	History of Music I	2
Mus.	273	Laboratory Choir	0
Mus.	279	Voice	4
Mus.	330	Vocal Ensemble	1
Engl.	090	English Proficiency	0

Total 16

Gen. Stud.	120	Man's Phys. World II <i>or</i>	
Gen. Stud.	160	Biol. in Rel. to Man II <i>or</i>	
Gen. Stud.	220	Introd. Soc. Sci. II	4
Mod. Lang.	140	German II	3
Mus.	080	Piano Ensemble	0
Mus.	175	Counterpoint II	2
Mus.	195	History of Music II	2
Mus.	273	Laboratory Choir	0
Mus.	279	Voice	4
Mus.	320	Junior Recital	1
Mus.	330	Vocal Ensemble	1

Total 17

SENIOR

Mod. Lang.	150	German III <i>or</i>	
Mod. Lang.	230	French III	3
Mus.	180	Musical Form and	
		Analysis	2
Mus.	210	Composition I	2
Mus.	222	Theory of Conducting ..	2
Mus.	273	Laboratory Choir	1
Mus.	279	Voice	4
Mus.	425	Meth. and Mat. for	
		Studio	1
		Elective (Mus. Lit.)	2

Total 17

Mod. Lang.	160	German IV <i>or</i>	
Mod. Lang.	240	French IV	3
Mus.	140	Practice Teach. App.	
		Mus.	1
Mus.	215	Composition II	2
Mus.	325	Senior Recital	2
Mus.	273	Laboratory Choir	1
Mus.	279	Voice	4
		Elective (Mus. Lit.)	2
Sp.	245	Acting and Rehearsal I,	2

Total 17

Number of hours required for graduation: 128 or 132 (men).

Music organization to be selected on advice of the Department. Recital attendance and Music Organization required each semester. Two hours practice per day required in voice, one hour practice per day, piano.

Curriculum in Physical Education (Men)

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Sp.	105	Oral Comm. I	2	Gen. Stud.	120	Man's Phys. World II ..	4
Gen. Stud.	110	Man's Phys. World I ..	4	Phys. Ed.	110	History of Phys. Ed.	2
Psych.	310	General Psychology	3	Phys. Ed.	120	Phys. Ed. Activ. II	2
Phys. Ed.	105	Intro. to Phys. Ed.	1	Zool.	110	General Zoology	5
Phys. Ed.	115	Phys. Ed. Activ. I	2			Air Science or	
		Military Science	1			Military Science	1
		Physical Education	0			Physical Education	0
Total			16	Total			16

SOPHOMORE

Gen. Stud.	210	Intro. Soc. Sci. I	4	Gen. Stud.	220	Intro. Soc. Sci. II	4
Phys. Ed.	135	Personal Hygiene	2	Phys. Ed.	140	Community Hygiene	2
Phys. Ed.	130	Nat. and Fun. of Play ..	2	Phys. Ed.	290	Kinesiology	2
Phys. Ed.	125	Phys. Ed. Activ. III	2	Zool.	465	Human Physiology	4
Zool.	210	Human Anatomy	5	Educ.	105	Educ. Psych. II:	
		Air Science or				Learning	3
		Military Science	1			Air Science or	
		Physical Education	0			Military Science	1
						Physical Education	0
Total			16	Total			16

JUNIOR

Gen. Stud.	250	Man and Cult. World I.	4	Gen. Stud.	260	Man. and Cult. World II,	4
Phys. Ed.	160	Health Exam.	3	Phys. Ed.	155	Athletic Injuries and	
Educ.	120	Prin. of Sec. Educ.	3			First Aid	3
		Sports Option*	4	Phys. Ed.	185	Swimming	1
		Elective	3	Educ.	135	Meth. Tchg. in H. S. ..	3
Engl.	090	English Proficiency	0			Sports Option*	2
						Phys. Ed. Option†	2
Total			17	Total			15

SENIOR

Phys. Ed.		Public School Program		Educ.	150	Tchg. Part. in Sec. Sch.,	3
		in Phys. Ed.	2	Phys. Ed.	150	Admin. of Health and	
Phys. Ed.	170	Pract. Tchg. in Phys. Ed.,	2			Phys. Ed.	2
		Education Elective	3	Phys. Ed.	425	Community Recreation ..	2
		Elective	8			Elective	7
Total			15	Total			15

Number of hours required for graduation: 126.

* Sports Option to be chosen from Physical Education 190, 195, 200, 205.
† Physical Education Option to be chosen from Physical Education 175, 210, 215, and course not selected in Sports Option.

Curriculum in Physical Education (Women)**FRESHMAN**

FIRST SEMESTER				SECOND SEMESTER			
		<i>Course</i>	<i>Sem. Hrs.</i>			<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Sp.	105	Oral Comm. I	2	Gen. Stud.	120	Man's Phys. World II ..	4
Gen. Stud.	110	Man's Phys. World I ..	4	Psych.	310	General Psychology	3
Phys. Ed.	135	Personal Hygiene	2	Phys. Ed.	270	Tumbling, Rec. Sports ..	2
Phys. Ed.	255	Self-Testing Activities ..	2	Zool.	110	General Zoology	5
Fds. Nutr.	130	Applied Nutrition	2	Phys. Ed.	065	Phys. Ed. Lectures	0
Phys. Ed.	065	Phys. Ed. Lectures	0	Phys. Ed.	055	Physical Education	0
Phys. Ed.	055	Physical Education	0				
Total			15	Total			16

SOPHOMORE

Educ.	100	Educ. Psych. I: Pupil Development	3	Educ.	105	Educ. Psych. II: Learning	3
Phys. Ed.	295	Team Sports I	2	Phys. Ed.	290	Kinesiology	2
Zool.	210	Human Anatomy	5	Phys. Ed.	285	Individual Activities	2
Phys. Ed.	275	Fundamental Rhythms ..	2	Zool.	465	Human Physiology	4
Bot.	190	Nat. and Dev. Plants ..	3	Phys. Ed.	280	Play, Mgt. and Games ..	3
Phys. Ed.	065	Phys. Ed. Lectures	0	Phys. Ed.	175	Teaching Health	2
Phys. Ed.	055	Physical Education	0	Phys. Ed.	065	Phys. Ed. Lectures	0
				Phys. Ed.	055	Physical Education	0
Total			15	Total			16

JUNIOR

Gen. Stud.	210	Introd. Soc. Sci. I	4	Gen. Stud.	220	Introd. Soc. Sci. II	4
Educ.	120	Prin. Sec. Educ.	3	Educ.	135	Methods Tchg. Sec. Sch.,	3
Phys. Ed.	305	Health Ex. and First Aid	3	Phys. Ed.	315	Therapeutics and Massage	3
Phys. Ed.	300	Team Sports II	2	Phys. Ed.	320	Folk, Tap, and Social Dance	2
Phys. Ed.	355	Prin. and Phil. Phys. Educ.	3	Phys. Ed.	265	Rec. Leadership	2
Phys. Ed.	065	Phys. Ed. Lectures	0	Phys. Ed.	065	Phys. Ed. Lectures	0
Phys. Ed.	055	Physical Education	0	Phys. Ed.	055	Physical Education	0
Engl.	090	English Proficiency	0				
Total			15	Total			14

SENIOR

Gen. Stud.	250	Man and Cult. World I ..	4	Gen. Stud.	260	Man and Cult. World II,	4
Phys. Ed.	330	Tchg. and Adapt. of Phys. Educ.	3	Phys. Ed.	150	Admin. Health and Phys. Educ.	3
Phys. Ed.	325	Modern Dance	2	Phys. Ed.	340	Swimming and Archery ..	2
		Elective	3	Educ.	150	Tchg. Part. in Sec. Sch.,	3
Phys. Ed.	065	Phys. Ed. Lectures	0			Elective	2
				Phys. Ed.	065	Phys. Ed. Lectures	0
Total			15	Total			14

Number of hours required for graduation: 120.

Curriculum in Physics

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Chem.	210	Chemistry I	5	Sp.	105	Oral Comm. I	2
Math.	190	Plane Trigonometry	3	Chem.	230	Chemistry II Rec.	3
Math.	175	College Algebra	3	Chem.	250	Chemistry II Lab.	2
		Air Science <i>or</i>		Hist.	205	American Ind. History ..	3
		Military Science	1	Math.	215	Anal. Geom. and Calc. I, 4	
Phys.	740	Physics Colloquium	0			Air Science <i>or</i>	
		Physical Education	0			Military Science	1
				Phys.	740	Physics Colloquium	0
						Physical Education	0
Total			14 or 15	Total			16 or 17

SOPHOMORE

Gen. Stud.	150	Biol. in Rel. to Man I, 4		Gen. Stud.	160	Biol. in Rel. to Man II, 4	
Econ.	110	Economics I	3	Govt.	255	American Govt. <i>or</i>	
Math.	230	Anal. Geom. and Calc. II, 4		Psych.	310	General Psychology	3
Phys.	130	Engg. Physics I	5	Math.	245	Anal. Geom. and Calc. III, 4	
		Air Science <i>or</i>		Phys.	140	Engg. Physics II	5
		Military Science	1			Air Science <i>or</i>	
Phys.	740	Physics Colloquium	0			Military Science	1
		Physical Education	0	Phys.	740	Physics Colloquium	0
						Physical Education	0
Total			16 or 17	Total			16 or 17

JUNIOR

Gen. Stud.	250	Man and Cult. World I ..	4	Gen. Stud.	260	Man and Cult. World II, 4	
Math.	600	Differential Equations ..	3	Phys.	430	Mechanics	3
Phys.	410	Light	3	Phys.	470	Elec. and Magnetism	3
Phys.	420	Light Laboratory	1	Phys.	480	Elec. and Magnetism	
Phys.	320	Interm. Phys.	3			Lab.	1
		Elective	3			Elective	6
Phys.	740	Physics Colloquium	0	Phys.	740	Physics Colloquium	0
Engl.	090	English Proficiency	0				
Total			17	Total			17

SENIOR

Math.	615	Adv. Calculus I	3	Math.	620	Adv. Calculus II	3
Phys.	560	Atomic Physics	3	Phys.	450	Heat and Thermo.	3
Phys.	515	Electronic Phys. I	4	Phys.	460	Heat Laboratory	1
Phys.	310	Lab. Technic	1	Phys.	590	Mod. Phys. Lab.	1
		Elective	6			Elective	9
Phys.	740	Physics Colloquium	0	Phys.	740	Physics Colloquium	0
Total			17	Total			17

Number of hours required for graduation: 130 or 134 (men).

Curriculum in Technical Journalism

FRESHMAN

FIRST SEMESTER

		Course	Sem. Hrs.
Engl.	125	Written Comm. I	3
Sp.	105	Oral Comm. I	2
Gen. Stud.	110	Man's Phys. World I	4
		Mod. Lang. or Soc. Sci.,	6
		Air Science <i>or</i>	
		Military Science	1
Tech. Journ.	050	Tech. Journ. Lecture	0
		Physical Education	0
Total			15 or 16

SECOND SEMESTER

		Course	Sem. Hrs.
Engl.	135	Written Comm. IIB	3
Gen. Stud.	120	Man's Phys. World II	4
Psych.	310	General Psychology	3
		Mod. Lang. or English,	3
		Option	2
		Air Science <i>or</i>	
		Military Science	1
Tech. Journ.	050	Tech. Journ. Lecture	0
		Physical Education	0
Total			15 or 16

SOPHOMORE

Gen. Stud.	150	Biol. in Rel. to Man I	4
Tech. Journ.	215	Reporting I	3
Tech. Journ.	105	Graphic Arts Survey	2
Tech. Journ.	115	Typography Lab.	1
		Elective	5
		Air Science <i>or</i>	
		Military Science	1
Tech. Journ.	050	Tech. Journ. Lecture	0
		Physical Education	0
Total			15 or 16

Gen. Stud.	160	Biol. in Rel. to Man II ..	4
Tech. Journ.	225	Reporting II	3
		Option	4
		Elective	4
		Air Science <i>or</i>	
		Military Science	1
Tech. Journ.	050	Tech. Journ. Lecture	0
		Physical Education	0
Total			15 or 16

JUNIOR

Gen. Stud.	250	Man and Cult. World I ..	4
Engl.	215	American Literature I	3
Tech. Journ.	315	Radio News <i>or</i>	
Tech. Journ.	235	Rural Press <i>or</i>	
Tech. Journ.	245	Publ. Inf. Methods	2
Tech. Journ.	255	Prin. of Advertising	3
		Option	3
Tech. Journ.	050	Tech. Journ. Lecture	0
Engl.	090	English Proficiency	0
Total			15

Gen. Stud.	260	Man and Cult. World II..	4
Tech. Journ.	265	Editing	2
Tech. Journ.	425	History of Journalism	3
Tech. Journ.	445	The Woman's Page <i>or</i>	
Tech. Journ.	405	Reporting III	3
		Option and Elective	3
Tech. Journ.	050	Tech. Journ. Lecture	0
Total			15

SENIOR

Tech. Journ.	465	Mag. Art. Writing	2
Tech. Journ.	650	The Journalist in a	
		Free Society	3
		English Elective	3
		Option	7
Tech. Journ.	050	Tech. Journ. Lecture	0
Total			15

Tech. Journ.	485	Interp. of Cont. Aff.	3
		Option and Elective	12
Tech. Journ.	050	Tech. Journ. Lecture	0
Total			15

Number of hours required for graduation: 120 or 124 (men).

Social Science option: The student must select 15 hours of approved courses in a field such as education, political science, public relations, business administration, marketing, foreign affairs, or others.

Technical option: The student must select 12 hours of approved courses in a field such as agriculture, engineering, architecture, music, home economics, science in industry, flood control, dairy industry, electrical engineering, food preparation, clothing design, industrial management, industrial psychology, metallurgy, milling, public health, soil conservation, veterinary medicine, transportation, heavy construction, or others.

Before graduation, the student is required to have completed two months of vocational journalistic experience.

Preveterinary Curriculum

(For the four professional years, see School of Veterinary Medicine.)

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		<i>Course</i>	<i>Sem. Hrs.</i>			<i>Course</i>	<i>Sem. Hrs.</i>
Gen. Stud.	250	Man. and Cult. World I,	4	Gen. Stud.	260	Man and Cult. World II,	4
Chem.	210	Chemistry I	5	Zool.	110	General Zoology	5
Engl.	125	Written Comm. I	3	Chem.	230	Chemistry II Rec.	3
Sp.	105	Oral Comm. I	2	Chem.	250	Chemistry II Lab.	2
		Air Science <i>or</i>		Engl.	135	Written Comm. II	2
		Military Science	1			Air Science <i>or</i>	
		Physical Education	0			Military Science	1
		Elective	2			Physical Education	0
Total		16 or 17		Total		16 or 17	

SOPHOMORE

Gen. Stud.	210	Introd. Soc. Sci. I	4	Gen. Stud.	220	Introd. Soc. Sci. II	4
Chem.	505	Organic Chemistry	5	Poul. Husb.	104	Fm. Poult. Prod. Rec.	2
Zool.	420	Embryology	4	Poul. Husb.	105	Fm. Poult. Prod. Lab. ..	1
An. Husb.	405	Genetics	3	Phys.	220	Descrip. Physics	3
		Air Science <i>or</i>				Elective	6
		Military Science	1			Air Science <i>or</i>	
		Physical Education	0			Military Science	1
						Physical Education	0
Total		16 or 17		Total		16 or 17	

Number of hours required for application to professional years: 64 or 68 (men).

AIR SCIENCE AND TACTICS

MILFORD F. ITZ, *Head of Department*

Kansas state law, Section 76-436, Session Laws, 1945, stipulates that in land-grant colleges of this state all regularly enrolled male students who are physically qualified shall take military training during the freshman and sophomore years. This required Basic Course is offered by units of the Reserve Officers' Training Corps, Air Force ROTC, established at Kansas State College or by Army ROTC. The status of men who present evidence of previous military service or training in the armed forces or at another college will be evaluated by the dean of the school concerned. Their records may be accepted in lieu of all or part of the required two years of basic training. Nonveteran men who matriculate with 25 semester hours of advanced academic credits are excused from the second year of military training; those with 59 hours are excused from both years, using other subjects to replace the hours involved. The President of the College takes final action on all other requests for exemption from military training or its postponement. Any exemption from the Basic Course may bar the students from enrollment in the voluntary Advanced Course ROTC normally offered to selected juniors and seniors.

All students enrolled in the Basic Course are furnished free of charge complete uniform, texts, and other necessary equipment. These articles are the property of the United States and must be returned at the end of each school year or upon withdrawal from College. The value of any article not returned is chargeable to the student.

Kansas State College at present has an Air Force ROTC offering programs in Aircraft Maintenance and Engineering, Air Administration and Logistics, and Flight Operations. The first two years constitute the Basic Course, and successful completion of this work meets the requirements of Kansas state law. The third and fourth years constitute the Advanced Course in which enrollment is selective and voluntary. The student should consult the Department of Air Science and Tactics for conditions which govern selection for the Advanced Air ROTC in any of its programs.

Students enrolled in the Advanced Course may sign a Deferment Agreement which serves to exempt them from selective service induction in return for a promise to accept a reserve commission, if tendered upon completion of the course of instruction, and to serve on active duty for a period of two years, upon call by the Secretary of the Air Force.

Under present regulations, a student enrolled in the second-year Basic Air ROTC may also sign the Deferment Agreement and accept conditional enrollment in Advanced Air ROTC which will serve, within established quotas, to exempt him from selective service induction so long as he continues in college and satisfactorily pursues his academic work.

Under present regulations, freshmen in the first-year Basic Air ROTC are subject to screening by a board of officers after conclusion of the first semester with a view to selection for Deferment Agreement within established quotas. Those who give best promise as potential officer material may be enrolled subsequently in the Advanced Course, if College attendance in good standing is continued through the sophomore year.

In the Advanced Air ROTC all courses are three semester hours each. These hours are accepted as electives for degrees except where curricular limitations prevent their full use, in which case the remaining hours appear as electives in excess of requirements for graduation. The hours which may be used are as follows:

School of Agriculture, Curriculum in Agricultural Education, none; other curriculums, 12 semester hours.

School of Arts and Sciences, 12 semester hours.

School of Engineering and Architecture, Curriculum in Architecture, 12 semester hours; other curriculums, 8 semester hours.

SENIOR DIVISION AF ROTC**BASIC COURSES**

- 112. Air Science IA.** 1 semester hour. First semester.
Introduction to the Air Force ROTC followed by the history of aviation, fundamentals of global geography and basic military training. Two hours recitation and one hour practical work a week.
- 117. Air Science IB.** 1 semester hour. Second semester.
International tensions and security structures, instruments of national military security and basic military training. Two hours recitation and one hour practical work a week.
- 120. Air Science IIA.** 1 semester hour. First semester.
Elements of aerial warfare covering its purpose, targets, delivery aircraft, the air ocean, atomic weapons, and cadet non-commissioned officer training. Two hours recitation and one hour practical work a week. Prerequisite: Air Sci. 117.
- 125. Air Science IIB.** 1 semester hour. Second semester.
Continuation of Air Sci. 120. Prerequisite: Air Sci. 120.

ADVANCED COURSES

- 206. Air Science IIIA.** 3 semester hours. First semester.
Introduction to Advanced AF ROTC followed by study of the Air Force commander and his staff; problem solving techniques, communications processes and Air Force correspondence; military law, courts and boards, leadership laboratory. Five hours of recitation and practical work a week. Prerequisite: Air Sci. 125.
- 212. Air Science IIIB.** 3 semester hours. Second semester.
Aerodynamics and propulsion, aircraft engineering, aerial navigation, meteorology, air base functions, leadership laboratory. Five hours of recitation and practical work a week. Prerequisite: Air Sci. 206.
- 222. Air Science IVA.** 3 semester hours. First semester.
Military aspects of world geography; military aviation and the art of war; leadership laboratory. Five hours of recitation and practical work a week.
- 227. Air Science IVB.** 3 semester hours. Second semester.
Principles of leadership and management, career guidance; briefing for commissioned service; leadership laboratory. Five hours of recitation and practical work a week.

ATHLETICS

LAURENCE A. MULLINS, *Head of Department*

Kansas State College is a member in good standing of the Missouri Valley Intercollegiate Athletic Association—otherwise known as the Big Seven Conference. The other members are University of Colorado, Iowa State College, University of Kansas, University of Missouri, University of Nebraska, and University of Oklahoma.

Kansas State College, as a member of the Conference, participates with member schools in football, basketball, baseball, track, tennis, golf, and wrestling. Intercollegiate competition is open to all men students and is coached by a staff who are specialists in the respective sports.

BACTERIOLOGY

VERNON D. FOLTZ, *Head of Department*

For a minor, course 110 or equivalent, and 10 semester hours in the 400-799 group.

For a major, course 250 or equivalent, and a minimum of 21 semester hours in the 400-799 group.

FOR UNDERGRADUATE CREDIT

110. General Microbiology. 3 semester hours. Each semester and summer.

Morphology, physiology, and biology; classification, culture, and distribution of microorganisms; principles of applied microbiology. One hour of recitation and six hours of laboratory a week. A general survey course for students not majoring in biological science. Prerequisite: Chem. 110 or 230.

140. Agricultural Microbiology. 3 semester hours. Each semester.

For students in the School of Agriculture. Students who expect to take Bact. 480 or 515 should take Bact. 110 or equivalent. Sterilization and disinfection; microbial analyses of water, milk, and soil. Two hours of recitation and three hours of laboratory a week. Prerequisite: Chem. 230.

190. Water and Sewage Bacteriology. 3 semester hours. Each semester.

Water purification, analyses of water supplies, role of microorganisms in sewage disposal. One hour of recitation and six hours of laboratory a week. For students in engineering curriculums. Prerequisite: Chem. 170.

250. Bacteriology. 5 semester hours. Each semester.

General characteristics and methods of cultivation and identification of bacteria and closely related organisms. Three hours of recitation and six hours of laboratory a week. Required of students majoring in biological science. Prerequisite: Chem. 110 or 230.

270. Hematology. 3 semester hours. First semester.

Characteristics and analyses of blood samples. For students in Medical Technology. One hour of recitation and six hours of laboratory a week. Prerequisite: Bact. 110 or 250.

310. Veterinary Microbiology. 3 semester hours. First semester.

Morphology, physiology, biology, and classification of microorganisms; cultural and staining technic; microbiology in dairy sanitation and inspection. One hour of recitation and six hours of laboratory a week. For students in School of Veterinary Medicine. Prerequisite: Chem. 655.

340. Pathogenic Bacteriology and Virology. 4 semester hours. Second semester.

Continuation of Bact. 310. Microorganisms and viruses which cause infectious diseases of domesticated animals. Two hours of recitation and six hours of laboratory a week. Prerequisite: Bact. 310.

370. Veterinary Immunology. 3 semester hours. First semester.

Principles of immunology; preparation of antisera, antigens, and vaccines; serodiagnosis of infectious diseases. One hour of recitation and six hours of laboratory a week. Prerequisite: Bact. 340.

FOR UNDERGRADUATE AND GRADUATE CREDIT

410. Bacteriological Technic. 3 semester hours. Second semester.

Technic of laboratory manipulations; fundamental experiments and special experiments selected according to the interest of the student. Nine hours of laboratory a week. Prerequisite: Fifteen semester hours of credit in bacteriology.

440. Poultry Sanitation. 3 semester hours. First semester.

Methods of control of poultry diseases. Two hours of recitation and three hours of laboratory a week. Prerequisite: Bact. 110 or equivalent.

- 480. Soil Microbiology.** 3 semester hours. Second semester.
Microbial population of the soil and its role in soil fertility. Prerequisite: Bact. 110 or equivalent, Chem. 330.
- 485. Soil Microbiology Laboratory.** 2 semester hours. Second semester.
Laboratory experiments illustrative of theories developed in Bact. 480. Six hours of laboratory a week. Prerequisite: Bact. 480 or concurrent enrollment.
- 510. Dairy Bacteriology.** 3 semester hours. Second semester.
Bacteriology of milk and milk products. Prerequisite: Bact. 110 or equivalent.
- 515. Dairy Bacteriology Laboratory.** 2 semester hours. Second semester.
Laboratory experiments illustrative of theories developed in Bact. 510. Six hours of laboratory a week. Prerequisite: Bact. 510 or concurrent enrollment.
- 545. Microbiology of Foods.** 5 semester hours. First semester.
Microbial phenomena involved in the bacteriology and sanitation of foods, including food processing, microbial spoilage, food poisoning, and fermentations; microscopic and cultural analysis of fresh, processed, frozen, fermented, and spoiled foods, exclusive of dairy products. Three hours of recitation and six hours of laboratory a week. Prerequisite: Bact. 110 or equivalent.
- 560. Public Health Bacteriology.** 3 semester hours. Second semester.
Application of bacteriology to the control of disease in the community, with emphasis on the means of spread of diseases, the impact of disease outbreaks on the functioning of the communal organization, man's fight to reduce disease in his population, and evaluation of known methods of control of disease. Prerequisite: Bact. 110 or equivalent or Gen. Stud. 160.
- 565. Public Health Bacteriology Laboratory.** 2 semester hours. Second semester.
Theory and practice of bacteriologic testing of water and sewage; microbiologic phenomena involved in water and sewage treatment; disinfectants; bacteriologic examination of surfaces and air. Six hours of laboratory a week. Prerequisite: Bact. 110 or equivalent and Bact. 560 or concurrent enrollment.
- 610. Bacteriology of Human Diseases.** 5 semester hours. First semester.
Pathogenic bacteria and their role in human diseases. Three hours of recitation and six hours of laboratory a week. Prerequisite: Bact. 250 or equivalent.
- 670. Immunology.** 5 semester hours. Second semester.
Principles of immunology; preparation, purification and standardization of biological products employed in human and veterinary medicine. Three hours of recitation and six hours of laboratory a week. Prerequisite: Bact. 610 or equivalent.
- 675. Physiology of Microorganisms I.** 3 semester hours. First semester in odd-numbered years.
Chemistry and physics of microbial processes. Prerequisite: Eight semester hours in Bacteriology; Chem. 650.
- 680. Physiology of Microorganisms II.** 3 semester hours. Second semester in even-numbered years.
Continuation of Bact. 675 with special emphasis on microbial metabolism and uses of microorganisms in industrial fermentations. Prerequisite: Bact. 675.
- 710. Determinative Bacteriology.** 3 semester hours. Second semester.
Isolation and identification of unknown bacteria. One hour of recitation and six hours of laboratory a week. Prerequisite: Eight semester hours credit in bacteriology.

745. Antibiotics. 2 semester hours. First semester.

Development and exploitation of antibiotics in veterinary and human medicine and theories of the mode of action in livestock feeding; theories of antibiosis and effectiveness of individual antibiotics against microorganisms. Bact. 340 or 610.

750. Microbiological Assay Methods. 3 semester hours. Second semester in odd-numbered years.

Theory and practice of the utilization of microorganisms for qualitative and quantitative determination of vitamins, amino acids, and antibiotics. One hour of recitation and six hours of laboratory a week. Prerequisite: Bact. 110 or equivalent; Chem. 435.

790. Bacteriology Seminar. 1 semester hour. Each semester.

Prerequisite: Consent of instructor.

799. Problems in Bacteriology. Credit to be arranged. Each semester and summer.

Work is offered in dairy, foods, poultry diseases, soil, physiology, and sanitation. Prerequisite: Eight semester hours credit in bacteriology.

FOR GRADUATE CREDIT

810. Virology. 4 semester hours. Second semester.

Present-day knowledge relative to the role of ultramicroscopic infectious agents, including bacteriophage, in disease. Laboratory diagnosis of virus diseases, isolation, identification, and characteristics of specific viruses. Two hours recitation and six hours of laboratory a week. Prerequisite: Bact. 610 or equivalent.

820. Genetics of Microorganisms. 2 semester hours. First semester.

Reproduction, heredity, mutation, variation, adaptation, and natural selection in one-celled organisms; relationship of these processes to inheritance and growth in higher organisms. Prerequisite: Bact. 110 or equivalent; An. Husb. 405.

830. Physiology of Microorganisms III. 3 semester hours. First semester in even-numbered years.

Selected laboratory exercises demonstrating the fundamental principles and practices of bacterial physiology. One hour of recitation and six hours of laboratory a week. Prerequisite: Bact. 680 and consent of instructor.

999. Research in Bacteriology. Credit to be arranged. Each semester and summer.

Work is offered in the following fields: Dairy, foods, poultry diseases, soils, determinative, immunology, sanitary, and physiology. Prerequisite: A minor or equivalent in bacteriology.

BOTANY AND PLANT PATHOLOGY

STUART M. PADY, *Head of Department*

For a minor, the following courses should be completed: Nine credit hours of courses in the 400-799 group, in addition to 110.

For a major, in addition to the minor, the following courses should be completed: Ten or more credit hours in the 400-799 group, subsequent to the minor courses.

FOR UNDERGRADUATE CREDIT

110. General Botany. 5 semester hours. Each semester and summer.

Plant groups and their evolutionary development. Physiology, anatomy, ecology, and identification of seed plants. Economic applications. Three hours of recitation and six hours of laboratory a week.

150. Medical Botany. 2 semester hours. First semester.

Stock-poisoning plants of the range; habitat, poisonous properties, and methods of control and elimination of native plants. One hour of recitation and three hours of laboratory a week. Prerequisite: High-school botany or equivalent.

190. Nature and Development of Plants. 3 semester hours. Each semester and summer.

Structure, life processes, identification, classification, evolutionary development, geographical distribution, and economic importance of plants. Not open to students who have credit in Bot. 110.

230. Botany for Medical Technicians. 2 semester hours. Second semester.

Plants and plant parts concerned with hay fever, allergy, dermatitis, and mycosis. One hour of recitation and three hours of laboratory a week. Prerequisite: Junior standing.

310. Plant Diseases. 3 semester hours. First semester.

Symptoms and control of common diseases of garden, orchard, and field crops. Two hours of recitation and three hours of laboratory a week. For students in Two-year Curriculum in Agriculture.

FOR UNDERGRADUATE AND GRADUATE CREDIT

410. Plant Pathology I. 3 semester hours. First semester and summer.

Important diseases of crops and the organisms which cause them. Two hours of recitation and three hours of laboratory a week. Prerequisite: Bot. 110.

420. Horticultural Crop Diseases. 3 semester hours. Second semester.

Major diseases of fruit and vegetable crops and ornamental plants; their causes, symptoms, and control. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 410.

440. Field Crop Diseases. 3 semester hours. Second semester.

Diseases of cereal and forage crops; their causes, life histories, symptoms, and control. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 410. Offered in 1953-'54 and alternate years.

460. Disease Resistance in Plants. 3 semester hours. Second semester.

Plant pathogens in relation to host plant; the cause of resistance; varieties of cereal, forage crops, fruits, and vegetables resistant to disease; breeding disease-resistant crops. Prerequisite: Bot. 410. Offered in 1954-'55 and alternate years.

480. Virus Diseases of Plants. 2 semester hours. First semester.

Economic importance, nature, transmission, effect on host, and control of virus plant diseases. Prerequisite: Bot. 410.

490. Morphology of the Fungi. 3 semester hours. First semester.

Structure of slime molds, moldlike bacteria, and fungi studied to determine taxonomic relationships. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 110.

510. Plant Physiology I. 3 semester hours. First semester.

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. Prerequisite: Bot. 110, Chem. 310, or concurrent registration.

550. Plant Physiology III. 3 semester hours. Second semester.

Continuation of Bot. 510, including photosynthesis, nitrogen metabolism, fat metabolism, digestion, translocation, respiration, and growth. Prerequisite: Bot. 510.

580. Anatomy of Higher Plants. 3 semester hours. Second semester.

Structure and development of the various tissues and organs of seed plants. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 110.

610. Plant Cytology. 3 semester hours. First semester.

Structure, development, and functions of the plant cell, with special reference to chromosome behavior and its bearing on genetic results. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 110 or Zool. 110.

651. Paleobotany. 3 semester hours. Second semester.

Fossil plants, their taxonomy and use in the recognition of geological strata. Two hours of recitation and two hours of laboratory a week. Prerequisite: Geol. 405.

670. Plant Ecology. 3 semester hours. Second semester.

Structure and dynamics of vegetation. Field trips. Prerequisite: Bot. 110.

690. Taxonomic Botany of the Flowering Plants. 3 semester hours. First semester.

Systems of classification; identification of plants in the field and in the laboratory; orders and families of plants. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 110.

720. Botanical Microtechnic. 3 semester hours. Second semester.

Preparation of plant materials for histological or cytological study. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 110.

730. Field Botany. 3 semester hours. Summer.

Identification and classification of seed plants. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 110.

750. Literature of Botany. 2 semester hours. Each semester and summer.

Current botanical publications, together with the classes of botanical literature; historical development of botany. Prerequisite: Bot. 410.

799. Problems in Botany. Credit to be arranged. Each semester and summer.

Work is offered in anatomy, cytogenetics, cytology, ecology, microtechnic, morphology, mycology, pathology, physiology, and taxonomy. Prerequisite: Bot. 110 and consent of instructor.

FOR GRADUATE CREDIT

810. Plant Physiology II. 3 semester hours. Second semester.

Methods used to obtain data which concern common functions of plants. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 510.

830. Recent Advances in Cytogenetics. 3 semester hours. Second semester.

Chromosome structure, mechanics, and behavior; their significance for problems of genetics, evolution, and the origin of species. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 432 or Bot. 610 or Zool. 450.

850. Plant Pathological Technic. 3 semester hours. Second semester.

Technic in methods of isolation, culture and inoculation used in studying the causal organisms of plant diseases. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 110.

980. Botany Graduate Seminar. 1 semester hour. Each semester.

Reports of investigational work or other matters of interest in the various branches of botany. Prerequisite: Consult head of department.

999. Research in Botany. Credit to be arranged. Each semester and summer.

Work is offered in anatomy, cytogenetics, cytology, ecology, microtechnic, morphology, mycology, pathology, physiology, and taxonomy. Prerequisite: At least two courses in this department and approval of major adviser or head of department.

CHEMISTRY

RALPH E. SILKER, *Head of Department*

For a minor, the following courses should be completed: Chem. 210, 230, 250, 435, 505.

For a major, the student should enroll in the Curriculum in Chemistry.

FOR UNDERGRADUATE CREDIT

090. Inspection Trip. R credit. Second semester.

Industrial centers are visited by seniors traveling as a group under faculty supervision.

095. Industrial Chemistry Seminar. R credit. Each semester.

Special topics for undergraduates in the Curriculum in Chemistry.

110. General Chemistry. 5 semester hours. Each semester and summer.

Principal laws and theories of chemistry; important metallic and nonmetallic substances. Three hours of recitation and six hours of laboratory a week. Not open to students having credit in any college courses in inorganic chemistry.

140. Chemistry E-I. 4 semester hours. Each semester and summer.

Contents similar to Chem. 210 except special emphasis is given to applications in engineering. Three hours of recitation and three hours of laboratory a week. Not open to students who have credit in Chem. 210.

170. Chemistry E-II. 4 semester hours. Each semester and summer.

Continuation of Chem. 140. Three hours of recitation and three hours of laboratory a week. Prerequisite: Chem. 140 or 210. Not open to students who have credit in Chem. 230 or 250.

210. Chemistry I. 5 semester hours. Each semester and summer.

Beginning of the study of general chemistry. Three hours of recitation and six hours of laboratory a week. Not open to students who have credit in Chem. 110 or 140.

230. Chemistry II Recitation. 3 semester hours. Each semester and summer.

Completion of the study of general chemistry. Not open to students who have credit in Chem. 170. Prerequisite: Chem. 210.

250. Chemistry II Laboratory. 2 semester hours. Each semester and summer.

General principles of qualitative analysis. Six hours of laboratory. Not open to students who have credit in Chem. 170. Prerequisite: Chem. 230 or concurrent registration.

270. Qualitative Analysis. 3 semester hours. Second semester.

One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 230 or concurrent registration.

310. Organic Chemistry (Agr.). 3 semester hours. Each semester and summer.

Fundamentals of organic chemistry, particularly fats, proteins and carbohydrates. Prerequisite: Chem. 230.

315. Organic Chemistry (Agr.) Laboratory. 2 semester hours. Each semester and summer.

Laboratory work to correlate with Chem. 310. Six hours of laboratory a week. Prerequisite: Chem. 310 or concurrent enrollment.

330. General Organic Chemistry. 5 semester hours. Each semester and summer.

General study of some of the more important classes of organic compounds. Three hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 110.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 405. Inorganic Chemistry.** 3 semester hours. Second semester.
Facts of chemistry and their present theoretical interpretations; properties of elements as a basis for methods of classification; rarer elements and compounds. Students who elect this course are advised to take Chem. 410. Prerequisite: Chem. 250 or 270.
- 410. Inorganic Preparations.** Credit to be arranged; one credit for each three hours of laboratory. Each semester and summer.
Preparation and purification of some typical inorganic compounds of complex composition, and compounds of the rarer elements. Prerequisite: Chem. 450, 455.
- 413. Qualitative Microanalysis.** 3 semester hours. First semester.
Basic theories and techniques of qualitative microanalysis. One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 450, 455, 515.
- 417. Quantitative Microanalysis.** 2 semester hours. Second semester.
Theories and techniques of quantitative microanalysis. Six hours of laboratory a week. Prerequisite: Chem. 450, 455, 515.
- 420. Advanced Inorganic Chemistry.** 2 semester hours. Each semester and summer.
Topics currently available: Crystal chemistry, liquid ammonia and other solvent systems, phase rule, phosphorus and related elements, silicon chemistry, and silicones. Prerequisite: Chem. 590.
- 425. Corrosion.** 3 semester hours. Second semester.
Theories and various factors involved in the corrosion of iron, steel, and nonferrous metals; methods of testing for and preventing corrosion. Prerequisite: Chem. 590 or concurrent registration.
- 435. Quantitative Analysis.** 4 semester hours. Each semester and summer.
General procedures of volumetric, gravimetric, and colorimetric analyses. Two hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 250 or 270.
- 440. Food Analysis.** 3 semester hours. Second semester.
Quantitative methods employed in the analysis of foodstuffs. One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 330 and 435 or 505.
- 445. Food Technology.** 3 semester hours. First semester.
Chemical composition, production, consumption, statistics, and treatment of food material. Prerequisite: Chem. 310 or 330 or 505.
- 450. Quantitative Analysis I.** 4 semester hours. First semester and summer.
General procedures of volumetric analysis. Two hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 250 or 270.
- 455. Quantitative Analysis II.** 4 semester hours. Second semester and summer.
General procedures of gravimetric and colorimetric analyses. Two hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 250 or 270.
- 460. Industrial Chemical Analysis.** 3 semester hours. First semester and summer.
One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 450, 455.
- 465. Advanced Quantitative Analysis.** 3 semester hours. When scheduled or on request of a sufficient number.
Topics from current literature and journals of analytical chemistry. Latest advances in the analyses of complex inorganic and organic materials. Three hours of recitation a week. Prerequisite: Chem. 450, 455.

- 470. Chemical Microscopy.** 2 semester hours. When scheduled or on request of a sufficient number.
Use of the microscope in qualitative and quantitative analyses as applied to inorganic substances and to vegetable and animal products. One hour of recitation and three hours of laboratory a week. Prerequisite: Chem. 330, 435.
- 475. Chemical Toxicology.** 3 semester hours. Each semester and summer. Occurrence, chemical properties and detection of the more common poisons. Two hours of recitation and three hours of laboratory a week. Prerequisite: Chem. 330 or 505.
- 480. Instrumental Methods in Chemical Analysis.** 3 semester hours. Second semester and summer.
Application of the spectrophotometer, colorimeter, nephelometer, refractometer, X-ray equipment, and other instruments in the chemical analysis of gases, liquids, and solids. Two hours of recitation and three hours of laboratory a week. Prerequisite: Chem. 590.
- 485. Chemistry of Soils and Fertilizers.** 2 semester hours. First semester. Six hours of laboratory a week. Prerequisite: Chem. 435 or 450 and 455.
- 490. Chemistry of Crops.** 2 semester hours. Second semester. Six hours of laboratory a week. Prerequisite: Chem. 310, 435, or 450, 455.
- 495. Advanced Soil Chemistry.** 3 semester hours. Each semester. Ionic exchange, electrodialysis, solutions, and colloid phenomena of soils. One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 585, 590, and an acceptable course in soils.
- 505. Organic Chemistry.** 5 semester hours. Each semester and summer. Topics selected from the content of Chem. 510 and 515. Three hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 250 or 270.
- 510. Organic Chemistry I.** 5 semester hours. First semester. Three hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 435 or 450.
- 515. Organic Chemistry II.** 5 semester hours. Second semester. Three hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 510.
- 520. Organic Preparations.** 1 to 5 hours. First semester. Prerequisite: Chem. 515.
- 525. Qualitative Organic Analysis.** 3 semester hours. First semester. One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 515.
- 535. Special Reactions of Organic Compounds.** 2 semester hours. First semester. Prerequisite: Chem. 515.
- 540. Mechanisms of Organic Reactions.** 3 semester hours. First semester. Mechanistic course of organic reactions from the viewpoint of modern theories of organic chemistry. Prerequisite: Chem. 515, 600.
- 550. Advanced Organic Chemistry.** 2 semester hours. When scheduled or on request of a sufficient number.
Lectures and assigned reading. Topics currently available. Free radicals; glycosides and alkaloids; linkages in organic compounds; organic nitrogen compounds; relation of properties and structure; starch I; and starch II; terpenes and alicyclics. Prerequisite: Chem. 515.
- 555. Stereoisomeric and Tautomeric Compounds.** 3 semester hours. Second semester. Prerequisite: Chem. 515.

- 560. Heterocyclic Compounds.** 3 semester hours. Second semester.
Prerequisite: Chem. 515.
- 565. Catalysis in Organic Chemistry.** 3 semester hours. Second semester.
Prerequisite: Chem. 515, 590.
- 580. Descriptive Physical Chemistry.** 3 semester hours. As scheduled or when requested by a sufficient number.
Elementary principles of physical chemistry without higher mathematical applications. Not open to students majoring in chemistry. Prerequisite: Chem. 110 and 310 or 330.
- 585. Physical Chemistry I Recitation.** 3 semester hours. First semester.
Properties of matter in the gaseous, liquid and solid states; elementary thermodynamics, solutions, colloids, surface chemistry and thermochemistry. Prerequisite: Math. 290, Phys. 120 or 140.
- 590. Physical Chemistry I Laboratory.** 2 semester hours. First semester.
Six hours of laboratory a week. Prerequisite: Chem. 435 or 450 and 455, and 585 or concurrent registration.
- 595. Physical Chemistry II Recitation.** 3 semester hours. Second semester.
Homogeneous and heterogeneous equilibria, chemical kinetics, electrical conductance, electromotive force, chemical thermodynamics, photochemistry, and atomic and molecular structure. Prerequisite: Chem. 590.
- 600. Physical Chemistry II Laboratory.** 2 semester hours. Second semester.
Six hours of laboratory a week. Prerequisite: Chem. 595 or concurrent registration.
- 605. Advanced Physical Chemistry.** 3 semester hours. When scheduled or on request of a sufficient number.
Topics currently available: Valence, chemical kinetics, chemical quantum mechanics I, chemical quantum mechanics II, entropy and the third law, molecular structure I, and molecular structure II. Prerequisite: Chem. 590.
- 610. Chemical Thermodynamics.** 3 semester hours. Second semester.
Thermodynamics particularly applicable to chemistry; the first and second laws of thermodynamics and their application. Prerequisite: Chem. 590.
- 615. Chemical Statistical Thermodynamics.** 3 semester hours. Second semester.
Prerequisite: Chem. 610.
- 620. Electrochemistry.** 3 semester hours. Each semester and summer.
Fundamental theories of electrochemistry and their application to a study of the behavior of solutions and fused salts. Two hours of recitation and three hours of laboratory a week. Prerequisite: Chem. 600.
- 625. Colloid Chemistry.** 3 semester hours. Second semester.
Properties of colloids, suspensoids, and emulsoids. Prerequisite: Chem. 590.
- 630. Surface Chemistry.** 2 semester hours. Each semester.
Methods of measuring surface tension; surface energetics, relation of surface tension to adsorption; and colloidal formation. Prerequisite: Chem. 590.
- 635. Radioactive Tracer Techniques.** 3 semester hours. When scheduled on request of a sufficient number. (See Phys. 635.)
Chemistry and physics of radioactive substances in fields of biological and physical science. Two hours recitation and three hours of laboratory a week. Taught in co-operation with the Department of Physics. Prerequisite: Consent of instructors.

- 650. General Biochemistry.** 5 semester hours. Each semester and summer.
Three hours of recitation and six hours of laboratory a week. Basic course for students who are not in the School of Veterinary Medicine and are not chemistry majors. Not open to students with credit in Chem. 655. Prerequisite: Chem. 330.
- 655. Physiological Chemistry.** 5 semester hours. First semester.
Three hours of recitation and six hours of laboratory a week. For students in School of Veterinary Medicine. Not open to students with credit in Chem. 650. Prerequisite: Chem. 505.
- 660. Biochemistry.** 3 semester hours. First semester and when requested by a sufficient number.
Basic course particularly for senior and graduate students in chemistry. Prerequisite: Chem. 515, 590.
- 665. Biochemistry Laboratory.** 2 semester hours. First semester and when requested by sufficient number.
Prerequisite: Chem. 660 or concurrent registration.
- 670. Biochemical Preparations.** 2 to 5 hours. Second semester.
Prerequisite: Chem. 650, or 655, or 665.
- 675. Biochemical Analysis.** 2 semester hours. Each semester.
Six hours of laboratory a week. Prerequisite: Chem. 435, or 450 and 455, and 650, or 655, or 665.
- 680. Intermediary Metabolism.** 3 semester hours. Second semester.
Prerequisite: Chem. 650 or 655 or 660.
- 685. Biochemistry of Internal Secretions.** 2 semester hours. Second semester.
Chemistry of the glands of internal secretions. Prerequisite: Chem. 650 or 655 or 660.
- 690. Chemistry of the Lipids.** 3 semester hours. Second semester.
Properties of fats and oils; distillation of fats; extraction of plant and animal tissues, including phospholipids, cholesterol, etc., chromatographing of plant extracts. Prerequisite: Chem. 330.
- 695. Chemistry of Proteins.** 3 semester hours. First semester in odd-numbered years or on demand.
Prerequisite: Chem. 600 and 650 or concurrent enrollment.
- 700. Chemistry of Milk.** 3 semester hours.
The composition of milk; methods for separating, determining and characterizing various constituents. Prerequisite: Chem. 250 or 270 and 310.
- 705. Vitamins.** 2 semester hours. First or second semester.
Chemistry and functions of vitamins and related compounds. Prerequisite: Chem. 650 or 655 or 660.
- 710. Vitamin Analysis.** 2 semester hours. Second semester and summer.
Chemical and biological determination of vitamins. Six hours of laboratory a week. Prerequisite: Chem. 650 or 655 or 665 and 435 or 450 and 455.
- 715. Chemistry of Enzymes.** 2 semester hours. Second semester.
Chemical nature of enzymes and their reactions. Prerequisite: Chem. 515, 665.
- 720. Enzyme Technology.** 2 semester hours. Second semester.
Extraction, purification, and assay of enzymes. Six hours of laboratory a week. Prerequisite: Chem. 715 or concurrent registration, or consent of instructor.
- 730. Principles of Animal Nutrition.** 3 semester hours. Each semester.
Prerequisite: Chem. 310 or 330 or 505.

- 735. Advanced Animal Nutrition.** 3 semester hours. First semester in even-numbered years or on demand.
Prerequisite: Chem. 650, or 655, or 660, or concurrent enrollment, and an acceptable course in principles of animal nutrition.
- 740. Laboratory Technic in Animal Nutrition.** 2 semester hours. Second semester.
Preparation of diet and care of experimental animals used in the study of various nutritional problems. Six hours of laboratory a week. Prerequisite: An acceptable course in nutrition or Chem. 650 or 655 or 665.
- 745. General Plant Biochemistry.** 3 semester hours. First semester.
Occurrence and function in plants of organic compounds, such as enzymes, plant pigments, vitamins, and plant acids. Two hours of recitation and three hours of laboratory a week. Prerequisite: Chem. 310 or 330.
- 750. Plant Biochemistry.** 3 semester hours. First semester.
More advanced treatment of the material presented in Chem. 745. Two hours of recitation and three hours of laboratory a week. Prerequisite: Chem. 515.
- 775. Chemistry Seminar.** 0 or 1 semester hour. Each semester.
Required of all graduate students and elective for seniors in Curriculum in Chemistry.
- 780. History of Chemistry.** 2 semester hours. First semester.
Prerequisite: Chem. 505 or 510.
- 785. Chemical Literature.** 1 or 2 semester hours. Each semester.
One hour of recitation and problem work in the library. Prerequisite: Chem. 515, 600.
- 799. Problems in Chemistry.** Credit to be arranged. Each semester and summer.
Work is offered in agricultural chemistry, analytical chemistry, biochemistry, chemical utilization of farm products, food chemistry, industrial chemistry, inorganic chemistry, organic chemistry, and physical chemistry. Prerequisite: Background of courses needed for the problem to be undertaken.

FOR GRADUATE CREDIT

- 820. Systematic Inorganic Chemistry.** 3 semester hours. When scheduled.
A study of the elements with emphasis on the periodic table, use of modern theories to interpret the structure and properties of the elements and their compounds. Prerequisite: Chem. 600.
- 840. Systematic Analytical Chemistry.** 3 semester hours. When scheduled.
A study of fundamental theories which underlie modern analytical chemistry. Prerequisite: Chem. 600.
- 860. Systematic Organic Chemistry.** 3 semester hours. When scheduled.
A systematic study of organic compounds as functional series; interrelationships, preparation, properties and industrial applications of the compounds. Prerequisite: Chem. 515.
- 880. Systematic Physical Chemistry.** 3 semester hours. When scheduled.
Concepts and theories of Physical Chemistry. Prerequisite: Chem. 600.
- 890. Theoretical Biochemistry.** 2 semester hours. When scheduled.
Theoretical considerations of biological processes. Prerequisite: Chem. 650, or 655, or 660, or 750 and 600.

910. Advanced Radiochemistry. 2 semester hours. When scheduled.

Isotopic exchange reactions, chemical kinetics, structural chemistry, self diffusion processes, isotope dilution methods and behavior of trace elements. Prerequisite: Chem. 600; Chem. 635 or Phys. 635.

999. Research in Chemistry. Credit to be arranged. Each semester and summer.

Work is offered in agricultural chemistry, analytical chemistry, biochemistry, chemical utilization of farm products, food chemistry, industrial chemistry, inorganic chemistry, organic chemistry, and physical chemistry. Prerequisite: Registration in the Graduate School with sufficient training to carry on the line of research to be undertaken.

ECONOMICS AND SOCIOLOGY

GEORGE MONTGOMERY, *Head of Department*

Instruction in economics, sociology, and business administration is offered in the School of Arts and Sciences. (Instruction in agricultural economics, agricultural administration, and rural sociology is offered as Agricultural Economics in the School of Agriculture.)

In the School of Arts and Sciences the student may elect a major in economics or sociology (Curriculum in Social Science), or he may elect the Curriculum in Business Administration.

The courses in economics are designed for students who wish to prepare themselves for the teaching profession, for research in economics, or for positions with business concerns or governmental agencies.

Courses in sociology are designed to prepare the student for the professions of teaching, social work, and social science research. These courses also provide the student with greater understanding of social phenomena, thereby enabling him to participate more effectively in the community.

The Curriculum in Business Administration offers professional training in business, including accounting, to students who expect to enter industry or commerce.

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. A candidate, in order to be admitted to the examination, must submit evidence satisfactory to the Committee on Accountancy of graduation from a college or university recognized by the committee, and the completion of thirty or more semester hours, or the equivalent thereof, in the study of accounting, business law, economics, and finances of which at least twenty semester hours, or the equivalent thereof, shall be in the study of accounting. If not a college graduate meeting the above requirements, he must submit evidence of three years of public accounting experience approved by the Board of Examiners, in addition to the completion of a four-year high school course or its equivalent.

The examination is given in the theory of accounting, practice of accounting, auditing, and commercial law as affecting accountancy, and is held in May and November of each year. The questions are supplied by the American Institute of Accountants.

A candidate who passes the examination and is a college graduate meeting the above requirements must furnish evidence of having had two years of public accounting experience satisfactory to the Board of Examiners before the certificate is granted. If the candidate who passes the examination is not a college graduate, he must furnish evidence of having completed two years of experience in addition to the qualifying experience.

COURSES IN ECONOMICS

(For Agricultural Economics, see School of Agriculture.)

FOR UNDERGRADUATE CREDIT

- 020. Business Administration Orientation.** No credit. Each semester.
Orientation of freshmen in the curriculums in business administration; opportunities in business professions.
- 030. Business Administration Lecture.** No credit. Each semester.
Discussion by staff and business men on general economic conditions and employment possibilities.
- 110. Economics I.** 3 semester hours. Each semester and summer.
Introductory study of the principles of economics.
- 120. Economics II.** 3 semester hours. Each semester and summer.
Application of economic principles to the solution of economic problems. Study of topics such as labor relations, depressions, international economic relations, taxation, public debt, inflation and deflation, monopoly, economic insecurity. Prerequisite: Econ. 110.
- 130. Money and Banking.** 3 semester hours. Each semester and summer.
Nature, history, and functions of money; banking in its modern and historic forms. Prerequisite: Econ. 110.
- 140. Personal Finance.** 2 semester hours. Each semester. Summer in odd-numbered years.
Finance from the viewpoint of the individual. Principles and practices of credit buying, borrowing, saving and investing; purchase of government bonds, insurance, real estate, and annuities; problems of taxation and wills. Not open to students in Curriculum in Business Administration.
- 150. Business Management.** 3 semester hours. First semester.
Analysis of management factors such as personnel, finance, accounting, production, and marketing. Not open to students in Curriculum in Business Administration.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 405. Business Organization and Finance.** 3 semester hours. Each semester and summer.
Organization and classification of business enterprises, their financial structure and internal management. Prerequisite: Econ. 110, Acctg. 310 or 330.
- 410. Advanced Business Finance.** 2 semester hours. First semester. Summer in odd-numbered years.
Advanced principles of finance with emphasis on promotion, refinancing, and reorganization of business enterprises. Prerequisite: Econ. 405.
- 415. Small Business Operation.** 3 semester hours. Second semester.
Opportunities in business ownership; principles governing the starting of a small enterprise; importance, status, problems and management of small business. Prerequisite: Econ. 110.
- 420. Investments.** 3 semester hours. First semester and summer.
A study of investment institutions, and principles and practices from the individual viewpoint. Corporate, civil, foreign, real estate and farm securities are compared as to risk, return and intrinsic value. Prerequisite: Econ. 405, and Acctg. 310 or 330.
- 425. Property Insurance.** 2 semester hours. First semester. Summer in odd-numbered years.
Fire, marine, automobile, title, credit insurance and corporate bonding; also other forms of property insurance. Prerequisite: Econ. 110.

- 430. Life Insurance.** 2 semester hours. Second semester. Summer in even-numbered years.

Nature and uses of life insurance, kinds of policies, determination of premiums, reserves, surrender values, and dividends. Prerequisite: Econ. 110.

- 435. Credits and Collections.** 2 semester hours. Second semester. Summer in even-numbered years.

A study of the fundamental principles involved in extending credit and an analysis of present collection practices. Prerequisite: Econ. 110.

- 440. Marketing.** 3 semester hours. Each semester and summer.

A general survey of marketing from a social-economic point of view. A study of the institutional organization of the market and the functioning of marketing agencies in the distribution of goods and services. Prerequisite: Econ. 110.

- 445. Retailing.** 3 semester hours. First semester. Summer in odd-numbered years.

An introduction to retailing from the management point of view. Study of retail store policies and organization. The operation of the buying and selling functions, merchandise control, store systems, personnel management, retail accounting, and expense control. Prerequisite: Econ. 440.

- 450. Sales Management.** 3 semester hours. Second semester. Summer in even-numbered years.

From the point of view of the manufacturer or wholesaler, a study of management problems relating to sales—including sales programs, product and distribution policies, price policy, management of sales force, sales promotion, and market research. Prerequisite: Econ. 440.

- 455. Labor Economics I.** 3 semester hours. Each semester and summer.

Labor problems; industrial health and safety; how unions are organized and function; the various wage theories; the improvement of working conditions; methods of minimizing the various types of unemployment; wage and production incentives. Prerequisite: Econ. 110 or Soc. 250, junior standing.

- 460. Labor Economics II.** 3 semester hours. Each semester and summer.

History and philosophy underlying labor legislation. Appraisal and evaluation of the economic, political, and social implications of federal and state labor legislation. Emphasis is placed on such recent federal statutes as the National Labor Relations Act and the Fair Labor Standards Act. Prerequisite: Econ. 455.

- 465. Labor Management.** 2 semester hours. Each semester and summer.

Problems of management for foremen and supervisors. Procedure in settling labor disputes and grievances; handling of employees, survey of employees' protective legislation; employee and employer relationships of several typical American industries. Prerequisite: Junior standing.

- 470. Public Finance.** 3 semester hours. Each semester and summer.

An analysis of federal, state, and local tax structures with a consideration of the principles and problems underlying specific revenue sources. Attention is given to problems of social security, intergovernmental fiscal relations, and tax shifting. Prerequisite: Econ. 110.

- 475. Monetary, Credit, and Fiscal Policies.** 3 semester hours. Second semester.

An analytical study of the influence of monetary, banking, tax, public expenditures, and public debt policies on general business activity and the price level; the utilization of such policies to maintain a stable economy. Prerequisite: Econ. 130.

- 480. Business Cycles.** 2 semester hours. First semester. Summer in odd-numbered years.
Types of business fluctuations; measurement of business cycles; theories of the causes of business cycles; proposals for stabilizing business activity; techniques of forecasting business activity. Prerequisite: Econ. 110.
- 485. International Trade.** 2 semester hours. Second semester. Summer in even-numbered years.
Economic principles underlying international trade and finance; governmental policies toward international trade; procedures in exporting and importing. Prerequisite: Econ. 110.
- 490. Principles of Transportation.** 3 semester hours. Second semester.
The historical development and economic importance of rail, motor, air, water, and pipe line transportation in the United States—routes, services, rates, public regulation. Prerequisite: Econ. 110.
- 495. Monopoly Problems.** 3 semester hours. First semester.
Economic problems and public policies relating to the growth of large scale industry and the concentration of economic power. Prerequisite: Econ. 110.
- 500. Economic Systems.** 2 semester hours. Each semester and summer.
A survey of economic systems, Marxian socialism and modern socialism, giving attention to English socialism, communism and to the essential characteristics of the free enterprise capitalistic system. Prerequisite: Econ. 110 and junior standing.
- 505. Intermediate Economics.** 3 semester hours. First semester. Summer in odd-numbered years.
Review of economic principles; advanced study of value and distribution theory. Prerequisite: Econ. 120.
- 510. Business Administration Summary.** 2 semester hours. Each semester and summer.
A course summarizing all the business and economic courses pursued in the business administration curriculum. Case problems are studied which require application of the principles developed in the different courses. Prerequisite: Open only to graduating seniors in Business Administration.
- 795. Problems in Economics.** Credit to be arranged. Each semester and summer.
Advanced study on an individual basis is offered in banking, finance, business organization and management, general economics, international trade, insurance, investments, marketing, and public finance. Prerequisite: Senior standing.

FOR GRADUATE CREDIT

- 810. History of Economic Thought.** 3 semester hours. First semester.
Development of economic idease and doctrines and the relation of these to conditions existing when they were formulated. Prerequisite: Econ. 110.
- 820. Advanced Economics.** 3 semester hours. Second semester. Summer in even-numbered years.
Advanced study of economic theory. Prerequisite: Econ. 120.
- 995. Research in Economics.** Credit to be arranged. Each semester and summer.
Research is offered in banking, finance, business organization and management, general economics, international trade, insurance, investments, marketing, and public finance. Prerequisite: At least two courses in economics.

COURSES IN ACCOUNTING

(For Agricultural Economics, see School of Agriculture.)

FOR UNDERGRADUATE CREDIT

- 300. Accounting I.** 3 semester hours. Each semester and summer.
Principles and structure of accounts designed to give power to analyze commercial accounts and statements; problems used as an application of principles to practice. Six hours of recitation and laboratory a week.
- 310. Accounting II.** 3 semester hours. Each semester and summer.
Partnership and corporation accounting and problems with special emphasis on payroll records and accounting. Six hours of recitation and laboratory a week. Prerequisite: Acctg. 300.
- 320. Intermediate Accounting.** 3 semester hours. Each semester and summer.
Application of accounting principles to corporations. Working papers, statement analysis, and basic accounting theory. Prerequisite: Acctg. 310.
- 330. Principles of Accounting.** 3 semester hours. Each semester and summer.
Principles of accounting; use of accounting records and statements for individual and corporate business organizations. Not open to students in Curriculum in Business Administration.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 725. Institutional Accounting.** 2 semester hours. Each semester and summer.
Accounting principles and their application to cafeteria, lunch and tea rooms, restaurants, dormitories, clubs, and other institutions. Two two-hour recitation and laboratory periods a week. Not open to students in Curriculum in Business Administration. Prerequisite: Inst. Mgt. 212.
- 730. Cost Accounting.** 3 semester hours. Each semester and summer.
Allocation of production costs to determine financial results and guide the management of business enterprises. Prerequisite: Acctg. 310 or 330.
- 735. Advanced Cost Accounting.** 2 semester hours. Second semester. Summer in odd-numbered years.
Standard distribution, estimated costs, and miscellaneous items. Prerequisite: Acctg. 730.
- 740. Valuation Accounting.** 3 semester hours. Each semester. Summer in even-numbered years.
Valuation of balance sheet accounts. Prerequisite: Acctg. 320.
- 745. Advanced Accounting.** 3 semester hours. First semester and summer.
Home office and branch accounting, consolidated statements, consolidations, mergers, and other special topics. Prerequisite: Acctg. 740 or concurrent enrollment.
- 750. Governmental Accounting.** 2 semester hours. First semester. Summer in even-numbered years.
State and municipal accounts and accounts for public institutions. Prerequisite: Acctg. 730 or 740.
- 755. Tax Accounting.** 3 semester hours. Second semester.
Accounting problems in federal and state income taxes, estate, gift, and other taxes. Prerequisite: Acctg. 730 or 740 or concurrent enrollment.

- 760. Specialized Accounting.** 3 semester hours. Second semester.
Specialized statements, estates and trusts, and other special topics.
Prerequisite: Acctg. 740.
- 765. Auditing I.** 3 semester hours. First semester. Summer in odd-numbered years.
Theory and procedure used in simple balance sheet audits. A short audit case will be used. Prerequisite: Acctg. 740 and consent of instructor.
- 770. Auditing II.** 3 semester hours. Second semester.
Theory and procedure used in more complex balance sheet and detailed audits. A long audit practice case and current literature will be used. Prerequisite: Acctg. 765 and consent of instructor.
- 775. Accounting Systems.** 3 semester hours. First semester.
Function, design, and installation of systems for various types of business. Prerequisite: Acctg. 745 and consent of instructor.
- 780. C. P. A. Problems.** 3 semester hours. First semester.
A study of problems given in various C. P. A. examinations. Prerequisite: Acctg. 745 and consent of instructor.
- 785. C. P. A. Review.** 3 semester hours. Second semester.
Review of theory of accounts, commercial law, and auditing as given in C. P. A. examinations. Prerequisite: Acctg. 745 and consent of instructor.
- 799. Problems in Accounting.** Credit to be arranged. Each semester and summer.
Prerequisite: Senior standing.

FOR GRADUATE CREDIT

- 999. Research in Accounting.** Credit to be arranged. Each semester and summer.
Prerequisite: At least three courses in accounting.

COURSES IN TYPEWRITING AND SHORTHAND

FOR UNDERGRADUATE CREDIT

- 360. Typewriting I.** 3 semester hours. Summer.
The technique of touch typewriting, care of the machine, and skill in operation. Ten hours of class and laboratory a week, with additional practice.
- 370. Typewriting II.** 3 semester hours. Summer.
Continuation of Typewriting I. Ten hours of class and laboratory per week, with additional practice. Prerequisite: Econ. 360.
- 380. Shorthand I.** 3 semester hours. Summer.
Introduction to Gregg shorthand. Ten hours of class and laboratory a week, with additional practice.
- 390. Shorthand II.** 3 semester hours. Summer.
Continuation of Shorthand I. Ten hours of class and laboratory per week, with additional practice. Prerequisite: Econ. 380 or equivalent.

COURSES IN SOCIOLOGY

(For Agricultural Economics, see School of Agriculture.)

- 250. Sociology.** 3 semester hours. Each semester and summer.
A study of the development, structure, and functioning of human groups; social and cultural patterns; and the principal social processes. Prerequisite: Sophomore standing.
- 260. Courtship and Marriage.** 2 semester hours. Each semester.
Basic principles and problems which pertain to ideal family life.

- 270. Introduction to Social Work.** 3 semester hours. Second semester.
A survey of the fields of social work, the relationship of social work to other social developments and vocational opportunities. Prerequisite: Soc. 250.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 625. Social Pathology.** 3 semester hours. Each semester and summer.
Problems of personal and social disorganization; poverty, crime, delinquency, immigration, family discord, and group conflict. Prerequisite: Soc. 250.
- 627. Criminology.** 3 semester hours. First semester in odd-numbered years.
Nature, extent, and causes of crime; programs for prevention and treatment. Prerequisite: Soc. 250.
- 630. Sociology of the Family.** 3 semester hours. First semester.
Origin and development of marriage customs and systems of family organizations; the preparation for family life under present conditions. Prerequisite: Soc. 250.
- 635. Community Organization and Leadership.** 3 semester hours. Second semester and summer.
Organizations working in communities; personal qualities of leaders; principles and techniques of leadership. Prerequisite: Soc. 250 or 290.
- 640. Population and Human Ecology.** 2 semester hours. First semester.
Early theories, policies, growth, composition, spatial aspects, movements, and population trends. Prerequisite: Six hours of sociology or economics or history.
- 645. Urban Sociology.** 3 semester hours. First semester.
Growth, development, and structure of the city as determined by geographical, ecological, and social factors; relation of rural and urban communities; problems of the city and various approaches to their solution. Prerequisite: Soc. 250.
- 647. Industrial Sociology.** 3 semester hours. Second semester.
Human relations in industry, interrelationships of industry and the social order. Prerequisite: Soc. 250.
- 650. Cultural Anthropology.** 3 semester hours. Each semester and summer.
Human and social origins; origin, nature, and diffusion of culture; cultural backgrounds of social institutions. Prerequisite: Soc. 250.
- 655. Social Systems.** 3 semester hours. First semester and summer.
Comparison of social systems in the Orient, Middle East, Europe and the Americas. Prerequisite: Soc. 250.
- 660. Social Organization of the Great Plains.** 3 semester hours. First semester in odd-numbered years.
The Great Plains as a cultural region; cultural adaptation, problems of the region, and forms of social organization. Prerequisite: Soc. 250 and three additional hours in sociology.
- 665. Methods in Social Research.** 3 semester hours. First semester and summer.
Development, use, and interpretation of findings of the case method, social survey, and other techniques of social investigation. Prerequisite: At least two courses in sociology.
- 670. Social Institutions.** 3 semester hours. Second semester.
The development and character of the major social institutions in contemporary American society; functions, interrelationships and trends. Prerequisite: Soc. 250.

- 675. Development of Social Thought.** 3 semester hours. First semester. Development of social thought from ancient civilization to the present. Prerequisite: Soc. 250.
- 680. Seminar in Sociology.** 2 semester hours. Second semester. Summarization and integration of courses in sociology. Prerequisite: Senior standing and nine hours of sociology.
- 797. Problems in Sociology.** Credit to be arranged. Each semester and summer. Prerequisite: Consent of instructor, and six hours of sociology.

FOR GRADUATE CREDIT

- 997. Research in Sociology.** Credit to be arranged. Each semester and summer. Prerequisite: At least two courses in sociology.

EDUCATION

FINIS M. GREEN, *Head of Department*

TEACHING CERTIFICATES

The present certificate law, which was enacted by the Kansas legislature in 1947, provides that all certificates will be issued by the State Superintendent of Public Instruction under plans approved by the State Board of Education. The provisions of this certificate law made it necessary to revise certificate regulations. These new regulations were printed in the Certificate Handbook under date of January 3, 1951. The applicant for a teaching certificate is charged with the responsibility of (1) filing the regular application form, (2) providing an official transcript of college credits, (3) attaching correct fee to the application form, and (4) requesting that a recommendation signed by the head of the Department of Education be forwarded to the Director of Certification and College Accreditation, State Department of Public Instruction. The recommendation which is required will take into account these factors: health, both physical and mental; speech habits; general education; preparation in teaching fields; and preparation in professional education courses.

Kansas State College offers curricula for teachers so that they may qualify for these certificates: Sixty-hour, Sixty-hour Provisional, Degree Elementary, Secondary, Administrator's Provisional, Administrator's Five-Year, Counselor's Provisional, Counselor's Five-Year, Special Music, and Limited Special Music.

Each candidate for an original teaching certificate and each candidate for a renewal of a teaching certificate should maintain a close working relationship with the Department of Education as he plans his preparation for teaching in the elementary, secondary, guidance, and administrative fields. In order to give additional counsel to students planning to teach at the secondary level, special advisors are available in the following subject fields: Agriculture, Art, Biological Science, Commerce, English, Home Economics, Industrial Arts, Mathematics, Music, Physical Education, Physical Science, and Social Science.

PLACEMENT BUREAU

Through the Bureau of Teaching Appointments, Kansas State College students and graduates are assisted in finding suitable teaching and administrative positions. A leaflet explaining the nature and requirements of the service is available from the Bureau in Room 102, Holton Hall.

COURSES IN EDUCATION

FOR UNDERGRADUATE CREDIT

- 100. Educational Psychology I: Pupil Development.** 3 semester hours. Each semester and summer.

Physical, intellectual, emotional, social, and personality development from conception to adulthood; understanding of these phases of development and their importance for education essential as background for those desiring to enter the teaching profession. Prerequisite: Psych. 310.

105. Educational Psychology II: Learning. 3 semester hours. Each semester and summer.

The learning process with special emphasis on the school environment, the teacher, and the evaluation of school learning. Prerequisite: Educ. 100; sophomore standing.

120. Principles of Secondary Education. 3 semester hours. Each semester and summer.

Junior and senior high school organization and objectives, their genesis and curriculum trends, characteristics of student population, and Kansas legal status and practice. Prerequisite: Educ. 105, junior standing, and a point average of 1.0 or better in all course work.

135. Methods of Teaching in the Secondary School. 3 semester hours. Each semester.

General principles of teaching applied to high school instruction; selection and organization of teaching materials, individual adaptation, organization, and management of classroom. Prerequisite: Educ. 120 and senior standing.

150. Teaching Participation in the Secondary School. Credit to be arranged. Each semester and summer.

Observation and teaching under direction of regular teachers in Manhattan junior and senior high schools, in other than vocational fields. Appointments must be arranged at time of registration and general arrangements made previous to semester. Prerequisite: Educ. 120, consent of instructor, and a point average of 1.5 or higher in all course work in the teaching fields.

165. Methods and Teaching Participation in the Secondary School. 6 semester hours. Each semester.

A combination of Educ. 135, 150. Prerequisite: Educ. 120, senior standing, and a point average of 1.5 or higher in all course work in the teaching fields.

180. The Secondary School Pupil. 3 semester hours.

Psychological, biological, and social characteristics and development of the child and adolescent, particularly for secondary school teachers and administrators. Open only to students preparing to teach in junior or senior high school. Not available to students with credit in Psych. 615. Prerequisite: Psych. 310.

195. General Methods for Elementary Teachers. 3 semester hours.

Fundamentals of teaching and classroom management in elementary schools to meet requirements for emergency and regular elementary certificates. Prerequisite: Psych. 310.

210. Essentials of Reading. 3 semester hours.

For persons preparing to teach in the elementary schools of Kansas under the sixty-hour certificate. Prerequisite: Educ. 105; sophomore standing.

225. Teaching Participation in Elementary Schools. Credit to be arranged.

Observation and teaching in Manhattan elementary schools under direction of regular teachers, to meet elementary certificate requirements of those who wish to teach before finishing work for a degree from Kansas State College. Appointment must be made at the time of registration. Prerequisite: Psych. 310.

240. Methods of Teaching Industrial Arts. 3 semester hours. First semester.

Methods of teaching, lesson planning, organization of subject matter, and class projects applied to general shop work, woodworking, sheet metal, arc and oxyacetylene welding, machine shop practice, motor mechanics, and other industrial arts subjects. Prerequisite: Educ. 120 and consent of instructor.

246. Teaching Participation in Music. Credit to be arranged. Each semester and summer.

Observation and teaching under direction in the Manhattan schools. Appointments must be made at the time of registration for the semester and general arrangements made previous to the semester. Prerequisite: Educ. 105, Mus. 120.

300. Principles of Elementary Education. 3 semester hours. Each semester and summer.

An over-all view of the elementary school; organization, management, purposes, curriculum trends, and pupil characteristics. Prerequisite: Educ. 105.

350. Science in the Elementary School. 3 semester hours. Each semester and summer.

The relationships among nature, environment, and elementary science in their role in childhood education; resources and activities suitable to the elementary school. Prerequisite: Educ. 300 or consent of instructor.

355. Reading and the Language Arts. 3 semester hours. Each semester and summer.

Modern trends in the teaching of reading, oral language, composition, writing, and spelling. Prerequisite: Educ. 300 or consent of instructor.

360. Social Studies in the Elementary School. 3 semester hours. Each semester and summer.

Course of study content as a basis for consideration of modern classroom procedures; the objectives and problems in the teaching of social studies. Prerequisite: Educ. 300 or consent of instructor.

390. Methods, Materials, and Teaching Participation in the Elementary School. 6 semester hours. Each semester and summer.

Opportunities for consideration of teaching techniques, materials, and subject matter used by effective elementary school teachers; observation and teaching participation under the direction of competent elementary teachers. Prerequisite: Educ. 300.

FOR UNDERGRADUATE AND GRADUATE CREDIT

405. Statistical Methods in Education and Psychology. 3 semester hours. Each semester and summer.

Nature of measurement in education and psychology, organization of data, computation and interpretation of basic statistics, and sampling methods and theory. Prerequisite: Sophomore standing and six hours of education or psychology. Not open to students who have credit in Math. 320, 725.

410. Educational Measurement. 3 semester hours. First semester and summer.

Scientific measurement and evaluation of educational outcomes and their use as teaching tools. Prerequisite: Educ. 405; senior standing.

415. Educational Sociology. 3 semester hours. Each semester and summer.

Development of the meaning of American democracy; social and classroom activities of the public schools as a means of building social-

ized personality traits; development of a workable plan for practicing democracy in the public schools. Prerequisite: Educ. 120; junior standing.

- 420. Principles and Practices of Guidance.** 3 semester hours. Each semester and summer.

Need and nature of guidance; functions; personnel; their duties and relations; programs and evaluation of results. Prerequisite: Educ. 120 or 12 semester hours in psychology.

- 440. Audio-Visual Aids in Instruction.** 2 or 3 semester hours. Summer.

Principles and technics in the use of visual and audio-visual materials, operation and maintenance of equipment, and sources of supply. Prerequisite: Educ. 150 or concurrent enrollment.

- 445. Curriculum Development.** 3 semester hours. Summer.

Requirements of modern life upon schools and their objectives; examination of the entire school curriculum. Prerequisite: Twelve hours in education; senior standing.

- 450. Junior High School.** 2 or 3 semester hours. Summer.

Origin, objectives, program, and administration of the junior high school, and relations with lower and higher education units. Prerequisite: Teaching experience.

- 455. Extraclass Activities.** 3 semester hours. Each semester and summer.

Organization, sponsorship, and objectives of clubs, publications, athletics, dramatics, musical organizations, assemblies, home room, and student council in junior and senior high school. Prerequisite: Six hours of education; senior standing.

- 460. Extension Organization and Policies.** 3 semester hours. Second semester.

Development and objectives of extension work; organization and administration of extension service, with special emphasis on extension service in Kansas. Prerequisite: Senior standing; juniors by consent of instructor.

- 465. Methods in Citizenship Education.** 3 semester hours. Each semester and summer.

Aims of an educational program for the training of future citizens and methods of carrying it out; selection of material; classroom procedure; use of visual aids; planning related extracurricular activities, observation opportunities; etc. Prerequisite: Junior standing or consent of instructor.

- 470. Music Supervision.** 2 semester hours. (See Mus. 415.)

- 485. Philosophy of Education.** 3 semester hours. Second semester and summer.

Controlling and unifying philosophy of the American public school system and its European background. Prerequisite: Educ. 120; senior standing.

- 600. Research Methods and Treatment of Data.** 3 semester hours. First semester and summer.

Principles of research in education and psychology; nature, organization, and presentation of research data; basic statistical computations and interpretations; selection of research problems. Prerequisite: Six hours in education or psychology.

- 625. Psychology of Exceptional Children I.** 3 semester hours. (See Psych. 625.)

- 655. Mental Hygiene.** 3 semester hours. (See Psych. 655.)

- 730. Occupational Information.** 2 semester hours. (See Psych. 730.)

- 755. Guidance Practicum.** 3 semester hours. Each semester and summer.

Supervised experience in guidance services in secondary schools; preparation and use of pupil personal records, tests, provision and use of occupational and educational information, counseling, placement and follow-up, and use of school and community personnel and resources. Prerequisite: Educ. 410, 420, Psych. 685; senior standing.

795. Problems in Education. Credit to be arranged. Each semester and summer.

Work is offered in agricultural education, educational administration, educational measurement, educational psychology, educational sociology, extension education, guidance, home economics education teaching methods, statistical methods, and vocational education. Prerequisite: Educ. 120 and approval of instructor.

805. General School Administration. 3 semester hours. Second semester and summer.

Basic philosophy and objectives of education and their application to national, state and local organization; including problems of policy making and general administration. Intended primarily for school administrators. Prerequisite: At least one year of teaching experience.

810. Local School Administration. 2 or 3 semester hours. Summer.

Relations of the school administrator with the board of education, teaching staff, and community. Prerequisite: Teaching experience.

815. Secondary School Administration. 3 semester hours. Summer.

Aims and functions of junior and senior high schools and junior colleges; problems in the progress of studies, extra-class activities, pupil accounting, community relations and articulation with other schools. Prerequisite: At least one year of teaching experience.

820. School Business and Finance. 3 semester hours. Summer.

Professional preparation primarily for public school superintendents and persons planning to enter that work. Prerequisite: At least one year of teaching experience.

825. County, State, and Federal School Administration and Support. 2 or 3 semester hours. Summer.

Problems of school population and relations of county, state, and federal government to school organization, administration and support. Prerequisite: At least one year of teaching experience.

830. The School Plant. 3 semester hours. Summer.

Determination and provisions of building and other plant needs by the local public school district, including planning, financing, construction and utilization. Prerequisite: At least one year of teaching experience.

835. Supervision and Improvement of Instruction. 3 semester hours. Summer.

A provisional course primarily for public school superintendents and persons planning to enter that work. Prerequisite: At least one year of teaching experience.

840. Problems and Procedures in Educational Research. 2 or 3 semester hours. Second semester and summer.

A study of successful research in education and psychology designed to develop skill in the discovery and planning of research problems and in the selection of appropriate methods and techniques for their solution. Prerequisite: Nine semester hours of graduate work.

845. School—Public Relations. 2 or 3 semester hours. Summer.

A course primarily for school administrators. Prerequisite: At least one year of teaching experience.

850. Adult Education. 2 or 3 semester hours.

Objectives, program, facilities, procedures, and problems of adult education in a community, emphasizing the relation of school adminis-

trators and extension staff to this work. Prerequisite: Psych. 310 or one year of field experience; approval of the instructor.

855. Organization and Administration of the Guidance Program. 3 semester hours. Summer.

Staff, facilities, tools, and techniques of the school and community in an organized guidance program. Primarily for persons working to qualify for the Counselor's Five-Year Certificate. Prerequisite: Educ. 420 and at least one year of teaching experience.

860. Practicum in School Administration. 3 to 6 semester hours. Each semester.

Supervised on-the-job experience in school administration. Prerequisite: Kansas School Administrator's Certificate.

995. Research in Education. Credit to be arranged. Each semester and summer.

Work is offered in agricultural education, educational administration, educational measurement, educational psychology, educational sociology, guidance, home economics education, teaching methods, statistical methods, and vocational education. Prerequisite: At least two courses in this department and approval of instructor.

COURSES IN AGRICULTURAL EDUCATION

A. P. DAVIDSON, *Special Adviser*

FOR UNDERGRADUATE CREDIT

255. Methods of Teaching Agriculture. 3 semester hours. Each semester.

Lesson plans; organization of materials and direction of class, laboratory and field instructional work in vocational agriculture; individual farming programs and class and group activities; co-ordination of farm mechanics work; administration, organization, and co-ordination of the Future Farmers of America organization with the program of instruction in vocational agriculture. Prerequisite: Educ. 105.

265. Teaching Participation in Agriculture. 3 semester hours. Each semester.

Three weeks of observation and directed teaching in vocational agriculture classes in the 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 agriculture teacher. Prerequisite: Educ. 255.

FOR UNDERGRADUATE AND GRADUATE CREDIT

505. Vocational Education. 3 semester hours. Each semester and summer.

Provision for vocational education in Kansas and other states and countries; principles underlying such education; relation of vocational education to the community, county, state, and nation. Prerequisite: Educ. 105.

510. Teaching Part-time and Adult Classes in Agriculture. 3 semester hours.

Organization and preparation of materials, and methods used in teaching part-time and adult classes in vocational education in agriculture for young farmers and adults. Departments are visited for evaluation of programs and results. Prerequisite: Educ. 505.

515. Technics in Agricultural Education. 3 semester hours.

Teaching in the field of vocational education in agriculture; the agricultural curriculum; courses of study; farming programs and supervision; laboratory and field instruction; sources, selection, preparation, and use of audio-visual instructional material. One hour of recitation and six hours of laboratory a week. Prerequisite: Educ. 505.

520. Administration and Supervision of Secondary Schools. 2 semester hours.

Problems of organization, administration, and supervision which cover 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. Prerequisite: Educ. 120.

525. Administration and Supervision of Vocational Education. 2 semester hours.

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 which offers vocational education. Problem basis of treatment is used. Prerequisite: Educ. 120 or 805.

530. Project Method in Agricultural Education. 2 semester hours.

Intensive treatment of values, analysis, accounting, supervision, types, results, records, and reports of projects. Conducted on the problem basis. Prerequisite: Educ. 265.

535. Problems in Evening School Classes. 2 semester hours.

Problems in organization, curriculum, and methods of teaching evening schools and classes sponsored by the national Vocational Education Act. Designed for teachers in service. Prerequisite: Graduate standing and one year of experience teaching vocational agriculture.

540. Organization and Conduct of Group Activities. 2 semester hours.

Fundamentals and principles on which productive class projects should be organized; research and field work in class project study. Prerequisite: Educ. 505.

555. Community Problems in Vocational Agriculture. 2 semester hours.

Methods, organization, and conduct of club work, junior project work, class and community projects in general. Conducted on the problem basis and designed specifically for teachers, supervisors, and directors of agricultural work. Prerequisite: Consult instructor.

560. Organization Problems in Teaching Farm Mechanics. 2 semester hours.

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; determination of objectives. Prerequisite: Educ. 265.

FOR GRADUATE CREDIT

905. Statistical Methods in Agricultural Education. 2 semester hours.

Less comprehensive treatment of topics covered in Educ. 405, with emphasis on the special needs of vocational agriculture teachers. Not open to students who have credit in Math. 320, 625, or 730.

910. Problems in Part-time Classes. 2 semester hours.

Organization, curriculum, and methods of teaching part-time classes sponsored by the national Vocational Education Act. Designed for teachers in service. Prerequisite: One year of experience teaching vocational agriculture.

915. Workshop in the Teaching of Vocational Agriculture. 2 or 3 semester hours. Summer.

Securing and organizing information and planning teaching activities which will help the beginning vocational agriculture teacher. Prerequisite: Graduation from the curriculum in Agricultural Education.

920. Workshop in the Vocational Agriculture Curriculum I. 2 or 3 semester hours. Summer.

Curriculum problems; planning local programs of vocational agriculture; developing facilities and plans for meeting current and ad-

vanced problems in the teaching of vocational agriculture. Prerequisite: One years of teaching vocational agriculture.

- 925. Workshop in the Vocational Agriculture Curriculum II.** 2 or 3 semester hours. Summer.

A continuation of Educ. 920.¹ Prerequisite: Educ. 920 or consent of instructor.

COURSES IN HOME ECONOMICS EDUCATION

LUCILE RUST, *Special Adviser*

FOR UNDERGRADUATE CREDIT

- 275. Methods of Teaching Home Economics.** 3 semester hours. Each semester and summer.

The selection, organization, and presentation of courses and lessons in home economics for high-school pupils. Prerequisite: Clo. Text. 450, Fds. Nutr. 110, 240; Educ. 105 or concurrent enrollment.

- 285. Methods of Teaching for Dietetic Students.** 3 semester hours. Second semester.

Principles of teaching applied to selection, organization, and development of subject matter for individual and courses taught by dietitians. Prerequisite: Inst. Mgt. 220 or Fds. Nutr. 516, or concurrent enrollment.

- 295. Teaching Participation in Home Economics.** 3 to 5 semester hours. Each semester and summer.

Supervised observation and teaching carried on in the Home Economics classes of the Manhattan High School and other selected state high schools. Prerequisite: Completion of one home project and Educ. 275.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 575. Vocational Home Economics Curriculum.** 3 semester hours. Each semester and summer.

Philosophy and principles of vocational education as applied to home economics; characteristics of the high school vocational home economics curriculum; planning and supervising the home project program; sponsoring the F. H. A. chapter; and developing teaching guides for the various courses. Prerequisite: Educ. 275 or concurrent enrollment.

- 585. Methods in Adult Homemaking Classes.** 1 to 3 semester hours. Summer.

Principles of teaching applied to adult classes; a demonstration class in one or more phases of homemaking. Prerequisite: Educ. 275 or equivalent.

- 595. Extension Methods for Home Economics.** 3 semester hours. Second semester.

Recommended methods for extension work; application of these methods to subjects in Home Economics. Prerequisite: Senior standing; juniors by consent of instructor.

FOR GRADUATE CREDIT

- 930. Organization and Presentation of Home Economics.** Credit to be arranged. Each semester and summer.

- 935. Research in Organization and Presentation of Home Economics.** Credit to be arranged. Each semester and summer.

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.

- 940. Supervision in Home Economics.** 2 semester hours. Second semester and summer.

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; and course of study. Prerequisite: Educ. 295 and experience in teaching home economics.

- 945. Seminar in Home Economics.** 2 or 3 semester hours. Second semester and summer.

Recent trends in home economics education. Prerequisite: Educ. 295 and experience in teaching home economics.

ENGLISH

EARLE R. DAVIS, *Head of Department*

A major program may be selected from either the English or American courses offered. The general requirement is 30 semester hours subsequent to Engl. 125 and 135 or 140. These courses should be selected in consultation with the head of the department or major adviser.

A minor program should include 15 semester hours in addition to Engl. 125 and 135 or 140. These courses may be selected from Engl. 215 and 225 or 245 and 255; also three courses from Engl. 405, 465, 535, 555, 590, and 640.

COURSES IN ENGLISH

FOR UNDERGRADUATE CREDIT

- 025. Remedial English.** No credit. Each semester and summer.

Required of juniors and seniors who have twice failed English Proficiency.

- 090. English Proficiency.** Each semester and summer.

An examination to test the ability of the prospective graduate to write an expository essay logical in form and acceptable in grammar and diction. Required for graduation in all schools. Prerequisite: Junior standing.

- 115. Written Communications IA.** 3 semester hours. Each semester and summer.

For students whose English entrance tests are not satisfactory. Five hours of recitation a week.

- 125. Written Communications I.** 3 semester hours. Each semester and summer.

Prerequisite: Satisfactory entrance test.

- 135. Written Communications II.** 2 semester hours. Each semester and summer.

Prerequisite: Engl. 115 or 125.

- 140. Written Communications IIB.** 3 semester hours. Each semester and summer.

Not open to students who have credit in Engl. 135. Prerequisite: Engl. 115 or 125.

- 155. Commercial Correspondence.** 3 semester hours. Each semester and summer.

Writing of adjustment, credit, collection, and sales letters; principles of effective commercial writing. Prerequisite: Engl. 135.

- 165. Written and Oral Salesmanship.** 3 semester hours. Each semester.

Writing of follow-up systems of sales letters; composition and display of circular material and catalogues; principles of advertising and psychology of selling; sales talks; actual sales practice with commercial concerns. Prerequisite: Engl. 135.

- 215. English Literature I.** 3 semester hours. Each semester and summer. Prerequisite: Engl. 135.
- 225. English Literature II.** 3 semester hours. Each semester and summer. Prerequisite: Engl. 135.
- 310. Books and Men I.** 3 semester hours. First semester. Introduction to great world classics from present to past: Hemingway and Homer; Lewis, Dickens, and Chaucer; Warren and Shakespeare.
- 320. Books and Men II.** 3 semester hours. Second semester. Continuation of Engl. 310: Faulkner, Conrad, and Maugham; Huxley, Swift, and Voltaire; Shaw, the Bible, and Dante.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 405. Advanced Grammar.** 3 semester hours. Each semester and summer. English etymology, inflections, syntax, and modern English and American usage. For graduate credit, reports on problems in modern English grammar. Prerequisite: Engl. 135.
- 415. Advanced Composition I.** 3 semester hours. First semester. Subjects selected from the student's particular field of work; exposition of mechanisms, processes, and general expository writing. Prerequisite: Engl. 135.
- 425. Advanced Composition II.** 3 semester hours. Second semester. Narrative writing both in its relation to the other forms of composition and as an independent form. Direction and criticism of thesis work is offered to graduate students. Prerequisite: Engl. 135.
- 435. Technical Reports.** 1 semester hour. Each semester. Organization and writing of technical reports to accompany certain courses in engineering specified by heads of engineering departments. Prerequisite: Engl. 135.
- 444. Scientific Report Writing.** 2 semester hours. Each semester. Preparation of scientific reports in engineering, chemistry, physics, geology, and other technical fields. Letters of authorization and submittal. Adaptation of written reports for oral presentation or for publication in technical journals. Prerequisite: Junior standing in technical field.
- 450. Creative Writing.** 3 semester hours. Each semester. Writing and manuscript market study. Prerequisite: Engl. 425 or permission of the instructor.
- 455. Oral English.** 3 semester hours. Each semester and summer. Oral composition as applied to conversation and informal discussions; correction of errors in grammar, pronunciation, and idiom in everyday speech; a brief history of English sounds. Investigations in phonology for graduate students. Prerequisite: Engl. 135.
- 465. History of the English Language.** 3 semester hours. First semester. Nature of language and its development; English language and its use in the United States. Prerequisite: For undergraduate, consent of the instructor; for graduate, Engl. 245.
- 470. Literature for Children.** 3 semester hours. First semester and summer. Selecting, reading, and evaluating books for children; training in story-telling and oral reading; selection of records correlated with literature. For teachers of elementary grades and students of child guidance. Prerequisite: Engl. 135. For graduate credit, reports arranged in conference with the instructor.

- 476. Literature for Adolescents.** 3 semester hours. Second semester and summer.
Selecting, reading, and evaluating books for adolescents; training in oral reading and selection of records correlated with literature. For teachers in the junior and senior high schools and students of guidance for adolescents. Prerequisite: Engl. 215. For graduate credit, reports arranged in conference with instructor.
- 485. Modern Thought in Recent Literature.** 3 semester hours. Each semester.
Trends in thought, of especial interest to women, in British and American literature since 1914. Prerequisite: Engl. 215.
- 495. Chaucer.** 3 semester hours. First semester.
Prerequisite: Engl. 215.
- 505. English Survey I.** 2 semester hours. First semester.
History of English literature from Anglo-Saxon times down to the close of the Elizabethan period. Prerequisite: Engl. 245.
- 515. English Survey II.** 2 semester hours. Second semester.
Rise of Puritanism and its influence on English literature; classical movement; romanticism and its development. Prerequisite: Engl. 245.
- 520. Arthurian Legends in Medieval English Literature.** 3 semester hours. Second semester.
Chronicles, religious work, romances, and tales from the literature between 1066 and 1500, excluding Chaucer. Prerequisite: Engl. 215.
- 525. Seventeenth Century Poetry and Prose.** 3 semester hours. First semester.
A survey of the principal nondramatic writers, apart from Milton; 1600-1660, with emphasis on Donne and the Metaphysicals. Prerequisite: Engl. 215.
- 535. Eighteenth Century Poetry and Prose.** 3 semester hours. Second semester and summer.
Masterpieces of poetry, drama, fiction, and biography of the 18th century, including Pope, Johnson, Defoe, Swift, Addison and Steele, Fielding, Goldsmith, and Sheridan. Prerequisite: Engl. 215.
- 555. Shakespearean Drama I.** 3 semester hours. First semester.
Life and times of Shakespeare; five of Shakespeare's tragedies: Macbeth or Othello, Hamlet, King Lear, Romeo and Juliet, and Coriolanus. Prerequisite: Engl. 215.
- 565. Shakespearean Drama II.** 3 semester hours. Second semester.
Five of Shakespeare's comedies: The Winter's Tale, As You Like It, Twelfth Night, Cymbeline, and The Tempest; collateral reading of earlier, contemporary, and Shakespearean comedy; present-day criticism of Shakespeare. Prerequisite: Engl. 215.
- 575. Milton and the Puritan Revolt.** 3 semester hours. Second semester.
Prerequisite: Engl. 215.
- 585. Wordsworth, Shelley, and Keats.** 3 semester hours. First semester.
Prerequisite: Engl. 215.
- 595. Browning and Tennyson.** 3 semester hours. Second semester.
Prerequisite: Engl. 215.
- 625. Novel I.** 3 semester hours. First semester.
Prerequisite: Engl. 215.
- 635. Novel II.** 3 semester hours. Second semester.
Prerequisite: Engl. 215.
- 640. Biography.** 3 semester hours. First semester.
Biographical writing from antiquity to the present time, including Plato, Plutarch, Boswell, Trevelyan, Lockhardt, Forster, and Freeman. Prerequisite: Engl. 225.

- 645. Contemporary Fiction.** 3 semester hours. First semester and summer.

The more important British and American fiction since Hardy. Prerequisite: Engl. 215.

- 655. Contemporary Drama.** 3 semester hours. Second semester.

Development of the drama since Ibsen; types of modern drama; works of important English, Irish, and American dramatists. Prerequisite: Engl. 215.

- 675. World Classics I.** 3 semester hours. First semester.

Literary masterpieces (in translation) of early times, particularly Greek and Latin classics. Prerequisite: Engl. 215.

- 685. World Classics II.** 3 semester hours. Second semester.

Literary masterpieces (in translation) of western Europe, particularly Italian, Spanish, French, and German writings. Prerequisite: Engl. 215.

- 799. Problems in English.** Credit to be arranged. Each semester and summer.

Work offered in: Chaucer and Shakespeare, classical epics, Midwestern literature, modern drama and fiction, novel and short story, old and middle English, romantic revival, sketch and column writing, and scientific report writing. Prerequisite: Engl. 135.

FOR GRADUATE CREDIT

- 999. Research in English.** Credit to be arranged. Each semester and summer.

Work offered in: Chaucer and Shakespeare, classical epics, Midwestern literature, modern drama and fiction, novel and short story, old and middle English, scientific report writing, and sketch and column writing. Prerequisite: At least two courses in this department.

COURSES IN AMERICAN

FOR UNDERGRADUATE CREDIT

- 245. American Literature I.** 3 semester hours. Each semester and summer.

Prerequisite: Engl. 135.

- 255. American Literature II.** 3 semester hours. Each semester and summer.

Prerequisite: Engl. 135.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 480. American Short Story.** 3 semester hours. Second semester and summer.

The sketches and stories of Irving, Hawthorne, Poe, and their successors, to Hemingway and Faulkner. The short story as literature. Prerequisite: Engl. 225 or 255.

- 590. Romanticism in America.** 3 semester hours. First semester and summer.

Prose and poetry of Emerson and Thoreau, transcendentalism, the romanticism of Hawthorne, Poe, and Melville. Prerequisite: Engl. 225 or 255.

- 605. Midwestern Literature.** 3 semester hours. First semester.

Literature of the Middle West, particularly Kansas and the surrounding territory; its background, authors, and literature since the close of the Civil War. Prerequisite: Engl. 215.

- 610. Hawthorne and Melville.** 2 semester hours. Second semester.

Prerequisite: Engl. 225.

- 615. American Folklore and Folk Literature.** 3 semester hours. Each semester and summer.
Folk tales, heroes, ballads, with the literature developed from folk beginnings; Mark Twain, Bret Harte, Carl Sandburg, Stephen Vincent Benet, Mark Connally. Prerequisite: Engl. 215.
- 620. Mark Twain and Henry James.** 2 semester hours. First semester.
Prerequisite: Engl. 225.
- 650. American Theater Triumphant.** 3 semester hours. Second semester and summer.
Ascendancy of American drama from O'Neill and Anderson to Miller and Williams. Prerequisite: Engl. 225 or 255.
- 666. Twentieth Century American Poetry.** 3 semester hours. Each semester and summer.
Development of American poetry from Robinson and Frost to Eliot and the present time. Prerequisite: Engl. 225 or 255.
- 670. Twentieth Century American Novel.** 3 semester hours. First semester and summer.
Modern American novel from Dreiser to Hemingway. Prerequisite: Engl. 225 or 255.
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GENERAL STUDIES

(Formerly Comprehensive Courses)

EARL E. EDGAR, *Head of Department*

The courses in general studies are designed to cover the whole field of human knowledge and to integrate the subfields in specific areas of: (1) Physical Science; (2) Biological Science; (3) Social Science; and (4) the Humanities. Since these four areas, together with communications and mathematics, are by definition all inclusive, it follows that any particular field of study must lie in some one or more of these areas. At Kansas State College, curriculums which require introductory courses in one or more of the four areas are not expected to include the general studies course in that area. The general studies courses are intended to be introductory in nature, and also terminal in the sense that the student, who is required to take a particular general studies course, is not required to take more courses in the same area. These courses are expected to integrate and tie together the component parts of the field covered. The following descriptions explain in more detail the content of the courses.

- 110. Man's Physical World I.** 4 semester hours. First semester.
Prerequisite: High school mathematics as required for admission in curriculum in which student is enrolled.

- 120. Man's Physical World II.** 4 semester hours. Second semester.
Prerequisite: Gen. Stud. 110.

These courses cover all the nonliving phases of man's total environment. They are designed to provide students with a brief working knowledge of the subject matter of the physical science fields commonly designated as astronomy, geology, physics and chemistry. They are formulated on the concept that the fundamental building units of the universe are atoms, parts of atoms and combinations of atoms. The physics and chemistry of the universe of stars and galaxies are basic to astronomy, in which we have a superlative example of the vastness of space. The physics and chemistry of the earth's rocks and minerals are basic to geology, and in geologic history we have an example of the vast expanse of past time. The ultimate objective is to give the student an integrated picture of the physical world in which man lives.

- 150. Biology in Relation to Man I.** 4 semester hours. Each semester.

160. Biology in Relation to Man II. 4 semester hours. Each semester.

Prerequisite: Gen. Stud. 150.

Fundamental relationships between plants and animals and other environmental factors. The structure of representative plants and animals, including man, is presented in some detail so that growth, food manufacture and utilization, reproduction, digestion, assimilation, circulation, respiration, and other life processes may be understood and their importance appreciated; also the relationship of structure to heredity and behavior. Principles which govern the classification and identification of various plants and animals are studied. The economic importance, both positive and negative, of plants and animals is considered; the relation of lower plants and animals to food production, food destruction, disease in lower plants and animals, and how these ravages may be controlled; the utilization, propagation, and conservation of plants and animals useful to man; and finally, a detailed study of man himself—his anatomy, functioning, heredity, and future as a member of the community and the nation. Life is interpreted as an integrative process which results in a dynamic whole.

210. Introductory Social Science I. 4 semester hours. Each semester.**220. Introductory Social Science II.** 4 semester hours. Each semester.

Prerequisite: Gen. Stud. 210.

These courses present an integrated study of man-in-society. Social institutions and social processes are examined with the purpose of giving the student an opportunity to understand the fundamental characteristics of society. The evolving character of social relationships is considered by investigating social organization in its various aspects. The presentation of social problems is made with the aim of suggesting alternatives by which the student is allowed to draw his own conclusions, emphasizing that his decisions as a member of society will determine social policy. The concluding portion of the second course deals with world society with special attention being given to America's place in a world society. No attempt is made to keep the traditional disciplines of the social sciences separate and compartmentalized. Rather the conscious effort has been to examine the social influences in their totality as such influences bear upon man-in-society. The courses are intended to develop a keen sense of the responsibilities and duties of a member of society and a desire to participate actively and constructively in the affairs of society.

250. Man and the Cultural World I. 4 semester hours. Each semester.**260. Man and the Cultural World II.** 4 semester hours. Each semester.

Prerequisite: Gen. Stud. 250.

An orientation to the world's cultures, approached from the standpoints of each culture's history, philosophy and religion, literature, music, art, and architecture. Emphasis is laid upon the outstanding phases of western culture and civilization from primitive times until the present day. Primary attention is directed to the following phases of culture: (1) Primitive Phase: Simple culture of the Stone Age, and complex cultures of Egyptians, Babylonians, and ancient Americans; (2) Classical Phase: Cultures of Semites, Persians, Indians, Chinese, Greeks and Romans; (3) Post-Classical or Medieval Phase: Cultures of Europeans, Byzantines, Moslems, Hindus, and Confucians; (4) Modern Phase of European Culture: Developments; Renaissance, Reformation, scientific revolution, baroque art, Age of Reason, Romantic Age, and revolutions; industrial, social, and political; (5) Recent and contemporary Age of Culture: Industry, invention, and science; world contacts; new knowledge, doctrines, policies, philosophies; developments in literature, art, architecture, etc.; cultural interdependence. Three hours of lecture and two of recitation a week each semester.

GEOLOGY AND GEOGRAPHY

ARTHUR B. SPERRY, *Head of Department*

For a minor, the following courses should be completed: 110, 130, 405, and 415.

For a major, in addition to the minor, the following courses should be completed: 425, 445, 455, 495, and 515. The student should enroll in the Curriculum in Physical Science or the Curriculum in Geology (Applied).

COURSES IN GEOLOGY

FOR UNDERGRADUATE CREDIT

110. General Geology. 3 semester hours. Each semester and summer.

Structural and dynamic features of the earth; the rock-forming minerals; the rocks and their decay; a short history of the earth. Three or four field trips during the semester.

120. Engineering Geology. 4 semester hours. Each semester.

General principles of geology and their application to engineering problems. Three hours of recitation and three hours of laboratory a week. Prerequisite: Chem. 110 or equivalent.

130. Physiographic Geology. 3 semester hours. Second semester and summer.

Topography of the earth and forces that have produced it. Origin of the topographic features of North America. Prerequisite: Geol. 110.

FOR UNDERGRADUATE AND GRADUATE CREDIT

405. Historical Geology. 4 semester hours. Each semester.

Physical and biological events through which the earth has gone. Three hours of recitation and three hours of laboratory a week. Prerequisite: Geol. 110.

415. Crystallography and Mineralogy. 4 semester hours. First semester.

The fundamentals of crystallography and its use in mineral identification; physical and chemical mineralogy. Two hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 110.

425. Field Methods in Geology. 3 semester hours. First semester.

Construction of geologic maps, including a complete map of the Manhattan area; application of field methods to the problems of geology. One hour of recitation and six hours of laboratory a week. Prerequisite: Geol. 405.

435. Field Geology. Credit to be arranged. Summer.

Opportunity is offered students to do field work in the Rocky Mountains. Students interested should consult the head of the department.

445. Aerial Photogeology. 3 semester hours. First semester.

Interpretation and use of aerial photographs; conical perspective; oblique mapping methods; characteristics of vertical photographs; stereoscopic contouring methods; and adjustment of geologic, cultural, and topographic detail. One hour of recitation and six hours of laboratory a week. Prerequisite: Geol. 130.

455. Invertebrate Paleontology. 4 semester hours. First semester.

Evolution and geologic history of the invertebrate animals. Three hours of recitation and three hours of laboratory a week. Prerequisite: Geol. 405.

465. Vertebrate Paleontology. 3 semester hours. Second semester.

Evolution, geologic history, and classification of the vertebrates. Prerequisite: Geol. 405 or ten hours of zoology.

475. Micropaleontology. 3 semester hours. First semester.

Preparation, identification, and use of microscopic fossils. One hour

of recitation and six hours of laboratory a week. Prerequisite: Geol. 405 and junior standing.

485. Index Fossils. 2 semester hours. Second semester.

Identification of those fossil plants and animals of value in the age correlation of the sedimentary rocks of North America. Six hours of laboratory a week. Prerequisite: Geol. 455.

495. Stratigraphic Geology. 4 semester hours. First semester.

Description, classification, and correlation of stratigraphic units, with emphasis on those of Kansas. Three hours of recitation and three hours of laboratory a week. Prerequisite: Geol. 405.

505. Regional Stratigraphy. 4 semester hours. Second semester.

Description, classification, and correlation of the rocks of the earth's crust in the stratigraphic regions of North America. Three hours of recitation and three hours of laboratory a week. Prerequisite: Geol. 495.

515. Structural Geology. 4 semester hours. Second semester.

Mechanics of the earth's crust, interrelation of structures found in the earth. Three hours of recitation and three hours of laboratory a week. Prerequisite: Geol. 405, 415.

525. Regional Structural Geology. 3 semester hours. Second semester.

Major tectonic regions of the world; description, theories of origin, and geologic correlation of the structures. Prerequisite: Geol. 515.

535. Petroleum Geology. 4 semester hours. Second semester.

Origin, migration, and accumulation of petroleum, stratigraphy, and structure of important fields. Three hours of recitation and three hours of laboratory a week. Prerequisite: Geol. 405.

545. Economic Geology. 4 semester hours. Second semester.

Origin and mode of occurrence of nonmetallic minerals, including coal and petroleum, and of metallic mineral deposits. Three hours of recitation and three hours of laboratory a week. Prerequisite: Geol. 405, 415.

555. Geology of Subsurface Water. 4 semester hours. Second semester.

Three hours of recitation and three hours of laboratory a week. Prerequisite: Geol. 405.

565. Applied Geology. 3 semester hours. First semester.

Geology applied to the science of engineering, particularly highway engineering. Prerequisite: Geol. 425.

575. Optical Mineralogy. 4 semester hours. First semester.

Polarizing microscope used to identify crystal fragments, powders, sediments, and thin sections; optical methods of microscopic research. Two hours of recitation and six hours of laboratory a week. Prerequisite: Geol. 415.

585. Sedimentary Petrology. 5 semester hours. First semester.

Mineralogy and origin of soils and other sediments, their transportation, deposition, and transformation. Three hours of recitation and six hours of laboratory a week. Prerequisite: Geol. 575.

595. Petrology. 5 semester hours. First semester.

Petrology and petrography of igneous and metamorphic rocks. Three hours of recitation and six hours of laboratory a week. Prerequisite: Geol. 575.

605. Minerography. 4 semester hours. Second semester.

Study of the ore minerals chiefly by means of the reflecting microscope. Two hours of recitation and six hours of laboratory a week. Prerequisite: Geol. 545, 575.

615. Binocular Examination of Well Cuttings. 2 semester hours.

Description and identification of fragments of rocks and minerals using the binocular microscope; logging sample data; subsurface correlation by sample examination. Six hours of laboratory a week. Prerequisite: Geol. 405, 415 and junior standing.

625. Electric Well Logs. 2 semester hours. Each semester.

Review of electrically recorded well logging methods: Interpretation, stratigraphic correlation, graphic representation, and construction of subsurface geologic maps from log data. Six hours of laboratory per week. Prerequisite: Geol. 515.

635. Conservation of Mineral and Water Resources. 3 semester hours. Second semester.

Prerequisite: Geol. 110, 415.

645. Geologic Literature. 3 semester hours. First semester.

Current geologic literature and history of geology. Prerequisite: Geol. 405, 415.

655. Geologic Reports and Illustrations. 2 semester hours. Each semester.

Collection, evaluation, and organization of materials to be presented in a geologic report and the techniques of preparing the illustrations therefor. Six hours of laboratory a week. Prerequisite: Geology majors with senior or graduate standing.

799. Problems in Geology. Credit to be arranged. Each semester and summer.

Work is offered in mineralogy, paleontology, stratigraphy, structural geology, sedimentary petrology. Prerequisite: Geol. 405, 415.

FOR GRADUATE CREDIT

999. Research in Geology. Credit to be arranged. Each semester and summer.

Work is offered in mineralogy, paleontology, stratigraphy, structural geology, and sedimentary petrology. Prerequisite: At least two courses in this department.

COURSES IN GEOGRAPHY

FOR UNDERGRADUATE CREDIT

210. Principles of Geography. 3 semester hours. Each semester and summer.

Introductory course in college geography; relationships between human activities and environment.

FOR UNDERGRADUATE AND GRADUATE CREDIT

705. Political Geography. 3 semester hours. First semester and summer.

Natural resources and geographic factors related to Kansas. Prerequisite: Geog. 210.

715. Geography of the Western Hemisphere. 3 semester hours. Second semester.

The geography of North America and South America and its European background. Prerequisite: Geol. 210.

725. Geography of the Eastern Hemisphere. 3 semester hours. Second semester.

The geography of Africa, Asia, and Australia. Prerequisite: Geol. 210.

HISTORY, GOVERNMENT, AND PHILOSOPHY

FRED L. PARRISH, *Head of Department*

Students who plan to major in history, or government, or philosophy, should enroll in the Curriculum in Social Science. They should select the elective courses in their major, their options in economics and sociology, and their courses in modern language, with the advice of this department.

Students who plan to teach history and government in secondary schools are to complete the following courses: Hist. 115, 130, 175, 190, and at least six hours of government including course 255. They may work out the educational courses required for a state certificate by making use of some of the free electives provided in the Curriculum.

History. For a minor, students who plan to teach are to complete the courses listed above; those not planning to teach may substitute certain approved courses for the fulfillment of the minor.

For the major, in addition to the minor, twelve hours of advanced courses are to be completed.

Government. In addition to the general value of furthering active and competent citizenship, government courses are designed to meet the needs of students who are interested in such vocational areas as law, public administration, social science teaching, civil service and foreign service.

For the minor, courses 255, 270, and six additional hours of government are to be completed.

For the major, in addition to a minor, twelve hours of advanced courses are to be completed.

Philosophy. Work in philosophy is recommended especially for two groups of students: (1) Those who because of breadth of interest find it inadvisable to choose a major from among the various special disciplines; and (2) those who, having declared a major in some special area, wish to supplement their formal curriculum with studies of a more general and cultural nature.

For the minor, courses 365 or 380, and nine additional hours of philosophy are to be completed.

For the major, in addition to the minor courses, 755, 760, and three additional hours from advanced courses are to be completed.

COURSES IN HISTORY

FOR UNDERGRADUATE CREDIT

- 115. Civilization I.** 3 semester hours. Each semester and summer.
Civilization of the world to 1650, with emphasis on Western civilization.
- 130. Civilization II.** 3 semester hours. Each semester and summer.
Civilization of the world since 1650, with emphasis on Western civilization.
- 145. Contemporary World History.** 2 semester hours. Each semester and summer.
World developments since 1930.
- 160. Current History.** 1 semester hour. Each semester.
May not be taken more than two semesters for credit.
- 175. United States Before 1865.** 3 semester hours. Each semester and summer.
The significant forces, movements, and personalities in the development of American life in 1865.
- 190. United States Since 1865.** 3 semester hours. Each semester and summer.
The significant forces, movements, and personalities in the development of American life since 1865.

- 205. American Industrial History.** 3 semester hours. Each semester and summer.

Development of American economic growth from colonial beginnings to the present; manufacturing, commerce, finance, labor, and agriculture.

- 220. History of Kansas.** 2 semester hours.

Land, people, problems, and growth of culture in the development of Kansas.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 405. Early Americas.** 3 semester hours. First semester and alternate summers.

Indians in North, South, and Central America before 1492; impact of Europeans upon aboriginal cultures; rise and development of European institutions in the American environment. Prerequisite: Three hours of American history or junior standing.

- 415. American Thought and Institutions.** 3 semester hours. Second semester.

Cultural traditions, traits, and patterns in the life of Americans of the colonial and republican periods. Prerequisite: Six hours of American history or junior standing.

- 425. Sectionalism, War, and Reconstruction.** 2 semester hours.

Development of sectionalism in the United States from 1830 to 1890. Prerequisite: Three hours of American history or junior standing.

- 435. Trans-Mississippi West.** 3 semester hours. Each semester and summer.

Environmental factors, peoples, settlements, and institutions of the United States west of the Mississippi River. Prerequisite: Hist. 175 or 190 or junior standing.

- 445. New American Nation.** 3 semester hours. Each semester and summer.

Recent and contemporary history. Problems of the new nation from the Spanish-American War to the present. Prerequisite: Three hours of American history or junior standing.

- 455. Representative Americans.** 2 semester hours.

Lives of outstanding Americans. Prerequisite: Hist. 175 or 190 or junior standing.

- 465. Advanced Economic History of the United States.** 2 semester hours. Alternate years in second semester.

Analysis of the agricultural and industrial developments in the United States. Prerequisite: Hist. 205 or 190 or junior standing.

- 475. American Diplomatic History.** 3 semester hours. Second semester and alternate summers.

Development of the foreign policy of the United States from 1763 to the present. Prerequisite: Three hours of American history or junior standing.

- 480. American Democratic Ideas.** 3 semester hours. Each semester and summer.

Origins and evolution of the democratic ideal in America. Important contributions to democratic thought will be examined, with special attention to the responsibility of the individual citizen and the organized group in the democratic process.

- 485. Latin-American Nations.** 3 semester hours. Second semester and alternate summers.

Economic, social, and political progress of the Latin-American nations from the time of independence down to contemporary develop-

ments. Prerequisite: Three hours of American history or junior standing.

495. History and Culture of Greece. 3 semester hours. First semester, alternate years.

A study of the political evolution of ancient Greece, its social and economic structure; the gradual development of Hellenic culture and its diffusion throughout the Mediterranean world and the Near East. Prerequisite: Hist. 115 or Gen. Stud. 250.

505. History and Culture of Rome. 3 semester hours. Second semester, alternate years.

A study of the constitutional development of ancient Rome, its agrarian and social problems, the fall of the republic and growth of world empire; Rome's contribution to classical culture and its influence on the modern world. Prerequisite: Hist. 115 or Gen. Stud. 250.

515. Medieval Europe. 3 semester hours. Alternate years: First semester and summer.

Cultural and historical developments in Europe and the Near East from the decline of the Roman Empire to the Renaissance in Western Europe. Prerequisite: Hist. 115, or Gen. Stud. 250, or junior standing.

525. Medieval and Tudor England. 3 semester hours. Alternate years: First semester.

Celtic, Roman, and Teutonic Britain; early monarchies, feudal age; rise of the modern state. Prerequisite: Hist. 115 or junior standing.

535. Renaissance and Enlightenment. 3 semester hours. Second semester and summers.

Rise of human, religious revolt, the Enlightenment, growth of nationalism and European empires from 1600 to 1800. Prerequisite: Hist. 130 or junior standing.

545. Revolutionary Europe. 3 semester hours. First semester.

Industrialism, imperialism, French Revolution, reaction, reform, liberalism, and political unification; covering the period 1789-1870. Prerequisite: Hist. 130 or junior standing.

555. Europe Since 1870. 3 semester hours. Second semester and summer.

History of the political, social, economic, and international developments. Prerequisite: Three hours of European history or junior standing.

565. Modern England. 3 semester hours. First semester.

Political, economic, and cultural history of modern and contemporary Britain. Prerequisite: Three hours of European history or junior standing.

575. British Empire and Commonwealth. 2 semester hours.

Political, economic, and cultural history of modern and contemporary Britain. Prerequisite: Three hours of European history or junior standing.

585. Russia and the Soviet Union. 3 semester hours. Each semester and summer.

Imperial Russia and the new regime since the Revolution of 1917. Prerequisite: Three hours of European history or junior standing.

595. Far East. 3 semester hours. First semester and alternate summers.

Modern and contemporary Chinese, Japanese and other peoples of Eastern Asia and the western Pacific areas. Historical and cultural background; internal developments; international relations since the first peace treaties with the Western Powers. Prerequisite: Hist. 115, or Gen. Stud. 250, or junior standing.

- 605. History of Religions.** 3 semester hours. Second semester and alternate summers.

Development of the world's living religions, the relation of each religion to its natural and cultural environment; dominant concepts, leaders, and historic growth which characterize each. Prerequisite: Hist. 115, or Gen. Stud. 250, or junior standing.

- 615. History of Marriage and the Family.** 3 semester hours. First semester.

History of marriage and the family from primitive times to the present; marriage customs, position of women, child training; the modern home; recent changes and tendencies. Prerequisite: Three hours of history or junior standing.

- 625. Historical Method and Bibliography.** 2 semester hours. Each semester and summer.

Survey of historical works; methods in writing history, historical articles or theses. Required of graduate majors in history. Prerequisite: Consent of instructor and Hist. 115, 130, 175, 190.

- 790. Readings in History.** 1 to 3 semester hours. Each semester and summer.

Students will read primary and secondary materials on subjects selected by the students with the approval of the instructor. Discussions of readings will take place at varying intervals. Open to graduate students and seniors majoring in history.

- 793. Seminar in History, Government, and Philosophy.** 2 to 5 semester hours.

Prerequisite: Consent of instructor and five hours of credit basic to the field involved.

- 797. Problems in History.** Credit to be arranged. Each semester and summer.

For students who desire to pursue subject matter beyond the field of a specific course. Prerequisite: Basic minor courses plus junior standing.

FOR GRADUATE CREDIT

- 995. Research in History.** Credit to be arranged. Each semester and summer.

Work is offered in: United State, Latin American, European, and Asiatic history. Prerequisite: Hist. 625 or concurrent registration, and at least two courses in the department.

COURSES IN PHILOSOPHY

FOR UNDERGRADUATE CREDIT

- 365. Elementary Logic.** 3 semester hours. First semester and summer.

A study of correct thinking, its principles and conditions, in relation to observation, biases, prejudices, scientific induction, systematic deductive inference, sophistry, fallacies and propaganda.

- 380. Philosophy of Science I.** 3 semester hours. Second semester.

A survey of methods, attitudes, and institutions identified with science, together with their implications for a working philosophy of life.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 750. Oriental Philosophies.** 2 semester hours.

Study of representative Chinese and Indian thinkers. Emphasis will be placed on basic assumptions, methods of reasoning, and ways of life associated with each. Prerequisite: Junior standing.

- 755. Early Western Philosophy.** 3 semester hours. First semester.

History of and readings in western philosophy from Thales to Thomas Aquinas. Prerequisite: Junior standing.

- 760. Modern Western Philosophy.** 3 semester hours. Second semester.
History of and readings in western philosophy from Francis Bacon to Hegel. Prerequisite: Junior standing.
- 765. Philosophical Ideas in Literature.** 3 semester hours.
An introduction to philosophical thought through selections from the masterpieces of world literature. Prerequisite: Engl. 215 or Gen. Stud. 250; or consent of instructor.
- 770. Contemporary World-Views.** 3 semester hours. Alternate years: First semester.
Study of representative idealist and naturalist philosophies and examination of their corresponding conflicts in practical affairs. Prerequisite: Junior standing.
- 775. Ethics.** 2 semester hours. Second semester and summer.
Theories of conduct; ideas of right and wrong; what makes an act good or bad; the good life. Prerequisite: Junior standing.
- 780. Contemporary Social Philosophies.** 3 semester hours. Alternate years: Second semester and summer.
A comparative study of the principles and practices associated with contemporary economic and social systems. Prerequisite: Junior standing.
- 785. Recent Political Philosophies.** 2 semester hours. Alternate years: Second semester.
Comparative study of the basic philosophical concepts and arguments underlying the political systems of democratic states in relation to the systems of soviet and fascist states. Prerequisite: Junior standing.
- 792. Readings in Philosophy.** 1-3 semester hours. Each semester and summer.
Students will read primary and secondary materials on a subject selected by the student with the approval of the instructor. Discussions of readings will take place at varying intervals. Open to graduate students and seniors majoring in philosophy.
- 793. Seminar.** (See History section.)
- 799. Problems in Philosophy.** Credit to be arranged. Each semester and summer.
For students who desire to pursue subject matter beyond the field of a specific course. Prerequisite: Basic minor courses plus junior standing.

COURSES IN GOVERNMENT

FOR UNDERGRADUATE CREDIT

- 255. American Government.** 3 semester hours. Each semester and summer.
National and state government, with emphasis on constitutional principles and basic structure.
- 260. Federal Government in Action.** 3 semester hours. Each semester and summer.
Functions and services of American government in modern society. Prerequisite: Govt. 255 or equivalent.
- 265. State and Local Government.** 3 semester hours. Each semester and summer.
Government of American states and subdivisions.
- 270. Contemporary Governments.** 3 semester hours. Each semester and summer.
Survey of the leading contemporary national governments.

275. Constitutional Democracy in America I. 3 semester hours. First semester.

An introduction to the main currents of thought relating to the origins, nature, and development of democratic institutions in America. The most significant books and documents in the evolution of the American democratic ideal will be read and discussed and emphasis will be placed on developing the arts of reading, discussion, and reasoning which are the fundamental tools of citizenship in a democratic society. Open to freshmen and sophomores only.

280. Constitutional Democracy in America II. 3 semester hours. Second semester.

Continuation of Govt. 275.

FOR UNDERGRADUATE AND GRADUATE CREDIT

655. International Relations. 2 semester hours. Alternate years: First semester and summer.

Recent and contemporary international problems; work of international organizations. Prerequisite: Govt. 255 or Gen. Stud. 210, 220, or equivalent.

660. International Law. 2 semester hours. Alternate years: First semester.

Nature and scope of international law; factors which contribute to its growth; tendencies in the development of the law today. Prerequisite: Govt. 255 or Gen. Stud. 210, 220, or equivalent.

665. International Organization. 2 semester hours. Alternate years: Second semester.

The theory and structure of international institutions. The explanation of their establishment and evolution, and an appraisal of their value and effectiveness in our contemporary world society. Prerequisite: Govt. 255 or Gen. Stud. 210, 220, or equivalent.

667. War, Peace, and the World Community. 3 semester hours. Each semester and summer.

A study of causes of war, conditions of peace, and the changing character of the world community. The possibilities and limitations of world government and world citizenship will be considered. Prerequisite: Junior standing or consent of instructor.

670. Comparative Government. 2 semester hours. Second semester and summer.

Principles of governmental organization as shown by European governments. Prerequisite: Govt. 255 or Gen. Stud. 210, 220, or equivalent.

672. Democracy, Justice, and the Law. 3 semester hours. Each semester and summer.

A study of the evolution of the concept of justice and of the relation of the individual to the law in a free society. Prerequisite: Junior standing or consent of instructor.

675. State and Local Politics and Administration. 2 semester hours. Second semester.

A study of political and administrative processes at the state and local levels with particular attention to the problems, attitudes, and pressures affecting those processes. Prerequisite: Junior standing or consent of instructor.

690. City Government. 3 semester hours. First semester and summer.

Government and administration of American cities. Prerequisite: Govt. 255 or junior standing.

705. Federal Politics and Administration. 2 semester hours. First semester and summer.

A study of the political and administrative processes at the national level with particular attention to the underlying pressures and organizational problems influencing those processes. Prerequisite: Junior standing or consent of instructor.

708. Political Economy and the Democratic State. 3 semester hours.
Each semester and summer.

An examination of the interrelationships of the individual, the state, and economic institutions. The effect of the changing pattern of these interrelationships upon democracy will be examined. Prerequisite: Junior standing or consent of instructor.

712. Effective Citizenship. 2 semester hours.

A study of the ways in which the citizen can most effectively participate in democratic processes, including a study of the programs of typical civic and political organizations. Prerequisite: Junior standing or consent of instructor.

718. Political Parties and Pressure Groups. 2 semester hours. Alternate years: First semester.

Growth and tendencies of interest groups in the United States; development of the American party system. Prerequisite: Govt. 255 or Gen. Stud. 210, 220, or equivalent.

720. Government and Business. 2 semester hours. Alternate years: First semester.

Relationships between governmental and business organizations. Prerequisite: Govt. 255, or Gen. Stud. 210, 220, or equivalent.

730. Constitutional Law. 3 semester hours. Second semester.

Development of the government of the United States through judicial interpretation of the Constitution. Case method used. Prerequisite: Govt. 255 or Gen. Stud. 210, 220, or equivalent.

791. Readings in Government. 1 to 3 semester hours. Each semester and summer.

Students will read primary and secondary materials on subjects selected by the student with the approval of the instructor. Discussions of reading will take place at varying intervals. Open to graduate students and seniors majoring in government.

793. Seminar. (See History section.)

798. Problems in Government. Credit to be arranged. Each semester and summer.

For students who desire to pursue subject matter beyond the field of a specific course. Prerequisite: Basic minor courses plus junior standing.

FOR GRADUATE CREDIT

997. Research in Government. Credit to be arranged. Each semester and summer.

Prerequisite: At least two courses in government.

COURSES IN LAW

FOR UNDERGRADUATE CREDIT

295. Business Law I. 3 semester hours. Each semester and summer.

Contracts, agency, and sales. Not open to those who have credit in Law 325.

310. Business Law II. 3 semester hours. Each semester and summer.
Negotiable instruments, partnerships, and corporations.

325. Law for Engineers. 2 semester hours. Each semester.

Case study of such rules of law as will prove most useful to engineers and architects; law of contracts. Not open to those who have credit in Law 295.

FOR UNDERGRADUATE AND GRADUATE CREDIT

735. Land Law. 2 semester hours. Second semester.

Interests and rights in land; methods by which such interests and rights are acquired and protected; relation of landlord and tenant and that of mortgagor and mortgagee, developed by study of Kansas cases.

LIBRARY ECONOMICS

WILLIAM BAEHR, *Head of Department*

FOR UNDERGRADUATE CREDIT

110. Introduction to Bibliography. 1 semester hour. First semester.

Principles and content of general and special bibliography. Prerequisite: Junior standing.

400. Book Selection and Reference. 2 semester hours. Summer.

Materials and techniques of reference work, principles of evaluation and selection of books for young people, sources of information about books and reading interests.

420. Cataloging and Classification. 3 semester hours. Summer.

Fundamentals of the Dewey Decimal Classification and the basic cataloging techniques necessary for organizing a school library collection.

440. School Library Administration. 3 semester hours. Summer.

Methods of developing the library as an integral part of the school: organizing the library, public relations, personnel, and routine involved in the acquisition, care, and circulation of materials.

MATHEMATICS

RALPH G. SANGER, *Head of Department*

In all curriculums in which college algebra is required, students take a proficiency test in algebra within the first two weeks of their enrollment in any course in algebra. Results of this test determine whether a student shall be required to take intermediate algebra to qualify for college algebra.

For a minor in mathematics the following courses should be completed: 175, 190, 215, 230, 245, or 175, 190, 260, 275, 290, and preferably 600. For a minor in statistics the following courses should be completed: 175, 190, 215, 230, 320, 340, 725, or 175, 190, 260, 275, 320, 340, and 725.

For a major in mathematics, in addition to the minor, the following courses should be completed: 110 (if equivalent work not taken in high school), 600, and three additional courses (not statistics) from courses numbered 401 to 799, normally chosen from 415, 525, 615, 620. For a major in statistics, in addition to the work for a minor, 245 or 290, 600, 615, 745, and six semester hours from among the 700 courses in statistics.

Any course will be offered any term on the request of a sufficient number of students. Information concerning additional courses offered during the summer term may be had on writing to the department.

FOR UNDERGRADUATE CREDIT

010. Elementary Algebra. 1 entrance unit credit. Each semester.
Four hours of recitation a week.**030. Plane Geometry.** 1 entrance unit credit. Each semester.
Four hours of recitation a week.

- 050. Intermediate Algebra.** No credit. Each semester and summer.
Review of elementary algebra; topics preparatory to Math. 175.
Three hours of recitation a week.
- 110. Solid Geometry.** 2 semester hours. Each semester.
Prerequisite: Plane geometry and one unit of high-school algebra.
- 125. Mathematics in Human Affairs.** 3 semester hours. Each semester.
No credit is given for this course if credit has been obtained in any other college course in mathematics. Completion of this course does not satisfy prerequisite requirements in any other course in mathematics.
- 130. Mathematics in Agriculture.** 3 semester hours. Each semester.
A course designed for students in the School of Agriculture. No credit is given for this course if credit has been obtained in any other college course in mathematics. Completion of this course does not satisfy prerequisite requirements in any other course in mathematics.
- 145. General Algebra.** 5 semester hours. Each semester.
Prerequisite: Plane geometry and one unit of high-school algebra.
Not open to students with credit in Math. 175. For students in the Curriculums in Business Administration.
- 160. Mathematics of Finance.** 3 semester hours. Second semester.
Prerequisite: Acctg. 300, Math. 145.
- 175. College Algebra.** 3 semester hours. Each semester and summer.
Prerequisite: Plane geometry and satisfactory placement test score in algebra. Students with one and one-half entrance units of algebra should normally be eligible for this course.
- 190. Plane Trigonometry.** 3 semester hours. Each semester and summer.
Prerequisite: Plane geometry and one and one-half units of high-school algebra.
- 215. Analytic Geometry and Calculus I.** 4 semester hours. Each semester and summer.
Analytic geometry, differential and integral calculus of polynomials. Prerequisite: Math. 175, 190.
- 230. Analytic Geometry and Calculus II.** 4 semester hours. Each semester and summer.
Continuation of Math. 215 to include transcendental functions. Prerequisite: Math. 215.
- 245. Analytic Geometry and Calculus III.** 4 semester hours. Each semester and summer.
Continuation of Math. 230 to include functions of more than one variable; series. Prerequisite: Math. 230.
- 260. Plane Analytic Geometry.** 4 semester hours.
Prerequisite: Math. 175, 190.
- 275. Calculus I.** 4 semester hours. Each semester.
Prerequisite: Math. 260.
- 290. Calculus II.** 4 semester hours. Each semester.
Prerequisite: Math. 275.
- 320. Elements of Statistics.** 3 semester hours. Each semester and summer.
A basic course in probability and statistics for students of economics, biology, and science. Not open to students who have credit in Educ. 405. Prerequisite: Math. 145.
- 340. Applied Elementary Statistics.** 2 semester hours. Second semester.
Continuation of Math. 320 with introduction to sampling techniques and theory; introductory multiple and curvilinear correlation, and applications in biology, psychology, economics, and engineering. Prerequisite: Math. 320.

- 360. Differential Equations for Engineers.** 2 semester hours. Each semester and summer.
Prerequisite: Math. 245 or 290.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 415. Theory of Equations.** 3 semester hours. First semester.
Prerequisite: Math. 245 or 290.
- 430. Theory of Numbers.** 3 semester hours. Second semester; alternate years.
Prerequisite: Math. 230 or 275.
- 445. Foundations of Mathematics.** 3 semester hours. When scheduled or on request of a sufficient number of students.
Postulates used in development of geometry and algebra. Prerequisite: Math. 245 or 290.
- 450. Introduction to Modern Algebra.** 3 semester hours. First semester in alternate years; alternate summers.
Simpler concepts in the theory of numbers, groups, rings, integral domains, fields, polynomials over a field, determinants, and matrices. Prerequisite: Math. 245 or 290.
- 455. Abstract Algebra I.** 3 semester hours. First semester; alternate years.
Prerequisite: Math. 415, 600.
- 465. Abstract Algebra II.** 3 semester hours. Second semester; alternate years.
Continuation of Math. 455. Prerequisite: Math. 455.
- 475. Structure of Abstract Algebras.** 3 semester hours. Second semester; alternate years.
An introduction to linear algebras over various fields. The algebra of classes. Prerequisite: Math. 455 or 485.
- 485. Introduction to Theory of Matrices.** 3 semester hours. First semester; alternate years.
Prerequisite: Math. 415, 600.
- 510. History of Mathematics.** 3 semester hours. When scheduled or on request of a sufficient number of students.
Prerequisite: Math. 215 or 260.
- 525. College Geometry.** 3 semester hours. Second semester.
Properties of a triangle and its circles, harmonic ranges and pencils, inversion, poles and polars. Prerequisite: Math. 215 or 260.
- 560. Higher Geometry I.** 3 semester hours. First semester.
An introduction to the projective geometry of one and two dimensions. Prerequisite: Math. 415.
- 575. Higher Geometry II.** 3 semester hours. Second semester.
An introduction to the differential geometry of curves and surfaces. Prerequisite: Math. 600.
- 600. Differential Equations.** 3 semester hours. Each semester and summer.
Prerequisite: Math. 245 or 290.
- 605. Elementary Partial Differential Equations.** 3 semester hours. First semester; alternate years.
Solution of partial differential equations; applications to problems of physics and engineering. Prerequisite: Math. 360 or 600.
- 610. Differential Equations of Mathematical Physics.** 3 semester hours. Second semester; alternate years.
Solution of Legendre's, Bessel's, and other differential equations including the properties and uses of the solutions. Prerequisite: Math. 360 or 600.

- 615. Advanced Calculus I.** 3 semester hours. Each semester.
Partial differentiation with applications to the geometry of three dimensions, envelopes, maxima and minima of functions of several variables. Line integrals and allied topics with their relations to multiple integrals. Prerequisite: Math. 245 or 290.
- 620. Advanced Calculus II.** 3 semester hours. Each semester.
Improper integrals, beta and gamma functions; integrals dependent on a parameter, elliptic integrals, uniform convergence of series and integrals. Prerequisite: Math. 245 or 290 and preferably Math. 360 or 600.
- 625. Vector Analysis.** 3 semester hours. Second semester; alternate years.
Methods of vector algebra and geometry, with applications, and the elements of tensors. Prerequisite: Math. 360 or 600.
- 630. Fourier's Series.** 3 semester hours. Second semester; alternate years.
Prerequisite: Math. 360 or 600.
- 635. Operational Methods.** 3 semester hours. First semester; alternate years.
Selected topics from Heaviside's operational calculus, Laplace transforms. Prerequisite: Math. 360 or 600.
- 640. Numerical Methods in Mathematics.** 3 semester hours. Second semester; alternate years.
Numerical integration, solution of algebraic and transcendental equations. Solutions of differential equations by methods of successive approximations. Prerequisite: Math. 360 or 600 and one of 605, 610, 615, 620, 630, 635.
- 650. Advanced Differential Equations I.** 3 semester hours. First semester; alternate years.
Special topics such as the equations of Legendre, Bessel, and Recatti, with applications. Prerequisite: Math. 360 or 600, and 615 or 620.
- 655. Advanced Differential Equations II.** 3 semester hours. Second semester; alternate years.
Boundary value problems associated with differential equations; their relations to integral equations. Prerequisite: Math. 650.
- 660. Theory of Functions of a Complex Variable I.** 3 semester hours.
First semester; alternate years.
Prerequisite: Math. 360 or 600, and 615 or 620.
- 665. Theory of Functions of a Complex Variable II.** 3 semester hours.
Second semester; alternate years.
Prerequisite: Math. 660.
- 675. Calculus of Variations.** 3 semester hours. When scheduled or on request of a sufficient number of students.
Necessary and sufficient conditions for an extreme value; applications to geometry and mechanics. Prerequisite: Math. 600, 620.
- 685. Tensor Analysis.** 3 semester hours. When scheduled or on request of a sufficient number of students.
Introduction to theory of tensors with applications to geometry, relativity, and applied mathematics. Prerequisite: Math. 615, 625.
- 705. Probability.** 3 semester hours. When scheduled or on request of a sufficient number of students.
Basic laws and concepts; mathematical expectation; distribution functions for normal, binomial, and Poisson populations; and applications. Prerequisite: Math. 245 or 290.

- 715. Finite Differences.** 3 semester hours. When scheduled or on request of a sufficient number of students.
Application of the calculus of finite differences to problems in interpolation and mechanical quadrature. Method of least squares. Solution of simple differential equations. Prerequisite: Math. 245 or 290.
- 725. Statistical Methods I.** 3 semester hours. First semester.
Development of proficiency in statistical technics appropriate to sampling studies; the chi-square test, confidence intervals, t-test linear regression, and analysis of variance. Prerequisite: Junior standing.
- 730. Statistical Methods II.** 3 semester hours. Second semester.
Further study of analysis of variance; technic and applications of co-variance, multiple and curvilinear regression and introduction to designing of experiments. Prerequisite: Math. 725 or consent of the instructor.
- 745. Mathematical Statistics I.** 3 semester hours. First semester.
Mathematical discussion of statistical methods, frequency distributions; mean values; moments; normal, binomial, and Poisson distributions. Topics in large sample theory, two variable frequency distributions, linear correlation and regression. Prerequisite: Math. 245 or 290.
- 750. Mathematical Statistics II.** 3 semester hours. Second semester.
Method of least squares; multiple regression; small sample theory; chi-square, t, and F distributions; testing statistical hypotheses. Prerequisite: Math. 745.
- 765. Sampling Methods.** 3 semester hours. Second semester; alternate years.
Design, mechanics, and analysis of sample survey investigations in the social sciences. Prerequisite: Math. 725 or consent of instructor.
- 775. Designing Experiments.** 3 semester hours. Second semester.
The planning of experiments in the fields of biological science so they will be efficient and will yield data which can be analyzed statistically. Randomized blocks, Latin squares, split-plots, and lattices. Prerequisite: Math. 725.
- 785. Statistical Quality Control.** 3 semester hours. When scheduled or on request of a sufficient number of students.
Elementary treatment of practical methods of analysis of data to estimate uniformity or nonuniformity of the quality of a manufactured product. Discussion of control charts and sampling acceptance plans. Prerequisite: Math. 175 or equivalent.
- 799. Topics in Mathematics.** Credit to be arranged. Each semester and summer.
Prerequisite: Math. 245 or 290 and consent of instructor.

FOR GRADUATE CREDIT

- 999. Research in Mathematics.** Credit to be arranged. Each semester and summer.
Prerequisite: At least two courses in this department subsequent to Math. 600 and consent of the instructor.

MILITARY SCIENCE AND TACTICS

LAURENCE C. BROWN, *Head of Department*

Kansas state law, Section 76-436, Session Laws, 1945, stipulates that in land-grant colleges of this state all regularly enrolled male students who are physically qualified shall take military training during the freshman and sophomore years. This required Basic Course is offered by units of the Reserve Officers Training Corps (Army ROTC) established at Kansas

State College. The status of men who present evidence of previous military service or training in the armed forces or at another college will be evaluated by the dean of the School concerned. Their records may be accepted in lieu of all or part of the required two years of basic training. Nonveteran men who matriculate with 25 semester hours of advanced academic credits are excused from the second year of military training; those with 59 hours are excused from both years, using other subjects to replace the hours involved. The President of the College takes final action on all other requests for exemption from military training or its postponement. Any exemption from the Basic Course may bar the students from enrollment in the voluntary Advanced Course ROTC, normally offered to selected juniors and seniors.

All students enrolled in the Basic Course, except those in the Veterinary unit, are furnished free of charge complete uniform, texts, and other necessary equipment. These articles are the property of the United States and must be returned at the end of each school year or upon withdrawal from College. The value of any article not returned is chargeable to the student.

Kansas State College at present has an Army ROTC offering programs in Antiaircraft Artillery, Infantry, Signal Corps, and Veterinary. The first two years constitute the Basic Course, and successful completion of this work meets the requirements of Kansas state law. The third and fourth years constitute the Advanced Course in which enrollment is selective and voluntary. The students should consult the Department of Military Science and Tactics for conditions which govern selection for the Advanced ROTC in any of its programs.

Students enrolled in the Advanced Course must sign a Deferment Agreement which serves to exempt them from selective service induction in return for a promise to accept a reserve commission, if tendered upon completion of the course of instruction, and to serve on active duty for a period of two years, upon call by the Secretary of the Army.

Under present regulations, a student enrolled in the second-year Basic ROTC may also sign the Deferment Agreement and accept conditional enrollment in Advanced ROTC which will serve, within established quotas, to exempt him from selective service induction so long as he continues in college and satisfactorily pursues his academic work.

Under present regulations, freshmen in the first-year Basic ROTC are subject to screening by a board of officers after conclusion of the first semester with a view to selection for Deferment Agreement within established quotas. Those who give best promise as potential officer material may be enrolled subsequently in the Advanced Course, if College attendance in good standing is continued through the sophomore year.

In the Advanced ROTC, except in the School of Veterinary Medicine, all courses are three semester hours each. In the School of Veterinary Medicine all courses are one semester hour each. These hours are accepted as electives for degrees except where curricular limitations prevent their full use, in which case the remaining hours appear as electives in excess of requirements for graduation. The hours which may be used are as follows:

School of Agriculture, Curriculum in Agricultural Education, none; other curriculums, 12 semester hours.

School of Arts and Sciences, 12 semester hours.

School of Engineering and Architecture, Curriculum in Architecture, 12 semester hours; other curriculums, 8 semester hours.

School of Veterinary Medicine, 2 or 3 semester hours.

FOR UNDERGRADUATE CREDIT

SENIOR DIVISION, ROTC

BASIC COURSES

110. Military IA. 1 semester hour. First semester.

Individual weapons and marksmanship; military organization; military problems and policy of United States, National Defense Act and

ROTC: leadership, drill and exercise of command. Two hours of recitation and one hour of practical work a week.

115. Military IB. 1 semester hour. Second semester.

Map reading; first aid and hygiene; combat formations; tactics of the rifle squad; leadership, drill and exercise of command. Two hours of recitation and one hour of practical work a week. Prerequisite: Mil. Sci. 110.

130. Antiaircraft Artillery IIA. 1 semester hour. First semester.

Aerial photograph reading; characteristics, capabilities and limitations of antiaircraft artillery automatic weapons; service of the piece—automatic weapons fire unit; introduction to field artillery; leadership, drill and exercise of command. Two hours of recitation and one hour of practical work a week. Prerequisite: Mil. Sci. 115.

135. Antiaircraft Artillery IIB. 1 semester hour. Second semester.

Introduction to antiaircraft artillery guns; characteristics, capabilities, and limitations of 90-mm antiaircraft artillery guns; service of the piece—90-mm antiaircraft artillery guns; leadership, drill, and exercise of command. Two hours of recitation and one hour of practical work a week. Prerequisite: Mil. Sci. 130.

140. Infantry IIA. 1 semester hour. First semester.

Organization and equipment of the infantry division, regiment, battalion, and company; weapons study covering description, characteristics, limitations of automatic rifles, machine guns, carbines, rocket launchers; leadership, drill, and exercise of command, including the functions, duties, and responsibilities of junior noncommissioned officers. Two hours of recitation and one hour of practical work a week. Prerequisite: Mil. Sci. 115.

145. Infantry IIB. 1 semester hour. Second semester.

Principles of workmanship of M-1 Rifle and range firing with caliber .22 rifle; technique of fire of rifle squad to include landscape target firing with caliber .22 rifle; scouting and patrolling, day and night; combat formations in squad combat and the tactical handling and control of small units in battle; employment of rifle squad in attack, defense, and security; leadership, drill, and exercise of command including the functions, duties, and responsibilities of junior noncommissioned officers. Two hours of recitation and one hour of practical work a week. Prerequisite: Mil. Sci. 140.

150. Signal IIA. 1 semester hour. First semester.

Introduction to signal communications; leadership, drill, and exercise of command. Two hours of recitation and one hour of practical work per week. Prerequisite: Mil. Sci. 115 and enrollment in a curriculum in engineering, electronics, or physics.

155. Signal IIB. 1 semester. Second semester.

Organization and mission of the Signal Corps; organization and signal communication practices of infantry, armored and air-borne divisions; leadership, drill and exercise of command. Two hours of recitation and one hour of practical work a week. Prerequisite: Mil. Sci. 150.

160. Veterinary IA. 1 semester hour. First semester.

Military policy of United States, National Defense Act and ROTC; courtesies and customs of the service; maps and aerial photograph reading; military law. Prerequisite: Enrollment in School of Veterinary Medicine.

165. Veterinary IB. 1 semester hour. Second semester.

Organization of the Department of the Army and Air Force; organization of the Army and Air Force Medical Service; general military administration; veterinary military history; general consideration of the Army and Air Force Veterinary Service; duties of the veterinarian. Prerequisite: Mil. Sci. 160.

170. Veterinary IIA. 1 semester hour. First semester.

Army and Air Force Veterinary Service, zone of interior and theatre of operations; veterinary administration. One hour of recitation a week. Prerequisite: Mil. Sci. 165.

175. Veterinary IIB. 1 semester hour. Second semester.

Animal management; veterinary research and development; medical supply procedures and records; maps and aerial photograph reading. Prerequisite: Mil. Sci. 170.

ADVANCED COURSES

255. Aircraft Artillery IIIA. 3 semester hours. First semester.

Antiaircraft artillery tactics; communications; organization; troop movements; map reading; field artillery tactics; leadership, drill and exercise of command. Five hours of recitation and practical work a week. Prerequisite: Mil. Sci. 135.

260. Antiaircraft Artillery IIIB. 3 semester hours. Second semester.

Basic gunnery (medium, heavy and light AAA); motors and transportation; leadership, drill and exercise of command. Five hours of recitation and practical work a week. Prerequisite: Mil. Sci. 255.

265. Antiaircraft Artillery IVA. 3 semester hours. First semester.

Military administration; military teaching methods; psychological warfare; geographical foundations of national power; advanced anti-aircraft artillery tactics; command and staff; field artillery tactics and technique; leadership, drill and exercise of command. Five hours of recitation and practical work a week. Prerequisite: Mil. Sci. 260.

270. Antiaircraft Artillery IVB. 3 semester hours. Second semester.

Military law and boards; antiaircraft artillery material; combat intelligence; gunnery; map reading; military team; new developments; supply and evacuation; leadership, drill and exercise of command. Five hours of recitation and practical work a week. Prerequisite: Mil. Sci. 265.

275. Infantry IIIA. 3 semester hours. First semester.

Review organization of the infantry division; weapons study covering description, characteristics, nomenclature of machine guns, mortars, rocket launchers, recoilless rifles, and land mines; gunnery, to include technique of fire of the rifle platoon and crew served weapons; leadership, drill, and exercise of command, to include the functions, duties, and responsibilities of senior noncommissioned officers. Five hours of recitation and practical work a week. Prerequisite: Mil. Sci. 145.

280. Infantry IIIB. 3 semester hours. Second semester.

Combat intelligence; signal communication within the infantry battalion and with supporting units; estimate of the situation and combat orders; tactical employment of infantry rifle and heavy weapons platoons on normal offensive, defensive, and security missions; hasty field fortifications; leadership drill, and exercise of command as in Mil. Sci. 275. Five hours of recitation and practical work a week. Prerequisite: Mil. Sci. 275.

285. Infantry IVA. 3 semester hours. First semester.

Military administration; command and staff, using the division staff as a model; military teaching methods, to include educational, psychological, and instructional technique; psychological warfare; military law and boards; organization, covering the equipment, and duties of personnel of division and regiment; continuation of communication from Mil. Sci. 280; leadership, drill, and exercise of command, including the functions, duties, and responsibilities of a commissioned officer. Five hours of recitation and practical work a week. Prerequisite: Mil. Sci. 280.

290. Infantry IVB. 3 semester hours. Second semester.

Motors and transportation with respect to vehicle nomenclature, characteristics, and tactical use; supply and evacuation to include duties of the battalion and regimental S-4's; administrative and tactical troop movements and bivouacs; new developments in tactics and weapons; the military team from the size of a patrol to a regimental combat team; tactics of the infantry battalion in attack and defense; geographical foundations of national power; leadership, drill, and exercise of command as in Mil. Sci. 285. Five hours of recitation and practical work a week. Prerequisite: Mil. Sci. 285.

305. Signal IIIA. 3 semester hours. First semester.

Communication security; field wire communication fundamentals; message center and communications center procedure; weapons and marksmanship; career guidance, tactics of the rifle squad; leadership, drill, and exercise of command. Five hours of recitation and practical work a week. Prerequisite: Mil. Sci. 155.

310. Signal IIIB. 3 semester hours. Second semester.

Signal orders; field radio communication fundamentals; applied signal communication; signal supply and repair; leadership, drill, and exercise of command. Five hours of recitation and practical work a week. Prerequisite: Mil. Sci. 305.

315. Signal IVA. 3 semester hours. First semester.

Military administration and personnel management; command and staff; post signal operation and administrative procedure; darkroom technique and photographic practices; wire communication material; leadership, drill, and exercise of command. Five hours of recitation and practical work a week. Prerequisite: Mil. Sci. 310.

320. Signal IVB. 3 semester hours. Second semester.

Military teaching methods; psychological warfare; combat intelligence; career guidance; radio communication material; higher echelon signal communication equipment; leadership, drill, and exercise of command. Five hours of recitation and practical work a week. Prerequisite: Mil. Sci. 315.

340. Veterinary IIIA. 1 semester hour. First semester.

Military leadership; subsistence procurement; veterinary food inspection service. One hour of recitation a week. Prerequisite: Mil. Sci. 175.

345. Veterinary IIIB. 1 semester hour. Second semester.

Veterinary food inspection service; physical examination of animals; Army and Air Force as a career; technique of instruction. Prerequisite: Mil. Sci. 340.

350. Veterinary IVA. 1 semester hour. First semester.

Military leadership; food products inspection. Prerequisite: Mil. Sci. 345.

355. Veterinary IVB. 1 semester hour. Second semester.

Veterinary aspects of atomic warfare; veterinary aspects of chemical warfare; organized reserve corps. One hour of recitation a week. Prerequisite: Mil. Sci. 350.

MODERN LANGUAGES

Fritz Moore, *Head of Department*

For a minor, 15 hours in a single language should be completed.

For a major, 30 hours in a single language should be completed, or 27 hours in one language and six in a second language.

Students who have had German, French, or Spanish in high school may

not duplicate that work for college credit. One year of a language in high school is, as a rule, equivalent to one semester in college. In doubtful cases, the head of the department should be consulted.

FOR UNDERGRADUATE CREDIT

- 110. Technical German I.** 3 semester hours. First semester.
- 120. Technical German II.** 3 semester hours. Second semester.
Prerequisite: Mod. Lang. 110 or equivalent.
- 125. Technical German III.** 3 semester hours. First semester.
Prerequisite: Mod. Lang. 120 or 140 or equivalent.
- 130. German I.** 3 semester hours. Each semester and summer.
- 140. German II.** 3 semester hours. Each semester and summer.
Prerequisite: Mod. Lang. 130 or equivalent.
- 150. German III.** 3 semester hours. First semester and summer.
Prerequisite: Mod. Lang. 140 or equivalent.
- 160. German IV.** 3 semester hours. Second semester.
Prerequisite: Mod. Lang. 160 or equivalent.
- 170. German V.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 160 or equivalent.
- 190. Russian I.** 3 semester hours. First semester.
Prerequisite: Six hours of some other foreign language.
- 195. Russian II.** 3 semester hours. Second semester.
Prerequisite: Mod. Lang. 190.
- 210. French I.** 3 semester hours. Each semester and summer.
- 220. French II.** 3 semester hours. Each semester and summer.
Prerequisite: Mod. Lang. 210 or equivalent.
- 230. French III.** 3 semester hours. First semester and summer.
Prerequisite: Mod. Lang. 220 or equivalent.
- 240. French IV.** 3 semester hours. Second semester.
Prerequisite: Mod. Lang. 230 or equivalent.
- 250. French V.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 240 or equivalent.
- 260. French Composition and Conversation.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 240.
- 270. Advanced French Composition and Conversation.** 3 semester hours.
First or second semester.
Prerequisite: Mod. Lang. 270 or equivalent.
- 300. Spanish I.** 3 semester hours. Each semester and summer.
- 310. Spanish II.** 3 semester hours. Each semester and summer.
Prerequisite: Mod. Lang. 300 or equivalent.
- 320. Spanish III.** 3 semester hours. First semester and summer.
Prerequisite: Mod. Lang. 310 or equivalent.
- 330. Spanish IV.** 3 semester hours. Second semester.
Prerequisite: Mod. Lang. 320 or equivalent.
- 340. Spanish V.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 330 or equivalent.
- 350. Spanish Composition and Conversation.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 330 or equivalent.

- 360. Advanced Spanish Composition and Conversation.** 3 semester hours.
First or second semester.
Prerequisite: Mod. Lang. 350 or equivalent.
- 380. Italian I.** 3 semester hours. First semester.
- 385. Italian II.** 3 semester hours. Second semester.
Prerequisite: Mod. Lang. 380 or equivalent.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 405. Schiller.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 170 or equivalent.
- 420. Goethe.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 170 or equivalent.
- 435. German Drama I.** 3 semester hours. First or second semester.
Prerequisite: Twenty-four hours of college German or equivalent.
- 450. German Drama II.** 3 semester hours. First or second semester.
Prerequisite: Twenty-four hours of college German or equivalent.
- 465. Survey of German Literature I.** 3 semester hours. First or second semester.
Prerequisite: Thirty hours of college German or equivalent.
- 480. Survey of German Literature II.** 3 semester hours. First or second semester.
Prerequisite: Thirty hours of college German or equivalent.
- 520. French Novel.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 250 or equivalent.
- 540. French Drama.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 250 or equivalent.
- 560. Moliere.** 3 semester hours. First or second semester.
Prerequisite: Twenty-four hours of college French or equivalent.
- 580. Contemporary French Literature.** 3 semester hours. First or second semester.
Prerequisite: Twenty-four hours of college French or equivalent.
- 610. Spanish Novel.** 3 semester hours. First or second semester.
Prerequisite: Fifteen hours of college Spanish or equivalent.
- 620. Spanish Drama.** 3 semester hours. First or second semester.
Prerequisite: Fifteen hours of college Spanish or equivalent.
- 630. Spanish-American Literature I.** 3 semester hours. First or second semester.
Prerequisite: Eighteen hours of college Spanish or equivalent.
- 640. Spanish-American Literature II.** 3 semester hours. First or second semester.
Prerequisite: Eighteen hours of college Spanish or equivalent.
- 650. Cervantes.** 3 semester hours. First or second semester.
Prerequisite: Twenty-four hours of college Spanish or equivalent.
- 660. Contemporary Spanish Literature.** 3 semester hours. First or second semester.
Prerequisite: Twenty-four hours of college Spanish or equivalent.
- 750. Introduction to Philology.** 2 semester hours. First or second semester.
Prerequisite: Thirty hours in modern languages or equivalent.
- 799. Problems in Modern Languages.** Credit to be arranged. Each semester and summer.

FOR GRADUATE CREDIT

999. Research in Modern Languages. Credit to be arranged.

Prerequisite: Thirty hours in one modern language or equivalent.

MUSIC

LUTHER O. LEAVENGOOD, *Head of Department*

For the thirty-hour major in the Curriculum in Humanities, the following courses are required: Instrument, or Voice, six hours; Mus. 150, 155, 160, 165, 220, 225, and eight elective hours. This major is not intended to prepare students to teach music as a major field in the public schools of Kansas.

For a minor, the following courses are required: Mus. 080 (2 semesters), 105, 150, 155, 230, 235, 240, 245, 275, or 285 (4 hours), 290 (4 hours).

Students who intend to be certified to teach music in the public schools of Kansas as a secondary teaching subject only must take in addition to the courses required for a minor in music the following courses: For grade supervisors and choral directors, Mus. 116, 131, and two years in a choral organization; for band and orchestra directors, Mus. 125, 132, and two years in band or orchestra.

Prerequisites for students taking a thirty-hour major in music in the Curriculum in Humanities are the same as for candidates for the Bachelor of Science degree in Music Education.

Courses in music are available to any student enrolled in the College, subject to the prerequisites listed under course descriptions. Courses in applied music do not require prerequisites for the nonmusic major, but such students should have some knowledge of notation and fundamentals of music. This elective credit in applied music, however, cannot be used later toward a music degree unless it meets the requirements of that course. (See course requirements.) No more than two credits a semester will be granted for applied music as an elective.

Requirements for Entrance and Graduation

Students planning to major in the curriculums in music education or applied music must take an examination for musical aptitude.

Preliminary examinations in piano must be taken by all students majoring in music regardless of what curriculum is selected.

The above examinations are compulsory before any enrollment is made. For dates of examinations, consult the Calendar.

General Information

Regular attendance at student and faculty recitals, choral and orchestral concerts, and the artist series is required of all music majors. Recital cards are kept, and seventy-five percent attendance is required for graduation.

All students enrolled in music must have the consent of their instructor in order to perform in public or on the radio.

Practice room privileges are covered by the fees for private lessons for students who are regularly enrolled in College. All others must pay the fee stated following Mus. 900.

The various courses in Voice or Instrument are divided into grades. Students majoring in either the Curriculum in Applied Music or the Curriculum in Music Education must satisfy the following requirements for entrance in order to receive credit for the work and complete the grade indicated under each major before graduation.

Curriculum in Applied Music

Piano Majors: Students majoring in piano must pass grade 6 upon entrance and complete grade 10 by the end of the senior year.

Voice Majors: Students majoring in voice must pass grade 2 of the voice

curriculum and grade 2 of the piano curriculum upon entrance and complete grade 6 in voice and grade 4 in piano by the end of the senior year.

Organ Majors: Students majoring in organ must pass grade 6 of the piano curriculum upon entrance and complete grade 4 of the organ curriculum by the end of the senior year.

String Majors: Students majoring in stringed instruments must pass grade 6 upon entrance and complete grade 10 by the end of the senior year.

Woodwind and Brass Majors: Students majoring in woodwind or brass instruments must pass grade 4 upon their major instrument upon entrance and complete grade 8 by the end of the senior year. In addition, all instrumental majors must pass grade 1 in piano for entrance and complete grade 3 by the end of the senior year.

Curriculum in Music Education

Piano Majors: Students majoring in piano must grade 3 in the piano upon entrance and complete grade 7 by the end of the senior year.

Voice Majors: No specific entrance requirement. However, a student should possess the ability to sing in time and in tune. Students majoring in voice must pass grade 2 in piano. For graduation voice majors must complete grade 4 of the voice curriculum and grade 4 of the piano curriculum.

Organ Majors: Students majoring in organ must pass grade 6 of the piano curriculum upon entrance and complete grade 2 of the organ curriculum by the end of the senior year.

String Majors: Students majoring in stringed instruments must pass grade 3 upon their major instrument and grade 1 of the piano curriculum upon entrance. They must complete grade 7 of the major instrument and grade 3 of the piano curriculum by the end of the senior year.

Woodwind and Brass Majors: Students majoring in woodwind or brass instruments must pass grade 1 upon their major instrument and grade 1 of the piano curriculum upon entrance. They must complete grade 5 of the major instrument and grade 3 of the piano curriculum by the end of the senior year.

Outlines of each of the curriculums in music may be secured upon request from the head of the Department of Music. In each case, the major instrument should be specified.

COURSES IN THE THEORY OF MUSIC

FOR UNDERGRADUATE CREDIT

105. Music Fundamentals. 2 semester hours. First semester and summer. Elementary instruction in the theory of music. Three hours of recitation a week. Not open to students in music curriculums.

110. Methods and Materials in School Music for Elementary Teachers. 3 semester hours. Second semester and summer.

116. School Music I. 3 semester hours. Each semester and summer. Methods and materials for teaching music in kindergarten, primary, and intermediate grades. Prerequisite: Mus. 155 or consent of instructor.

121. School Music II. 3 semester hours. Each semester and summer. Methods and teaching materials suitable for junior and senior high school. Prerequisite: Mus. 116 or consent of instructor.

132. Instrumental Methods. 3 semester hours. First semester and summer.

Organization of the instrumental music program in the grades, the junior and senior high schools. Methods and materials for instrumental classes.

150. Theory of Music I. 3 semester hours. First semester and summer.

An integrated course comprising ear training, sight singing, keyboard assignments and the principles of diatonic harmony. Five hours of recitation a week.

- 155. Theory of Music II.** 3 semester hours. Second semester and summer. Continuation of Mus. 150. Five hours of recitation a week. Prerequisite: Mus. 155.
- 160. Theory of Music III.** 3 semester hours. First semester and summer. Intensified study of chord connections; choral harmonization; non-harmonic tones and chromatic harmony; continuation of integrated work in ear training and keyboard harmony; clef transpositions. Five hours of recitation a week. Prerequisite: Mus. 155.
- 165. Theory of Music IV.** 3 semester hours. Second semester and summer. Continuation of Mus. 160. Five hours of recitation a week. Prerequisite: Mus. 160.
- 170. Counterpoint I.** 2 semester hours. First semester and summer. Devices of counterpoint and imitation leading to the writing of short contrapuntal compositions in two voices. Analysis of choral preludes and inventions. Prerequisite: Mus. 165.
- 175. Counterpoint II.** 2 semester hours. Second semester and summer. A continuation of Mus. 170. Contrapuntal composition in three or four voices. Analysis of the fugue. Prerequisite: Mus. 170.
- 180. Musical Form and Analysis.** 2 semester hours. Each semester and summer. Forms used in composition; the music of Bach, Haydn, Mozart, Beethoven, Schumann, Chopin, Brahms, Wagner, and others. Prerequisite: Mus. 165.
- 183. Instrumentation and Orchestration I.** 2 semester hours. First semester and summer. Instruments of the band and orchestra studies with relation to tone, color, range, and function. Prerequisite: Mus. 165.
- 186. Instrumentation and Orchestration II.** 2 semester hours. Second semester and summer. Simple and familiar compositions scored for ensemble, including full orchestra. Prerequisite: Mus. 183.
- 190. History of Music I.** 2 semester hours. First semester and summer. Chronological study of significant musical trends; the influence of cultural forces upon musical developments; the contributions of individual composers.
- 195. History of Music II.** 2 semester hours. Second semester and summer. Continuation of Mus. 190. Prerequisite: Mus. 190.
- 210. Composition I.** 2 semester hours. First semester and summer. Composition in the small forms for piano, voice, and instruments. Development of style conception. Prerequisite: Mus. 175 and concurrent enrollment in Mus. 180.
- 215. Composition II.** 2 semester hours. Second semester and summer. Continuation of Mus. 210 with emphasis on more complex treatment of the small forms and compound forms. Prerequisite: Mus. 210.
- 222. Theory of Conducting.** 2 semester hours. First semester and summer. Basic meters and the proper method of executing each; introduction to score reading and transposition. Prerequisite: Mus. 165.
- 230. Orchestral Instruments I.** 1 semester hour. Each semester and summer. Methods of tone production of instruments of the orchestra. Two hours of laboratory a week.
- 235. Orchestral Instruments II.** 1 semester hour. Each semester and summer. Continuation of Mus. 230. Two hours of recitation and one hour of laboratory a week.

240. Orchestral Instruments III. 1 semester hour. Each semester and summer.

Continuation of Mus. 235. Two hours of recitation and one hour of laboratory a week.

245. Orchestral Instruments IV. 1 semester hour. Each semester and summer.

Continuation of Mus. 240. Two hours of recitation and one hour of laboratory a week.

247. Orchestral Instruments V. 1 semester hour. Second semester and summer.

Continuation of Mus. 245. Two hours of recitation and one hour of laboratory a week.

250. Appreciation of Music. 2 semester hours. Each semester and summer.

A study of musical materials, forms, and styles that will enable the listener to enjoy more fully the music which he may hear at concerts, in broadcasts, and on records.

255. Broadcast Musical Programs. 2 semester hours. Each semester and summer.

Planning and arranging broadcasts of musical programs; copyright law as applied to musical broadcasts; theme, transitional, background, and incidental music; microphone technic applied to music. Three hours of recitation a week. Prerequisite: Sp. 275 or equivalent.

FOR UNDERGRADUATE AND GRADUATE CREDIT

415. Music Supervision. 2 semester hours. (See Educ. 470.) Second semester and summer.

Organization, administration, and supervision of music in public schools; materials, methods, organizations, public performances, and festivals. Prerequisite: Mus. 125.

425. Methods and Materials for the Studio. 1 semester hour. Each semester.

Methods of teaching fundamentals technic; selection of teaching materials, and outlining of courses of study. For students in the Curriculum in Music (Applied); taught in separate divisions for voice, piano, organ, and violin. Two hours of recitation a week.

430. Practice Teaching in Applied Music. 1 semester hour. Second semester.

Practice teaching in private classes for students in the curriculum of Applied Music. Prerequisite: Mus. 425.

435. Techniques of the Marching Band. 2 semester hours. First semester.

Band instrumentation; problems of the band on the field, the drum major. Prerequisite: Mus. 132, 247.

440. Advanced Conducting. 2 semester hours. Summer.

Score reading, crosscuing, development of left hand technique. Prerequisite: Mus. 222 and consent of instructor.

445. Ensemble. 1 semester hour. Each semester and summer.

A graduate course in ensemble techniques and materials. Prerequisite: Consent of instructor.

455. Psychology of Music. 3 semester hours. Summer.

Physical and emotional appeal of music, perceptual and musical organization of sound and rhythm; psychology of listening, performing, and composing with a review of experimental studies in these areas; measurement and diagnosis of musical abilities: musical personality. Prerequisite: Psych. 310.

465. Seminar in Music Education. 3 semester hours. First semester.

Special phases of music education adapted to needs of the student enrolled. Prerequisite: Mus. 125.

475. Choral Problems. Credit to be arranged. Summer.

Sight reading, octavo, cantata, and operetta literature for junior and senior high school; problems concerned with the production and staging of choral programs and operettas. Prerequisite: Senior standing.

515. Advanced Theory I. 3 semester hours. First semester.

Combination of harmony, counterpoint, and form as used in compositions in their historical setting. Prerequisite: Mus. 165, 180.

525. Advanced Theory II. 3 semester hours. Second semester.

Modern chord structures, atonality, polytonality, form used in contemporary compositions. Prerequisite: Mus. 165, 180.

545. Organ Registration. 2 semester hours. First semester.

Study of organ specifications and construction as they apply to the practice of the combination of tone. Four hours of recitation a week. Prerequisite: Two semesters of organ or equivalent playing ability.

555. Service Playing. 2 semester hours. Second semester.

Problems in playing services in the various liturgical and nonliturgical churches. Four hours of recitation a week. Prerequisite: Two semesters of organ or equivalent playing ability.

565. Advanced Instrumental Methods. 2 semester hours. Second semester.

Methods, repertoire, conducting, contest, interpretation, individual instruction, and ensembles. Prerequisite: Mus. 130, 135.

605. The Opera. 2 semester hours. First semester.

Survey of the history of opera from 1600 to the present, with a detailed study of a number of the most important operas. Prerequisite: Mus. 131 or Gen. Stud. 132 or equivalent.

615. Baroque Music: Bach and Handel. 2 semester hours. Second semester.

Study of the music of the Baroque period, c. 1600-1750, with emphasis on the music of Bach and Handel. Prerequisite: Mus. 165 and Gen. Stud. 260 or equivalent.

625. The Symphony. 2 semester hours. Summer.

History of the symphony from 1750 to the present, including a survey of pre-symphonic orchestral literature. Prerequisite: Senior standing.

635. Music in History. 3 semester hours. First semester and summer.

Historical developments of music; its relationship to architecture, painting, sculpture, fine arts; its relationship to political, economic, social, and religious life. Prerequisite: Senior standing.

645. Music Literature I. 2 semester hours. First semester and summer.

Style characteristics of music as revealed through a careful analysis of the music of different periods.

655. Music Literature II. 2 semester hours. Second semester and summer.

Continuation of Mus. 645. Prerequisite: Mus. 645.

665. Pedagogy of Music Theory. 2 semester hours. Summer.

The high school theory course, its objects and content; ear-training techniques and development of creative work; music history and appreciation in a high school program. Prerequisite: Mus. 165.

675. Techniques and Materials of Instrumental Music. 1 semester hour. Summer.

Prerequisite: Mus. 132 or consent of instructor.

799. Problems in Music. Credit to be arranged. Each semester and summer.

Prerequisite: Senior standing and consent of instructor.

FOR GRADUATE CREDIT

- 999. Research in Music.** Credit to be arranged. Each semester and summer.
Prerequisite: Graduate standing and consent of instructor.

COURSES IN APPLIED MUSIC

FOR UNDERGRADUATE CREDIT

- 080. Piano Ensemble.** 0 credit. Each semester. One hour of recitation a week.
Required of students enrolled in the music curriculums.
- 090. Recital Attendance.** 0 credit. Each semester.
- 270. Laboratory Orchestra.** 0 to 1 semester hour. Each semester.
- 273. Laboratory Choir.** 0 to 1 semester hour. Each semester.
- 275. Piano.** 0 to 4 semester hours; maximum of 32 hours allowed. Each semester and summer.
For fees, see table following Mus. 900.
- 277. Organ.** 0 to 4 semester hours; maximum of 32 hours allowed. Each semester and summer.
For fees, see table following Mus. 900.
- 279. Voice.** 0 to 4 semester hours; maximum of 32 hours allowed. Each semester and summer.
For fees, see table following Mus. 900.
- 283. Violin.** 0 to 4 semester hours; maximum of 32 hours allowed. Each semester and summer.
For fees, see table following Mus. 900.
- 286. Viola.** 0 to 4 semester hours; maximum of 32 hours allowed. Each semester and summer.
For fees, see table following Mus. 900.
- 289. Violoncello.** 0 to 4 semester hours; maximum of 32 hours allowed. Each semester and summer.
For fees, see table following Mus. 900.
- 291. Double Bass.** 0 to 4 semester hours; maximum of 32 hours allowed. Each semester and summer.
For fees, see table following Mus. 900.
- 293. Flute.** 0 to 4 semester hours; maximum of 32 hours allowed. Each semester and summer.
For fees, see table following Mus. 900.
- 296. Oboe.** 0 to 4 semester hours; maximum of 32 hours allowed. Each semester and summer.
For fees, see table following Mus. 900.
- 298. Clarinet.** 0 to 4 semester hours; maximum of 32 hours allowed. Each semester and summer.
For fees, see table following Mus. 900.
- 301. Bassoon.** 0 to 4 semester hours; maximum of 32 hours allowed. Each semester and summer.
For fees, see table following Mus. 900.
- 303. Saxophone.** 0 to 4 semester hours; maximum of 32 hours allowed. Each semester and summer.
For fees, see table following Mus. 900.
- 308. Trumpet.** 0 to 4 semester hours; maximum of 32 hours allowed. Each semester and summer.
For fees, see table following Mus. 900.

- 311. Trombone.** 0 to 4 semester hours; maximum of 32 hours allowed.
Each semester and summer.
For fees, see table following Mus. 900.
- 313. Tuba.** 0 to 4 semester hours; maximum of 32 hours allowed. Each semester and summer.
For fees, see table following Mus. 900.
- 316. Percussion.** 0 to 4 semester hours; maximum of 32 hours allowed.
Each semester and summer.
For fees, see table following Mus. 900.
- 320. Junior Recital.** 1 semester hour. Second semester.
A joint solo recital appearance. For students in the Curriculum in Applied Music.
- 325. Senior Recital.** 2 semester hours. Second semester.
An individual solo recital appearance. For students in the Curriculum in Applied Music.
- 330. Vocal Ensemble.** 1 semester hour. Each semester and summer.
Two hours of laboratory a week.
Elective for students of superior vocal talent.
- 335. Instrumental Ensemble.** 1 semester hour. Each semester and summer. Three hours of laboratory a week.
Elective for selected students.
- 350. A Cappella Choir.** 0 in curriculums in music; 1 semester hour in other curriculums. Each semester.
Membership by tryouts open to all students.
- 360. College Chorus.** 0 in curriculums in music; 1 semester hour in other curriculums. Each semester.
Membership by tryouts open to all students.
- 365. Madrigal Singers.** 1 semester hour. Each semester.
Membership by tryout; open to all students.
- 370. Orchestra.** 0 in curriculums in music; 1 semester hour in other curriculums. Each semester.
Membership by tryouts open to all students.
- 375. Band.** 0 in curriculums in music; 1 semester hour in other curriculums. Each semester.
Membership by tryouts open to all students.

FOR GRADUATE CREDIT

- 900. Applied Music.** Credit to be arranged. Each semester and summer.
Prerequisite: Consent of instructor.

FEES IN MUSIC

Enrolled College Students

Voice, Piano, Organ, Violin, Violoncello, and other instruments:

Two 30-minute lessons each week for a semester including two hours practice room daily—\$35.

One 30-minute lesson each week for a semester including one hour practice room daily—\$17.50.

Single lesson rate—\$1.50.

Persons Not College Students

Voice, Piano, Organ, Violin, Violoncello, and all other instruments:

Two 30-minute lessons each week for a semester—\$42.

One 30-minute lesson each week for a semester—\$23.

Single lesson rate—\$2.

Practice room, one hour daily for a semester—\$3.

Practice room, two hours daily for a semester—\$5.

Practice room, per additional hour daily for a semester—\$2.50.

Organ rent, one hour daily for a semester—\$10.

Lessons scheduled on legal holidays which are observed by the College will not be made up.

Lessons which fall on school holidays will be made up at the convenience of the teacher.

Instructors are not required to arrange to make up lessons missed by students. In cases of illness or other physical disabilities, however, the instructor may arrange for the make up of lessons.

Lessons missed because of the instructor's absence will be made up.

PHYSICAL EDUCATION

THOMAS M. EVANS, *Head of Department*

Each student receives a physical examination before enrollment in courses in the Department of Physical Education. Students should take courses 010 for men and 055 for women to satisfy the physical education requirement. Transfer students who enter this College with 15, 25, 44, or 59 hours of credit are excused from one, two, three, or four semesters, respectively, of Phys. Ed. 010 or 055.

For a major, a student should enroll in one of the curriculums in Physical Education.

COURSES IN PHYSICAL EDUCATION FOR MEN

FOR UNDERGRADUATE CREDIT

010. Physical Education M. No credit. Each semester and summer.

Activities offered: Athletic sports, apparatus work, boxing, calisthenics, individual physical education, swimming, tumbling, and wrestling.

105. Introduction to Physical Education. 1 semester hour. First semester.

Introductory survey of the field and study of the principles of health and physical education.

110. History of Physical Education. 2 semester hours. First semester.

Prerequisite: Phys. Ed. 105.

115. Physical Education Activities I. 2 semester hours. First semester.

Practice and teaching methods of soccer, volleyball, gymnasium games; boxing and wrestling. Six hours of laboratory a week.

120. Physical Education Activities II. 2 semester hours. Second semester.

Theory and practice of calisthenics, the gymnastic lesson, and tumbling. Six hours of laboratory a week.

125. Physical Education Activities III. 2 semester hours. First semester.

Graded exercises on gymnasium apparatus, rhythms, and pyramids. Six hours of laboratory a week.

130. Nature and Function of Play. 2 semester hours. First semester.

Theoretical explanations of play; age and sex characteristics which influence play; values of play to individual and community. Prerequisite: Psych. 310.

140. Community Hygiene. 2 semester hours. Second semester.

Production, improvement, maintenance, and defense of public health. Prerequisite: Phys. Ed. 135.

- 155. Athletic Injuries and First Aid.** 3 semester hours. Second semester and summer.

Standard and advanced Red Cross First Aid certificates given for successful completion of work. Principles and practice of massage, taping, and care of minor athletic injuries. Prerequisite: Zool. 210.

- 160. Health Examinations.** 3 semester hours. First semester.

Methods of giving health examinations; postural deviations; corrective exercise. Prerequisite: Phys. Ed. 145.

- 165. Public School Program in Physical Education.** 2 semester hours. Second semester.

Educational, health, and recreative significance and content of the school program; types of activities to be used in grades and high school. Prerequisite: Senior standing.

- 170. Practice Teaching in Physical Education.** 2 semester hours. Second semester.

Supervised students assist in physical education classes and officiate in intramural games. Six hours of laboratory a week.

- 180. Community Health.** 1 semester hour. Summer.

The control of communicable disease; food, water, waste, and other sanitary problems; ventilation, heating, and lighting; public health procedures.

- 185. Swimming M.** 1 semester hour. Second semester and summer.

Theory and practice of various swimming strokes, diving, treading water, and floating. Methods of teaching swimming. Three hours of laboratory a week. Prerequisite: One semester of swimming or passing Red Cross intermediate swimmer's test.

- 190. Technics of Football.** 2 semester hours. Second semester. Study of rules, theory, and practice; methods of coaching.

- 195. Technics of Basketball.** 2 semester hours. First semester. Study of rules, theory, and practice; methods of coaching.

- 200. Technics of Baseball.** 2 semester hours. First semester. Study of rules, theory, and practice; methods of coaching.

- 205. Technics of Track and Field.** 2 semester hours. Second semester. Study of rules, theory, and practice; methods of coaching.

- 210. Tennis and Golf.** 1 semester hour. Second semester. Study of rules, theory, and practice; methods of coaching.

- 215. Sports Officiating.** 1 semester hour. First semester. Principles and practices of officiating athletic games.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 425. Community Recreation.** 2 semester hours. Second semester and summer.

A study of the organization and activities of club work for youth, camping, playgrounds, and indoor recreation centers. Prerequisite: Phys. Ed. 130, Psych. 310.

- 445. Physiology of Exercise.** 2 semester hours. Second semester and summer.

Effects of exercise on the tissues, systems, and organs of the body. Prerequisite: Zool. 465.

- 465. Tests and Measurements in Physical Education.** 3 semester hours. First semester and summer.

A study of capacity, achievement, knowledge, and skill tests, for purposes of classification and measurement of school progress. Prerequisite: Educ. 405.

- 485. Curriculum Construction in Physical Education.** 2 semester hours.
Second semester and summer.
A study of materials, problems, and guiding principles involved in curriculum construction. Prerequisite: Phys. Ed. 165 or equivalent.
- 505. Administration of Physical Education in Colleges and Universities.**
2 semester hours. First semester and summer.
- 525. Advanced Methods of Teaching Physical Education.** 2 semester hours. Second semester and summer.
Prerequisite: Phys. Ed. 105 or equivalent.
- 545. Seminar in Physical Education.** Credit to be arranged.
Recent trends and problems in physical education. Prerequisite: Senior standing and consent of instructor.
- 565. Seminar in Health Education.** Credit to be arranged.
Recent trends and problems in health education. Prerequisite: Phys. Ed. 150 and consent of instructor.

FOR GRADUATE CREDIT

- 820. Supervision of Physical Education.** 2 semester hours. Second semester and summer.
A study of the objectives, organization, and methods of supervision for elementary and secondary schools. Prerequisite: Educ. 150, Phys. Ed. 150.
- 840. Administration of School Health Education Program.** 2 semester hours. First semester and summer.
A study of the organization and administration of health service, health instruction, and health environment for primary and secondary schools; health councils. Prerequisite: Phys. Ed. 175.
- 999. Research in Physical Education.** Credit to be arranged.
Prerequisite: Variable, depending on problem chosen.

COURSES IN PHYSICAL EDUCATION FOR WOMEN

KATHERINE GEYER, *In Charge*

Recreational swimming is offered on Tuesdays and Thursdays at 5 o'clock for women registered in College.

FOR UNDERGRADUATE CREDIT

- 055. Physical Education W.** No credit. Required. Each semester and summer.
Activities offered: Archery, basketball, bowling, folk and tap dancing, golf, hockey, individual and Danish gymnastics, modern dance; recreational sports, rifle, soccer, softball, social dancing, swimming, and tennis.
- 065. Physical Education W Lectures.** Required credit. Each semester.
Required of women enrolled in the Curriculum in Physical Education for Women. Orientation and general survey of the field, health, physical education, and recreation.
- 255. Self-testing Activities.** 2 semester hours. First semester.
The practice of self-testing activities, motor ability tests, and the administration of related knowledge tests for the purpose of determining student exemption from service courses in soccer, softball, volleyball, basketball, swimming, tennis, and rhythms. One hour of recitation and three hours of laboratory a week.
- 265. Recreational Leadership W.** 2 semester hours. Second semester.
Principles and methods of organizing communities for leisure activities.

- 270. Tumbling and Recreational Sports.** 2 semester hours. Second semester.
Theory and practice of tumbling and recreational sports. One hour of recitation and three hours of laboratory a week.
- 275. Fundamental Rhythms.** 2 semester hours. First semester.
Body rhythm, fundamentals of music, and percussion accompaniment for rhythmic activities. One hour of recitation and three hours of laboratory a week.
- 280. Playground Management and Games.** 3 semester hours. Second semester and summer.
Organization and administration of playground activities and equipment; history of the playground movement, types of games suitable for different age periods; practice teaching in elementary schools. Two hours of recitation and three hours of laboratory a week.
- 285. Individual Activities.** 2 semester hours. Second semester.
Methods of teaching tennis, badminton, and body conditioning exercises. One hour of recitation and three hours of laboratory a week. Prerequisite: Ability to play tennis.
- 295. Team Sports I.** 2 semester hours. First semester.
Methods of teaching softball, hockey, and volleyball. One hour of recitation and three hours of laboratory a week. Prerequisite: Ability to play softball, volleyball, and hockey.
- 300. Team Sports II.** 2 semester hours. First semester.
Methods of teaching soccer, speedball, and basketball. One hour of recitation and three hours of laboratory a week. Prerequisite: Ability to play soccer or speedball and basketball.
- 305. Health Examinations and First Aid.** 3 semester hours. First semester.
Methods of giving health examinations, analysis of normal body mechanics, postural deviations; first aid emergency treatment. Two hours of recitation and three hours of laboratory a week. Prerequisite: Phys. Ed. 290, Zool. 210, 465.
- 315. Therapeutics and Massage.** 3 semester hours. Second semester.
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. Two hours of recitation and three hours of laboratory a week. Prerequisite: Phys. Ed. 290, 305, Zool. 210.
- 320. Folk, Tap, and Social Dance.** 2 semester hours. Second semester.
Methods of teaching folk, tap, and social dance to all age levels. Six hours of laboratory a week. Prerequisite: Phys. Ed. 275 and one semester of Phys. Ed. 055 in folk, tap, and social dance.
- 325. Modern Dance.** 2 semester hours. First semester.
History of the dance, methods of teaching modern dance. One hour of recitation and three hours of laboratory a week. Prerequisite: Semester each of beginning and intermediate modern dance.
- 330. Teaching and Adaptation of Physical Education.** 3 semester hours. First semester.
Organization of physical education material for a progressive program in elementary schools, and junior and senior high schools; teaching methods to achieve desired aims of education. Prerequisite: Phys. Ed. 255, 270, 280, 285, 295, 300, 320.
- 340. Swimming and Archery.** 2 semester hours. Second semester.
Methods of teaching swimming and archery. One hour of recitation and three hours of laboratory a week. Prerequisite: Semester each of beginning and intermediate swimming and archery.

345. Dance Composition. 1 semester hour. Each semester.

Advanced modern dance technique, composition and accompaniment. Participation in one studio production. Three hours of laboratory a week. Prerequisite: Phys. Ed. 055, one semester of modern dance, or consent of instructor. May not be taken more than four semesters for credit.

350. First Aid. 2 semester hours. Each semester and summer.

Prevention of accidents and the treatment of injuries in an emergency. Upon satisfactory completion of this course, a certificate is awarded by the American Red Cross and the holder is in line for consideration as an instructor in first aid. Not open to students in the curriculum in Physical Education.

355. Principles and Philosophy of Physical Education. 3 semester hours. First semester.

Aims and objectives of physical education, historical development, relation to general education, analysis of programs and methods. Prerequisite: Sophomore standing.

365. Health and Safety Education W. 2 semester hours. Summer.

Organization of material pertaining to health and hygiene, safety, and accident prevention, as recommended for the schools of Kansas.

COURSES FOR MEN AND WOMEN

FOR UNDERGRADUATE CREDIT

135. Personal Hygiene. 2 semester hours. First semester and summer.**150. Administration of Health and Physical Education.** 3 semester hours. First semester.

Prerequisite: Junior standing.

175. Teaching Health. 2 semester hours. Second semester.

Materials and methods of teaching health at the junior and senior high school level. Prerequisite: Phys. Ed. 140, Zool. 210, 465.

220. Methods in Physical Education in Elementary Schools. 2 semester hours. Summer.

Methods of teaching and organization of material for a progressive elementary school program.

290. Kinesiology. 2 semester hours. Second semester.

Mechanics of movement; body movements analyzed and principles involved applied to the teaching of physical education. Prerequisite: Zool. 210.

FOR UNDERGRADUATE AND GRADUATE CREDIT

799. Problems in Physical Education. Credit to be arranged.

Prerequisite: Variable, depending on problem chosen.

PHYSICS

STUART E. WHITCOMB, *Head of Department*

For a minor, the following courses should be completed: Phys. 110, 120 (or 130, 140), 410, 420, 470, 480.

For a major, the student should enroll in the Curriculum in Industrial Physics, and prospective teachers should enroll in the Curriculum in Physical Science.

110. General Physics I. 4 semester hours. Each semester and summer.

Mechanics, heat, and sound. Three hours of recitation and three hours of laboratory a week. Prerequisite: Math. 190.

- 120. General Physics II.** 4 semester hours. Each semester and summer. Magnetism, electricity, and light. Three hours of recitation and three hours of laboratory a week. Prerequisite: Phys. 110.
- 130. Engineering Physics I.** 5 semester hours. Each semester and summer. Mechanics, heat, and sound for technical students. Four hours of recitation and three hours of laboratory a week. Prerequisite: Math. 190.
- 140. Engineering Physics II.** 5 semester hours. Each semester and summer. Magnetism, electricity, and light for technical students. Four hours of recitation and three hours of laboratory a week. Prerequisite: Phys. 130.
- 210. Household Physics.** 4 semester hours. Each semester and summer. Physical laws and principles involved in household appliances. Three hours of recitation and three hours of laboratory a week.
- 220. Descriptive Physics.** 3 semester hours. Each semester. Two hours of recitation and three hours of laboratory a week.
- 230. Agricultural Physics.** 3 semester hours. Each semester and summer. Fundamental principles as related to agriculture. Required of students in agriculture who enter without high-school physics. Two hours of recitation and three hours of laboratory a week.
- 240. Physics of Musicians.** 2 semester hours. Each semester. Selected topics applied to the physics of music and musical instruments.
- 310. Laboratory Technic.** 1 semester hour. Each semester. Glass blowing and special shop work, primarily for major students in physics. Three hours of laboratory a week.
- 320. Intermediate Physics.** 3 semester hours. First semester. Prerequisite: Phys. 120 or 140, Math. 245 or 290.
- 350. Descriptive Astronomy.** 3 semester hours. Each semester.
- 360. Introductory Meteorology.** 3 semester hours. Each semester. Weather phenomena and principles of forecasting; climatic factors; relation of weather studies to agriculture, general science, and physiography.
- 370. Photography.** 2 semester hours. Each semester and summer. Chemical and physical principles involved in photography; practice in making good negatives and prints. One hour of recitation and three hours of laboratory a week.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 410. Light.** 3 semester hours. First semester. Prerequisite: Math. 245 or 290, Phys. 120 or 140.
- 420. Light Laboratory.** 1 semester hour. Prerequisite: Phys. 410 or concurrent enrollment.
- 430. Mechanics.** 3 semester hours. Second semester. Theoretical mechanics by methods of the calculus with an introduction to generalized co-ordinates. Prerequisite: Phys. 320.
- 440. Sound.** 3 semester hours. Prerequisite: Math. 245 or 290, Phys. 120 or 140.
- 450. Heat and Thermodynamics.** 3 semester hours. Second semester and alternate summers. Prerequisite: Math. 245 or 290, Phys. 120 or 140.
- 460. Heat Laboratory.** 1 semester hour. Prerequisite: Phys. 450 or concurrent enrollment.

- 470. Electricity and Magnetism.** 3 semester hours. Second semester.
Electricity and magnetism by methods of the calculus. Prerequisite: Phys. 320 or consent of instructor.
- 480. Electricity and Magnetism Laboratory.** 1 semester hour.
Prerequisite: Phys. 470 or concurrent enrollment.
- 515. Electronic Physics I.** 4 semester hours. First semester.
Three hours of recitation and three hours of laboratory a week. Prerequisite: Math. 245 or 290, Phys. 470, 480.
- 530. Electronic Physics II.** 3 semester hours.
Prerequisite: Phys. 515.
- 545. Advanced Electronic Physics Laboratory.** 1 semester hour.
Prerequisite: Phys. 515.
- 560. Atomic Physics.** 3 semester hours. First semester.
Contemporary theories and problems. Prerequisite: Math. 245 or 290, Phys. 120 or 140.
- 575. Nuclear Physics.** 3 semester hours. Second semester.
Modern theories of nuclear physics. Prerequisite: Phys. 560 or consent of instructor.
- 590. Modern Physics Laboratory.** 1 semester hour.
Prerequisite: Phys. 560 or concurrent enrollment.
- 604. X-ray and Crystal Physics.** 3 semester hours.
Prerequisite: Phys. 470.
- 607. X-ray Laboratory.** 1 semester hour.
Three hours of laboratory a week. Prerequisite: Phys. 604 or concurrent enrollment.
- 615. Geophysics.** 3 semester hours.
Theory of the field work in gravitational, magnetic, electrical, seismic, radioactive, and temperature surveys. Prerequisite: Phys. 120 or 104.
- 625. Applied Spectroscopy.** 3 semester hours. Second semester.
Spectrographic methods for detecting, qualitatively and quantitatively, chemical constituents of minerals, metals, and biological specimens. Two hours of recitation and three hours of laboratory a week.
- 635. Radioactive Tracer Techniques.** 3 semester hours. When scheduled or on request of a sufficient number. (See Chem. 635.)
Physics and chemistry of radioactive substances in fields of biological and physical science. Two hours recitation and three hours of laboratory a week. Taught in co-operation with the Department of Chemistry. Prerequisite: Consent of instructors.
- 740. Colloquium in Physics.**
Required of graduate majors and undergraduate majors.
- 799. Topics in Physics.** Credit to be arranged.
Work is offered in electricity, electronics, heat, light, mechanics, nuclear physics, sound and vibrations, spectroscopy, and X-ray. Prerequisite: Phys. 120 or 140.

FOR GRADUATE CREDIT

- 805. Introduction to Theoretical Physics I.** 3 semester hours. First semester.
Prerequisite: Math. 600, 615, or concurrent enrollment.
- 815. Introduction to Theoretical Physics II.** 3 semester hours. Second semester.
Prerequisite: Phys. 805, Math. 620, or concurrent enrollment.

- 825. Advanced Dynamics.** 3 semester hours.
Prerequisite: Phys. 815.
- 835. Electrodynamics.** 3 semester hours.
Prerequisite: Phys. 815.
- 845. Thermodynamics.** 3 semester hours.
Prerequisite: Phys. 815.
- 855. Kinetic Theory and Statistical Physics.** 3 semester hours.
Prerequisite: Math. 600, 620, Phys. 450.
- 865. Quantum and Wave Mechanics I.** 3 semester hours. First semester.
Prerequisite: Phys. 805 or concurrent enrollment.
- 875. Quantum and Wave Mechanics II.** 3 semester hours. Second semester.
Prerequisite: Phys. 865.
- 885. Quantum and Wave Mechanics III.** 3 semester hours.
Prerequisite: Phys. 825, 875.
- 895. Atomic Spectra.** 3 semester hours. First semester.
Prerequisite: Math. 600, Phys. 560 or consent of instructor.
- 905. Molecular Spectra.** 3 semester hours. Second semester.
Prerequisite: Phys. 895 or consent of instructor.
- 915. Advanced Molecular Spectra.** 3 semester hours.
Prerequisite: Phys. 905.
- 925. X-ray.** 3 semester hours.
Prerequisite: Math. 600, Phys. 605.
- 935. Theory of the Solid State.** 3 semester hours.
Prerequisite: Phys. 815.
- 945. Advanced Nuclear Physics.** 3 semester hours.
Prerequisite: Math. 620, Phys. 575, 865.
- 955. Mathematical Physics.** 3 semester hours.
Prerequisite: Phys. 815.
- 999. Research in Physics.** Credit to be arranged.
Work is offered in electricity, electronics, light, nuclear physics, sound, spectroscopy, thermodynamics, theoretical physics, and X-ray.
Prerequisite: At least two courses in this department.

PSYCHOLOGY

ARTHUR H. BRAYFIELD, *Head of Department*

Psychology is the study of human behavior. The courses in this department fall into two groups: (1) General cultural courses suitable for all students who wish to develop understanding and skill in human relations and including 310, 325, 605, 615, 635, 645, 655, 765, and 770; (2) Professional courses which include most of the remainder. These provide professional preparation for work in such fields as business and industrial personnel, student personnel and counseling, and clinical services, and prepare for advanced graduate study. They are useful as supplemental courses for students in agricultural and business administration, child welfare, education, engineering, and sociology in particular.

The minor in psychology is intended for students who want courses in psychology for general education or as a supplement to some field of specialization. It includes course 310 and 12 additional semester hours of psychology.

Work for the major should be planned in co-operation with a member of the full-time psychology staff and be approved by the head of the department. Mimeographed copies of suggested major sequences may be obtained from the psychology staff.

FOR UNDERGRADUATE CREDIT

- 100. Educational Psychology I: Pupil Development.** (See Educ. 100.)
- 105. Educational Psychology II: Learning.** (See Educ. 105.)
- 310. General Psychology.** 3 semester hours. Each semester and summer. The study of human behavior: Methods, findings, principles.
- 325. General Applied Psychology.** 2 semester hours. Second semester and summer.
Application of psychological methods, findings, and principles to human affairs. Psychology in business and industry, government, education, law, medicine and everyday activities. Prerequisite: Psych. 310.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 410. Advanced General Psychology.** 3 semester hours. Second semester. Intensive study of selected topics in general psychology including sensation and perception, motivation, emotion, learning, problem-solving, and creative thinking. Prerequisite: Psych. 310.
- 605. Abnormal Psychology.** 3 semester hours. Each semester and summer.
Behavioral and mental disorders; psychoses, psychoneuroses, and psychopathies; causes and methods of prevention and correction or therapy. Prerequisite: Psych. 310 and sophomore standing.
- 615. Psychology of Childhood and Adolescence.** 3 semester hours. Each semester and summer.
Genetic study of the trends in the development of structures, capacities, interests, and personality that facilitate understanding and control of the behavior of childhood and adolescence. Prerequisite: Psych. 310 and sophomore standing.
- 625. Psychology of Exceptional Children.** 3 semester hours. Second semester and summer.
Introduction to the major forms of exceptionality: mental retardation, giftedness, subject disabilities, physical handicap, speech disorders, emotional and behavior problems including delinquency. Methods of identification and provisions for adjustment and remediation. Prerequisite: Psych. 615.
- 635. Social Psychology.** 3 semester hours. Each semester and summer.
Psychology of the interrelations between the individual and groups of people. Prerequisite: Psych. 310; sophomore standing.
- 645. Psychology of Personality.** 3 semester hours. Second semester.
Nature, development, integration, measurement, and theories of personality, with consideration of biological and environmental factors. Prerequisite: Psych. 615, 635; senior standing.
- 655. Mental Hygiene.** 3 semester hours. First semester and summer.
Problems of mental health and mental hygiene; positive guidance of everyday living to promote desirable personality traits and to facilitate personal and social adjustment. Prerequisite: Psych. 310; junior standing.
- 665. Experimental Psychology.** 3 semester hours. First semester.
Experimental studies of certain sensory, motor, and perceptual processes and of various forms and levels of learning, including problem solving and generalization; analysis and comparison of results in the literature on related studies. Prerequisite: Psych. 310, Educ. 600, or concurrent enrollment; junior standing.
- 675. Comparative Psychology.** 3 semester hours. Second semester.
Experimental study of behavior of diverse animals as an introduction to the biological foundations of human behavior; sensory capacities, perception, adaptive behavior, learning, insight, social behavior, and

other functions; methodology and psychological apparatus. Prerequisite: Psych. 665, Zool. 110.

686. Essentials of Psychological Testing. 2 semester hours. First semester and summer.

Different types of psychological tests including group and individual with emphasis upon their special uses; basic principles of measurements underlying each type of test; test administration, scoring, and interpretation. Prerequisite: Psych. 310.

695. Individual Testing. 3 semester hours. Second semester and summer.

Origin and development of basic concepts and practices in individual psychological testing; current standard individual tests including Stanford-Binet, Wechsler-Bellevue and selected pre-school tests; supervised experience in test administration, scoring, interpretation, and report writing. Prerequisite: Psych. 310, Educ. 600, or concurrent enrollment; junior standing.

700. Individual Differences. 3 semester hours. First semester and summer.

Objective and quantitative investigation of human variability; nature, extent, and causes of individual differences; significance for business and industrial, governmental, and educational policies and practices. Prerequisite: Psych. 310; junior standing.

705. Psychology of Advertising and Selling. 3 semester hours. Second semester.

Psychological principles involved in effective advertising and selling; appropriate technics for the analysis and motivation of buying behavior with special attention to recent experimental findings. Prerequisite: Psych. 310.

715. Personnel Psychology. 3 semester hours. First semester.

Psychological aspects of job analysis and evaluation, employee selection, training, and evaluation; problems in human relations including employee morale, supervision, communication, and employee counseling; practice in applying personnel methods. Prerequisite: Psych. 310; junior standing.

720. Occupational Classification and Counseling. 3 semester hours. Second semester and summer.

Diagnosis of vocational fitness with emphasis upon objective measures of aptitude, interest, personality, and achievement; occupational descriptions and classification systems; problems in vocational adjustment; interviewing and case reports; practice in testing, interviewing, and use of the Dictionary of Occupational Titles. Prerequisite: Psych. 310, Educ. 600, or concurrent enrollment.

726. Industrial Psychology. 2 semester hours. Second semester.

Conditions affecting worker efficiency: illumination, ventilation and heating, noise and distractions, work lay-out, hours, shifts, and rest periods; adaptation of machines and equipment to human capacities. Prerequisite: Psych. 310; junior standing.

730. Occupational Information. 2 semester hours. Summer.

Description of the labor force and dynamics of the labor market; development and sources of specific occupational information including training opportunities; applications of occupational information in counseling, guidance, and personnel work. Prerequisite: Junior standing.

735. Personnel Practicum. Credit to be arranged. Each semester and summer.

Directed experience in the application of psychological principles and procedures to personnel work in business and industry or in colleges and universities. Prerequisite: Psych. 715, 720, and nine additional semester hours credit in applied psychology or related personnel courses; senior standing.

745. Principles and Technics of Counseling. 3 semester hours. First semester and summer.

The use of clinical data in the analysis, diagnosis, prognosis, and treatment of individual problems. Prerequisite: Psych. 685 or 720.

756. Counseling Practicum. Credit to be arranged. Each semester and summer.

Supervised field practice in the collection and preparation of clinical data for use in counseling; analysis of case reports. Participation in student counseling. Prerequisite: Psych. 720, 745, or concurrent registration; consent of instructor.

765. Psychology of Art. 3 semester hours. Each semester and summer.

Philosophy of art and a study of the facts and principles of psychology used in the production and appreciation of art; emphasis on pictorial art. Prerequisite: Psych. 310; sophomore standing.

770. Psychology of Music. (See Mus. 455.)

775. History and Systems of Psychology. 3 semester hours. Second semester.

Basis for the organization and integration of the student's psychological knowledge; history, systems, leaders and current trends in the development of psychology as a science. Prerequisite: Twelve semester hours credit in psychology and senior standing.

785. Psychology Seminar. 1 semester hour. Each semester.

Prerequisite: 15 semester hours in psychology, senior standing, and consent of instructor.

799. Problems in Psychology. Credit to be arranged. Each semester and summer.

Prerequisite: Consult instructor.

FOR GRADUATE CREDIT

970. Psychology of Learning. 3 semester hours. Second semester.

A critical study of the theoretical and experimental literature on learning; analysis of various forms of learning; principles, procedures, and conditions favorable to acquisition, retention, and effective functioning of knowledge skills, attitudes and purposes; problem solving, generalization, and transfer. Prerequisite: Fifteen hours credit in psychology.

999. Research in Psychology. Credit to be arranged. Each semester and summer.

SPEECH

HOWARD T. HILL, *Head of Department*

For a minor in any field of the department: 15 hours selected on consultation with the department.

For a major in general speech, the following courses should be completed: Sp. 105, 115, 135, 155, 165, 175, 205, 215, 245 or 255, 275, 375, 415, 425, 435, 455 or 465, 535.

For a major in radio, the following courses should be completed: Sp. 105, 135, 275, 285, 295, 315, 325, 365, 670, 675, 685, 705, and 3 elective hours. Women majors will take 745 instead of 315, and 2 elective hours.

For a major in dramatics, the following courses should be completed: Sp. 105, 135, 165, 215, 245, 255, 535, 545, 555, 565, 575, 586, 605, 615, and 2 elective hours.

COURSES IN SPEECH**FOR UNDERGRADUATE CREDIT**

- 105. Oral Communication I.** 2 semester hours. Each semester and summer.

Selection and outlining of material with special emphasis on logic and with oral presentation practice. Co-ordinated with Engl. 125, 135.

- 115. Oral Communication II.** 2 semester hours. Each semester and summer.

Sp. 105 continued with special attention to illustrative material. Prerequisite: Sp. 105.

- 135. Voice and Diction.** 2 semester hours. Each semester and summer.

Improvement of the voice by study of the speech mechanism, tone quality, and enunciation by means of oral drill. Prerequisite or concurrent: Sp. 105.

- 155. Oral Interpretation.** 2 semester hours. Each semester and summer.

Attainment of some proficiency in the art of reading aloud. Prerequisite: Sp. 135.

- 165. Elements of Phonetics.** 2 semester hours. Second semester.

Sounds which make up human speech and consideration of how these sounds vary physically, physiologically, and phonetically. The student will become familiar with the international phonetic alphabet and transcribe from spontaneous and tape recorded speech.

- 175. Argumentation and Debate.** 2 semester hours. Each semester.

Basic theories of argumentation with emphasis on their application in debate. Prerequisite: Sp. 105.

- 185. Intercollegiate Debate I.** 2 semester hours. Second semester.

Open only to members of the intercollegiate debate squads. Prerequisite: Sp. 175.

- 195. Intercollegiate Debate II.** 2 semester hours. Second semester.

Open only to members of the intercollegiate debate squads. Prerequisite: Sp. 175.

- 205. Parliamentary Law.** 1 semester hour. Each semester and summer.

Study and practical application of the rules of parliamentary procedure. Prerequisite: Sp. 105.

- 215. Speech for Teachers.** 1 to 3 semester hours. Second semester and summer.

Improvement of the teacher's speech and elementary techniques for speech teaching.

- 225. Oratorical Contest.** 2 semester hours. Each semester.

- 235. Dramatic Participation.** 1 or 2 semester hours. Each semester and summer.

Prerequisite: Junior standing.

- 245. Acting and Rehearsal I.** 2 semester hours. First semester and summer.

Fundamentals of acting, using Kansas State Players productions as laboratory. One hour of recitation and three hours of laboratory a week.

- 255. Elementary Stagecraft.** 2 semester hours. Each semester and summer.

Function and operation of scenery.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 415. Advanced Debate.** 2 semester hours. Each semester and summer.

Advanced study of and participation in the methods of persuasion in public discussion and formal debate. Prerequisite: Sp. 175.

- 425. Public Program.** 2 semester hours. Second semester and summer.
Planning, building, and presenting nonradio public program. Prerequisite: Sp. 105.
- 435. Public Discussion.** 2 semester hours. Each semester and summer.
Symposiums, forums, roundtables, panel discussions of political, social, and economic trends. Prerequisite: Sp. 105.
- 440. History of American Public Address.** 3 semester hours. Second semester.
Study of American speakers, from time of Jonathan Edwards to the present, including their training, speeches, and effectiveness. Open to senior and graduate majors in speech. Prerequisite: Sp. 155, 175.
- 445. Speech Recital.** Credit to be arranged. Each semester.
Special work for qualified students. Prerequisite: Sp. 525.
- 455. Speech Correction for the Classroom Teacher.** 3 semester hours. Summer.
Types and etiology of speech problems and methods which the classroom teacher can employ. Prerequisite: Sp. 135 or consent of instructor.
- 465. Introduction to Speech Pathology.** 3 semester hours. First semester.
Types of speech problems and consideration of etiology in relation to these types. Prerequisite: Sp. 135, 165.
- 470. Effective Technical Presentation.** 2 semester hours. Each semester.
Effective and oral reading for presentation of technical and other material to lay audiences and technical societies. Prerequisite: Junior standing, Sp. 105, and consent of instructor.
- 525. Dramatic Reading.** 2 semester hours. Each semester.
Advanced study and application of the principles of oral interpretation to platform reading. Prerequisite: Sp. 155.
- 535. Dramatic Production I.** 2 semester hours. Each semester and summer.
Theory of and practice in fundamentals of acting and direction. One hour of recitation and three hours of laboratory a week. Prerequisite: Sp. 105.
- 545. Dramatic Production II.** 2 semester hours. Each semester and summer.
Projects in direction and stagecraft. Six hours of laboratory a week. Prerequisite: Sp. 535.
- 555. Acting and Rehearsal II.** 2 semester hours. Second semester and summer.
Characterization, interpretation, voice, pantomime, and ensemble. One hour of recitation and three hours of laboratory a week. Prerequisite: Sp. 245.
- 565. Scenic Design.** 2 semester hours. Each semester and summer.
Application of principles of design of stage settings; scenic design for plays utilizing sketches, diagrams, plates, and models; work in productions of the Kansas State Players. Prerequisite: Sp. 255.
- 575. Stage Lighting.** 2 semester hours. First semester and summer.
History, problems of application, design of lighting for various types of plays and styles of production. One hour of recitation and three hours of laboratory a week. Prerequisite: Sp. 255.
- 586. Advanced Stagecraft.** 2 semester hours. Second semester.
Advanced technical problems, including stage make-up, history of stage costumes, stage properties, and architectural requirements of the theater. Prerequisite: Sp. 255.

- 605. Development of the Theater I.** 3 semester hours. First semester and alternate summers.
History of the theater from the beginning to the end of the nineteenth century.
- 615. Development of the Theater II.** 3 semester hours. Second semester and alternate summers.
History of the theater in America.
- 799. Problems in Speech.** Credit to be arranged. Each semester and summer.
Work is offered in debate, oratory, phonetics, radio, speech pathology, and theater. Prerequisite: Sp. 115 or 295.

FOR GRADUATE CREDIT

- 999. Research in Speech.** Credit to be arranged. Each semester and summer.
Work is offered in debate, oratory, phonetics, radio, and theater. Prerequisite: Graduate standing and consent of instructor.

COURSES IN RADIO

FOR UNDERGRADUATE CREDIT

- 275. Survey of Broadcasting.** 2 semester hours. Each semester.
Survey of radio industry; social importance of broadcasting.
- 285. Radio Speech I.** 2 semester hours. Each semester.
Training in voice and diction for broadcasting. One hour of recitation and three hours of laboratory a week. For radio majors and minors only. Prerequisite: Sp. 135.
- 295. Radio Continuity.** 3 semester hours. Each semester.
Preparation of introduction to musical shows, talks, programs, and news rewriting. Prerequisite: Sp. 285.
- 311. Radio Program Participation.** 1 semester hour. Each semester and summer.
Three hours of laboratory a week. Prerequisite: Sp. 285 or consent of instructor. May not be taken for more than four semesters for credit.
- 315. Station Production and Announcing.** 2 semester hours. Each semester and summer.
Practical experience as announcers, control operators, and other positions in radio stations. Prerequisite: Admission after satisfactory audition.
- 325. Station Traffic, Music, and Continuity.** 2 semester hours. Each semester.
Practical experience in writing commercial continuity, servicing accounts, handling radio traffic, and operation of a music library. Six hours of laboratory a week. Prerequisite: Sp. 295 or 315.
- 326. Introduction to Television.** 2 semester hours. First semester.
Growth and expansion of television; its impact on society and its relation to other media of communications; economic and sociological implications. Prerequisite: Sp. 335.
- 335. Radio Dramatics.** 2 semester hours. Each semester.
Use of dramatic principles on the radio. Four hours of recitation and laboratory a week. Prerequisite: Sp. 105.
- 345. Sports Broadcasting I.** 2 semester hours. First semester.
Appropriate techniques, types of material, writing and editing copy, practice in delivery. Experience in following the play in seasonal sports events, sports knowledge, wire, tape, and live experience in ad libbing

sports events. Four hours of recitation and laboratory a week. Prerequisite: Sp. 275.

- 355. Sports Broadcasting II.** 2 semester hours. Second semester.
A continuation of Sp. 345. Prerequisite: Sp. 285.

- 366. Radio and Television Production I.** 3 semester hours. First semester and summer.

Production and direction of individual programs in radio and television. Two hours recitation and four hours of laboratory a week. Prerequisite: Sp. 295, 315, 326.

- 385. Radio Talk.** 2 semester hours. Each semester.

Training in writing informative and persuasive material; practical delivery of radio talks. For students who are not majors or minors in radio. Four hours of recitation and laboratory a week. Prerequisite: Sp. 105.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 660. Radio and Television Production II.** 3 semester hours. Second semester.

Continuation of Sp. 310. Prerequisite: Sp. 366.

- 670. Radio and Television Programming.** 3 semester hours. First semester.

Planning and development of radio and television programs and schedules. Prerequisite: Sp. 285, 295, 326.

- 675. Radio and Television Advertising.** 3 semester hours. Second semester.

Principles and practice in radio advertising. Prerequisite: For students in Curriculum in Technical Journalism, Tech. Jour. 255; for other students, Sp. 295.

- 685. Radio Writing I.** 3 semester hours. First semester.

Preparation of dramatized programs. Prerequisite: Sp. 295.

- 695. Radio Writing II.** 3 semester hours. Second semester; alternate years.

Continuation of Sp. 685. Prerequisite: Sp. 685 and consent of instructor.

- 705. Radio Speech II.** 2 semester hours. Each semester.

Advanced commercial announcing; development of individual style; supervised experience in various techniques of delivery. Recommended to the radio major as a senior level course. Radio majors and minors only. Prerequisite: Sp. 285 and consent of instructor.

- 725. Radio Station Management.** 3 semester hours. Each semester.

Supervised experience in executive positions of a radio station, including sales manager, program director, promotion director, and continuity chief. One hour of recitation and six hours of laboratory a week. Prerequisite: Sp. 325, 366, 670.

- 745. Broadcasting of Women's Programs.** 3 semester hours. Second semester.

Writing, production and criticism of radio programs presented by women and primarily intended for an audience of women and/or children. Two hours of recitation and four hours laboratory a week. Prerequisite: Sp. 295, 315, or consent of instructor.

- 799. Problems in Speech (Radio).** Credit to be arranged. Each semester and summer.

Prerequisite: Sp. 115 or 295.

STUDENT HEALTH

BENJAMIN W. LAFENE, *Head of Department*

FOR UNDERGRADUATE CREDIT

- 110. Preventive Medicine and Public Health.** 2 semester hours. Each semester.

Communicable diseases and their control; factors involved in healthful living. Prerequisite: Sophomore standing.

TECHNICAL JOURNALISM

RALPH R. LASHBROOK, *Head of Department*

For a major, the student should enroll in the Curriculum in Technical Journalism.

To be classified as "professionals," students in the Curriculum in Technical Journalism must complete two months of vocational journalistic experience before graduation and must meet other requirements established by the department faculty.

FOR UNDERGRADUATE CREDIT

- 050. Technical Journalism Lecture.** Required each semester.
Addresses by practicing newspaper workers and members of the department. Required of all students in the Curriculum in Technical Journalism.
- 105. Graphic Arts Survey.** 2 semester hours. Each semester.
History and art of printing; typography of advertisements and headline display; principles of effective makeup. Prerequisite: Sophomore standing and concurrent enrollment in Tech. Journ. 115.
- 115. Typography Laboratory.** 1 semester hour. Each semester.
Typesetting, proofreading, correction of forms as a background for journalism. Three hours of laboratory a week. Prerequisite: Sophomore standing and concurrent enrollment in Tech. Journ. 105.
- 215. Reporting I.** 3 semester hours. Each semester and summer.
Introduction to the field of journalism; intensive study of the daily newspaper; news gathering and writing. Prerequisite: Sophomore standing and ability to type 30 words a minute.
- 225. Reporting II.** 3 semester hours. Each semester.
Two hours of recitation and six hours of reportorial work on the *Kansas State Collegian* a week. Prerequisite: Tech. Journ. 215.
- 235. Rural Press.** 2 semester hours. Second semester.
Community newspapers; emphasis on presentation of agriculture and rural life. Prerequisite: Tech. Journ. 215.
- 245. Public Information Methods.** 2 semester hours. First semester.
Prerequisite: Tech. Journ. 225.
- 255. Principles of Advertising.** 3 semester hours. Each semester.
Study of goods to be advertised, analysis of the market, psychology of advertising, preparation of advertising copy. Prerequisite: Junior standing.
- 265. Editing.** 2 semester hours. Each semester and summer.
Six hours of laboratory a week. Prerequisite: Tech. Journ. 225.
- 275. News Photography.** 2 semester hours. Each semester and summer.
Planning and taking news and feature pictures; writing and editing

captions. Open to students in curriculums in Agricultural Journalism and Technical Journalism. Prerequisite: Tech. Journ. 225.

285. News Photography I. 2 semester hours. Each semester.

Intensive practice in taking news and feature pictures, editing pictures for publication. One hour of lecture and three hours of laboratory (by Department of Physics) a week. Prerequisite: Phys. 370.

295. "Kansas State Collegian" Journalism. 1 semester hour. Each semester and summer.

Gathering and writing of news, or advertising practice, on student publications, under the supervision of an instructor. Three hours of laboratory a week. Prerequisite: Consent of instructor.

305. Agricultural Journalism. 3 semester hours. Each semester.

Survey of agricultural information techniques, with emphasis on principles of news and feature writing.

315. Radio News. 2 semester hours. Each semester and summer.

Processing and broadcasting of radio news. Prerequisite: Tech. Journ. 215. For nonjournalism students, Sp. 295.

325. Broadcasting Station Practice. 1 semester hour. Each semester and summer.

News gathering, writing, and broadcasting, over radio Station KSAC. Three hours of laboratory a week. Prerequisite: Tech. Journ. 315.

FOR GRADUATE AND UNDERGRADUATE CREDIT

405. Reporting III. 3 semester hours. Second semester.

Reporting news of local, state, and national affairs. Two hours of recitation and three hours of laboratory a week. Prerequisite: Tech. Journ. 225, Govt. 690, or consent of instructor.

425. History of Journalism. 3 semester hours. First semester.

Prerequisite: Junior standing and Hist. 175, 190, or consent of instructor.

445. The Home Page. 3 semester hours. Each semester and summer.

Writing and editing materials for a woman's page in a local newspaper, supervision of photography for that page. Prerequisite: For students in Curriculum in Technical Journalism, Tech. Journ. 265; for other students, Tech. Journ. 215 and consent of instructor.

465. Magazine Article Writing. 2 semester hours. Each semester and summer.

Study of technical, trade, and general publications; writing for general magazines, agricultural and business publications, and women's departments. Prerequisite: For students in Curriculum in Technical Journalism, senior standing or consent of instructor; for students in Curriculum in Home Economics and Journalism, Tech. Journ. 445; for other students, consent of instructor.

485. Interpretation of Contemporary Affairs. 3 semester hours. Second semester and alternate summers.

Critical questions regarding recent developments in state, national, and international affairs; editorials and interpretive articles which document and analyze the news; introduction to research in public affairs. Prerequisite: For students in Curriculum in Technical Journalism, Tech. Journ. 650; for other students, consent of instructor.

505. Formation of Public Opinion. 3 semester hours. Second semester and summer.

Role of the press and communication agencies in formation of public opinion, work of propagandists and pressure groups. Prerequisite: Junior standing and consent of instructor; for graduate credit, eight hours of social science.

- 515. Public Relations.** 3 semester hours. Second semester.
Media, methods, principles, and practices of public relations. Prerequisite: Junior standing or consent of instructor.
- 525. Advanced Magazine Writing and Editing.** 2 semester hours. Each semester and summer.
Content of the course varied to suit the needs and desires of the students. Prerequisite: Tech. Journ. 465.
- 545. Critical Writing.** 2 semester hours. Second semester.
Prerequisite: Engl. 135.
- 565. Advanced Editing.** 2 semester hours. Each semester.
Six hours of laboratory a week. Prerequisite: Tech. Journ. 265.
- 585. Technical Publications.** 3 semester hours. Second semester.
Layout, preparation of copy, and illustrations for house organs, trade magazines, catalogs, pamphlets, and similar publications. One hour of lecture and six hours of laboratory a week. Prerequisite: Consent of instructor.
- 605. Readings in Journalism.** 2 semester hours. Each semester.
Investigation of the literature of journalism. Prerequisite: Junior standing and consent of instructor.
- 625. Yearbook Editing and Management.** 2 semester hours. Each semester.
Planning, editing, layout, financing, and management of a yearbook, with special emphasis on the problems of *The Royal Purple*. One hour of lecture and three hours of laboratory a week. Prerequisite: Tech. Journ. 225 and junior standing.
- 646. Workshop in School Publications.** 3 semester hours. Summer.
Supervision of high-school yearbooks and newspapers. The workshops are offered consecutively, and either or both may be taken. Prerequisite: Graduate standing or consent of instructor.
- 650. The Journalist in Free Society.** 3 semester hours. Each semester and summer.
- 665. Newspaper Management.** 2 semester hours. First semester.
Relations of departments of a newspaper to one another; costs, statistics, advertising news, and business methods in publishing. Prerequisite: Tech. Journ. 255.
- 685. Advertising Salesmanship.** 2 semester hours. Each semester and summer.
Application of principles of space selling and layout to specific lines of business by work with advertising clients of a daily newspaper. Prerequisite: Junior standing and consent of instructor.
- 799. Problems in Technical Journalism.** Credit to be arranged. Each semester and summer.
Work is offered in advertising, agriculture, current newspapers and periodicals, high-school journalism, history and ethics, home economics, news photography, radio and science. Prerequisite: Consent of instructor.

FOR GRADUATE CREDIT

- 999. Research in Technical Journalism.** Credit to be arranged. Each semester and summer.
Work is offered in advertising, agriculture, current newspapers and periodicals, high-school journalism, history and ethics, home economics, news photography, and radio. Prerequisite: At least two courses in this department.

ZOOLOGY

DONALD J. AMEEL, *Head of Department*

The courses in zoology, which give fundamental knowledge of the structures, functions, development, and relations of animals to man, afford training that is basic for professional workers in agriculture, home economics, veterinary medicine, and the arts and sciences and their applied fields.

For a major, the student should complete at least nineteen credit hours chosen from the 400 to 799 group.

For a minor, the student should take Zool. 110 and nine credit hours chosen from the 400 to 799 group.

FOR UNDERGRADUATE CREDIT

110. General Zoology. 5 semester hours. Each semester and summer. Three hours of recitation and six hours of laboratory a week.

210. Human Anatomy. 5 semester hours. First semester and summer.

General anatomy studies by means of dissectable models, skeletons, and charts. Three hours of recitation and six hours of laboratory a week. Prerequisite: Zool. 110.

FOR GRADUATE AND UNDERGRADUATE CREDIT

405. Comparative Anatomy of Vertebrates. 4 semester hours. Second semester.

Two hours of recitation and six hours of laboratory a week. Prerequisite: Zool. 110.

420. Embryology. 4 semester hours. Each semester and summer.

Physiology of reproduction and developmental anatomy of mammals, with special reference to man. Three hours of recitation and three hours of laboratory a week. Prerequisite: Zool. 110.

435. Advanced Embryology. 4 semester hours. Second semester.

Two hours of recitation and six hours of laboratory a week. Prerequisite: Zool. 420.

450. Cytology. 4 semester hours. First semester.

Cells, chromosomes, and heredity. Two hours of recitation and six hours of laboratory a week. Prerequisite: Zool. 110.

465. Human Physiology. 4 semester hours. Each semester and summer.

Functions of various organ systems of the body. Three hours of recitation and three hours of laboratory a week. Prerequisite: Chem. 110 or 210 and Zool. 110 or equivalent.

470. Physiology of the Sense Organs. 2 semester hours. First semester.

Functions of the special sense organs of man as well as a comparison of the physiology of these organs with those of other animals. One hour of recitation and two hours of laboratory a week. Prerequisite: Zool. 465.

480. General Physiology. 3 semester hours. First semester and summer.

A study of the nature and mechanism of living matter. Two hours of recitation and three hours of laboratory a week. Prerequisite: Chem. 330, Zool. 110.

495. Endocrinology. 3 semester hours. First semester and summer.

Prerequisite: Zool. 110 and consent of instructor.

510. Animal Parasitology. 3 semester hours. First semester.

Biology, pathology, and prophylaxis of the principal external and internal parasites of the domestic animals. Two hours of recitation and three hours of laboratory a week. Prerequisite: Zool. 110.

- 525. Human Parasitology Recitation.** 3 semester hours. Second semester. Prerequisite: Zool. 110 or equivalent.
- 540. Human Parasitology Laboratory.** 1 semester hour. Second semester. Three hours of laboratory a week. Prerequisite: Zool. 525.
- 555. Taxonomy of Parasites.** 2 semester hours. Second semester. One hour of recitation and three hours of laboratory a week. Prerequisite: Zool. 510 or 540 and consent of instructor.
- 570. Protozoology.** 3 semester hours. Second semester. Taxonomy, morphology, and biology of the free-living and parasitic protozoa. Two hours of recitation and three hours of laboratory a week. Prerequisite: Zool. 110.
- 585. Invertebrate Zoology.** 3 semester hours. First semester and summer. Essentials of structure, function, classification, and phylogeny of the invertebrates. One hour of recitation and six hours of laboratory a week. Prerequisite: Zool. 110.
- 605. Invertebrate Ecology.** 3 semester hours. Second semester and summer. Environmental factors in relation to the establishment of invertebrate animal populations. Prerequisite: Geol. 455 or Zool. 585 and consent of instructor.
- 620. Heredity and Eugenics.** 2 semester hours. Each semester. Human inheritance and the interactions of nature and heredity. Prerequisite: Zool. 110 or equivalent.
- 635. Zoological Technic.** 1 or 2 semester hours. Each semester and summer. Methods and processes in preparation of microscopical slides; principles of photomicrography. Prerequisite: Zool. 110.
- 650. Field Zoology.** 2 or 3 semester hours. Second semester and summer. Habitat, distribution, and relationship of animals. One hour of recitation and three hours of laboratory a week or one hour of recitation and six hours of laboratory a week. Prerequisite: Zool. 110 or equivalent.
- 665. Bird Study.** 3 semester hours. Second semester, or 2 semester hours, summer. Lecture, laboratory, and field studies in identification and adaptations of birds. Two hours of recitation and three hours of laboratory a week the second semester or one hour of recitation and three hours of laboratory a week in summer school. Prerequisite: Zool. 110 or equivalent.
- 675. Mammalogy.** 3 semester hours. First semester. Classification, distribution, and natural history of mammals; collecting of specimens and preparation of study skins. Two hours of recitation and three hours of laboratory a week. Prerequisite: Zool. 110.
- 680. Wild-life Conservation.** 3 semester hours. First semester and summer. Methods and techniques in the management and propagation of wild life. Prerequisite: Zool. 110 or equivalent.
- 685. Wild-life Management Techniques.** 3 semester hours. First semester. Ecology and management of game birds and mammals, including field studies of research and management techniques. Two hours of recitation and three hours of laboratory a week. Prerequisite: Zool. 110.
- 690. Fisheries Management.** 5 semester hours. Second semester. Methods of fishery biology; populations, aging and growth rates,

productivity, survey methods. planning and improvement, physiochemical conditions of fresh water and fish pond management. Three hours of recitation and six hours of laboratory a week. Prerequisite: Zool. 110.

695. Social Behavior in Vertebrates. 2 semester hours. Second semester or summer.

Animal behavior from the viewpoint of social dominance and group organization; contributions of social behavior in the classes of vertebrates. Prerequisite: Zool. 110 or equivalent and junior standing.

795. Zoology and Entomology Seminar. 1 semester hour. Each semester. Prerequisite: Consent of head of department.

799. Problems in Zoology. Credit to be arranged. Each semester and summer.

Work is offered in animal behavior, bird study, cytology and embryology, ecology, endocrinology, histology, parasitology, physiology, protozoology, wild-life conservation, and zoological technic.

FOR GRADUATE CREDIT

999. Research in Zoology. Credit to be arranged. Each semester and summer.

Work is offered in animal behavior, bird study, cytology and embryology, ecology, endocrinology, histology, parasitology, physiology, protozoology, and wild-life conservation. Prerequisite: At least two courses in this department and consent of head of department.

(For Genetics Seminar, see An. Husb. 426.)

The School of Engineering and Architecture

MERRILL AUGUSTUS DURLAND, *Dean*

ROY ANDREW SEATON, *Dean Emeritus*

RICHARD CARTER POTTER, *Assistant Dean*

The School of Engineering and Architecture offers four-year curriculums in Agricultural Engineering, Architectural Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering, Industrial Arts, Industrial Engineering, Mechanical Engineering, and Nuclear Engineering, each leading to the degree Bachelor of Science in the particular branch of the profession selected, and, in addition, offers a five-year Curriculum in Architecture, leading to the degree Bachelor of Architecture.

The curriculums as tabulated give fundamental preparations for entering upon work in the several branches of the professions, with some opportunity for specialization through options and electives. To a limited extent substitutions may be made for certain of the courses listed as required when there appears to be a good reason for them, but each substitution must have the approval of the head of the department in which the curriculum is administered, the head of the department giving the course which is displaced, and the dean of the school. In no case will the substitution of an additional amount of technical work for any of the cultural work be permitted.

Curriculum in Agricultural Engineering

The field of the agricultural engineer includes research, sales, or advertising in the farm-machinery and farm-motor industry; farm structure design, or promotional work with the building materials industry; soil erosion prevention with the federal and state agencies; rural electric service with electric power companies; management of farms where drainage, irrigation, or power-farming methods are of major importance; and engineering in agricultural development.

The curriculum includes all basic courses which are common to the other engineering curriculums, such as mathematics, physics, and mechanics. Courses in agriculture are also included in order to familiarize the student with the modern methods of agriculture. Training along engineering lines includes farm machinery, farm power, farm structures, drainage, irrigation, soil-erosion control; and modern farm and home equipment.

Curriculum in Architectural Engineering

The Curriculum in Architectural Engineering emphasizes the structural and mechanical phases of architecture. The field of the architectural engineer comprises the superintending of building construction, general contracting, structural design, estimating construction costs, and specification writing.

Students should get practical experience during the summer vacations in the building industry, either on construction projects or in the office of an architect, construction engineer, or contractor.

Curriculum in Architecture

The Curriculum in Architecture, while stressing architectural design, includes also training in building construction, properties and uses of building materials, professional practice, and other phases important to the architectural profession. The aim is to train students for efficient service as draftsmen and designers in an architectural organization and provide them with the necessary foundation for future independent practice.

Students should get practical experience during the summer vacations in the building industry, either on construction projects or in the office of an architect.

Curriculum in Chemical Engineering

The aim of the Curriculum in Chemical Engineering is to prepare the student for work in the design, construction, and operation of chemical plants. The scope of chemical engineering includes the strictly chemical industries, such as those manufacturing acids, alkalis, lacquer solvents, dyes, explosives, metals, and like materials, and also the process industries; for instance, those processing petroleum, rubber, foods, leather, and those manufacturing cement, glass, soap, paints and varnishes, pulp and paper.

Curriculum in Civil Engineering

The first and second years are devoted largely to general cultural studies and the sciences, including mathematics. 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. Provision is made for class and laboratory work in mechanical and electrical engineering. Because of the growing importance of municipal problems, such as paving, sewerage, and water supply, the curriculum includes required courses in these subjects.

Curriculum in Electrical Engineering

The graduate from the Curriculum in Electrical Engineering may enter either the power or the communication field of electrical engineering, and he may engage in such lines as research, design, application, business management, or plant operation.

The student must 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, English, history, and economics. Technical training begins with a course in the second year, and is completed by several courses extending through the junior and senior years. The curriculum provides, in addition, elective work, giving the student opportunity for the selection of extra work along cultural, economic, or technical lines.

Special laboratories are provided for research in television and other electrical engineering fields.

Curriculum in Industrial Arts

The Curriculum in Industrial Arts is designed to prepare students for positions as supervisors and directors of training schools in industry, or as teachers in colleges, high schools, and trade schools; also to give technical training and experience in shop work and drafting, preparatory to entering industrial shops.

By the selection of proper electives, the four-year Curriculum in Industrial Arts may lead to the degree of Bachelor of Science in Industrial Arts and also qualify the graduate for the three-year Kansas state teachers' certificate, valid in any high school or other public school in the state, and renewable for life. The curriculum has the necessary amount of chemistry and physics to meet the same requirements for teaching physical science. Five additional hours of mathematics will qualify for Class A high schools in Kansas.

Curriculum in Industrial Engineering

The Curriculum in Industrial Engineering is designed to provide professional training in production management for engineering students who wish to prepare for managerial positions in manufacturing industries. The curriculum includes the fundamental engineering courses that are

found in the first two years of typical engineering programs supplemented by a series of industrial engineering courses that supply basic training in the major divisions of production management. Also included is a series of courses in business, economics and psychology that are designed to familiarize the student with the financial, economic and personnel aspects of production management.

In the industrial engineering program, the courses are carefully selected to insure a program of study that is well rounded and that encompasses the entire field of industrial engineering.

Curriculum in Mechanical Engineering

The Curriculum in Mechanical Engineering is designed to prepare students for research, design, production, operation, and sales positions in industries that produce or use power and machinery. The field of mechanical engineering is necessarily very broad, including practically every industry. To permit specialization by students in particular phases of mechanical engineering, the curriculum provides optional and elective courses in the junior and senior years, covering industrial engineering, power production, air conditioning, petroleum production, aeronautical engineering, and machine design.

Students should spend at least two summers in some shop or commercial plant.

Curriculum in Nuclear Engineering

The Curriculum in Nuclear Engineering, which is based on the Curriculum in Chemical Engineering and administered by that department, is designed to train young men and women for work in the engineering phases of the nuclear energy programs. The curriculum combines the fundamentals of atomic energy and radio-tracer techniques with basic engineering courses in mechanics, unit operations, thermodynamics, and design. Atomic and Nuclear Physics are the basic courses in the theory. The courses in reactor technology and reactor design are designed to give training in the applications of the theory to the production of fissionable materials, radioactive tracers and energy. The many problems in control, heat transfer, materials of construction, waste disposal and safety, which were encountered in the development of the atomic energy program, and the many problems remaining to be solved before atomic energy is fully utilized are discussed.

The present size of the government owned plants for the production of fissionable materials and the increasing interest of private enterprise in atomic energy indicate a continued and expanding demand for engineers trained in this field.

Engineering and Architecture in the Summer School

The School offers summer courses in freehand and mechanical drawing, water-color and oil painting, manual training and shop practice for high school and grade school teachers, as well as various courses required in the several curriculums. Therefore teachers who wish to take an engineering or architectural curriculum can get a considerable start on the work during their summer vacations, and College students who are irregular may make up courses.

Full information concerning the courses offered is contained in the Summer School number of the Kansas State College *Bulletin*, which may be obtained upon application to the Director of Admissions of the College.

Curriculum in Agricultural Engineering

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	140	Chemistry E-1	4	Chem.	170	Chemistry E-II	4
Math.	175	College Algebra†	3	Math.	215	Anal. Geom. and Calc. I,	4
Math.	190	Plane Trigonometry	3	Engl.	135	Written Comm. II	2
Engl.	125	Written Comm. I	3	Mach. Des.	115	Desc. Geometry	2
Mach. Des.	110	Engg. Drawing	2	Civ. Engg.	120	Surveying I	2
Shop	125	Shop A	2	Sp.	105	Oral Comm. I	2
		Air Science or		Shop	180	Welding	1
		Military Science	1			Air Science or	
Gen. Engg.	110	Engg. Lectures	0			Military Science	1
Phys. Ed.	010	Physical Education M	0	Gen. Engg.	110	Engg. Lectures	0
				Phys. Ed.	010	Physical Education M	0
Total			18	Total			18

SOPHOMORE

Math.	230	Anal. Geom. and Calc. II,	4	Math.	245	Anal. Geom. and Calc. III,	4
Phys.	130	Engg. Physics I	5	Phys.	140	Engg. Physics II	5
Ag. Engg.	150	El. of Ag. Engg.	3	Mach. Des.	120	Mach. Drawing I	2
Gen. Stud.	150	Biol. in Rel. to Man I ..	4	Shop	175	Metals and Alloys	2
		Air Science or		Gen. Stud.	160	Biol. in Rel. to Man II,	4
		Military Science	1			Air Science or	
Gen. Engg.	115	Engg. Assembly	0			Military Science	1
Phys. Ed.	010	Physical Education	0	Gen. Engg.	115	Engg. Assembly	0
				Phys. Ed.	010	Physical Education	0
Total			17	Total			18

JUNIOR

Ap. Mech.	405	Applied Mechanics	4	Ap. Mech.	410	Mech. of Mtls. I Rec. ..	4
Mech. Engg.	411	Engg. Thermodynamics I,	4	Ap. Mech.	418	Mech. of Mtls. Lab.	1
Ag. Engg.	170	Field and Power Mach.,	4	Ap. Mech.	470	Fluid Mechanics A	4
Econ.	110	Economics I	3	Ag. Engg.	445	Farm Motors	4
Geol.	110	General Geology	3	Agron.	106	Farm Crops	4
Gen. Engg.	115	Engg. Assembly	0	Engl.	435	Technical Reports	1
Engl.	090	English Proficiency	0	Gen. Engg.	115	Engg. Assembly	0
Total			18	Total			18

SENIOR

Ag. Engg.	465	Farm Structures	4	Ag. Engg.	500	Rural Electrification	4
Agron.	149	Soils	4	Ag. Engg.	480	Soil and Water Conserv., ..	4
Ag. Engg.	475	Ag. Hydrology	3	Elec. Engg.	120	Elec. Engg. C Rec.	2
Ag. Ec.	206	Farm Organization	3	Elec. Engg.	124	Elec. Engg. C Lab.	1
Gen. Engg.	115	Engg. Assembly	0	Mach. Des.	490	Patents and Inventions..	2
		Elective*	4	Gen. Engg.	115	Engg. Assembly	0
						Elective*	4
Total			18	Total			17

Number of hours required for graduation, 142.

† Students who offer but one unit of algebra for admission take the three-hour course in Intermediate Algebra, Math. 050, postponing both college algebra and plane trigonometry to the second semester.

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

Curriculum in Architectural Engineering

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		<i>Course</i>	<i>Sem. Hrs.</i>			<i>Course</i>	<i>Sem. Hrs.</i>
Chem.	140	Chemistry E-I	4	Chem.	170	Chemistry E-II	4
Math.	175	College Algebra†	3	Math.	215	Anal. Geom. and Calc. I, ..	4
Math.	190	Plane Trigonometry	3	Engl.	135	Written Comm. II	2
Engl.	125	Written Comm. I	3	Sp.	105	Oral Comm. I	2
Mach. Des.	110	Engg. Drawing	2	Mach. Des.	115	Desc. Geometry	2
Civ. Engg.	120	Surveying I	2	Arch.	120	Freehand Drawing I	2
		Air Science <i>or</i>				Air Science <i>or</i>	
		Military Science	1			Military Science	1
Gen. Engg.	110	Engg. Lectures	0	Gen. Engg.	110	Engg. Lectures	0
Phys. Ed.	010	Physical Education M <i>or</i>		Phys. Ed.	010	Physical Education M <i>or</i>	
Phys. Ed.	055	Physical Education W	0	Phys. Ed.	055	Physical Education W ..	0
Total			18	Total			17

SOPHOMORE

Phys.	130	Engg. Physics I	5	Phys.	140	Engg. Physics II	5
Math.	230	Anal. Geom. and Calc. II, ..	4	Math.	245	Anal. Geom. and Calc. III, ..	4
Arch.	130	Pencil Sketching	2	Arch.	234	El. of Arch. II	4
Arch.	230	El. of Arch. I	4	Arch.	105	Shades and Shadows	1
Arch.	270	Hist. of Arch. I	2	Arch.	110	Perspective Drwg.	1
		Air Science <i>or</i>		Arch.	274	Hist. of Arch. II	2
		Military Science	1			Air Science <i>or</i>	
Gen. Engg.	115	Engg. Assembly	0			Military Science	1
Phys. Ed.	010	Physical Education M <i>or</i>		Gen. Engg.	115	Engg. Assembly	0
Phys. Ed.	055	Physical Education W ..	0	Phys. Ed.	010	Physical Education M <i>or</i>	
				Phys. Ed.	055	Physical Education W ..	0
Total			18	Total			18

JUNIOR

Ap. Mech.	405	Applied Mechanics	4	Ap. Mech.	410	Mech. of Mtls. I Rec. ..	4
Arch.	300	Bldg. Mtls. and Constr., ..	3	Arch.	310	Working Drawings	3
Arch.	240	Arch. Design I	5	Arch.	280	Hist. of Arch. IV	2
Arch.	278	Hist. of Arch. III	2	Arch.	305	Building Equipment	2
Gen. Stud.	150	Biol. in Rel. to Man I ..	4	Gen. Stud.	160	Biol. in Rel. to Man II, ..	4
Gen. Engg.	115	Engg. Assembly	0	Mech. Engg.	130	Air Conditioning A	3
Engl.	090	Engl. Proficiency	0	Gen. Engg.	115	Engg. Assembly	0
Total			18	Total			18

SENIOR

Civ. Engg.	420	Stress Anal. I Rec.	4	Civ. Engg.	428	Stress Analysis II	3
Civ. Engg.	424	Stress Anal. I Lab.	2	Civ. Engg.	478	Reinf. Conc. Des. Rec. ..	2
Civ. Engg.	460	Foundations	2	Civ. Engg.	480	Reinf. Conc. Des. Lab. ..	2
Ap. Mech.	450	Soil Mechanics I	2	Civ. Engg.	470	Des. of Framed Struct., ..	3
Ap. Mech.	418	Mech. of Mtls. Lab.	1	Elec. Engg.	130	Illumination A	2
Arch.	340	Professional Practice	2	Gen. Stud.	220	Introd. Soc. Sci. II	4
Gen. Stud.	210	Introd. Soc. Sci. I	4	Gen. Engg.	115	Engg. Assembly	0
Gen. Engg.	115	Engg. Assembly	0			Elective*	2
Arch.	390	Inspection Trip	0				
Total			17	Total			18

Number of hours required for graduation, 142.

† Students who offer but one unit of algebra for admission take the three-hour course in Intermediate Algebra, Math. 050, postponing both college algebra and plane trigonometry to the second semester.

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

Curriculum in Architecture

FIRST YEAR

FIRST SEMESTER

		<i>Course</i>	<i>Sem. Hrs.</i>
Gen. Stud.	210	Introd. Soc. Sci. I	4
Engl.	125	Written Comm. I	3
Mach. Des.	110	Engg. Drawing	2
Math.	175	College Algebra†	3
Arch.	120	Freehand Drawing I	2
		Air Science or	
		Military Science	1
Phys. Ed.	010	Physical Education M ..	0
Phys. Ed.	055	Physical Education W ..	0
Gen. Engg.	110	Engg. Lectures	0
Total			15

SECOND SEMESTER

		<i>Course</i>	<i>Sem. Hrs.</i>
Gen. Stud.	220	Introd. Soc. Sci. II	4
Engl.	135	Written Comm. II	2
Sp.	105	Oral Comm. I	2
Mach. Des.	115	Desc. Geometry	2
Math.	190	Plane Trigonometry	3
Arch.	124	Freehand Drawing II	2
		Air Science or	
		Military Science	1
Phys. Ed.	010	Phys. Ed. M or	
Phys. Ed.	055	Phys. Ed. W	0
Gen. Engg.	110	Engg. Lectures	0
Total			16

SECOND YEAR

Phys.	110	Gen. Physics I	4
Arch.	130	Pencil Sketching	2
Arch.	300	Bldg. Mtls. and Const. ..	3
Arch.	105	Shades and Shadows	1
Arch.	230	Elements of Arch. I	4
Arch.	270	Hist. of Arch. I	2
		Air Science or	
		Military Science	1
Phys. Ed.	010	Phys. Ed. M or	
Phys. Ed.	055	Phys. Ed. W	0
Gen. Engg.	115	Engg. Assembly	0
Total			17

Phys.	120	Gen. Physics II	4
Arch.	160	Water Color I	2
Arch.	234	Elements of Arch. II	4
Arch.	274	Hist. of Arch. II	2
		Air Science or	
		Military Science	1
Phys. Ed.	010	Phys. Ed. M or	
Phys. Ed.	055	Phys. Ed. W	0
Ap. Mech.	105	Applied Mech. A	3
Arch.	110	Perspective Drawing	1
Gen. Engg.	115	Engg. Assembly	0
Total			17

THIRD YEAR

Arch.	278	Hist. of Arch. III	2
Arch.	240	Arch. Design I	5
Arch.	170	Life Drawing I	2
Arch.	305	Bldg. Equipment	2
Ap. Mech.	120	Str. of Mtls. A Rec.	3
Ap. Mech.	124	Str. of Mtls. A Lab.	1
		Elective*	2
Gen. Engg.	115	Engg. Assembly	0
Engl.	090	Eng. Proficiency	0
Total			17

Arch.	280	Hist. of Arch. IV	2
Arch.	244	Arch. Design II	5
Arch.	320	Theory of Struct. I	4
Arch.	310	Working Drawings	3
		Elective*	2
Gen. Engg.	115	Engg. Assembly	0
Total			16

FOURTH YEAR

Gen. Stud.	150	Biol. Rel. to Man I	4
Arch.	248	Arch. Design III	5
Arch.	324	Theory of Struct. II	5
Gen. Engg.	115	Engg. Assembly	0
		Elective*	1
Total			15

Gen. Stud.	160	Biol. Rel. to Man II	4
Arch.	250	Arch. Design IV	5
Arch.	328	Theory of Struct. III	4
Elec. Engg.	130	Illumination A	2
Arch.	174	Life Drawing II	2
Gen. Engg.	155	Engg. Assembly	0
Total			17

FIFTH YEAR

Arch.	285	Hist. Paint. and Sculp., ..	3
Arch.	490	Arch. Design V	7
Mech. Engg.	130	Air Cond. A	3
Arch.	390	Inspection Trip	0
		Elective*	2
Total			15

Arch.	494	Arch. Design VI	7
Arch.	340	Professional Practice	2
		Elective*	6
Total			15

Number of hours required for graduation, 160.

† Students who offer but one unit of algebra for admission take the three-hour course in Intermediate Algebra. Math. 050, postponing college algebra to the second semester.

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

Curriculum in Chemical Engineering

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	210	Chemistry I	5	Chem. Engg.	205	Chem. Engg. Mtls.	2
Math.	175	College Algebra†	3	Chem.	230	Chemistry II Rec.	3
Math.	190	Plane Trigonometry	3	Chem.	250	Chemistry II Lab.	2
Engl.	125	Written Comm. I	3	Math.	215	Anal. Geom. and Calc. I, ..	4
Mach. Des.	110	Engg. Drawing	2	Engl.	135	Written Comm. II	2
		Air Science or		Sp.	105	Oral Comm. I	2
		Military Science	1	Mach. Des.	115	Descriptive Geometry	2
Phys. Ed.	010	Physical Education M	0			Air Science or	
Gen. Engg.	110	Engg. Lectures	0			Military Science	1
				Phys. Ed.	010	Physical Education M	0
				Gen. Engg.	110	Engg. Lectures	0
Total			17	Total			18

SOPHOMORE

Chem.	435	Quant. Anal.	4	Chem. Engg.	210	Ind. Stoich.	3
Phys.	130	Engg. Physics I	5	Phys.	140	Engg. Physics II	5
Math.	230	Anal. Geom. and Calc. II, ..	4	Math.	245	Anal. Geom. and Calc. III, ..	4
		Soc. Sc. Elective*	4	Mach. Des.	120	Mach. Drawing I	2
		Air Science or				Soc. Sc. Elective*	4
		Military Science	1			Air Science or	
Phys. Ed.	010	Physical Education M	0			Military Science	1
Gen. Engg.	115	Engg. Assembly	0	Phys. Ed.	010	Physical Education M	0
				Gen. Engg.	115	Engg. Assembly	0
Total			18	Total			19

JUNIOR

Chem. Engg.	420	Unit Op. I Rec.	3	Chem. Engg.	428	Unit Op. II Rec.	3
Chem. Engg.	424	Unit Op. I Lab.	1	Chem. Engg.	430	Unit Op. II Lab.	1
Chem.	510	Org. Chem. I	5	Chem.	515	Org. Chem. II	5
Chem.	585	Phys. Chem. I Rec.	3	Chem.	595	Phys. Chem. II Rec.	3
Chem.	590	Phys. Chem. I Lab.	2	Chem.	600	Phys. Chem. II Lab.	2
App. Mech.	405	Applied Mechanics	4	App. Mech.	410	Mech. of Mtls. I Rec.	4
Gen. Engg.	115	Engg. Assembly	0	Gen. Engg.	115	Engg. Assembly	0
Engl.	090	English Proficiency	0				
Total			18	Total			18

SENIOR

Chem. Engg.	434	Unit Op. III Lab.	1	Chem. Engg.	455	Organic Tech.	3
Chem. Engg.	440	Unit Proc. Lab.	2	Chem. Engg.	460	Ch. E. Plant Design	4
Chem. Engg.	450	Inorganic Tech.	2	Chem. Engg.	495	Ch. E. Thermo. II	4
Chem. Engg.	491	Ch. E. Thermo. I	4	Elec. Engg.	470	Ind. Electronics Rec.	3
Elec. Engg.	120	Elec. Engg. C Rec.	2			Humanities Elective*	4
Elec. Engg.	124	Elec. Engg. C Lab.	1	Gen. Engg.	115	Engg. Assembly	0
		Humanities Elective*	4				
Chem. Engg.	200	Inspection Trip	0				
Gen. Engg.	115	Engg. Assembly	0				
Total			16	Total			18

Number of hours required for graduation, 142.

† Students who offer but one unit of algebra for admission take a three-hour course in Intermediate Algebra, Math. 050, postponing both college algebra and plane trigonometry to the second semester.

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

Curriculum in Civil Engineering

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Chem.	140	Chemistry E-I	4	Sp.	105	Oral Comm. I	2
Math.	175	College Algebra†	3	Math.	215	Anal. Geom. and Calc. I, ..	4
Math.	190	Plane Trigonometry	3	Chem.	170	Chemistry E-II	4
Mach. Des.	110	Engg. Drawing	2	Mach. Des.	115	Desc. Geometry	2
Civ. Engg.	120	Surveying I	2	Civ. Engg.	125	Surveying II	3
		Air Science or				Air Science or	
		Military Science	1			Military Science	1
Phys. Ed.	010	Physical Education M	0	Phys. Ed.	010	Physical Education M	0
Gen. Engg.	110	Engg. Lectures	0	Gen. Engg.	110	Engg. Lectures	0
Total			18	Total			18

SOPHOMORE

Phys.	130	Engg. Phys. I	5	Phys.	140	Engg. Phys. II	5
Math.	230	Anal. Geom. and Calc. II, ..	4	Math.	245	Anal. and Calc. III	4
Mach. Des.	120	Machine Drawing I	2	Ap. Mech.	405	Applied Mechanics	4
Civ. Engg.	131	Surveying III	3	Civ. Engg.	411	Photogrammetry	3
Econ.	110	Economics I	3			Air Science or	
		Air Science or				Military Science	1
		Military Science	1	Phys. Ed.	010	Physical Education M	0
Phys. Ed.	010	Physical Education M	0	Gen. Engg.	115	Engg. Assembly	0
Gen. Engg.	115	Engg. Assembly	0	Total			17
Total			18	Total			17

JUNIOR

Elec. Engg.	120	Elec. Engg. C Rec.	2	Ap. Mech.	420	Hwy. and Airt. Mtls.	
Elec. Engg.	124	Elec. Engg. C Lab.	1			Lab.	1
Ap. Mech.	410	Mech. of Mtls. I Rec. ..	4	Ap. Mech.	418	Mech. of Mtls. Lab.	1
Mech. Engg.	110	Steam and Gas Engg. C, ..	2	Mech. Engg.	460	Heat Power Lab.	1
Bact.	190	Water and Sewage Bact., ..	3	Ap. Mech.	470	Fluid Mech. A	4
Ap. Mech.	450	Soil Mechanics I	2	Ap. Mech.	478	Hydraulics Lab.	1
		Nontechnical Elective*†. ..	3	Geol.	110	General Geology	3
Engl.	435	Technical Reports	1	Civ. Engg.	420	Stress Anal. I Rec.	4
Engl.	090	English Proficiency	0	Shop	175	Metals and Alloys	2
Gen. Engg.	115	Engg. Assembly	0	Gen. Engg.	115	Engg. Assembly	0
Total			18	Total			17

SENIOR

Civ. Engg.	428	Stress Anal. II	3	Civ. Engg.	470	Des. Fr. Str.	3
Civ. Engg.	424	Stress Anal. I Lab.	2	Civ. Engg.	478	Reinf. Conc. Des. Rec. ..	2
Civ. Engg.	450	Transportation Engg.	5	Civ. Engg.	480	Reinf. Conc. Des. Lab. ..	2
Civ. Engg.	405	Astr. and Geodesy	3	Civ. Engg.	455	Applied Hydrology	3
		Nontechnical Elective*†. ..	3	Civ. Engg.	440	Sanitary Engg.	4
Civ. Engg.	460	Foundations	2			Nontechnical Elective	4
Civ. Engg.	200	Inspection Trip	0	Gen. Engg.	115	Engg. Assembly	0
Gen. Engg.	115	Engg. Assembly	0	Total			18
Total			18	Total			18

Number of hours required for graduation, 142.

† Students who offer but one unit of algebra for admission take the three-hour course in Intermediate Algebra, Math. 050, postponing both college algebra and plane trigonometry to the second semester.

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

‡ Nontechnical electives to be selected from approved lists on page 226. At least six hours of the electives are to be chosen from the Humanities group.

Curriculum in Electrical Engineering

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	140	Chemistry E-I	4	Chem.	170	Chemistry E-II	4
Math.	175	College Algebra†	3	Math.	215	Anal. Geom. and Calc. I, ..	4
Math.	190	Plane Trigonometry	3	Mach. Des.	115	Desc. Geometry	2
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Mach. Des.	110	Engineering Drawing	2	Shop	125	Shop A	2
Elec. Engg.	110	Orientation E	1	Sp.	105	Oral Comm. I	2
		Air Science or				Air Science or	
		Military Science	1			Military Science	1
Phys. Ed.	010	Physical Education M	0	Phys. Ed.	010	Physical Education M	0
Gen. Engg.	110	Engg. Lectures	0	Gen. Engg.	110	Engg. Lectures	0
Total			17	Total			17

SOPHOMORE

Phys.	130	Engg. Physics I	5	Phys.	140	Engg. Physics II	5
Math.	230	Anal. Geom. and Calc. II, ..	4	Math.	245	Anal. Geom. and Calc. III, ..	4
Civ. Engg.	120	Surveying I	2	Shop	180	Welding	1
Econ.	110	Economics I	3	Elec. Engg.	405	Basic Elec. Engg.	4
Mach. Des.	120	Machine Drawings I	2			Soc. Science Elective*†, ..	3
		Humanities Elective*† ..	1			Air Science or	
		Air Science or				Military Science	1
		Military Science	1	Phys. Ed.	010	Physical Education M	0
Phys. Ed.	010	Physical Education M	0	Gen. Engg.	115	Engg. Assembly	0
Gen. Engg.	115	Engg. Assembly	0				
Total			18	Total			18

JUNIOR

Elec. Engg.	426	A-C Circuits	5	Ap. Mech.	405	Applied Mechanics	4
Elec. Engg.	411	D-C Machinery Rec.	3	Elec. Engg.	490	Elec. Meas. Rec.	2
Elec. Engg.	414	D-C Machinery I Lab., ..	1	Elec. Engg.	494	Elec. Meas. Lab.	1
Elec. Engg.	460	Electronics I	2	Elec. Engg.	464	Electronics II Rec.	4
Shop	175	Metals and Alloys	2	Elec. Engg.	468	Electronics II Lab.	2
Math.	360	Diff. Equa. for Engrs. ..	2	Elec. Engg.	418	D-C Machinery II Lab., ..	1
		Soc. Science Elective*†, ..	3	Engl.	435	Technical Reports	1
Gen. Engg.	115	Engg. Assembly	0			Humanities Elective*† ..	3
Engl.	090	Engl. Proficiency	0	Gen. Engg.	115	Engg. Assembly	0
Total			18	Total			18

SENIOR

Mech. Engg.	411	Engg. Thermodynamics I, ..	4	Mech. Engg.	460	Heat Power Lab.	1
Elec. Engg.	430	A-C Machinery I Rec. ..	3	Elec. Engg.	575	Elec. Engg. Summary ..	3
		Humanities Elective*† ..	3	Gen. Engg.	115	Engg. Assembly	0
Gen. Engg.	115	Engg. Assembly	0				
Elec. Engg.	160	Inspection Trip	0				

Power Option

Elec. Engg.	438	A-C Machinery I Lab. ..	2	Elec. Engg.	438	A-C Machinery II Rec. ..	3
Ap. Mech.	410	Mech. of Mtls. I Rec. ..	4	Elec. Engg.	441	A-C Machinery II Lab. ..	1
		Elective*	2	Mech. Engg.	440	Heat Power Engg. A	3
						Elective*	7

Communication and Electronics Option

Elec. Engg.	530	Radio Comm. Rec.	3	Elec. Engg.	550	Electromag. Waves Rec., ..	3
Elec. Engg.	534	Radio Comm. Lab.	1	Elec. Engg.	554	Electromag. Waves Lab., ..	1
Elec. Engg.	538	Comm. Networks Rec.	3	Elec. Engg.	436	A-C Machinery I Lab. ..	2
Elec. Engg.	540	Comm. Networks Lab.	1	Ap. Mech.	410	Mech. of Matl. I Rec.	4
						Electives*	4
Total			18	Total			18

Number of hours required for graduation, 142.

† Students who offer but one unit of algebra for admission take the three-hour course in Intermediate Algebra, Math. 050, postponing both college algebra and plane trigonometry to the second semester.

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

† Social Science and Humanities electives are to be selected from approved lists on page 226.

Suggested Electives

Students who elect either the Power Option or the Communication and Electronics Option are free to choose electives from college courses in business administration, language, physics, mathematics, geology, music, advanced ROTC (eight credits only to apply toward degree), communication and electronics subjects, electric power subjects, mechanical engineering subjects, or combinations from such groups, provided the selection meets the approval of the head of department and the dean.

Students interested in electric power should select technical electives from the following:

Elec. Engg. 570	Illuminating Engineering Recitation	3
Elec. Engg. 590	Transmission and Distribution of Electrical Energy	3
Elec. Engg. 600	Transient Electrical Phenomena	3
Elec. Engg. 480	Industrial Electronics and Control Recitation	2
Elec. Engg. 474	Industrial Electronics Laboratory	1

Electrical Engineering and Business Administration

Students may secure the two degrees, B. S. curriculum in Electrical Engineering and B. S. in Business Administration, by taking the Electrical Engineering or the Communication and Electronics Option plus the following courses:†

Econ.	110	Economics I	3	Econ.	120	Economics II	3
Econ.	130	Money and Banking	3	Econ.	310	Accounting II	3
Econ.	470	Public Finance	3	Econ.	405	Bus. Org. and Finance..	3
Econ.	440	Marketing	3	Hist.	310	Business Law II	3
Educ.	310	General Psychology	3	Econ.	510	Bus. Admin. Summary ..	2
Econ.	300	Accounting I	3	Engl.	155	Comm'l Corresp.	3
Hist.	295	Business Law I	3			Business Elective*	4

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

† Some of these additional courses may be substituted for the electives in the Curriculum in Electrical Engineering. A minimum of 30 additional semester hours of credit is required for the second bachelor's degree.

Approved Nontechnical Electives for Civil Engineering and Electrical Engineering Curriculums

Social Science Electives

(Not more than 2 courses from any one field)

Introduction to Social Science I, Gen. Stud. 210	4	American Industrial History, Hist. 205	3
Introduction to Social Science II, Gen. Stud. 220	4	New American Nation, Hist. 445	3
Economics II, Econ. 120	3	Adv. Economic History of the U. S. Hist. 465	2
Money and Banking, Econ. 130	3	American Diplomatic History, Hist. 475	3
Personal Finance, Econ. 140	2	Russia and the Soviet Union, Hist. 585	3
Business Management, Econ. 150	3	American Government, Govt. 255	3
Labor Management, Econ. 465	2	Contemporary Governments, Govt. 270	3
Public Finance, Econ. 470	3	International Relations, Govt. 655	2
Business Cycles, Econ. 480	2	General Psychology, Psych. 310	3
International Trade, Econ. 485	2	General Applied Psychology, Psych. 325	2
Sociology, Soc. 250	3	Social Psychology, Psych. 635	3
Sociology of the Family, Soc. 630	3	Contemporary Social Philosophies, Phil. 780	3
Social Systems, Soc. 655	3	Recent Political Philosophies, Phil. 785	2
Development of Social Thought, Soc. 675....	3	Effective Citizenship, Govt. 712	3
Contemporary World History, Hist. 145	2	War, Peace, and the World Community, Govt. 667	3
Current History, Hist. 160	1		
United States Before 1865, Hist. 175	3		
United States Since 1865, Hist. 190	3		

Humanities Electives

(Not more than 2 courses from any one field)

Man and the Cultural World I, Gen. Stud. 250	4	Elementary Logic, Phil. 365	3
Man and the Cultural World II, Gen. Stud. 260	4	Philosophy of Science I, Phil. 380	3
Civilization I, Hist. 115	3	Ethics, Phil. 775	2
Civilization II, Hist. 130	3	Democracy, Justice, and the Law, Govt. 672	3
Current History, Hist. 160	1	American Democratic Ideas, Hist. 480	3
Far East, Hist. 595	3	Appreciation of Music, Mus. 250	2
History of Religions, Hist. 605	3	Music in History, Mus. 635	3
Books and Men I, Engl. 310	3	Appreciation of Architecture, Arch. 200	3
Books and Men II, Engl. 320	3	History of Painting and Sculpture, Arch. 285	3
		Modern Language	6

Curriculum in Industrial Arts

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	140	Chemistry E-I	4	Chem.	170	Chemistry E-II	4
Math.	175	College Algebra†	3	Math.	190	Plane Trigonometry	3
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Mach. Des.	110	Engg. Drawing	2	Mach. Des.	115	Desc. Geometry	2
Shop	125	Shop A	2	Shop	144	Wood Turning	2
Shop	130	Woodwork I	2	Shop	200	Sheet Metal I	2
		Air Science <i>or</i>		Shop	180	Welding	1
		Military Science	1			Air Science <i>or</i>	
Phys. Ed.	010	Physical Education M	0			Military Science	1
Gen. Engg.	110	Engg. Lectures	0	Phys. Ed.	010	Physical Education M	0
				Gen. Engg.	110	Engg. Lectures	0
Total			17	Total			17

SOPHOMORE

Phys.	110	General Physics I	4	Phys.	120	General Physics II	4
Psych.	310	General Psychology	3	Mach. Des.	124	Machine Drawing II	2
Mach. Des.	120	Machine Drawing I	2	Engl.	155	Comm'l Corresp.	3
Sp.	105	Oral Comm. I	2	Shop	148	Carpentry	3
Civ. Engg.	120	Surveying I	2	Shop	155	Foundry I	1
Gen. Stud.	150	Biol. in Rel. to		Gen. Stud.	160	Biol. in Rel. to	
		Man I‡	4 <i>or</i>			Man II‡	4 <i>or</i>
Gen. Stud.	250	Man and Cult. World I, 4		Gen. Stud.	260	Man and Cult. World II, 4	
		Air Science <i>or</i>				Air Science <i>or</i>	
		Military Science	1			Military Science	1
Phys. Ed.	010	Physical Education M	0	Phys. Ed.	010	Physical Education M	0
Gen. Engg.	115	Engg. Assembly	0	Gen. Engg.	115	Engg. Assembly	0
Total			18	Total			18

JUNIOR

Econ.	330	Principles of Account-		Ap. Mech.	105	Applied Mechanics A	3
		ing	3 <i>or</i>	Elec. Engg.	120	Elec. Engg. C Rec.	2
Educ.	100	Educ. Psych. I;		Elec. Engg.	124	Elec. Engg. C Lab.	1
		Pupil Dev.‡	3	Hist.	295	Business Law I	3 <i>or</i>
Econ.	110	Economics	3	Educ.	105	Educ. Psych. II;	
Mach. Des.	130	Mechanism	3			Learning‡	3
Shop	134	Woodwork II	2	Mech. Engg.	110	Steam and Gas	
Shop	184	Electric Welding	1			Engg. C	2
Shop	175	Metals and Alloys	2	Sp.	115	Oral Comm. II	2
Shop	188	Gas Welding	1	Shop	210	Safety	2
Shop	160	Finishing I	2	Shop	190	Machine Tool I	2
Engl.	435	Technical Reports	1	Shop	220	Gaging	1
Engl.	090	English Proficiency	0	Gen. Engg.	115	Engg. Assembly	0
Gen. Engg.	115	Engg. Assembly	0				
Total			18	Total			18

† Students who offer but one unit of algebra for admission take the three-hour course in Intermediate Algebra, Math. 050, postponing college algebra to the second semester.

‡ The teaching option in Industrial Arts with the comprehensive courses, Biology in Relation to Man I and II, including a total of 18 hours in education, meets the requirements for teaching science, woodwork, machine shop, metal shop, auto mechanics, and mechanical drawing. Those desiring to teach mathematics may elect 3 hours in this field.

SENIOR

FIRST SEMESTER					SECOND SEMESTER				
			Course	Sem. Hrs.				Course	Sem. Hrs.
App. Mech.	120		Str. of Mtls. A Rec.	3	Hist.	205		Am. Industrial History..	3
App. Mech.	124		Str. of Mtls. A Lab.	1	Shop	122		Appliance Servicing	4
Shop	110		Auto Mechanics I	4	Shop	194		Machine Tool II	2
Shop	425		Time and Motion	2	Gen. Engg.	115		Engg. Assembly	0
Shop	460		Metallography I	1	<i>Factory Option</i>				
Shop	280		Inspection Trip	0	Shop	442		Industrial Engg.	
Gen. Engg.	115		Engg. Assembly	0				Practice	3
<i>Factory Option</i>					Shop	415		Production Control	2
Shop	410		Industrial Management....	3				Elective*	4
			Elective†	4	<i>Teaching Option‡</i>				
<i>Teaching Option‡</i>					Educ.	150		Teach. Part. in Sec.	
Educ.	120		Prin. of Secondary					Schools	3
			Educ.	3	Shop	244		Meth. of Teach. Ind.	
Shop	402		Highway Safety and					Arts	3
			Driver Educ.	3				Elective*	3
			Elective*	1					
Total				18	Total				18

Number of hours required for graduation, 142.

* Electives are to be chosen with the advice and approval of the head of the Department of Shop Practice and the dean.

‡ The teaching option in Industrial Arts with the comprehensive courses, Biology in Relation to Man I and II, including a total of 18 hours in education, meets the requirements for teaching science, woodwork, machine shop, metal shop, auto mechanics, and mechanical drawing. Those desiring to teach mathematics may elect 3 hours in this field.

Curriculum in Industrial Engineering

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	140	Chemistry E-I	4	Chem.	170	Chemistry E-II	4
Mach. Des.	110	Engg. Drawing	2	Math.	215	Anal. Geom. and Calc. I, ..	4
Math.	175	College Algebra†	3	Mach. Des.	115	Desc. Geometry	2
Math.	190	Plane Trigonometry	3	Speech	105	Oral Comm. I	2
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Shop	180	Welding	1	Shop	125	Shop A	2
		Air Science or				Air Science or	
		Military Science	1			Military Science	1
Phys. Ed.	010	Physical Education M	0	Phys. Ed.	010	Physical Education M	0
Gen. Engg.	110	Engg. Lectures	0	Gen. Engg.	110	Engg. Lectures	0
Total			17	Total			17

SOPHOMORE

Math.	230	Anal. Geom. and Calc. II, ..	4	Math.	245	Anal. Geom. and Calc. III, ..	4
Phys.	130	Engg. Physics I	5	Phys.	140	Engg. Phys. II	5
Mach. Des.	120	Mach. Drawing I	2	Shop	175	Metals and Alloys	2
Mach. Des.	130	Mechanism	3	Shop	155	Foundry I	1
Econ.	110	Economics I	3	Psych.	310	General Psychology	3
		Air Science or		Mech. Engg.	110	Steam and Gas Engg. C, ..	2
		Military Science	1			Air Science or	
Phys. Ed.	010	Physical Education M	0			Military Science	1
Gen. Engg.	115	Engg. Assembly	0	Phys. Ed.	010	Physical Education M	0
				Gen. Engg.	115	Engg. Assembly	0
Total			18	Total			18

JUNIOR

Shop	190	Machine Tool I	2	Shop	194	Machine Tool II	2
Shop	410	Industrial Mgt.	3	Engl.	155	Comm'l Correspondence..	3
Hist.	190	U.S. Since 1865	3	Elec. Engg.	120	Elec. Engg. C Rec.	2
Ap. Mech.	405	Applied Mechanics	4	Elec. Engg.	124	Elec. Engg. C Lab.	1
Econ.	330	Principles of Acctg.	3	App. Mech.	410	Mech. of Mtls. I Rec. ..	4
Shop	184	Electric Welding	1	App. Mech.	418	Mech. of Mtls. I Lab. ..	1
		Nontechnical Elective*†..	2	Shop	460	Metallography I	1
Engl.	090	English Proficiency	0	Shop	210	Safety	2
Gen. Engg.	115	Engg. Assembly	0			Nontechnical Elective*†..	2
				Gen. Engg.	115	Engg. Assembly	0
Total			18	Total			18

SENIOR

Shop	425	Time and Motion	2	Elec. Engg.	470	Ind. Electronics Rec.	3
Shop	415	Production Control	2	Elec. Engg.	474	Ind. Electronics Lab.	1
Mech. Engg.	490	Engg. Economics	3	Engl.	435	Technical Reports	1
Psych.	715	Personnel Psychology	3	Shop	442	Ind. Engg. Practice	3
Shop	419	Manufacturing Processes, ..	3	Shop	421	Prodn. Cost Estimating..	2
Shop	427	Plant Planning and		Shop	431	Tool Engineering	2
		Layout	2	Econ.	440	Marketing	3
		Nontechnical Elective*†..	3			Technical Electives*	3
Shop	280	Inspection Trip	0	Gen. Engg.	115	Engg. Assembly	0
Gen. Engg.	115	Engg. Assembly	0				
Total			18	Total			18

Number of hours required for graduation, 142.

† Students who offer but one unit of algebra for admission take the three-hour course in Intermediate Algebra, Math. 050, postponing both college algebra and plane trigonometry to the second semester.

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

‡ Nontechnical electives are to be selected from the approved list of Humanities electives for the curriculums in Electrical Engineering and Civil Engineering, page 226.

Curriculum in Mechanical Engineering

FRESHMAN

(For all options)

FIRST SEMESTER				SECOND SEMESTER			
		<i>Course</i>	<i>Sem. Hrs.</i>			<i>Course</i>	<i>Sem. Hrs.</i>
Chem.	140	Chemistry E-I	4	Chem.	170	Chemistry E-II	4
Math.	175	College Algebra†	3	Math.	215	Anal. Geom. and Calc. I,	4
Math.	190	Plane Trigonometry	3	Engl.	135	Written Comm. II	2
Engl.	125	Written Comm. I	3	Sp.	105	Oral Comm. I	2
Mach. Des.	110	Engg. Drawing	2	Mach. Des.	115	Desc. Geometry	2
Shop	180	Welding	1	Shop	125	Shop A	2
		Air Science <i>or</i>				Air Science <i>or</i>	
		Military Science	1			Military Science	1
Gen. Engg.	110	Engg. Lectures	0	Gen. Engg.	110	Engg. Lectures	0
Phys. Ed.	010	Physical Education M ...	0	Phys. Ed.	010	Physical Education M ...	0
Total			17	Total			17

SOPHOMORE

(For all options)

Phys.	130	Engg. Physics I	5	Phys.	140	Engg. Physics II	5
Math.	230	Anal. Geom. and Calc. II,	4	Math.	245	Anal. Geom. and Calc. III,	4
Mach. Des.	130	Mechanism	3	Shop	175	Metals and Alloys	2
Mach. Des.	120	Mach. Drawing I	2	Shop	460	Metallography I	1
		Nontechnical Elective‡ ..	3	Mach. Des.	124	Mach. Drawing II	2
		Air Science or				Nontechnical Elective‡ ..	3
		Military Science	1			Air Science or	
Gen. Engg.	115	Engg. Assembly	0			Military Science	1
Phys. Ed.	010	Physical Education M	0	Gen. Engg.	115	Engg. Assembly	0
				Phys. Ed.	010	Physical Education M	0
Total			18	Total			18

JUNIOR

(For all options except Aeronautical-B)

Ap. Mech.	405	Applied Mechanics	4	Ap. Mech.	410	Mech. of Mtls. I Rec. ..	4
Mech. Engg.	411	Engg. Thermodynamics I, ..	4	Ap. Mech.	474	Fluid Mech. B	3
Elec. Engg.	500	Elec. Engg. M-I Rec.	4	Elec. Engg.	508	Elec. Engg. M-II Rec. ..	3
Elec. Engg.	504	Elec. Engg. M-I Lab.	1	Elec. Engg.	510	Elec. Engg. M-II Lab. ..	1
Econ.	110	Economics I	3			Nontechnical Elective‡ ..	2
		Option	2			Option	3 or 4
Gen. Engg.	115	Engg. Assembly	0	Mech. Engg.	412	Engg. Thermodynamics	
Engl.	090	English Proficiency	0			II	2
				Gen. Engg.	115	Engg. Assembly	0
Total			18	Total			18 or 19

SENIOR

(For all options except Aeronautical-B)

Ap. Mech.	418	Mech. of Mtls. Lab.	1	Mach. Des.	420	Mach. Des. I Rec.	3
Shop	410	Industrial Management ..	3			Nontechnical Elective† ..	3
Mech. Engg.	464	Mech. Engg. Lab. I	2			Option	10 or 11
Mech. Engg.	440	Heat-power Engg. A	3	Gen. Engg.	115	Engg. Assembly	0
Mech. Engg.	428	Air Conditioning	3				
Mech. Engg.	150	Prof. Development	1				
		Nontechnical Elective† ..	3				
		Option	2 or 3				
Gen. Engg.	115	Engg. Assembly	0				
Mech. Engg.	180	Inspection Trip	0				
Total			18 or 19	Total			16 or 17

Number of hours required for graduation, 142.

† Students who offer but one unit of algebra for admission take the three-hour course in Intermediate Algebra, Math. 050, postponing both college algebra and plane trigonometry to the second semester.

‡ Nontechnical electives to be chosen with the advice and approval of the head of the department and the dean. At least six hours must be from the Humanities.

Technical Option**JUNIOR**

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Math.	360	Diff. Equa. for Engrs. ..	2			Technical Elective*	2
Total			2	Total			2

SENIOR

Mech. Engg.	421	Heat Transfer	3	Ap. Mech.	414	Mech. of Mtls. II Rec. ..	2
				Mech. Engg.	468	Mech. Engg. Lab. II	2
				Mech. Engg.	444	Power Plant Design	3
				Mach. Des.	424	Machine Design I Lab. ..	2
						Technical Elective*	2
Total			3	Total			11

Industrial Option**JUNIOR**

Shop	190	Machine Tool I	2	Shop	194	Technical Elective*	2
						Machine Tool II	2
Total			2	Total			4

SENIOR

Shop	425	Time and Motion	2	Mech. Engg.	468	Mech. Engg. Lab. II	2
				Mach. Des.	424	Machine Design I Lab. ..	2
				Shop	210	Safety	2
				Shop	442	Ind. Engg. Practice	3
						Technical Elective*	2
Total			2	Total			11

Aeronautical Option—A**JUNIOR**

Math.	360	Diff. Equa. for Engrs. ..	2	Mach. Des.	440	Aerodynamics I Rec.	3
				Mach. Des.	444	Aerodynamics I Lab.	1
Total			2	Total			4

SENIOR

Ap. Mech.	491	Airpl. Stress Anal. I	3	Mech. Engg.	480	Aero. Engg. Lab.	2
				Mech. Engg.	430	Int. Comb. Engines	3
				Mach. Des.	468	Airpl. Des. and Const. ..	3
						Technical Elective*	2
Total			3	Total			10

Petroleum Production Option**JUNIOR**

Civ. Engg.	120	Surveying I	2	Geol.	110	Gen. Geology	3
Total			3	Total			3

SENIOR

Mech. Engg.	510	Petroleum Prod. I	3	Mech. Engg.	514	Petroleum Prod. II	3
				Mech. Engg.	468	Mech. Engg. Lab. II	2
				Mach. Des.	424	Machine Des. I Lab.	2
				Geol.	405	Historical Geology	4
Total			3	Total			11

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

Students majoring in Mechanical Engineering and who desire more specialized training in aeronautical engineering may pursue the following adaptation of the Curriculum in Mechanical Engineering.

Aeronautical Option—B

JUNIOR

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Ap. Mech.	405	Applied Mechanics	4	Ap. Mech.	410	Mech. of Mtls. I. Rec. ..	4
Mech. Engg.	411	Engg. Thermodynamics ..	4	Ap. Mech.	418	Mech. of Mtls. Lab.	1
Elec. Engg.	120	Elec. Engg. C. Rec.	2	Ap. Mech.	474	Fluid Mechanics B	3
Elec. Engg.	124	Elec. Engg. C. Lab.	1	Mech. Engg.	430	Int. Comb. Engines	3
Math.	360	Diff. Equa. for Engrs. ..	2	Shop	410	Industrial Management ..	3
Shop	480	Aircr. Mtls. and Fabric. ..	3	Mach. Des.	440	Aerodynamics I Rec.	3
		Elective*	2	Mach. Des.	444	Aerodynamics I Lab.	1
Gen. Engg.	115	Engg. Assembly	0	Gen. Engg.	115	Engg. Assembly	0
Engl.	090	English Proficiency	0				
Total			18	Total			18

SENIOR

Mach. Des.	470	Prop. Theory and Des. ..	2	Mech. Engg.	485	Airplane Instruments	2
Mach. Des.	448	Aerodynamics II Rec.	3	Mech. Engg.	435	Aircraft Power Plants ..	2
Mach. Des.	450	Aerodynamics II Lab. ..	1	Mech. Engg.	480	Aero. Engg. Lab.	2
Mach. Des.	460	Airplane Design I	3	Mach. Des.	464	Airplane Design II	3
Ap. Mech.	491	Airpl. Stress Anal. I	3	Ap. Mech.	494	Airpl. Stress Anal. II ..	2
Gen. Stud.	210	Man and Soc. World I ..	4	Gen. Stud.	220	Man and Soc. World II, ..	4
Mech. Engg.	460	Heat Power Lab.	1	Elec. Engg.	580	Airp. Elec. Equip. Lab., ..	1
Mech. Engg.	180	Inspection Trip	0			and	
Gen. Engg.	115	Engg. Assembly	0	Elec. Engg.	584	Airp. Elec. Equip. Rec., ..	2
		Elective*	1			or	
				Mech. Engg.	150	Prof. Development	1
						and	
				Gen. Engg.	115	Elective*	2
						Engg. Assembly	0
Total			18	Total			18

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

Curriculum in Nuclear Engineering

(Based on Chemical Engineering)

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		<i>Course</i>	<i>Sem. Hrs.</i>			<i>Course</i>	<i>Sem. Hrs.</i>
Chem.	210	Chemistry I	5	Chem. Engg.	205	Ch. E. Mtls.	2
Math.	175	College Algebra†	3	Chem.	230	Chemistry II Rec.	3
Math.	190	Plane Trigonometry ...	3	Chem.	250	Chemistry II Lab.	2
Engl.	125	Written Comm. I	3	Math.	215	Anal. Geom. and Calc. I, 4	4
Mach. Des.	110	Engg. Drawing	2	Engl.	135	Written Comm. II	2
		Air Science <i>or</i>		Sp.	105	Oral Comm. I	2
		Military Science	1	Mach. Des.	115	Descr. Geometry	2
Phys. Ed.	010	Physical Education M	0			Air Science <i>or</i>	
Gen. Engg.	110	Engg. Lectures	0			Military Science	1
				Phys. Ed.	010	Physical Education M	0
				Gen. Engg.	110	Engg. Lectures	0
Total			17	Total			18

SOPHOMORE

Chem.	435	Quant. Anal.	4	Chem. Engg.	210	Ind. Stoich.	3
Phys.	130	Engg. Physics I	5	Phys.	140	Engg. Physics II	5
Math.	230	Anal. Geom. and Calc. II, 4	4	Math.	245	Anal. Geom. and Calc. III, 4	4
		Soc. Sc. Elective*	4			Soc. Sc. Elective*	4
		Air Science <i>or</i>				Air Science <i>or</i>	
		Military Science	1			Military Science	1
Phys. Ed.	010	Physical Education M	0	Phys. Ed.	010	Physical Education M	0
Gen. Engg.	115	Engg. Assembly	0	Gen. Engg.	115	Engg. Assembly	0
Total			18	Total			17

JUNIOR

Chem. Engg.	420	Unit Op. I Rec.	3	Chem. Engg.	428	Unit Op. II Rec.	3
Chem. Engg.	424	Unit Op. I Lab.	1	Chem. Engg.	430	Unit Op. II Lab.	1
Chem.	585	Phys. Chem. I Rec.	3	Chem.	595	Phys. Chem. II Rec.	3
Chem.	590	Phys. Chem. I Lab.	2	Chem.	600	Phys. Chem. II Lab.	2
Chem.	505	Org. Chem.	5	App. Mech.	405	Applied Mechanics	4
Phys.	560	Atomic Physics	3	Elec. Engg.	120	Elect. Engg. C Rec.	2
Phys.	590	Modern Physics Lab.	1	Elec. Engg.	124	Elect. Engg. C Lab.	1
Gen. Engg.	115	Engg. Assembly	0	Phys.	575	Nuclear Physics	3
Engl.	090	English Proficiency	0	Gen. Engg.	115	Engg. Assembly	0
Total			18	Total			19

SENIOR

Chem. Engg.	491	Ch. E. Thermo. I	4	Chem. Engg.	495	Ch. E. Thermo. II	4
Chem. Engg.	700	Reactor Tech.	4	Chem. Engg.	710	Reactor Design	5
Chem.				Elec. Engg.	470	Ind. Electronics Rec.	3
(Phys.)	635	Tracer Techniques	3			Humanities Elective*	4
App. Mech.	410	Mech. of Mtls.	4	Gen. Engg.	115	Engg. Assembly	0
		Humanities Elective*	4				
Gen. Engg.	115	Engg. Assembly	0				
Chem. Engg.	200	Inspection Trip	0				
Total			19	Total			16

Number of hours required for graduation, 142.

† Students who offer but one unit of algebra for admission take a three-hour course in Intermediate Algebra, Math. 050, postponing both college algebra and plane trigonometry to the second semester.

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

AGRICULTURAL ENGINEERING

FREDERICK C. FENTON, *Head of Department*

FOR UNDERGRADUATE CREDIT

110. Farm Mechanics. 2 semester hours. First semester.

Shop skills for teachers of vocational agriculture including pipe fitting, plumbing repairs, taps and dies, drilling, soldering, babbitting, use of hand tools, and sharpening. Special lathe work and welding with direct application to the repair of farm machinery. Six hours of laboratory a week. For students in the Curriculum in Agricultural Education. Prerequisite: Shop 184.

115. Farm Machinery Repair. 3 semester hours. Second semester.

Construction, repair, operation, adjustment, calibration, and maintenance of farm machinery and equipment. One hour of recitation and six hours of laboratory a week. For students in the Curriculum in Agricultural Education. Prerequisite: Agr. Engg. 110.

120. Farm Power. 3 semester hours. Second semester.

Selection, operation, and maintenance of engines, tractors, and electric motors; principles of valve timing, ignition, carburetion, cooling, lubrication, and fuels; with special emphasis on repair and reconditioning. One hour of recitation and six hours of laboratory a week. For students in the Curriculum in Agricultural Education.

125. Farm Machinery. 3 semester hours. Each semester and summer.

Construction, operation, adjustment, power requirements, use, service, and repair of farm machinery. Two hours of recitation and three hours of laboratory a week. For agricultural students.

135. Gas Engines and Tractors. 3 semester hours. Each semester and summer.

Principles of the internal combustion engine; carburetion, valve timing, ignition, cooling, lubrication, and fuels; the servicing and repair of farm engines and the selection of power for agriculture. Two hours of recitation and three hours of laboratory a week. For agricultural students.

150. Elements of Agricultural Engineering. 3 semester hours. First semester.

Survey of the field of agricultural engineering, power in agriculture, power transmission, belts, gears, mechanisms, bearings, gages and measurements, shop skills. One hour of recitation and six hours of laboratory a week.

160. Farm Buildings. 3 semester hours. Second semester and summer in alternate years.

Requirements, details of arrangements, and materials of construction for farm buildings; preparation of plans, bills of material, and estimates of costs; water supply, sewage disposal, lighting, and other modern equipment for the farmstead. Two hours of recitation and three hours of laboratory a week.

170. Field and Power Machinery. 4 semester hours. First semester.

A comprehensive study of the development, design, construction, economics, power requirements, use and servicing of farm machinery. Two hours of recitation and six hours of laboratory a week. Prerequisite: Phys. 140.

200. Inspection Trip. Required; no credit. First semester.

A trip of three to five days for the purpose of studying farm machinery production and other projects of special interest to agricultural engineers. Cost of trip, \$30 to \$60. Prerequisite: Senior classification.

FOR UNDERGRADUATE AND GRADUATE CREDIT

405. Farm Mechanics Methods. 3 semester hours. Second semester.

Methods of teaching farm mechanics in vocational agriculture, including the organization and equipment of the farm shop; preparation and use of job sheets and instruction sheets; practice in the demonstration of shop skills and in the construction of farm mechanics projects. For students in the Curriculum in Agricultural Education. One hour of recitation and six hours of laboratory a week. Prerequisite: Agr. Engg. 110, 120.

410. Farm Building Construction. 3 semester hours. First semester.

Planning and construction of buildings and equipment for the farm; concrete and masonry, farm carpentry, painting, new building materials; blueprint reading, bills of materials, and cost estimates. For students in the Curriculum in Agricultural Education. One hour of recitation and six hours of laboratory a week. Prerequisite: Agr. Engg. 110.

415. Agricultural Engineering Applications. 2 semester hours. First semester.

Practical laboratory exercises, surveying, terracing, contouring, drainage, irrigation, fencing, electric wiring, farm water supply, sewage disposal, heating, lighting, refrigeration, etc. For students in the Curriculum in Agricultural Education. Six hours of laboratory a week. Prerequisite: Junior standing.

420. Drainage, Erosion Control, and Irrigation. 3 semester hours. Second semester.

Principles and practices of land improvement by terracing and other methods of erosion control; drainage, irrigation, and land clearing. Two hours of recitation and three hours of laboratory a week. For agricultural students. Prerequisite: Agron. 149; junior or senior classification.

440. Power and Machinery in Agriculture. 2 semester hours. First semester.

History and development of machinery in agriculture; the application, selection, management, and cost of machines; future development; a survey course dealing with the mechanism of agriculture. Open to all students who have not taken Agr. Engg. 125 or 135. Two hours of recitation a week. Prerequisite: Junior or senior classification.

445. Farm Motors. 4 semester hours. Second semester.

Theory, design, operation, and adjustment of the internal combustion engine, and a comprehensive study of power and its application to agriculture. Two hours of recitation and six hours of laboratory a week. Prerequisite: Phys. 140, Mech. Engg. 411.

455. Dairy Mechanics. 3 semester hours. Second semester.

Installation, adjustment, and operation of dairy plant equipment; boilers, engines, motors, pumps, refrigeration machinery; water supply, waste disposal. Two hours of recitation and three hours of laboratory a week.

465. Farm Structures. 4 semester hours. First semester.

Design of farm structures, details and materials of construction; specifications and estimates. Two hours of recitation and six hours of laboratory a week. Prerequisite: Ap. Mech. 410.

475. Agricultural Hydrology. 3 semester hours. First semester.

The hydrologic cycle, rainfall, runoff, soil and water relationships affecting crop production, drainage, irrigation, and erosion. Watershed surveys. Two hours of recitation and three hours of laboratory a week. Prerequisite: Civ. Engg. 120.

480. Soil and Water Conservation. 4 semester hours. Second semester.

Principles and methods of land drainage, soil and water conserva-

tion, and irrigation. Two hours of recitation and six hours of laboratory a week. Prerequisite: Ap. Mech. 470, Agr. Engg. 475, Agron. 149.

500. Rural Electrification. 4 semester hours. Second semester.

Water supply, sewage disposal, lighting, heating, and ventilation of farm buildings; refrigeration; rural electrification. Two hours of recitation and six hours of laboratory a week. Prerequisite: Ap. Mech. 470, Mech. Engg. 411.

520. Problems in Agricultural Engineering. Credit to be arranged. Each semester and summer.

Problems in the design, construction, or application of machinery or power in agriculture, structures, modern conveniences, and rural electrification. Prerequisite: Permission of instructors.

FOR GRADUATE CREDIT

810. Research in Agricultural Engineering. Credit to be arranged. Each semester and summer.

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 investigation, if suitable, may be incorporated in bulletins of the Engineering Experiment Station or furnish material for the master's thesis. Prerequisite: Agron. 149, Phys. 140, or equivalent.

APPLIED MECHANICS

CHARLES H. SCHOLER, *Head of Department*

FOR UNDERGRADUATE CREDIT

105. Applied Mechanics A. 3 semester hours. Each semester.

A study of statics, with applications to stress in structure; center of gravity; moment of inertia. Three hours of recitation a week. Prerequisite: Math. 190, Phys. 110.

120. Strength of Materials A Recitation. 3 semester hours. Each semester.

Behavior of materials subjected to tension, compression, shear, and bending; designs of beams of wood, steel, and reinforced concrete; design and investigation of columns; practice in the use of a handbook. Three hours of recitation a week. Prerequisite: Ap. Mech. 105.

124. Strength of Materials A Laboratory. 1 semester hour. Each semester.

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. Three hours of laboratory a week. Prerequisite or concurrent: Ap. Mech. 120.

140. Foundation Materials. 3 semester hours. Second semester.

The properties and testing of natural materials, including soils, commonly used for foundations. Three hours of recitation a week. Prerequisite: Geol. 515.

FOR UNDERGRADUATE AND GRADUATE CREDIT

405. Applied Mechanics. 4 semester hours. Each semester and summer.

Composition, resolution, and conditions of equilibrium of concurrent and nonconcurrent forces; center of gravity; friction; laws of rectilinear and curvilinear motion of material points; moment of inertia; relations between forces acting on rigid bodies and the resulting motions; work, energy, and power. Four hours of recitation a week. Prerequisite: Phys. 130, Math. 290; or concurrent: Math. 245.

- 410. Mechanics of Materials I Recitation.** 4 semester hours. Each semester and summer.
Behavior of materials subject to tension, compression, and shear; riveted joints; torsion; shafts and the transmission of power; strength and stiffness of simple and continuous beams; bending and shear in beams; design of beams; stresses in columns and hooks. Four hours of recitation a week. Prerequisite: Ap. Mech. 405.
- 414. Mechanics of Materials II Recitation.** 2 semester hours. Second semester.
An extension of Ap. Mech. 410 with special reference to the needs of students in mechanical engineering. Two hours of recitation a week. Prerequisite: Ap. Mech. 410.
- 418. Mechanics of Materials Laboratory.** 1 semester hour. Each semester and summer.
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. Three hours of laboratory a week. Prerequisite or concurrent: Ap. Mech. 410.
- 420. Highway and Airport Materials Laboratory.** 1 semester hour. Each semester.
A comprehensive course in the examination and testing of materials used in the construction of highways and airports. Three hours of laboratory a week. Prerequisite: Ap. Mech. 418.
- 424. Advanced Highway and Airport Materials.** 2 semester hours. Second semester.
An advanced course in the properties and testing of the various materials used in the construction of highways and airports. One hour of recitation and three hours of laboratory a week. Prerequisite: Ap. Mech. 420.
- 430. Experimental Stress Analysis.** 1 semester hour. First semester.
A study of methods and apparatus for experimental determination of stresses, including photoelasticity, brittle models, brittle coatings, electric strain gages, and strain rosettes. Three hours of laboratory a week. Prerequisite: Ap. Mech. 418; prerequisite or concurrent: Ap. Mech. 414.
- 435. Design of Concrete Mixtures.** 3 semester hours. Second semester.
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. One hour of recitation and six hours of laboratory a week. Prerequisite: Ap. Mech. 418.
- 440. Cement and Concrete Technology.** 2 semester hours. First semester.
History of calcareous cements; a survey of raw materials and processes; cement components, constitution and cementing value; special cements and their concrete-making properties; resistance of concrete to natural destructive agents. Prerequisite: Ap. Mech. 418.
- 450. Soil Mechanics I.** 2 semester hours. Each semester.
The identification and classification of soil types; the physical properties of soil that govern its use as a material of construction and as a support for engineering structures. One hour of recitation and three hours of laboratory a week. Prerequisite: Ap. Mech. 410.
- 454. Soil Mechanics II.** 3 semester hours. First semester.
Subsurface investigations; permeability, seepage, and capillarity; consolidation and settlement; stress distribution in soils and shearing strength. Two hours of recitation and three hours of laboratory a week. Prerequisite: Ap. Mech. 450.
- 458. Soil Mechanics III.** 3 semester hours. Second semester.
Stability of slopes; lateral pressure and stability of retaining walls;

compaction; earth dams; bearing power of soils; behavior of soils under various types of foundations. Two hours of recitation and three hours of laboratory a week. Prerequisite: Ap. Mech. 450.

470. Fluid Mechanics A. 4 semester hours. Each semester and summer.

Fluid pressures, center of pressure, immersion and flotation; Bernoulli's Theorem for compressible and incompressible fluids; the principle of similarity, the Reynolds and Froude numbers; flow of fluids through orifices, nozzles, pipes; flow of water over weirs and in open channels; elements of water power, impulse wheels, reaction turbines, and centrifugal pumps. Four hours of recitation a week. Prerequisite: Ap. Mech. 405.

474. Fluid Mechanics B. 3 semester hours. Second semester.

An optional course for mechanical engineering students, in which both gaseous and liquid fluids are treated. Three hours of recitation a week. Not open to students with credit in Ap. Mech. 470. Prerequisite: Ap. Mech. 405, Mech. Engg. 411.

478. Hydraulics Laboratory. 1 semester hour. Each semester.

Tests to determine the coefficients of weirs and orifices, loss of head in pipes, water wheels, water turbines, rams and pumps. Three hours of laboratory a week. Prerequisite or concurrent: Ap. Mech. 470 or 474.

480. Hydraulic Machinery. 2 semester hours. First semester.

Characteristics and applications of water wheels, turbines, pumps, and other hydraulic machinery. Two hours of recitation a week. Prerequisite: Ap. Mech. 470.

491. Airplane Stress Analysis I. 3 semester hours. First semester.

Analysis of stress and stability problems in the structural elements of airplanes. Three hours of recitation a week. Prerequisite: Math. 360, Ap. Mech. 410.

494. Airplane Stress Analysis II. 2 semester hours. Second semester.

A continuation of Airplane Stress Analysis I. Two hours of recitation a week. Prerequisite: Ap. Mech. 491.

510. Elastic Energy Theory. 3 semester hours. First semester.

The elastic energy theory applied to trusses, frames, beams, and curved beams. Three hours of recitation a week. Prerequisite: Ap. Mech. 410.

515. Elastic Stability. 3 semester hours. First semester.

Bending of prismatic bars under simultaneous action of axial and lateral loads; buckling of centrally compressed bars; buckling of compressed rings and curved bars; lateral buckling of beams. Three hours of recitation a week. Prerequisite: Ap. Mech. 410.

525. Mathematical Methods in Engineering Research. 3 semester hours. First semester.

The application of the methods of Euler, Lagrange, Ritz, Southwell, Timoshenko, Runge, Heaviside, and Kron to problems in various fields in engineering. Three hours of recitation a week. Prerequisite: Math. 615 or equivalent.

540. Advanced Dynamics. 3 semester hours. Second semester.

Principles of momentum and energy with applications; theory of rotation about a fixed point with special reference to the gyroscope and its applications. Three hours of recitation a week. Prerequisite: Ap. Mech. 405, Math. 360 or equivalent.

FOR GRADUATE CREDIT

805. Problems in Applied Mechanics. Credit to be arranged. Each semester and summer.

Special problems in the fields of Applied Mechanics. Prerequisite: Consult instructors.

- 810. Research in Applied Mechanics.** Credit to be arranged. Each semester and summer.

Experimental and/or analytical work in the fields of materials of construction, mechanics of materials, fluid mechanics, soil mechanics and dynamics. The one material concrete provides a variety of attractive problems in regard to its design, mixing, placing, strength, plasticity, permeability, shrinkage, absorptivity, durability and its performance as a structural element or pavement slab. The results of such investigation may furnish material for the master's thesis or report. Prerequisite: Consult instructors.

- 820. Theory of Elasticity I.** 2 semester hours. Second semester.

Equations of elasticity in two and three dimensions; two-dimensional problems in rectangular and in polar co-ordinates; torsion of shafts of noncircular section. Prerequisite: Ap. Mech. 414, Math. 615, or equivalent.

- 824. Theory of Elasticity II.** 2 semester hours. First semester. Offered in 1953-'54 and alternate years.

Bending of prismatic bars and circular plates; stresses around cavities; stresses within soils; thermal stresses. Prerequisite: Ap. Mech. 820.

- 840. Theory of Plates and Slabs.** 3 semester hours. Second semester. Offered in 1953-'54 and alternate years.

Equations for bending of thin plates; symmetrical bending of circular plates; simply supported rectangular plates. Rectangular plates or slabs with various edge conditions. Plates or slabs of various shapes. Three hours of recitation a week. Prerequisite: Ap. Mech. 414, Math. 615, or equivalent.

- 850. Vibration of Elastic Bodies.** 3 semester hours. First semester.

Longitudinal, torsional, and lateral vibration of bars; testing of samples of material by dynamic methods; the Ritz method; vibration of membranes and plates; waves in isotropic elastic mediums; vibrations of pavement slabs. Three hours of recitation a week. Prerequisite or concurrent: Ap. Mech. 820, Mach. Design 430.

- 861. Plasticity.** 2 semester hours. First semester. Offered in 1952-'53 and alternate years.

Elastic-plastic and fully plastic problems of trusses, beams, and bars in torsion; unrestricted and contained plane strain; limit analysis. Prerequisite: Ap. Mech. 414, Math. 615 or equivalent.

- 865. Rheology.** 2 semester hours. Second semester. Offered in 1952-'53 and alternate years.

The structure of matter and theories of deformation. The mechanics of deformation, including elasticity, plasticity, work hardening, creep and fracture. Prerequisite: Ap. Mech. 861.

- 880. Advanced Fluid Mechanics.** 3 semester hours. First semester.

Principles of flow, irrotational motion, conformal mapping, viscous flow, fluid turbulence, boundary layers, lift and drag, transportation of sediment. Three hours of recitation a week. Prerequisite: Ap. Mech. 474, Math. 615, or equivalent, and preferably Ap. Mech. 820.

ARCHITECTURE AND ALLIED ARTS

PAUL WEIGEL, *Head of Department*

All drawings or designs made by the student during the course become the property of the department, to be used or returned at the discretion of the faculty.

FOR UNDERGRADUATE CREDIT

- 105. Shades and Shadows.** 1 semester hour. Each semester.
A fundamental course in shades and shadows. Three hours of laboratory a week. Prerequisite: Mach. Des. 110 or equivalent.
- 110. Perspective Drawing.** 1 semester hour. Each semester.
The principles of perspective drawing. Three hours of laboratory a week. Prerequisite: Mach. Des. 110 or equivalent.
- 115. Elementary Drawing.** 2 semester hours. Each semester and summer.
The principles and fundamentals of sketching and drawing intended for nonprofessional students. Six hours of laboratory a week. Not to be taken for credit by students enrolled in curriculums in Architecture and Humanities (Art Adaptation).
- 120. Freehand Drawing I.** 2 semester hours. Each semester and summer.
A basic course in the fundamentals of freehand drawing. Six hours of laboratory a week.
- 124. Freehand Drawing II.** 2 semester hours. Each semester and summer.
A continuation of Arch. 120. Six hours of laboratory a week. Prerequisite: Arch. 120.
- 130. Pencil Sketching.** 2 semester hours. Each semester and summer.
Six hours of laboratory a week. Prerequisite: Arch. 120.
- 135. Pen and Ink Drawing.** 2 semester hours. Each semester and summer.
Six hours of laboratory a week. Prerequisite: Approval of instructor.
- 140. Still-life Drawing.** 2 semester hours. First semester and summer.
Sketches in various media of still-life groups in the studio and out-of-doors. Six hours of laboratory a week. Prerequisite: Arch. 120.
- 145. Clay Modeling.** 2 semester hours. First semester and summer.
The making of original clay models, plaster casts of simple decorative and anatomical forms. Six hours of laboratory a week. Prerequisite: Arch. 140.
- 150. Block Prints.** 2 semester hours. First semester and summer.
The carving of original compositions in linoleum and wood blocks. Six hours of laboratory a week. Prerequisite: Arch. 124 or approval of instructor.
- 155. Elementary Painting.** 2 semester hours. Each semester and summer.
The principles and fundamentals of painting in oil or water color intended for nonprofessional students. Six hours of laboratory a week. Not to be taken for credit by students enrolled in curriculums in Architecture and Humanities (Art Adaptation).
- 160. Water Color I.** 2 semester hours. Each semester and summer.
Rudiments of water-color painting; translation and theory of color. Sketching of simple objects and groups of objects; includes both studio and outdoor sketching. Six hours of laboratory a week. Prerequisite: Arch. 130 or approval of instructor.
- 164. Water Color II.** 2 semester hours. Each semester and summer.
Advanced study in the technique of the medium. Includes both studio work and outdoor sketching. Six hours of laboratory a week. Prerequisite: Arch. 160.
- 170. Life Drawing I.** 2 semester hours. Each semester.
Six hours of laboratory a week. Prerequisite: Arch. 160.
- 174. Life Drawing II.** 2 semester hours. Each semester.
A continuation of Arch. 170. Six hours of laboratory a week. Prerequisite: Arch. 170.

- 180. Oil Painting I.** 2 semester hours. Each semester and summer.
Principles of oil painting with emphasis on technical aspects of the medium; theory of color and composition; both studio and outdoor work. Six hours of laboratory a week. Prerequisite: Arch. 120 or approval of instructor.
- 184. Oil Painting II.** 2 semester hours. Each semester and summer.
A continuation of Arch. 180. Six hours of laboratory a week. Prerequisite: Arch. 180 or approval of instructor.
- 190. Pictorial Composition I.** 2 semester hours. Each semester and summer.
Individuality of expression is encouraged and the student is stimulated to express his ideas and emotions graphically in various media. Further understanding of the creative impulse and activity is gained through discussions, reports, and readings. Six hours of laboratory a week. An elective course intended for students not enrolled in the Department of Architecture and Allied Arts.
- 194. Pictorial Composition II.** 2 semester hours. Each semester and summer.
Continuation of Arch. 190. Six hours of laboratory a week. An elective course intended for students not enrolled in the Department of Architecture and Allied Arts. Prerequisite: Arch. 190.
- 200. Appreciation of Architecture.** 3 semester hours. Second semester.
A survey of the history of architecture. Three hours of recitation a week. An elective course intended for students not enrolled in the Department of Architecture and Allied Arts.
- 205. Domestic Architecture.** 2 semester hours. First semester.
A study of the design and planning problems of the small home. Two hours of recitation a week. An elective course intended for students not enrolled in the Department of Architecture and Allied Arts.
- 210. Commercial Illustration I.** 2 semester hours. Each semester.
The principles of advertising arrangements; making various types of advertising design, 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. Six hours of laboratory a week.
- 214. Commercial Illustration II.** 2 semester hours. Each semester.
Continuation of Arch. 210. Six hours of laboratory a week. Prerequisite: Arch. 210.
- 218. Commercial Illustration III.** 3 semester hours. Each semester.
Continuation of Arch. 214 with particular emphasis upon the perfecting of professional techniques employed in advertising work. Nine hours of laboratory a week. Prerequisite: Arch. 214.
- 220. Commercial Illustration IV.** 3 semester hours. Each semester.
Continuation of Arch. 218. Nine hours of laboratory a week. Prerequisite: Arch. 218.
- 230. Elements of Architecture I.** 4 semester hours. Each semester.
A study of the fundamentals of architectural design by their application in the original solution and presentation of simple architectural problems. Twelve hours of laboratory a week.
- 234. Elements of Architecture II.** 4 semester hours. Each semester.
A continuation of Arch. 230. Twelve hours of laboratory a week. Prerequisite: Arch. 230.
- 240. Architectural Design I.** 5 semester hours. Each semester.
A continuation of Arch. 234. Fifteen hours of laboratory a week. Prerequisite: Arch. 234.

- 244. Architectural Design II.** 5 semester hours. Each semester.
A continuation of Arch. 240. Fifteen hours of laboratory a week.
Prerequisite: Arch. 240.
- 248. Architectural Design III.** 5 semester hours. Each semester.
Continuation of Arch. 244; time problems and rapid design sketches required at frequent intervals. Fifteen hours of laboratory a week.
Prerequisite: Arch. 244.
- 250. Architectural Design IV.** 5 semester hours. Each semester.
Continuation of Arch. 248. Fifteen hours of laboratory a week.
Prerequisite: Arch. 248.
- 255. Interior Design.** 2 semester hours. First semester and summer.
A study of the principle of interior architecture. Six hours of laboratory a week. Prerequisite: Arch. 160, 200, 248.
- 270. History of Architecture I.** 2 semester hours. First semester.
Preclassical and classical architecture. Two hours of recitation a week.
- 274. History of Architecture II.** 2 semester hours. Second semester.
Medieval architecture. Two hours of recitation a week. Prerequisite: Arch. 270.
- 278. History of Architecture III.** 2 semester hours. First semester.
Italian and French Renaissance architecture. Two hours of recitation a week. Prerequisite: Arch. 274.
- 280. History of Architecture IV.** 2 semester hours. Second semester.
Continuation of Arch. 278 through modern architecture. Two hours of recitation a week. Prerequisite: Arch. 278.
- 285. History of Painting and Sculpture.** 3 semester hours. First semester and summer.
The appreciation and development of painting and sculpture. Three hours of recitation a week. A required course for students in architecture and a recommended elective for other students.
- 300. Building Materials and Construction.** 3 semester hours. Each semester.
An introduction to the properties and uses of the materials of construction; construction methods; occasional visits to buildings under construction. Three hours of recitation a week.
- 305. Building Equipment.** 2 semester hours. Each semester.
A study of plumbing, sanitation systems, and mechanical equipment of buildings. Two hours of recitation a week. Prerequisite: Arch. 300.
- 310. Working Drawings.** 3 semester hours. Each semester.
Preparing working drawings for a residence. Nine hours of laboratory a week. Prerequisite: Arch. 240, 300.
- 320. Theory of Structures I.** 4 semester hours. Second semester.
Mathematical and graphical solutions of stresses in framed structures under static loading; practical problems in the design of wood, steel, and masonry construction; occasional inspection trips to buildings under construction. Two hours of recitation and six hours of laboratory a week. Prerequisite: Ap. Mech. 120, 124.
- 324. Theory of Structures II.** 5 semester hours. First semester.
A continuation of Arch. 320. Three hours of recitation and six hours of laboratory a week. Prerequisite: Arch. 320.
- 328. Theory of Structures III.** 4 semester hours. Second semester.
A continuation of Arch. 324, including design of reinforced concrete building frames; footings, columns, and floor systems, attention being given to costs and economical design. Two hours of recitation and six hours of laboratory a week. Prerequisite: Arch. 324.

340. Professional Practice. 2 semester hours. Each semester.

The preparation of building documents; interpretation of building codes and analysis of documents of American Institute of Architects; office organization; client and contractor relationships. Six hours of laboratory a week. Prerequisite: Arch. 310; senior classification.

390. Inspection Trip. Required; no credit. First semester.

An inspection trip is made to one of the larger cities of the Middle West, usually Chicago, by the senior students in architectural engineering and the fourth year students in 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. Prerequisite: Senior classification. Approximate cost of trip, \$60.

FOR UNDERGRADUATE AND GRADUATE CREDIT

405. Advanced Freehand Drawing. Credit to be arranged. Each semester and summer.

Prerequisite: Arch. 140, 160; approval of instructor.

410. Etching. Credit to be arranged. Each semester and summer.

Technical principles and practice of etching on copper and zinc plate. Prerequisite: Arch. 170 or approval of instructor.

415. Lithography. Credit to be arranged. Each semester and summer.

Technical principles and practice of lithography on stone and metal plate and their application in creative work. Prerequisite: Arch. 170 or approval of instructor.

420. Oil Painting III. 2 semester hours. Each semester and summer.

Work in the various methods and historical technics of painting. Six hours of laboratory a week. Prerequisite: Arch. 184 or approval of instructor.

424. Oil Painting IV. 2 semester hours. Each semester and summer.

A continuation of Arch. 420 with a selected study and practice of mural painting. Six hours of laboratory a week. Prerequisite: Arch. 420 or approval of instructor.

440. Portraiture I. 2 semester hours. Each semester and summer.

Principles and elements of portrait drawing. Various media may be employed. Six hours of laboratory a week. Prerequisite: Arch. 174 or approval of instructor.

444. Portraiture II. 2 semester hours. Each semester and summer.

A continuation of Arch. 440. Six hours of laboratory a week. Prerequisite: Arch. 440 or approval of instructor.

448. Sculpture I. 2 semester hours. Each semester and summer.

Work in three-dimensional media to develop an understanding of mass and volume through an analysis of sculptural form in various materials. Six hours of laboratory a week. Prerequisite: Arch.

452. Sculpture II. 2 semester hours. Each semester and summer.

Advanced work in various media. Prerequisite: Arch. 448.

461. City Planning I. 3 semester hours. First semester.

A study of the regional, state, and county background to city planning, including problems of population, resource potential, agricultural, industrial, and trade developments and their effect upon city planning. Prerequisite: Junior or senior standing. Nine hours of laboratory a week.

463. City Planning II. 3 semester hours. Second semester.

A study of city planning, including transportation and street systems, parks and recreation facilities, public buildings and civic centers, subdivisions of land, restrictions, and zoning. Nine hours of laboratory a week. Prerequisite: Arch. 461.

- 465. Problems in Architecture.** Credit to be arranged. Each semester and summer.

Under direct supervision of some members of the departmental staff, study of specific architectural problems. Prerequisite: Approval of instructor.

- 480. Theory of Structures IV.** 4 semester hours. First semester.

A continuation of Theory III with special emphasis being placed on the complete problem of the structure as a whole. Three hours of recitation and three hours of laboratory a week. Prerequisite: Arch. 328.

- 490. Architectural Design V.** 7 semester hours. Each semester.

A continuation of Arch. 250. Twenty-one hours of laboratory a week. Prerequisite: Arch. 250.

- 494. Architectural Design VI.** 7 semester hours. Each semester.

A continuation of Arch. 490. Twenty-one hours of laboratory a week. Prerequisite: Arch. 490.

FOR GRADUATE CREDIT

- 810. Research in Architecture.** Credit to be arranged. Each semester and summer.

Original investigation or advanced study in architectural design, planning, industrial design and related fields. Prerequisite: Approval of instructor.

- 820. Research in Painting and Sculpture.** Credit to be arranged. Each semester and summer.

Original investigation or advanced study in painting, sculpture and related fields. Prerequisite: Approval of instructor.

- 830. Advanced Architectural Design I.** Credit to be arranged. Each semester and summer.

A study of the planning of important buildings and groups of buildings. Prerequisite: Arch. 494.

- 834. Advanced Architectural Design II.** Credit to be arranged. Each semester and summer.

A continuation of Arch. 830; may furnish material for the master's thesis. Prerequisite: Arch. 830.

CHEMICAL ENGINEERING

HENRY T. WARD, *Head of Department*

The instruction in the Department of Chemical Engineering deals primarily with those unit physical operations and unit chemical processes which, when co-ordinated and in their proper sequence, constitute a physical or chemical process as conducted on an industrial scale. Chemistry, physics, and mathematics are the underlying sciences of chemical engineering, and economics its guide in practice. Courses in Nuclear Engineering are included.

FOR UNDERGRADUATE CREDIT

- 200. Inspection Trip.** Required; no credit. First semester.

Inspections are made of chemical industries in Kansas by visits to plants making chemicals such as ammonia, methanol, soap, glass, cement, petroleum products, fertilizers, etc. Approximate cost to student, \$30. Prerequisite: Senior standing.

- 205. Chemical Engineering Materials.** 2 semester hours. Each semester.

Manufacture, use, and properties of metallic and nonmetallic materials of construction. Two hours of recitation a week. Prerequisite or concurrent: Chem. 230, 250.

- 210. Industrial Stoichiometry.** 3 semester hours. Each semester and summer.

Calculation of material and energy balances in industrial chemical reactions. Three hours of recitation a week. Prerequisite: Chem. 435.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 420. Unit Operations I Recitation.** 3 semester hours. Each semester.
Class and problem work on fluid flow, heat transfer, and evaporation. Three hours of recitation a week. Prerequisite: Chem. Engg. 210, Math. 245 or 290; prerequisite or concurrent: Chem. 585, 590.
- 424. Unit Operations I Laboratory.** 1 semester hour. Each semester.
Laboratory work in fluid flow and heat transfer. Three hours laboratory a week. Prerequisite or concurrent: Chem. Engg. 420.
- 428. Unit Operations II Recitation.** 3 semester hours. Each semester.
Class and problem work on humidification, drying, absorption, distillation, crystallization, and filtration. Three hours of recitation a week. Prerequisite: Chem. Engg. 420.
- 430. Unit Operations II Laboratory.** 1 semester hour. Each semester.
Laboratory work in evaporation, humidification, drying, and distillation. Three hours laboratory a week. Prerequisite: Chem. Engg. 424; prerequisite or concurrent: Chem. Engg. 428.
- 434. Unit Operations III Laboratory.** 1 semester hour. Each semester.
Continuation of courses I and II with studies of extraction, absorption, filtration, crystallization and crushing and grinding. Three hours of laboratory a week. Prerequisite: Chem. Engg. 424, 428.
- 440. Unit Process Laboratory.** 2 semester hours. Each semester and summer.
Investigation of important unit processes. Six hours of laboratory a week. Prerequisite or concurrent: Chem. Engg. 428, 450.
- 450. Inorganic Technology.** 2 semester hours. Each semester and summer.
Study of applications of physical chemistry, unit operations, and economics to the inorganic chemical process industries. Two hours of recitation a week. Prerequisite: Chem. 595.
- 455. Organic Technology.** 3 semester hours. Each semester.
A study of industrial organic processes and of the heavy organic chemical industries. Three hours recitation a week. Prerequisite: Chem. 515.
- 460. Chemical Engineering Plant Design.** 4 semester hours. Second semester.
A study of the practical aspects and economics of designing a chemical process. Three hours of recitation and three hours of laboratory a week. Prerequisite: Chem. Engg. 440 or concurrent: Chem. Engg. 495.
- 480. Problems in Chemical Engineering.** Credit to be arranged. Each semester.
An introduction to chemical engineering research. Prerequisite: Permission of head of department.
- 491. Chemical Engineering Thermodynamics I.** 4 semester hours. Each semester and summer.
Thermodynamics applied to physical and chemical equilibria and energy changes. Four hours of recitation a week. Prerequisite: Chem. Engg. 428.
- 495. Chemical Engineering Thermodynamics II.** 4 semester hours. Second semester.
Thermodynamics applied to physical and chemical equilibria in complex, nonideal systems. Three hours of recitation and three hours of laboratory a week. Prerequisite: Chem. Engg. 491.

550. Ceramic Engineering. 3 semester hours. Second semester.

A study of the utilization of clays and siliceous materials in the manufacture of glass, refractories, building materials and other ceramic products. Three hours of recitation a week. Prerequisite: Chem. Engg. 428, 450.

560. Plastics Technology. 3 semester hours. First or second semester.

Reactions in the formation of high polymers. Manufacturing processes and physical and chemical properties of various types of plastics, resins, and elastomers. Three hours of recitation a week. Prerequisite: Chem. 515, Chem. Engg. 455.

570. Petroleum Refining Engineering I. 3 semester hours. First semester.

Properties of hydrocarbon mixtures: separation by distillation and extraction; cracking, polymerization, hydrogenation, and alkylation. Three hours of recitation a week. Prerequisite or concurrent: Chem. Engg. 428, senior standing.

575. Petroleum Refining Engineering II. 3 semester hours. Second semester.

Methods for the design and analysis of equipment and processes for the production and utilization of petroleum hydrocarbons. Prerequisite: Chem. Engg. 570; or concurrent: Chem. Engg. 495.

700. Reactor Technology. 4 semester hours. First semester.

Reactor fuels, types of reaction, separation and purification of fission products, operation, control and maintenance problems. Four hours of recitation a week. Prerequisite: Phys. 560, 575.

710. Reactor Design. 5 semester hours. Second semester.

Methods of reactor calculation, heat transfer and thermal problems in reactors, materials of construction, waste disposal problems, construction and operation costs. Five hours of recitation a week. Prerequisite: Phys. 560, 575.

FOR GRADUATE CREDIT

810. Research in Chemical Engineering. Credit to be arranged. Each semester and summer.

Original investigations in the fields of unit operations, unit processes, petroleum refining, and industrial utilization of Kansas raw materials. Work is usually correlated with the research projects of the engineering or agricultural experiment stations. Satisfactory results may be used for the master's thesis. Prerequisite: Consent of head of department.

815. Advanced Chemical Engineering Thermodynamics. 3 semester hours. First semester.

Advanced topics. Practical methods for computing thermodynamic functions from molecular structure and statistical and quantum mechanics. Three hours of recitation a week. Prerequisite: Chem. Engg. 495.

820. Industrial Reaction Rates and Catalysis. 3 semester hours. First or second semester.

Theory of kinetics and catalysis with applications to design of industrial chemical processes and equipment. Three hours of recitation a week. Prerequisite or concurrent: Chem. Engg. 495.

825. Distillation. 3 semester hours. First or second semester.

Advanced study of distillation. Three hours of recitation a week. Prerequisite: Chem. Engg. 491.

830. Drying. 3 semester hours. First or second semester.

Development of drying theory and an analysis of industrial drying systems. Three hours of recitation a week. Prerequisite: Chem. Engg. 491.

- 835. Filtration and Mechanical Separation.** 3 semester hours. First or second semester.
Theory and practice of filtration, screening, flotation, air separation, centrifugation, and sedimentation. Three hours of recitation per week. Prerequisite: Chem. Engg. 491.
- 840. Evaporaton.** 3 semester hours. First or second semester.
Theory of evaporation and design of evaporators. Three hours of recitation a week. Prerequisite or concurrent: Chem. Engg. 495.
- 845. Absorption and Extraction.** 3 semester hours. First or second semester.
Advanced study of absorption and extraction. Three hours of recitation a week. Prerequisite or concurrent: Chem. Engg. 495.
- 850. Chemical Engineering Analysis.** 3 semester hours. First or second semester.
Graphical methods and dimensional analysis applied to chemical engineering problems. Three hours of recitation a week. Prerequisite or concurrent: Chem. Engg. 495.

CIVIL ENGINEERING

REED F. MORSE, *Head of Department*

FOR UNDERGRADUATE CREDIT

- 120. Surveying I.** 2 semester hours. Each semester and summer.
Care and use of engineers' surveying instruments. Six hours of laboratory a week. Prerequisite or concurrent: Math. 190.
- 125. Surveying II.** 3 semester hours. Each semester.
Land, topographic, and city surveying. One hour of recitation and six hours of laboratory a week. Prerequisite: Civ. Engg. 120.
- 131. Surveying III.** 3 semester hours. Each semester.
Curves and earthwork, surveying incidental to alignment of highways and railways. One hour of recitation and six hours of laboratory a week. Prerequisite: Civ. Engg. 120.
- 200. Inspection Trip.** Required; no credit. First semester.
A trip of four to six days to one or more industrial centers. Approximate cost to student, \$60. Prerequisite: Senior classification.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 405. Astronomy and Geodesy.** 3 semester hours. First semester.
The elements of astronomy; precise methods of surveying and leveling. Two hours of recitation and three hours of laboratory a week. Prerequisite: Civ. Engg. 411.
- 411. Photogrammetry.** 3 semester hours. Each semester.
Construction of mosaics and contour maps from aerial photographs. One hour of recitation and six hours of laboratory a week. Prerequisite: Civ. Engg. 125, 131.
- 420. Stress Analysis I Recitation.** 4 semester hours. Each semester and summer.
Stresses in simple beams and framed structures with an introduction to deflections and redundants. Four hours of recitation a week. Prerequisite: Ap. Mech. 410.
- 424. Stress Analysis I Laboratory.** 2 semester hours. Each semester and summer.
Graphical determination of stresses and deflections. Six hours of laboratory a week. Prerequisite or concurrent: Civ. Engg. 420.

428. Stress Analysis II. 3 semester hours. Each semester and summer.

Theory of statically indeterminate structures, secondary stresses, and stressed-skin structures; stresses in continuous, movable, cantilever, suspension and steel-arch bridges, rigid and space frames. Three hours of recitation a week. Prerequisite: Civ. Engg. 420, 424.

440. Sanitary Engineering. 4 semester hours. Second semester and summer.

Design, construction, and operation of water supply and sewerage systems. Three hours of recitation and three hours of laboratory a week. Prerequisite: Ap. Mech. 470, Bact. 190.

444. Sanitary Engineering Design. 2 semester hours. Second semester and summer.

A continuation of Civ. Engg. 440 with emphasis on cost, estimates and methods of financing. Six hours of laboratory a week. Prerequisite: Civ. Engg. 440.

450. Transportation Engineering. 5 semester hours. First semester and summer.

The design, construction, and maintenance of railroads, highways, and airports. Three hours of recitation and six hours of laboratory a week. Prerequisite: Civ. Engg. 131, Ap. Mech. 450.

455. Applied Hydrology. 3 semester hours. Second semester and summer.

A study of the sources of supply, amount and movement of underground and surface waters; their collection, control, and utilization. Three hours of recitation a week. Prerequisite: Ap. Mech. 470.

460. Foundations. 2 semester hours. Each semester and summer.

Design and construction of foundations for pavements, bridges, and buildings. Two hours of recitation a week. Prerequisite: Ap. Mech. 450.

470. Design of Framed Structures. 3 semester hours. Second semester and summer.

Designs and general drawings of highway and railroad truss and girder bridges. Nine hours of laboratory a week. Prerequisite: Civ. Engg. 420.

474. Reinforced Concrete Arches. 3 semester hours. Second semester and summer.

The elastic theory applied to the design of reinforced concrete arches for bridges, buildings, and dams. Three hours of recitation a week. Prerequisite: Civ. Engg. 428.

478. Reinforced Concrete Design Recitation. 2 semester hours. Second semester and summer.

A study of the characteristics of concrete as a building material and the design of reinforced concrete structures. Two hours of recitation a week. Prerequisite: Civ. Engg. 420.

480. Reinforced Concrete Design Laboratory. 2 semester hours. Second semester and summer.

Design drawings of reinforced concrete structures. Six hours of laboratory a week. Prerequisite or concurrent: Civ. Engg. 478.

484. Advanced Structural Design A. 3 semester hours. First semester and summer.

The design of statically indeterminate reinforced concrete structures. Three hours of recitation a week. Prerequisite: Civ. Engg. 428, 478, 480.

488. Advanced Structural Design B. 3 semester hours. Second semester and summer.

The design of statically indeterminate steel structures. Three hours of recitation a week. Prerequisite: Civ. Engg. 428, 470.

500. Airport Design. 3 semester hours. First semester.

An advanced study of the problems encountered in the design, con-

struction, and maintenance of large airports. Two hours of recitation and three hours of laboratory a week. Prerequisite: Civ. Engg. 450.

510. Highway Design. 3 semester hours. Second semester.

Survey and preparation of highway plans based on economic studies. Two hours of recitation and three hours of laboratory a week. Prerequisite: Civ. Engg. 450.

520. Economics of Design and Construction. 3 semester hours. First semester.

A study of methods, construction equipment, and economic factors affecting engineering projects. Three hours of recitation a week. Prerequisite: Senior or graduate classification.

600. Problems in Civil Engineering. Credit to be arranged. Each semester and summer.

Prerequisite: Approval of instructor.

FOR GRADUATE CREDIT

810. Research in Civil Engineering. Credit to be arranged. Each semester and summer.

Original investigation or advanced study in some field related to the practice of civil engineering. Prerequisite: Consult instructors.

ELECTRICAL ENGINEERING

ROYCE G. KLOEFFLER, *Head of Department*

FOR UNDERGRADUATE CREDIT

110. Orientation E. 1 semester hour. Each semester.

The electrical engineer's duties and responsibilities. Electrical and safety codes applied to electrical equipment and construction. Lecture and laboratory three hours a week.

120. Electrical Engineering C Recitation. 2 semester hours. Each semester and summer.

The fundamental principles of direct-current and alternating-current circuits and machinery. For nonelectrical students. Two hours of recitation a week. Prerequisite: Phys. 140.

124. Electrical Engineering C Laboratory. 1 semester hour. Each semester and summer.

Experiments covering characteristics and applications of direct-current and alternating-current machinery. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 120.

130. Illumination A. 2 semester hours. First semester.

Systems, calculations, and specifications of interior wiring; principles of illumination. Two hours of recitation a week. Prerequisite: Phys. 120 or 140.

160. Inspection Trip. Required; no credit. First semester.

A trip of two to six days to St. Louis, Chicago, and other cities for the purpose of making inspections of power plants and various industries illustrating the application of electrical engineering principles. Approximate cost of trip, \$60. Prerequisite: Senior classification.

FOR UNDERGRADUATE AND GRADUATE CREDIT

405. Basic Electrical Engineering. 4 semester hours. Each semester and summer.

Fundamentals of electric, magnetic, and electrostatic circuits. Four hours of recitation a week. Prerequisite or concurrent: Phys. 140, Math. 245 or 290.

- 411. Direct-current Machinery Recitation.** 3 semester hours. Each semester and summer.
Principles of operation and the characteristics of direct-current generators and motors. Three hours of recitation a week. Prerequisite: Phys. 140; or concurrent: Elec. Engg. 405.
- 414. Direct-current Machinery Laboratory I.** 1 semester hour. Each semester and summer.
Characteristics of direct-current machines. Three hours of laboratory. Prerequisite or concurrent: Elec. Engg. 411.
- 418. Direct-current Machinery Laboratory II.** 1 semester hour. Each semester and summer.
Characteristics of direct-current machines. Three hours of laboratory a week. Prerequisite: Elec. Engg. 414.
- 426. Alternating-current Circuits.** 5 semester hours. Each semester and summer.
A mathematical treatment of alternating-current phenomena in single and polyphase circuits. Four hours of recitation and a three-hour calculating period a week. Prerequisite: Elec. Engg. 405; or concurrent: Math. 360.
- 430. Alternating-current Machinery I Recitation.** 3 semester hours. Each semester and summer.
Principles of design, construction, and operation of transformers, alternating-current generators, and polyphase induction motors. Three hours of recitation a week. Prerequisite: Elec. Engg. 426.
- 436. Alternating-current Machinery I Laboratory.** 2 semester hours. Each semester and summer.
Experiments illustrating the characteristics of alternating-current circuits and transformers. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 430.
- 438. Alternating-current Machinery II Recitation.** 3 semester hours. Each semester and summer.
Continuation of Elec. Engg. 430, including synchronous motors, parallel operation of alternators, converters, induction and commutator alternating-current motors, rectifiers, and accessory apparatus. Three hours of recitation a week. Prerequisite: Elec. Engg. 430, 436.
- 441. Alternating-current Machinery II Laboratory.** 1 semester hour. Each semester and summer.
Continuation of Elec. Engg. 436, with experiments on machines listed in Elec. Engg. 438. Six hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 438.
- 460. Electronics I.** 2 semester hours. Each semester.
The fundamental principles of electron tubes. Two hours of recitation a week. Prerequisite: Phys. 140, Elec. Engg. 405.
- 464. Electronics II Recitation.** 4 semester hours. Each semester.
A study of basic electronic circuits, amplifiers and oscillators. Four hours of recitation a week. Prerequisite: Elec. Engg. 426, 460.
- 468. Electronics II Laboratory.** 2 semester hours. Each semester.
Basic electronic circuits and characteristics. Six hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 464.
- 470. Industrial Electronics Recitation.** 3 semester hours. Second semester.
Fundamental principles of electron tubes and circuits and applications in industry. Three hours of recitation a week. Prerequisite: Elec. Engg. 120 or 426 or 508.
- 474. Industrial Electronics Laboratory.** 1 semester hour. Second semester.

Industrial electronic equipment. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 470 or 480.

480. Industrial Electronics and Control Recitation. 2 semester hours. Second semester.

Applications and circuits of electronics in industry. Servomechanisms and other control devices. Two hours of recitation a week. Prerequisite: Elec. Engg. 464.

490. Electrical Measurements Recitation. 2 semester hours. Each semester.

Methods for electric and magnetic measurements; resistance, quantity, current, electromotive force, capacity inductance. Two hours of recitation a week. Prerequisite or concurrent: Elec. Engg. 426.

494. Electrical Measurements Laboratory. 1 semester hour. Each semester.

Measurements of resistance, current, electromotive force, capacity inductance, watts, energy. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 490.

500. Electrical Engineering M-I Recitation. 4 semester hours. Each semester and summer.

Theory of direct-current circuits and machines, magnetic circuits, and alternating-current circuits. Four hours of recitation a week. Prerequisite: Phys. 140; prerequisite or concurrent: Math. 245 or 290.

504. Electrical Engineering M-I Laboratory. 1 semester hour. Each semester and summer.

Experiments on measurement of resistance and study of direct-current machinery characteristics. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 500.

508. Electrical Engineering M-II Recitation. 3 semester hours. Each semester.

Theory of alternating-current machinery. Three hours of recitation a week. Prerequisite: Elec. Engg. 500, 504.

510. Electrical Engineering M-II Laboratory. 1 semester hour. Each semester.

Experiments on alternating-current circuits and alternating-current machinery characteristics. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 508.

530. Radio Communication Recitation. 3 semester hours. First semester.

Radio-frequency amplifiers and oscillators, modulation; application to transmitter circuits; antennae and wave propagation. Three hours of recitation a week. Prerequisite: Elec. Engg. 464, 468.

534. Radio Communication Laboratory. 1 semester hour. First semester.

Experiments on modulation, demodulation; fundamental design of receivers and transmitters; and antennae measurements. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 530.

538. Communication Networks Recitation. 3 semester hours. First semester.

Network theorems, infinite line, wave filters, equalizers, impedance matching. Three hours of recitation a week. Prerequisite: Elec. Engg. 426.

540. Communication Networks Laboratory. 1 semester hour. First semester.

Communication circuits and equipment. Three hours of laboratory a week. Concurrent: Elec. Engg. 538.

550. Electromagnetic Waves Recitation. 3 semester hours. Second semester.

Principle of guided and free electromagnetic wave propagation, in-

cluding generation, radiation, and reception. Three hours of recitation a week. Prerequisite: Elec. Engg. 538.

554. Electromagnetic Waves Laboratory. 1 semester hour. Second semester.

Experiments on the generation, propagation, radiation, and reception of electromagnetic waves. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 550.

560. Television Recitation. 3 semester hours. Second semester.

Theory of scanning, television, cathode-ray tubes, pulse generators, video amplifiers and circuits, television transmitters and receivers. Three hours of recitation a week. Prerequisite or concurrent: Elec. Engg. 550, 538.

564. Television Laboratory. 1 semester hour. Second semester.

Television circuits and equipment. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 560.

570. Illuminating Engineering Recitation. 3 semester hours. Second semester.

Photometry, light standards, principles of illumination and illumination design. Three hours of recitation a week. Prerequisite: Math. 245 or 290, Phys. 140.

575. Electrical Engineering Summary. 3 semester hours. Each semester.

An integration of the theory and applications of electrical engineering with special emphasis on engineering economics. Three hours of recitation a week. Prerequisite: Senior standing.

580. Airplane Electrical Equipment Laboratory. 1 semester hour. Second semester.

Study of electrical equipment for airplanes. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 584.

584. Airplane Electrical Equipment Recitation. 2 semester hours. Second semester.

Electric control equipment and instruments for airplanes. Two hours of recitation a week. Prerequisite: Elec. Engg. 120, or 426, or 508.

590. Transmission and Distribution of Electrical Energy. 3 semester hours. Second semester.

Transmission line design, economic and technical features; and properties of cables and insulators. Three hours of recitation a week. Prerequisite: Elec. Engg. 430.

600. Transient Electrical Phenomena. 3 semester hours. Second semester.

Two phases of electrical phenomena: (a) Transients in time, and (b) transients in space. Three hours of recitation a week. Prerequisite: Elec. Engg. 426, Math. 360.

610. Problems in Electrical Engineering. Credit to be arranged. Each semester and summer.

FOR GRADUATE CREDIT

810. Research in Electrical Engineering. Credit to be arranged. Each semester and summer.

Special investigations adapted to the needs of individual students. The laboratory work is correlated with the work of the Engineering Experiment Station and may be used as the basis of a master's thesis. Prerequisite: Elec. Engg. 464.

820. Advanced Electric Circuits I. 3 semester hours. First semester.

Short-circuit currents in networks; equivalent impedance of multi-circuit transformers; analysis of unbalanced polyphase circuits and

analysis of induction motor performance on unbalanced voltages; short transmission lines in steady state. Three hours of recitation a week. Prerequisite: Elec. Engg. 438.

824. Advanced Electric Circuits II. 3 semester hours. Second semester.

Long transmission lines in steady state with various terminal conditions; transmission charts; harmonics in circuits; general circuit constants; charts and transmission problems involving synchronous machines. Three hours of recitation a week. Prerequisite: Elec. Engg. 820.

830. Operational Circuit Analysis. 3 semester hours. Second semester.

Unit function, transforms, and other methods of Heaviside and Bromwich applied to electric circuits. Three hours of recitation a week. Prerequisite: Elec. Engg. 426.

840. High-frequency Measurements Recitation. 2 semester hours. Second semester.

Theory of measurement at radio frequencies of current, voltage, frequency, modulation; antenna and transmission line characteristics. Two hours of recitation a week. Prerequisite: Elec. Engg. 426, 530.

844. High-frequency Measurements Laboratory. 1 semester hour. Second semester.

Application of high-frequency measurements. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 840.

850. Advanced Radio Communication. 3 semester hours. Second semester.

An advanced course in radio communication covering high-frequency and transit-time effects, noise antennas, communication systems, and acoustics. Three hours of recitation a week. Prerequisite: Elec. Engg. 530.

855. Advanced Electromagnetic Waves. 3 semester hours. Second semester.

Mathematical development of electromagnetic wave theory. Three hours of recitation a week. Prerequisite: Elec. Engg. 554.

870. Vacuum Tubes. 3 semester hours. First semester.

Principles of vacuum-tube design. Development, description, and utilization of the physical laws involved. Three hours of recitation a week. Prerequisite: Elec. Engg. 464.

875. Servomechanisms. 3 semester hours. First semester.

Theory of closed servo loops including a study of dynamics and stability using the Laplace transform. Three hours of recitation a week. Prerequisite: Math. 600, Elec. Engg. 468.

880. Advanced Electrical Theory. Credit to be arranged. Each semester. Prerequisite: Elec. Engg. 464.

GENERAL ENGINEERING

MERRILL A. DURLAND, *Dean*

110. Engineering Lectures. Required; no credit. Each semester.

Designed to acquaint freshman engineers and architects with fundamental principles of their profession and to give a general survey of the field. One hour of lecture a week, entire freshman year. Dean Durland, other members of the engineering faculty, and visiting practicing engineers.

115. Engineering Assembly. Required; no credit. Each semester.

Presentation by students of abstracts and reviews of articles in the

journals of their respective societies or in the technical press of their profession, and reports of engineering projects, industrial experiences, and original investigations as far as possible, conducted by the student branches of the professional engineering societies. Occasionally two or more of these individual groups unite for lectures by practicing engineers and by members of the engineering and college faculties. One hour of lecture a week, sophomore, junior, and senior years. Members of the engineering faculty.

MACHINE DESIGN

CLINTON E. PEARCE, *Head of Department*

The courses in 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 courses in machine design deal with mechanical transmission of power, analysis of the action of machine parts, design of machine elements and of complete machines, aerodynamic forces, and airplane structures. Additional courses in actual flight are offered, with the flight instruction handled under contract by a recognized flight school.

FOR UNDERGRADUATE CREDIT

- 110. Engineering Drawing.** 2 semester hours. Each semester and summer.

The selection and use of drawing instruments; construction of geometrical figures; lettering; orthographic projections and sections; pictorial methods of representation. Six hours of laboratory a week.

- 115. Descriptive Geometry.** 2 semester hours. Each semester and summer.

Problems 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. Six hours of laboratory a week. Prerequisite: Mach. Des. 110, Math. 110 or equivalent.

- 120. Machine Drawing I.** 2 semester hours. Each semester and summer. Conventional representation; working drawings; dimensioning; the reproduction of drawings; checking for errors; arrangement of title and notes; sheet and metal drafting; simple perspective. Six hours of laboratory a week. Prerequisite or concurrent: Mach. Des. 115.

- 124. Machine Drawing II.** 2 semester hours. Each semester and summer. Machine sketching from parts of actual machines; complete working and assembly drawings; tracing and blueprinting. Six hours of laboratory a week. Prerequisite: Mach. Des. 120, 130.

- 130. Mechanism.** 3 semester hours. Each semester and summer.

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. Three hours of recitation a week. Prerequisite: Math. 190, Mach. Des. 115.

- 140. Aviation Ground Instruction I.** 3 semester hours. Each semester and summer.

Civil air regulations, simple aviation, simple meteorology and general service of aircraft. Three hours of recitation a week. Prerequisite: Math. 190 or approval of head of department.

- 144. Aviation Ground Instruction II.** 4 semester hours. Each semester and summer.

Advanced aviation, aeronautical meteorology, aircraft engines,

aerodynamics, and aircraft construction. Four hours of recitation a week. Prerequisite: Mach. Des. 140 or private pilot certificate.

- 150. Flight Instruction I.** 2 semester hours. Each semester and summer. Actual flight instruction of 35 to 50 hours, dual and solo, as required for the private pilot certificate, taught under contract by a flight school; and 25 hours of ground-school instruction as required for a private pilot's certificate.

The College furnishes the medical examination without extra charge but a special charge is made to cover student insurance and flight instruction.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 410. Kinematics and Kinetics.** 2 semester hours. Second semester.

A study of the velocities and accelerations in mechanisms and machines, and of the forces resulting therefrom. Two hours of recitation a week. Prerequisite: Mach. Des. 130, Ap. Mech. 405.

- 415. Engine Dynamics.** 2 semester hours. First semester.

Study of velocity, acceleration, and dynamic forces in various types of reciprocating engines, including articulated, rotating and oscillating forms; flywheels; engine balance; harmonic torque analysis. Two hours of recitation a week. Prerequisite: Mach. Des. 410.

- 420. Machine Design I Recitation.** 3 semester hours. Each semester.

The straining actions in machine elements; friction and lubrication; problems arising in the transmission of power and in the design of high-speed machinery; fastenings. Three hours of recitation a week. Prerequisite: Ap. Mech. 410, Mach. Des. 120, 130.

- 424. Machine Design I Laboratory.** 2 semester hours. Each semester.

Calculations for a number of simple machines and machine parts, paralleling the recitation class assignments. Six hours of laboratory a week. Prerequisite or concurrent: Mach. Des. 420.

- 428. Machine Design II.** 2 semester hours. Second semester.

Complete design of a small power shear with a graphical analysis of the shaft; the rotative diagram and balancing of an engine. Six hours of laboratory a week. Prerequisite: Mach. Des. 420, 424.

- 430. Machine Vibration I.** 3 semester hours. Second semester.

A general consideration of free and forced vibration in machines for various degrees of freedom; critical speed; vibration isolation. Three hours of recitation a week. Prerequisite: Ap. Mech. 405, Math. 360.

- 434. Machine Vibration II.** 3 semester hours. First semester.

More advanced consideration of free and forced vibration having several degrees of freedom, with particular reference to rotating systems; absorbers and dampers; dynamic engine suspension; wing flutter; nonlinear forms. Three hours of recitation a week. Prerequisite: Mach. Des. 430.

- 440. Aerodynamics I Recitation.** 3 semester hours. Second semester.

A general introduction to aerodynamics. Three hours of recitation a week. Prerequisite: Ap. Mech. 405.

- 444. Aerodynamics I Laboratory.** 1 semester hour. Second semester.

Operation of wind tunnel. Three hours of laboratory a week. Prerequisite or concurrent: Mach. Des. 440.

- 448. Aerodynamics II Recitation.** 3 semester hours. First semester.

A continuation of Aerodynamics I. Three hours of recitation a week. Prerequisite: Mach. Des. 440, Ap. Mech. 474.

- 450. Aerodynamics II Laboratory.** 1 semester hour. First semester.

Determination of performance curves and stability of an airplane. Prerequisite or concurrent: Mach. Des. 448.

460. Airplane Design I. 3 semester hours. First semester.

A study of the general principles of airplane design. One hour of recitation and six hours of laboratory a week. Prerequisite: Ap. Mech. 410, Mach. Des. 444.

464. Airplane Design II. 3 semester hours. Second semester.

The design of an airplane, including performance calculations. One hour of recitation and six hours of laboratory a week. Prerequisite: Mach. Des. 460.

468. Airplane Design and Construction. 3 semester hours. Second semester.

The structure and rigging of aircraft, the design directive of a small plane, the general layout and weight analysis. One hour of recitation and six hours of laboratory a week. Prerequisite: Mach. Des. 440. Ap. Mech. 410.

470. Propeller Theory and Design. 2 semester hours. First semester.

Theory of air screw, effect of propeller characteristics on airplane performance, and calculation of stresses. Prerequisite: Ap. Mech. 474, Mach. Des. 440.

480. Graphics of Engineering Formula. 2 semester hours. Second semester.

Simple empirical equations; diagramming of formulas; monographic or alignment charts; special slide rules. Two hours of recitation a week. Prerequisite: Math. 215 or 260.

490. Patents and Inventions. 2 semester hours. Each semester.

A brief consideration of the fundamental principles of United States patents and their relationship to the engineer; the inception and development of inventions. Two hours of recitation a week. Prerequisite: Junior or senior standing.

FOR GRADUATE CREDIT

810. Research in Machine Design. Credit to be arranged. Each semester and summer.

Original investigation in some advanced subject related to courses in this department. This work may furnish material for the master's thesis. Prerequisite: Consult instructors.

820. Advanced Machine Design. Credit to be arranged. Each semester.

At the option of the student this course may include a study of some advanced subject related to courses in this department. Prerequisite: Consult instructors.

MECHANICAL ENGINEERING

LINN HELANDER, *Head of Department*

The instruction in the Department of Mechanical Engineering covers courses in thermodynamics, heat transfer, heat power engineering, air conditioning, refrigeration, and petroleum production. Additional courses closely allied to and a part of mechanical engineering are given in the departments of Machine Design and Shop Practice.

In addition to the equipment installed especially for experimental purposes, all the heating, power, ventilating, and pumping equipment of the College subserves the further purposes of experimental work.

FOR UNDERGRADUATE CREDIT

110. Steam and Gas Engineering C. 2 semester hours. Each semester.

Steam boilers, steam engines, steam turbines, internal combustion engines and auxiliaries. Two hours of recitation a week. Prerequisite: Phys. 110 or 130.

- 130. Air Conditioning A.** 3 semester hours. Second semester.
Principles of heating, cooling, and ventilating; heat transmission; equipment used for heating, cooling, and ventilating. Three hours of recitation a week. Primarily for students who have not had engineering thermodynamics. Prerequisite: Phys. 110 or 130.
- 145. Greenhouse Heating.** 3 semester hours. First semester.
Air conditioning equipment and systems; fuels; heat transmission; problems applied to greenhouses. Two hours of recitation and three hours of laboratory a week. Prerequisite: Junior classification.
- 150. Professional Development.** 1 semester hour. First semester.
The social and professional aspects of engineering. One hour of recitation a week. Prerequisite: Senior classification.
- 180. Inspection Trip.** Required; no credit. First semester.
A trip of three to six days to industrial centers for the purpose of inspecting industrial plants of special interest to mechanical engineering students. Prerequisite: Senior classification.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 411. Engineering Thermodynamics I.** 4 semester hours. Each semester.
Laws of the conversion of heat energy into mechanical energy; properties of fluids; gases, vapors, and gas vapor mixtures; flow and non-flow processes; power generating cycles; air compression; refrigeration. Four hours of recitation a week. Prerequisite: Math. 245 or 290, Phys. 130.
- 412. Engineering Thermodynamics II.** 2 semester hours. Each semester.
Extension of Engineering Thermodynamics I, principally for mechanical engineering students. Two hours of recitation a week. Prerequisite: Mech. Engg. 411.
- 414. Advanced Thermodynamics I.** 3 semester hours. First semester.
Three hours of recitation a week. Prerequisite: Mech. Engg. 412.
- 418. Advanced Thermodynamics II.** 3 semester hours. Second semester.
Continuation of Advanced Thermodynamics I. Three hours of recitation a week. Prerequisite: Mech. Engg. 414.
- 421. Heat Transfer.** 3 semester hours. First semester.
Particular reference to heat exchangers, air preheaters, economizers, boilers, condensers, evaporators, and similar equipment. Two hours of recitation and three hours of laboratory a week. Prerequisite: Mech. Engg. 411.
- 424. Refrigeration.** 2 semester hours. First semester.
Thermodynamics of refrigeration; systems of refrigeration and their operation; application of refrigeration to ice making, cold storage, and the cooling of gases, liquids, and solids. Two hours of recitation a week. Prerequisite: Mech. Engg. 411.
- 428. Air Conditioning.** 3 semester hours. Each semester.
Psychrometry; heat transmission; air-conditioning equipment and systems; design problems. Two hours of recitation and three hours of laboratory a week. Prerequisite: Mech. Engg. 411.
- 430. Internal Combustion Engines.** 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: Mech. Engg. 411.
- 435. Aircraft Power Plants.** 2 semester hours. Second semester.
Design and performance characteristics of airplane power plants. Two hours of recitation a week. Prerequisite: Mech. Engg. 430.
- 440. Heat-power Engineering A.** 3 semester hours. Each semester.
Power-plant equipment, fuels, and combustion. Three hours of recitation a week. Prerequisite: Mech. Engg. 411.

444. Power-plant Design. 3 semester hours. Second semester.

Economic and thermodynamic factors in the design and selection of equipment. One hour of recitation and six hours of laboratory a week. Prerequisite: Mech. Engg. 440.

448. Advanced Power-plant Engineering. Credit to be arranged. Second semester.

An advanced course in the economic problems met with in the design of power plants and in the generation of power. Selection of equipment, choice of station heat balances, generation of by-product power in industries, and interconnections between utilities and industrial plants for the economical interchange of power. Prerequisite: Mech. Engg. 444.

460. Heat-power Laboratory. 1 semester hour. Each semester.

Laboratory course in heat-power equipment for nonmechanical engineering students. Three hours of laboratory a week. Prerequisite: Mech. Engg. 110 or 411.

464. Mechanical Engineering Laboratory I. 2 semester hours. Each semester.

Laboratory course in heat-power equipment for mechanical engineering students. Six hours of laboratory a week. Prerequisite or concurrent: Mech. Engg. 440.

468. Mechanical Engineering Laboratory II. 2 semester hours. Each semester.

Power-generating equipment, fans, air-conditioning equipment, internal combustion engines, steam engines, turbines, and auxiliaries. Six hours of laboratory a week. Prerequisite: Mech. Engg. 464.

480. Aeronautical Engineering Laboratory. 2 semester hours. Second semester.

Aircraft engines, propellers, engine accessories, and instruments. Six hours of laboratory a week. Prerequisite: Mech. Engg. 460 or 464.

485. Airplane Instruments. 2 semester hours. Second semester.

Instruments and controls for the airplane. Two hours of recitation a week. Prerequisite: Elec. Engg. 120, and Mach. Des. 440.

490. Engineering Economics. 3 semester hours. First semester.

Economic analysis and principles as applied in engineering. Prerequisite: Econ. 110; senior standing.

500. Instruments and Controls. 2 semester hours. Second semester.

Principles of instrumentation and controls in mechanical engineering fields. Two hours of recitation a week. Prerequisite: Elec. Engg. 508, 510, Mech. Engg. 440.

510. Petroleum Production I. 3 semester hours. First semester.

Properties of petroleum; exploration methods, field developments; drilling; oil field hydrology; casing and well completion; and fishing tools and methods. Three hours of recitation a week. Prerequisite: Senior standing in the Department of Mechanical Engineering or permission of head of department.

514. Petroleum Production II. 3 semester hours. Second semester.

Principles of drainage; production methods; methods of flowing and pumping wells; secondary methods of recovery. Two hours of recitation and three hours of laboratory a week. Prerequisite: Mech. Engg. 510.

520. Gas Dynamics I. 3 semester hours. Second semester.

Properties of compressible fluids, subsonic and supersonic flow, steady and non-steady motion with emphasis on one dimensional flow. Prerequisite: Math. 360 or 600, Mech. Engg. 412, Ap. Mech. 470 or 474.

530. Problems in Mechanical Engineering. Credit to be arranged. Each semester.

540. Advanced Heat Transfer. 3 semester hours. Second semester.
Prerequisite: Mech. Engg. 421.

FOR GRADUATE CREDIT

810. Research in Mechanical Engineering. Credit to be arranged. Each semester and summer.

The laboratory work is correlated with the work of the Engineering Experiment Station. Research in any field pertinent to subjects taught in the Department of Mechanical Engineering. Prerequisite: Consult instructors.

820. Advanced Air Conditioning. 2 semester hours. First semester.

Similar to Air Conditioning, Mech. Engg. 428, but at an advanced level. Two hours of recitation a week. Prerequisite: Mech. Engg. 428.

830. Gas Dynamics II. 3 semester hours. Summer.

An extension of Gas Dynamics I with emphasis on two- and three-dimensional problems, shock waves, special problems in connection with combustion engines. Prerequisite: Mech. Engg. 520, Math. 615, or the equivalent.

SHOP PRACTICE

GABE A. SELLERS, *Head of Department*

The work in the Department of Shop Practice is planned to meet the needs of two classes of students: (1) Those who are preparing for the teaching field and need a general knowledge of the principles of industrial arts work in metal and wood, of the materials and equipment used, including their control and arrangement, and of methods of handling work and students in the laboratory, together with sufficient skill in the performance of the various tool operations to be able to instruct others; and (2) those in the courses in engineering who need to secure a general knowledge of machine operations and methods used in job shops and mass-production factories, and of the economical selection and control of the materials, machinery, buildings, and personnel used in the manufacturing industries.

FOR UNDERGRADUATE CREDIT

110. Auto Mechanics I. 4 semester hours. First semester.

A study of the automobile, its construction and maintenance. Two hours of recitation and six hours of laboratory a week. Prerequisite: Phys. 120 or equivalent.

114. Aero Mechanics I. 4 semester hours. Second semester.*

A study of the airplane and its maintenance. Two hours of recitation and six hours of laboratory a week.

122. Appliance Servicing. 4 semester hours. Second semester.

A study of the basic principles of the operation, trouble analysis, servicing, and repair of utility appliances with supplemental laboratory projects to illustrate these principles. Two hours of recitation and six hours of laboratory a week. Prerequisite: Phys. 120 or equivalent.

125. Shop A. 2 semester hours. Each semester and summer.

An introductory course in forging and heat treating, foundry practice and machine shop work. Six hours of laboratory a week.

130. Woodwork I. 2 semester hours. First semester and summer.

Elementary woodwork. Six hours of laboratory a week.

* If demand exists and facilities are available.

- 134. Woodwork II.** 2 semester hours. Second semester and summer.
Continuation of Shop 130. Six hours of laboratory a week. Prerequisite: Shop 130.
- 138. Woodwork III.** 2 semester hours. First semester and summer.*
Advanced woodwork and cabinetmaking. Six hours of laboratory a week. Prerequisite: Shop 134.
- 140. Woodwork IV.** 2 semester hours. Second semester and summer.*
An opportunity to specialize in wood finishing, carpentry work, cabinet work, or some other work of special interest to the student. Six hours of laboratory a week. Prerequisite: Shop 138.
- 144. Wood Turning.** 2 semester hours. Each semester and summer.
Practice in handling the lathe and turning tools. Six hours of laboratory a week. Prerequisite: Shop 130.
- 148. Carpentry.** 3 semester hours. Second semester.
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. One hour of recitation and six hours of laboratory a week. Prerequisite: Shop 130.
- 150. Pattern Making.** 2 semester hours. First semester.*
A series of exercises embodying the principles and practice of plain and split pattern, including core prints and core boxes. A limited number of actual patterns are also made. Six hours of laboratory a week.
- 155. Foundry I.** 1 semester hour. Each semester and summer.
(a) Bench, floor and pit molding, use of molding and core machines, operating nonferrous furnaces and cupola; (b) study of commercial foundry equipment and the operation and control of the foundry. Three hours of laboratory a week. Prerequisite: Shop 125.
- 160. Finishing I.** 2 semester hours. Second semester and summer.
A study of materials, processes, methods of applications of finishes for both wood and metal. Brush and spray equipment used. Six hours of laboratory a week. Prerequisite or concurrent: Shop 134.
- 165. Forging and Heat Treating.** 1 semester hour. Each semester.*
(a) Forging of iron and steel; (b) production equipment as used in the commercial forge shop; (c) operation of gas, oil, and electric furnaces, and the heat treatment of steel. Two hours of laboratory and one hour of outside preparation a week. Prerequisite: Shop 125.
- 170. Heat Treating I.** 2 semester hours. Second semester.*
A continuation of the heat treating phase of Shop A with special emphasis upon the heat treatment of auto and aeroplane parts. Laboratory exercises in the heat treating of certain ferrous and nonferrous construction materials. Six hours of laboratory a week. Prerequisite: Shop 125.
- 175. Metals and Alloys.** 2 semester hours. Each semester.
The manufacture and use of iron, steel, copper, aluminum, and their alloys. Two hours of recitation a week. Prerequisite or concurrent: Chem. 170.
- 180. Welding.** 1 semester hour. Each semester and summer.
The theory and practice of fusion welding, covering gas and electric welding. Three hours of laboratory a week.
- 184. Electric Welding.** 1 semester hour. Each semester and summer.
The theory and practice of electric welding, including inspection methods. Three hours of laboratory a week. Prerequisite: Shop 180.

* If demand exists and facilities are available.

- 188. Gas Welding.** 1 semester hour. Each semester and summer.
The theory and practice of gas welding, including inspection methods. Three hours of laboratory a week. Prerequisite: Shop 180.
- 190. Machine Tool I.** 2 semester hours. Each semester and summer.
A continuation of the machine shop phase of Shop 125. Six hours of laboratory a week. Prerequisite: Shop 125.
- 194. Machine Tool II.** 2 semester hours. Each semester and summer.
Progressive problems in turning, boring, reaming, taper turning, threading on the lathe, in chucking, use of forming tools, gearing cutting; study of cutting speeds and feeds. Six hours of laboratory a week. Prerequisite: Shop 190.
- 198. Machine Tool III.** 1 semester hour. Each semester and summer.*
Work on the turret lathe, boring mill, hand and automatic screw machines and grinders; practical work with jigs and fixtures and a study of rapid production of duplicate parts. Three hours of laboratory a week. Prerequisite: Shop 194.
- 200. Sheet Metal I.** 2 semester hours. First semester and summer.
Covers developments, the use of templets, practice in soldering, folding, wiring, flanging, seaming, rolling, and the more common operations on sheet metal. Six hours of laboratory a week. Prerequisite: Mach. Des. 110 or equivalent.
- 204. Sheet Metal II.** 2 semester hours. Second semester.*
A continuation of Shop 200, with welding of sheet metal. Six hours of laboratory a week. Prerequisite: Shop 184, 188.
- 210. Safety.** 2 semester hours. Second semester.
Fundamentals of accident analysis and prevention. One hour of recitation and three hours of laboratory a week.
- 220. Gaging.** 1 semester hour. Each semester.
Systems of measurements and the uses of various types of gages and devices for checking industrial products. Three hours of laboratory a week. Prerequisite: Shop 125.
- 225. Inspection.** 2 semester hours. Second semester.*
Tools, instruments, and equipment used in the inspection of materials commonly used in production plants and in maintenance of equipment. Specifications and related information. Six hours of laboratory a week.
- 240. Shop for Elementary Teachers.** 2 semester hours. Second semester.
Exercises and projects suitable for pupils from the primary to eighth grade. Special instruction in methods of teaching, materials, and equipment. Six hours of laboratory a week.
- 244. Methods of Teaching Industrial Arts.** 3 semester hours. Each semester.
(See Department of Education, School of Arts and Sciences.) One hour of recitation and six hours of laboratory a week. Prerequisite or concurrent: Educ. 120 and approval of instructor.
- 280. Inspection Trip.** Required; no credit. First semester.
A trip of three to six days to industrial centers for inspection of establishments of special interest to industrial art students. Prerequisite: Senior classification.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 402. Highway Safety and Driver Education.** 3 semester hours. First semester and summer school.
Designed to acquaint high school teachers with the available in-

* If demand exists and facilities are available.

structional materials in this field and the methods found successful in presenting such materials in the classrooms and in the automobile on the road. Two hours of recitation and three hours of laboratory a week. Prerequisite: Senior standing or consent of instructor.

410. Industrial Management. 3 semester hours. First semester.

Problems of the industrial executive, such as plant location, selection and arrangement of buildings and equipment, production, planning and control, simplification and standardization, time and motion study, job and methods of standardization, control of inventory and costs. Three hours of recitation a week. Prerequisite: Shop 125 and junior standing.

415. Production Control. 2 semester hours. First semester.

The organization for industrial control, control planning, control systems, work routing, scheduling, dispatching, materials control, and related topics. Two hours of recitation a week. Prerequisite: Shop 410.

419. Manufacturing Processes. 3 semester hours. First semester.

A study of the nature of modern manufacturing processes and the selection of the most practicable process to be used under specific production conditions. Three hours of recitation a week. Prerequisite: Shop 194 and Shop 410.

421. Production Cost Estimating. 2 semester hours. Second semester.

Estimating techniques for tool and equipment costs, production rates, production costs, cost ratios, establishment of basic time charts, and related topics. Two hours of recitation a week. Prerequisite: Shop 410.

425. Time and Motion. 2 semester hours. Second semester.

The principles and practice of time and micro-motion analysis of work in the shop for the purpose of setting standards of performance and of improving methods of production. One hour of recitation and three hours of laboratory a week. Prerequisite: Shop 190; junior standing in engineering or industrial arts.

427. Plant Planning and Layout. 2 semester hours. First semester.

The economic considerations and techniques necessary for the arrangement of manufacturing equipment to achieve the most efficient use of space, unhampered movement of materials and operators, safe working conditions and a minimum of movement of materials in their progress through the plant. This subject includes, also, the selection of adequate material handling facilities. One hour of recitation and three hours of laboratory a week. Prerequisite or concurrent: Shop 425.

430. Advanced Shop Practice. Credit to be arranged. Each semester and summer.

Opportunity is offered to specialize to a limited degree along certain lines such as heat treatment of steel, oxyacetylene and arc welding, jig fixtures and die work, metallography, pattern making, 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. Prerequisite: Consult instructor.

431. Tool Engineering. 2 semester hours. Second semester.

Analyzing, planning, selecting and designing the tooling for mass production, including production type gages, jigs, fixtures and dies. Six hours of laboratory a week. Prerequisite or concurrent: Shop 419.

442. Industrial Engineering Practice. 3 semester hours. Second semester.

A practical term problem embracing the fields of industrial organization, finance, marketing, plant site research, production, plant layout, and other industrial engineering activities. One hour of lecture and six hours of laboratory a week. Prerequisite: Shop 410.

460. Metallography I. 1 semester hour. Each semester.

The microscopic constituents of the different grades of iron and steel; changes in the structure and properties as produced by heat treatment, mechanical working and composition. Three hours of laboratory a week. Prerequisite or concurrent: Shop 175.

464. Metallography II. 2 semester hours. Each semester and summer.

A continuation of Shop 460, nonferrous metals, with special attention to photomicrographic analysis. Six hours of laboratory a week. Prerequisite: Shop 460.

468. Physical Metallurgy. 2 semester hours. Second semester and summer.

An advanced study of the structure, properties, and uses of the more common metals and alloys involving heat and mechanical treatment and casting. Two hours of recitation a week. Prerequisite: Shop 460.

480. Aircraft Materials and Fabrication. 3 semester hours. First semester.

Materials and methods employed in fabricating airplanes. One hour of recitation and six hours of laboratory a week. Prerequisite or concurrent: Ap. Mech. 405, Shop 175, 460.

490. General Shop Organization. 3 semester hours. Second semester and summer.*

A course covering the organization, methods of teaching, and equipment for the general shop. One hour of recitation and six hours of laboratory a week. Prerequisite: Shop 125, 148, 180, 200.

495. Shop Practice Teaching. Credit to be arranged. Each semester and summer.*

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 consideration. Insofar as possible the course is adapted to the particular needs of the student. All assignments must be approved by the Head of the Department of Shop Practice. Prerequisite: Consult instructor.

498. Problems in Shop Practice. Credit to be arranged. Each semester and summer

Prerequisite: Approval of instructor.

500. Wood Technology. 2 semester hours. First semester and summer.

A study of the identification, structure, physical properties, uses, and defects of the commercial woods. Two hours of recitation a week. Prerequisite: Shop 134 or junior standing and consent of the instructor.

FOR GRADUATE CREDIT

810. Research in Shop Practice. Credit to be arranged. Each semester and summer.

Investigations of interest to the individual student. May be used as the basis of the master's thesis, and is usually correlated with the work of the Engineering Experiment Station. Prerequisite: Consult instructors.

* If demand exists and facilities are available.

The Engineering Experiment Station

MERRILL AUGUSTUS DURLAND, *Director*

LELAND S. HOBSON, *Assistant Director and Industrial Engineer*

The Engineering Experiment Station was established March 24, 1910, by the Board of Regents for the purpose of carrying on tests and research work of engineering and manufacturing value to the state of Kansas, and of collecting and presenting technical information for the use of the industries and the people of the state.

Equipment in the engineering and scientific laboratories and shops is available for this work. The personnel of the station consists of members of the staff from the departments of the School of Engineering and Architecture and from other departments whose work is directly related to industry and technology. The Engineering Experiment Station conducts projects in both fundamental and applied research. Many of the researches on specific problems are supported in whole or in part by funds from industrial or commercial organizations, or by various agencies of the federal and state government.

Among the investigations now being carried on are: highway bridge design to improve bracing and reduce cost; designs for Kansas homes; techniques for developing market outlets for new products of Kansas in the migration of soluble salts in Portland cement; fundamental studies in absorption and distillation; development of a cheap adsorbent material from farm wastes such as straw; practical methods of drying and testing grains for safe storage; load carrying capacity of airport landing mats; the effect of anti-stripping agents in asphalt road surfaces; physical-chemical studies on the stabilization of highway materials; study of irrigation engineering practices in Kansas; the effect of properties of subgrade on performance of pavement slabs; radio-active salts in studying the migration of soluble salts in Portland cement; fundamental studies in flash drying without disintegration; the effect of fly-ash in concrete; alfalfa dehydration; heat pump; utilization of liquefied petroleum gases; spraying equipment for weed control; design of rigid airport pavements; electronics equipment analysis; production of mashed potato powder; projection of heated and cooled air streams; radiant heating and cooling; starch production from sorghum grains; television; and processing of magnesium base alloys.

As an additional service to Kansas industries, two consultants in the field of industrial management are employed by the Engineering Experiment Station. Their services are available to all industries of the state. The testing laboratories of this station have been made available by law for use of the State Highway Commission, and the state highway engineer, and the road materials for use in state road construction are tested in these laboratories.

Some of the results of the investigations are published as bulletins or circulars of the Engineering Experiment Station, which are sent free to any citizen of the state upon request. Sixty-nine such bulletins and circulars have been published. Besides issuing these publications, the station answers yearly many hundreds of requests for information upon matters coming within its field.

Persons interested in obtaining assistance, information, or publications from the station should address the Engineering Experiment Station, Kansas State College, Manhattan, Kansas.

The School of Home Economics

MARGARET M. JUSTIN, *Dean*

MARTHA M. KRAMER, *Assistant Dean*

MARGARET E. RAFFINGTON, *Assistant to the Dean*

The program in home economics is directed toward two major objectives. The first of these is that of making a worthy and significant contribution to the general education of the student through a sequence of courses required of all and sometimes designated as "the core curriculum" or "the curriculum provisions for common learnings." These courses have for their goal helping the student become a well-adjusted person, who understands and employs health practices that provide maximum physical and mental fitness for herself and for others, and who has a philosophy for personal, family, and community living that is both sound and satisfying. They are further directed toward helping her develop sane and creative attitudes toward social problems, to use personal, family and community resources effectively, and to appreciate the aesthetic in daily living. With such a background, with guidance, the student is helped to choose a vocation in home economics for which she is suited and in which she is interested. The second major objective, then, is that of providing effective preparation for the student to enter and advance in one of the various professions in home economics with assurance and competence.

The curriculums as outlined below are flexible enough to meet the needs of those who plan to enter their own homes, those who wish to teach, engage in social welfare, enter some aspect of the business field, engage in dietetics or institutional management, become nurses or technicians, and those who wish to prepare for graduate study in phases of home economics. Four curriculums in this School lead to the degree Bachelor of Science in Home Economics, the fifth leads to the degree Bachelor of Science in Home Economics and Journalism, and the five-year curriculum leads to the degree Bachelor of Science in Home Economics and Nursing.

Many students who feel sure their interest is in home economics are at a loss on entering college to know which curriculum to choose. Hence, guidance plans are included in the home economics program to help the student determine the special phase in which her individual interests and abilities may best function. In order that vocational choices may be made without loss, the courses for the first two years have been selected that transfer from one curriculum to another, within the School of Home Economics, may be managed with a minimum of inconvenience. However, it is well to note that for those considering dietetics, nursing, or research and technical work in foods, nutrition, medicine, and textiles as possible vocational choices, the freshman science should be chemistry, and the sophomore science should usually include zoology and physiology.

Curriculum in Home Economics

This curriculum is to be followed by those who wish to have a broad, well-grounded program in home economics, those who plan to teach or to enter the home demonstration service, and those who have not yet determined the special fields in which they wish to major. There is opportunity for inclusion of the courses required for a teacher's certificate or for preparation for other phases of work through the elective hours available in the junior and senior years. Groups of electives are chosen during the first semester, sophomore year, in conference with staff members.

Curriculum in Home Economics with Provision for Specialization

This curriculum is offered for students wishing specialization in one or another of the newer areas of interest in home economics. The student selects groups of courses as indicated by her own aptitudes and inclinations. She may thus plan for specialization in art, child development and

guidance, clothing, household management, and the like. She may prepare for home economics in business or for technical work and research in equipment, textiles, foods, nutrition, or medicine.

Curriculum in Dietetics and Institutional Management

This curriculum is designed to meet the needs of students who wish to become dietitians or directors of food services in college residence halls, school lunch rooms, cafeterias, tea rooms, restaurants, or hotels. After graduation, students usually accept appointments to internships accredited by the American Dietetic Association to which satisfactory completion of the year's training makes them eligible for membership. A similar plan for internships is available through the National Restaurant Association.

Curriculum in Restaurant Management

This curriculum is designed to help meet demands for trained men and women for managers or directors of commercial and industrial food services such as restaurants, hotels, coffee shops, cafeterias, and tea rooms. Graduates will be qualified for internships approved by the National Restaurant Association or for positions in the area of commercial food service. Summer experience under approved conditions is advised throughout the time students are enrolled in this curriculum.

Curriculum in Home Economics and Journalism

This curriculum is much like that with Provision for Specialization, but includes courses in the Department of Technical Journalism, sufficient to make a major sequence. The student acquires insight into the whole field of home economics, and in the sophomore year chooses electives in some one area. This means that she comes to understand journalism as related to home economics, and in addition is thoroughly prepared to handle material in her chosen area, such as foods, child guidance, interior decoration and housing, or costume and design.

Curriculum in Home Economics and Nursing

The five-year curriculum is offered in affiliation with the University of Kansas Medical Center. The first two and one-half years are spent at Kansas State College. The remaining two and one-half years, including a summer term between the sophomore and junior years, are spent at the University of Kansas Medical Center School of Nursing where theoretical instruction and clinical experience in nursing are given. Upon completion of the work at the hospitals, the student presents her application for graduation to the registrar at Kansas State College.

Home Economics in the Summer School

In addition to the regular instruction in home economics, the School offers numerous courses in the Summer School. These courses apply directly on the curriculums in Home Economics, or on graduate credit.

Full information concerning the courses offered is contained in the Summer School Catalogue of the Kansas State College *Bulletin*, which may be obtained upon application to the Director of Admissions of the College.

Proficiency Test

All new freshmen in the School of Home Economics will be required, at the time of entrance, to take a proficiency test in applied mathematics. This test will be given during the orientation period before each semester and will be used to determine whether a student should take remedial work in mathematics.

Curriculum in Home Economics**FRESHMAN**

FIRST SEMESTER				SECOND SEMESTER			
		<i>Course</i>	<i>Sem. Hrs.</i>			<i>Course</i>	<i>Sem. Hrs.</i>
Chem.	110	General Chemistry	5	Chem.	330	Gen. Org. Chem.	5
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Art	100	El. Des. I	2	Art	113	Cost. Des. I	2
Ch. Welf.	210	Human Relations	2	Fds. Nutr.	110	Foods I	5
Clo. Text.	150	Selection of Clothing ..	2	Sp.	105	Oral Comm. I	2
Hshld. Ec.	102	Family Finance	2	Gen. H. E.	020	H. E. Lect.	0
Gen. H. E.	020	H. E. Lect.	0	Phys. Educ.	055	Physical Education W ..	0
Phys. Educ.	055	Physical Education W ..	0				
Total			16	Total			16

SOPHOMORE

Gen. Stud.	150	Biol. in Rel. to Man I ..	4	Gen. Stud.	160	Biol. in Rel. to Man II,	4
Art	119	Int. Dec. I	2	Fds. Nutr.	240	Foods II*	3
Hshld. Ec.	202	The House	3	Clo. Text.	250	Textiles	2
Fds. Nutr.	130	Applied Nutrition	2	Phys.	210	Hshld. Physics	4
Clo. Text.	175	Fund. of Clothing	3			Elective	2
		Elective	2	Gen. H. E.	020	H. E. Lect.	0
Gen. H. E.	020	H. E. Lect.	0	Phys. Educ.	055	Physical Education W ..	0
Phys. Educ.	055	Physical Education W ..	0				
Total			16	Total			15

JUNIOR

Gen. Stud.	210	Introd. Soc. Sci. I	4	Gen. Stud.	220	Introd. Soc. Sci. II	4
Fds. Nutr.	250	Dietetics	3	Ch. Welf.	490	Family Health	3
Ch. Welf.	450	Family Relationships	2			Elective	7
		Elective	6	Gen. H. E.	020	H. E. Lect.	0
Gen. H. E.	020	H. E. Lect.	0				
Engl.	090	English Proficiency	0				
Total			15	Total			14

SENIOR

Gen. Stud.	250	Man and Cult. World I,	4	Gen. Stud.	260	Man and Cult. World II,	4
		Elective	10			Elective	10
Gen. H. E.	020	H. E. Lect.	0	Gen. H. E.	020	H. E. Lect.	0
Total			14	Total			14

Number of hours required for graduation, 120.

* Effective for graduates of 1955 and thereafter: For teaching majors, the course, Foods II, 3 semester hours, is deleted as a requirement, and electives are increased by 3 semester hours.

Plan for Prospective Home Economics Teachers

Students choosing the Curriculum in Home Economics with the idea of preparing to teach in the high schools of Kansas must meet state certification requirements. These students follow the plan suggested below, to include special courses required for certification.

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	110	General Chemistry	5	Chem.	330	Gen. Org. Chem.	5
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Art	100	El. Des. I	2	Art	113	Cost. Des. I	2
Ch. Welf.	210	Human Relations	2	Fds. Nutr.	110	Foods I	5
Psych.	310	Gen. Psych.	3	Clo. Text.	150	Sel. of Clo.	2
Gen. H. E.	020	H. E. Lect.	0	Gen. H. E.	020	H. E. Lect.	0
Phys. Educ.	055	Physical Education W....	0	Phys. Educ.	055	Physical Education W....	0
Total			15	Total			16

SOPHOMORE

Gen. Stud.	150	Biol. in Rel. to Man I....	4	Gen. Stud.	160	Biol. in Rel. to Man II,	4
Art	119	Int. Dec. I	2	Clo. Text.	250	Textiles	2
Educ.	100	Educ. Psych. I	3	*Phys.	210	Hshld. Physics	4
Sp.	105	Oral Comm. I	2	Educ.	105	Educ. Psych. II	3
Clo. Text.	175	Fund. of Clo.	3	Fds. Nutr.	130	Appl. Nutr.	2
Hshld. Ec.	102	Family Finance	2	Gen. H. E.	020	H. E. Lect.	0
Gen. H. E.	020	H. E. Lect.	0	Phys. Educ.	055	Physical Education W....	0
Phys. Educ.	055	Physical Education W....	0	Total			15
Total			16	Total			15

JUNIOR

Gen. Stud.	210	Introd. Soc. Sci. I	4	Gen. Stud.	220	Introd. Soc. Sci. II	4
Fds. Nutr.	250	Dietetics	3	Ch. Welf.	490	Family Health	3
Ch. Welf.	450	Fam. Rel.	2	Educ.	275	Meth. Tchg. H. E.	3
Educ.	120	Prin. Sec. Educ.	3	Clo. Text.	450	Appl. Dress Des.	3 or
Hshld. Ec.	202	The House	3	Clo. Text.	500	Adv. Dress Des.	3
Gen. H. E.	020	H. E. Lect.	0			Elective	2
Engl.	090	English Proficiency	0	Gen. H. E.	020	H. E. Lect.	0
Total			15	Total			15

SENIOR

Gen. Stud.	250	Man and Cult. World I,	4	Gen. Stud.	260	Man and Cult. World II,	4
Educ.	575	Voc. H. E. Curr.	3	Educ.	295	Tchg. Part. in H. E.	3
Ch. Welf.	410	Child Guid. I	3	Hshld. Ec.	502	Home Management	3
Inst. Mgmt.	430	Sch. Food Serv.	3			Elective	4
		Elective	1	Gen. H. E.	020	H. E. Lect.	0
Gen. H. E.	020	H. E. Lect.	0	Total			14
Total			14	Total			14

Number of hours required for graduation, 120.

* An option of 4 hours in Art or 4 hours in Child Welfare may be taken.

Curriculum in Home Economics

With Provision for Specialization

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	110	General Chemistry	5 or	Chem.	330	Gen. Org. Chem.	5 or
Gen. Stud.	110	Man's Phys. World I....	4	Gen. Stud.	120	Man's Phys. World II....	4
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Art	100	El. Des. I	2	Art	113	Cost. Des. I	2
Ch. Welf.	210	Human Relations	2	Fds. Nutr.	110	Foods I	5
Sp.	105	Oral Comm. I	2	Clo. Text.	150	Selection of Clothing ...	2
Hshld. Ec.	102	Family Finance	2	Gen. H. E.	020	H. E. Lect.	0
Gen. H. E.	020	H. E. Lect.	0	Phys. Educ.	055	Physical Education W.....	0
Phys. Educ.	055	Physical Education W.....	0				
Total				15 or 16	Total		
					15 or 16		

SOPHOMORE

Gen. Stud.* ‡210	Intro. Soc. Sci. I	4	Gen. Stud.* 220	Intro. Soc. Sci. II	4
Gen. Stud. ‡150	Biol. in Rel. to Man I....	4	Gen. Stud. ‡160	Biol. in Rel. to Man II..	4
Fds. Nutr. 130	Applied Nutrition	2	Clo. Text. 250	Textiles	2 or
	Elective	5	Clo. Text. 175	Fund. of Clothing	3
Gen. H. E. 020	H. E. Lect.	0		Elective	4 or 5
Phys. Educ. 055	Physical Education W.....	0	Gen. H. E. 020	H. E. Lect.	0
			Phys. Educ. 055	Physical Education W.....	0
Total		15	Total		15

JUNIOR

Art	119	Int. Dec. I	2	Ch. Welf.	490	Family Health	3	or
Hshld. Ec.	202	The House	3	Ch. Welf.	450	Family Relationships	2	
		Elective	10			Elective	12	or 13
Gen. H. E.	020	H. E. Lect.	0	Gen. H. E.	020	H. E. Lect.	0	
Engl.	090	English Proficiency	0					
Total			15	Total			15	

SENIOR

Gen. Stud. 250	Man and Cult. World I, 4	Gen. Stud. 260	Man. and Cult. World II, 4
	Elective		Elective
Gen. H. E. 020	H. E. Lect.	Gen. H. E. 020	H. E. Lect.
Total		Total	
14 or 15		14 or 15	

Number of hours required for graduation, 120.

† Or substitute, such as Zoology, Physiology.

‡ One course in General Studies may be deferred to junior year.

* Students in Retailing will take Econ. 110, Economics I, Soc. 250, Sociology, and Psych. 310, General Psychology, instead of Intro. Social Sci. I and II.

Graduate nurses, who are graduates of schools of nursing recommended by the Director of Nursing Education, Kansas State College, may be allowed thirty hours of credit toward the degree Bachelor of Science in Home Economics (with specialization in nursing). In the ninety hours of work remaining for the degree, at Kansas State College, candidates must include those courses listed in the Curriculum in Home Economics with Provision for Specialization.

An Example of Specialization in Art

An example of an application of the Curriculum in Home Economics with Provision for Specialization in a given area is shown by this presentation of the courses to be taken.

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	110	General Chemistry	5 or	Chem.	330	Gen. Org. Chem.	5 or
Gen. Stud.	110	Man's Phys. World I	4	Gen. Stud.	120	Man's Phys. World II....	4
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Sp.	105	Oral Comm. I	2	Art	113	Cost. Des. I	2
Art	100	El. Des. I	2	Fds. Nutr.	110	Foods I	5
Ch. Welf.	210	Human Relations	2	Clo. Text.	150	Selection of Clothing ...	2
Hshld. Ec.	102	Family Finance	2	Gen. H. E.	020	H. E. Lect.	0
Gen. H. E.	020	H. E. Lect.	0	Phys. Educ.	055	Physical Education W....	0
Phys. Educ.	055	Physical Education W....	0				
Total			15 or 16	Total			15 or 16

SOPHOMORE

Gen. Stud.	†210	Introd. Soc. Sci. I	4	Gen. Stud.	220	Introd. Soc. Sci. II	4
Gen. Stud.	†150	Biol. in Rel. to Man I....	4	Gen. Stud.	†160	Biol. in Rel. to Man II....	4
Fds. Nutr.	130	Applied Nutrition	2	Clo. Text.	250	Textiles	2
Art	130	Drawing I	2	Art	132	Drawing II	2
Art	102	El. Des. II	2	Art	119	Int. Dec. I	2
Art	106	Lettering	2	Gen. H. E.	020	H. E. Lect.	0
Gen. H. E.	020	H. E. Lect.	0	Phys. Educ.	055	Physical Education W....	0
Phys. Educ.	055	Physical Education W....	0				
Total			16	Total			14

JUNIOR

Hshld. Ec.	202	The House	3	Ch. Welf.	490	Family Health	3 or
Art	121	Int. Dec. II	2 or	Ch. Welf.	450	Family Relationships	2
Art	117	Costume Des. II	3	Art	405	Advanced Des.	2
Art	134	Design in the Crafts I	2	Art	431	Int. Dec. III	2 or
Art	434	Historic Fabric Des.	3	Art	412	Costume Illustration ...	2
Art	104	Intermediate Des.	2	Art	140	Weaving I	2
Art	123	Home Furnishing	2 or	Art	415	Drawing III	2
Art	115	Figure Composition	2			Elective	3
Gen. H. E.	020	H. E. Lect.	0	Art	130	Pottery Design	2
Engl.	090	English Proficiency	0	Gen. H. E.	020	H. E. Lect.	0
Total			14 or 15	Total			15 or 16

SENIOR

Gen. Stud.	250	Man and Cult. World I....	4	Gen. Stud.	260	Man and Cult. World II, 4	
Art	401	Survey of Art I	3	Art	402	Survey of Art II	3
Art	432	Prob. in Int. Dec.	2 or	Art	125	Window Display	3
Art	435	Prob. in Cost. Des.	2	Art	448	Historic Furn. Des.	3 or
		Elective	4-6	Clo. Text.	700	History of Costume	3
Gen. H. E.	122	H. E. Lect.	0			Elective	2
				Gen. H. E.	122	H. E. Lect.	0
Total			13-15	Total			15

Number of hours required for graduation, 120.

† Or substitute, such as Zoology, Physiology.
‡ One course in General Studies may be deferred to junior year.

Curriculum in Dietetics and Institutional Management

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	110	General Chemistry	5	Chem.	330	Gen. Org. Chem.	5
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Ch. Welf.	210	Human Relations	2	Art	100	El. Des. I	2
Fds. Nutr.	110	Foods I	5	Fds. Nutr.	130	Applied Nutrition	2
Gen. H. E.	020	H. E. Lect.	0	Psych.	310	Gen. Psychology	3
Phys. Educ.	055	Physical Education W	0	Clo. Text.	150	Selection of Clothing	2
				Gen. H. E.	020	H. E. Lect.	0
				Phys. Educ.	055	Physical Education W	0
Total			15	Total			16

SOPHOMORE

Econ.	110	Economics I	3	Soc.	250	Sociology	3
Art	113	Cost. Des. I	2 or	Inst. Mgmt.	207	Quan. Food Prep. I	2
Art	119	Int. Dec. I	2	Zool.	465	Human Physiology	4
Fds. Nutr.	240	Foods II	3	Phys.	210	Hshld. Physics	4
Sp.	105	Oral Comm. I	2			Elective	2
Zool.	110	Gen. Zoology	5	Gen. H. E.	020	H. E. Lect.	0
Gen. H. E.	020	H. E. Lect.	0	Phys. Educ.	055	Physical Education W	0
Phys. Educ.	055	Physical Education W	0				
Total			15	Total			15

JUNIOR

Gen. Stud.	250	Man and Cult. World I,	4	Gen. Stud.	260	Man and Cult. World II,	4
Fds. Nutr.	250	Dietetics	3	Chem.	650	Gen. Biochemistry	5
Inst. Mgmt.	212	Quan. Food Prep. II	3	Fds. Nutr.	417	Exp. Cookery	3
Inst. Mgmt.	220	Inst. Purchasing I	3	Ch. Welf.	410	Child Guid. I	3
An. Husb.	218	Meats H. E.	1	Gen. H. E.	020	H. E. Lect.	0
Gen. H. E.	020	H. E. Lect.	0				
Engl.	090	English Proficiency	0				
Total			14	Total			15

SENIOR

Bact.	150	Gen. Micro.	3	Acctg.	725	Inst. Accounting	2
Educ.	285	Meth. of Tchg. for Diet.	3	Fds. Nutr.	514	Diet. for Abn. Cond.	2
		Stu.	3	Inst. Mgmt.	403	Org. and Mgmt. of Inst.,	3
Fds. Nutr.	412	Human Nutr.	3	Inst. Mgmt.	402	Org. and Mgmt. of Inst.	2
		Elective	6			Lab.	2
Gen. H. E.	020	H. E. Lect.	0	Gen. H. E.	020	Elective	6
						H. E. Lect.	0
Total			15	Total			15

Number of hours required for graduation, 120.

Curriculum in Restaurant Management

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	110	General Chemistry	5	Chem.	330	Gen. Org. Chem.	5
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Fds. Nutr.	110	Foods I	5	Fds. Nutr.	130	Applied Nutr.	2
Psych.	310	Gen. Psychology	3 or	Sp.	105	Oral Comm. I	2
Ch. Welf.	210	Human Relations	2	Econ.	110	Economics I	3
Phys. Educ.	010	Physical Educ.	0	Art	110	El. Des. I	2
Gen. H. E.	020	H. E. Lect.	0	Phys. Educ.	010	Physical Educ.	0
		Air Science or		Gen. H. E.	020	H. E. Lect.	0
		Military Science	0			Air Science or	
						Military Science	0
Total			16 or 17	Total			17

SOPHOMORE

Zool.	110	Gen. Zoology	5	Bact.	110	Gen. Micro.	3
Fds. Nutr.	240	Foods II	3	Inst. Mgt.	207	Quan. Fd. Prep. I	2
Phys.	210	Hshld. Physics	4	Clo. Text.	250	Textiles	2
An. Husb.	218	Meats H. E.	1	Fds. Nutr.	250	Dietetics	3
Mach. Des.	110	Engg. Drawing	2	Zool.	465	Human Physiology	4
Phys. Educ.	010	Physical Educ.	0	Phys. Educ.	010	Physical Educ.	0
Gen. H. E.	020	H. E. Lect.	0	Gen. H. E.	020	H. E. Lect.	0
		Air Science or				Air Science or	
		Military Science	0			Military Science	0
						Elective	2
Total			16	Total			17

JUNIOR

Gen. Stud.	250	Man and Cult. World I....	4	Gen. Stud.	260	Man and Cult. World II,	4
Inst. Mgt.	212	Quan. Fd. Prep. II	3	Fds. Nutr.	417	Exp. Cookery	3
Inst. Mgt.	220	Inst. Purch. I	3	Econ.	455	Labor Economics I	3
Engl.	090	English Proficiency	0			Elective	2 or 3
		Elective	4	Inst. Mgt.	250	Restaurant Mgt. I	2
Gen. H. E.	020	H. E. Lect.	0	Gen. H. E.	020	H. E. Lect.	0
Total			14	Total			14 or 15

SENIOR

Bact.	540	Foods and San. Bact.	5	Econ.	725	Inst. Acct.	2
Govt.	295	Business Law I	3 or	Psych.	715	Personnel Psych.	3
Govt.	310	Business Law II	3	Inst. Mgt.	425	Restaurant Mgt. II	5
Inst. Mgt.	420	Inst. Purch. II	3	Econ.	415	Small Bus. Operation	3
Educ.	285	Meth. of Tchg. for				Elective	2
		Diet. Stu.	3	Gen. H. E.	020	H. E. Lect.	0
Gen. H. E.	020	H. E. Lect.	0				
Total			14	Total			15

Number of hours required for graduation, 120 (women).

Number of hours required for graduation, 124 (men).

Curriculum in Home Economics and Journalism

FRESHMAN

FIRST SEMESTER

		<i>Course</i>	<i>Sem. Hrs.</i>
Chem.	110	General Chemistry	5 or
Gen. Stud.	110	Man's Phys. World I....	4
Engl.	125	Written Comm. I	3
Art	100	El. Des. I	2
Fds. Nutr.	110	Foods I	5
Gen. H. E.	020	H. E. Lect.	0
Phys. Educ.	055	Physical Education W....	0

Total 14 or 15

SECOND SEMESTER

		<i>Course</i>	<i>Sem. Hrs.</i>
Chem.	330	Gen. Org. Chem.	5 or
Gen. Stud.	120	Man's Phys. World II....	4
Engl.	135	Written Comm. II	2
Sp.	105	Oral Comm. I	2
Art	113	Cost. Des. I	2
Clo. Text.	150	Selection of Clo.	2
Hshld. Ec.	102	Family Finance	2
Tech. Jour.	050	Tech. Jour. Lect.	0
Phys. Educ.	055	Physical Education W....	0

Total 14 or 15

SOPHOMORE

Gen. Stud.	*150	Biol. in Rel. to Man I....	4
Gen. Stud.	*210	Introd. Soc. Sci. I	4
Fds. Nutr.	130	Applied Nutrition	2
Tech. Jour.	215	Reporting I	3
		Elective	2 or 3
Gen. H. E.	020	H. E. Lect.	0
Phys. Educ.	055	Physical Education W....	0

Total 15 or 16

Gen. Stud.	160	Biol. in Rel. to Man II....	4
Gen. Stud.	220	Introd. Soc. Sci. II	4
Clo. Text.	250	Textiles	2 or 3
Clo. Text.	175	Fund. of Clothing	3
Tech. Jour.	225	Reporting II	3
		Elective	1 or 3
Tech. Jour.	050	Tech. Jour. Lect.	0
Phys. Educ.	055	Physical Education W....	0

Total 15 or 16

JUNIOR

Gen. Stud.	250	Man and Cult. World I....	4
Ch. Welf.	450	Family Relationships..	2 or
Ch. Welf.	410	Child Guidance I	3
Hshld. Ec.	202	The House	3 or
Hshld. Ec.	572	Cons. and Mkt.	3
Sp.	385	Radio Talk	2 or
Tech. Jour.	245	Publ. Infm. Methods	2
		Elective	3 or 4
Engl.	090	English Proficiency	0
Tech. Jour.	050	Tech. Jour. Lect.	0

Total 15

Gen. Stud.	260	Man and Cult. World II,	4
Ch. Welf.	450	Family Relationships..	2 or
Ch. Welf.	490	Family Health	3
Tech. Jour.	265	Editing	2
Art	119	Int. Dec. I	2
		Elective	4 or 5
Gen. H. E.	020	H. E. Lect.	0

Total 15

SENIOR

Tech. Jour.	685	Adver. Salesmanship ..	2 or
Tech. Jour.	255	Prin. of Advertising	3
Tech. Jour.	445	The Home Page	3
Tech. Jour.	650	Jour. in a Free Society....	3
		Elective	6 or 7
Tech. Jour.	050	Tech. Jour. Lect.	0

Total 15

Tech. Jour.	465	Magazine Article Writ.,	2
Tech. Jour.	485	Int. of Cont. Affairs	3
		Elective	10
Gen. H. E.	020	H. E. Lect.	0

Total 15

Number of hours required for graduation, 120.

* One course in General Studies may be deferred to junior year.

Electives will be distributed as follows: Approximately 50 percent to social studies, journalism, and English; approximately 50 percent to courses in home economics and related areas.

Curriculum in Home Economics and Nursing

FRESHMAN

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	110	General Chemistry	5	Chem.	330	Gen. Org. Chem.	5
Engl.	125	Written Comm. I	3	Engl.	135	Written Comm. II	2
Fds. Nutr.	110	Foods I	5	Psych.	310	Gen. Psych.	3
Ch. Welf.	210	Human Relations	2	Fds. Nutr.	130	App. Nutr.	2
Gen. H. E.	020	H. E. Lect.	0	Hshld. Ec.	102	Fam. Finance	2
Phys. Educ.	055	Physical Education W....	0	Clo. Text.	150	Sel. of Clo.	2
				Gen. H. E.	020	H. E. Lect.	0
				Phys. Educ.	055	Physical Education W....	0
Total			15	Total			16

SOPHOMORE

Gen. Stud.	250	Man and Cult. World I....	4	Gen. Stud.	260	Man and Cult. World II,	4
Zool.	110	Gen. Zool.	5	Zool.	465	Human Physiol.	4
Sp.	105	Oral Comm. I	2	Bact.	250	Bacteriology	5
Soc.	250	Sociology	3			Elective	2
		Elective	2	Gen. H. E.	020	H. E. Lect.	0
Gen. H. E.	020	H. E. Lect.	0	Phys. Educ.	055	Physical Education W....	0
Phys. Educ.	055	Physical Education W....	0	Engl.	090	English Proficiency	0
Total			16	Total			15

JUNIOR

Zool.	210	Human Anatomy	5	Second semester of this year and the senior year to be replaced by 2½ years at the University of Kansas Medical Center.			
Ch. Welf.	410	Child Guid. I	3				
Ch. Welf.	450	Family Relationships	2				
		Elective	5				
Gen. H. E.	020	H. E. Lect.	0				
Total			15				

Number of semester hours required for graduation, 77, plus two and one-half years of acceptable work at the University of Kansas Medical Center, which includes a summer term (8 weeks) on the conclusion of the sophomore year at Kansas State College. The program at the University of Kansas Medical Center includes study in the following fields:

THEORETICAL WORK

- Professional Adjustments I and II
- Nursing Arts I and II
- History of Nursing
- Pathology
- Medical and Surgical Nursing
- Diet Therapy
- Obstetrical Nursing
- Pediatric Nursing
- Public Health Nursing
- Psychiatric Nursing
- Medical Specialties
- Surgical Specialties
- Ward Admn. Teaching
- Principles of Teaching

CLINICAL PRACTICE

- Medicine
- Surgery (including operating room)
- Pediatrics
- Nursery
- Obstetrics
- Dispensary
- Tuberculosis
- Public Health
- Psychiatry

(For graduation in 1955 or thereafter.)

Electives will be distributed as follows: Approximately 50 percent to courses in home economics and related areas; approximately 50 percent to courses approved by faculty advisers.

Groups of Electives Suggested for Students, School of Home Economics

Lists of courses suggested below have been compiled with the idea of providing for professional competence in areas where home economics functions. Other combinations may be worked out to meet the needs of the individual. Choice of electives is made in conference with a faculty adviser, and is subject to approval by the Dean of the School of Home Economics.

EDUCATIONAL WORK

1. Teaching Home Economics in High School

The student who wishes to obtain the degree Bachelor of Science and to prepare for the teaching of home economics in Kansas high schools, should choose the Curriculum in Home Economics. Electives are discussed with a professor in Home Economics Education. Electives must include courses considered essential in preparing for teaching high-school home economics, as follows:

COURSES IN EDUCATION AND PSYCHOLOGY		COURSES IN HOME ECONOMICS	
	<i>Credit Hours</i>		<i>Credit Hours</i>
General Psychology, Psych. 310	3	Design in Crafts I, Art 134	2
Educational Psychology I, Pupil Dev., Educ. 100	3	Child Guidance I, Ch. Welf. 410	3
Educational Psychology II, Learning, Educ. 105	3	Home Management, Hshld. Ec. 502	3
Principles of Sec. Educ., Educ. 120	3	Applied Dress Design, Clo. Text. 450	3
Methods of Teaching Home Econ., Educ. 275	3	<i>or</i>	
Tchg. Partic. in Home Econ., Educ. 295, †3		Advanced Dress Design, Clo. Text. 500	3
Vocational Home Econ. Cur., Educ. 575, 3	3	School Food Service. Inst. Mgmt. 430	3

Completion of the requirements of the Curriculum in Home Economics, including courses listed above, entitles the individual to the renewable three-year certificate issued by the State Board of Education, and to approval for teaching in a reimbursed high-school home economics department, often called a vocational homemaking department.

2. Teaching Art in High Schools

The student who desires to obtain the degree of Bachelor of Science with a major in art and desires to qualify for the renewable three-year Kansas state teacher's certificate should enroll in the Curriculum in Home Economics with Provision for Specialization, and elect certain courses in the departments of Education and Psychology and certain courses in the Department of Art. These are:

COURSES IN EDUCATION AND PSYCHOLOGY		COURSES IN ART	
General Psychology, Psych. 310	3	Elem. Design II, Art 102	2
Educational Psychology I. Pupil Dev., Educ. 100	3	Intermediate Design, Art 104	2
Educational Psychology II, Learning, Educ. 105	3	Advanced Design, Art 405	2
Methods of Teaching Home Econ., Educ. 275, <i>or</i>		Lettering, Art 106	2
Methods of Teaching in the Secondary School, Educ. 135	3	Drawing I, Art 130	2
Principles of Sec. Educ., Educ. 120	3	Drawing II, Art 132	2
Tchg. Partic. in Home Econ., Educ. 295 or Tchg. Partic. in the Secondary Schools, Educ. 150	3	Figure Composition, Art 115	2
And one other 3-sem. hour course in Education		Design in Crafts I, Art 134	2
		Design in Crafts II, Art 136	2
		Metal Crafts, Art 410	2
		Weaving I, Art 140	2
		Pottery Design, Art 138	2
		Survey of Art I, Art 401	3
		Survey of Art II, Art 402	3
		Problems in Tchg. Art, Art 430	2

† Each student completes a home project previous to taking this course. The project adviser, who has assisted with the planning of the project, must report a project grade before credit for this course can be sent to the College Registrar for the permanent records.

3. Home Demonstration Work

Students interested in becoming home demonstration agents should enroll in the Curriculum in Home Economics. They should plan for summer experience as junior assistants before the beginning of senior year, to observe and gain experience under supervision in the home economics extension program. After graduation, apprenticeship for at least two months as an assistant home demonstration agent may precede appointment to a county position. Electives are selected with the advice of the State Home Demonstration Leader and the approval of the Dean of the School of Home Economics. Electives should include courses from the following list:

Ext. Orgn. and Policies, Educ. 460	3	Landscape Gardening, Hort. 153	3
Ext. Methods for Home Economists, Educ. 595	3	Vegetable Gardening, Hort. 189	3
Home Management, Hshld. Ec. 502	3	Gen. Econ. Entomology, Ent. 210	3
Prin. of Tailoring, Clo. Text. 550	3	Radio Speech I, Radio 285	2
General Psychology, Psych. 310	3	Reporting I, Tech. Journ. 215	3
Child Guidance I, Ch. Welf. 410	3	Recreational Leadership W, Phys. Educ. 265	2
Consumers and the Market, Hshld. Ec. 572	3	Rural Sociology, Ag. Econ. 290	3
Household Equipment, Hshld. Ec. 352	2	Freedom and Responsibility I, Cit. 110.....	3
Meats, H. E., An. Husb. 218	1	Freedom and Responsibility II, Cit. 140.....	3
Design in the Crafts I, Art 134	2	Home Furnishing, Art 123	2

4. Child Welfare and Nursery School Teaching

The following courses are suggested for students interested in professional and vocational work in child development and family relationships. Students with bachelor's degrees may qualify for work in day nurseries. A fifth year of specialization is usually necessary for professional placement in nursery schools.

Child Guidance II, Ch. Welf. 510	3	Lit. for Children, Engl. 470	3
Development and Guidance of Youth, Ch. Welf. 515	3	Problems in Ch. Welf. and Euth., Ch. Welf. 710	1 to 3
Seminar in Child Development, Ch. Welf. 610	2	Nutrition of Develop., Fds. Nutr. 516	2
Family Relationships, Ch. Welf. 450	2	Home Management, Hshld. Ec. 502	3
The Family, Ch. Welf. 550	2	Mental Hygiene, Psych. 655	3
Seminar in The Family, Ch. Welf. 650	3	Prin. and Technics of Counseling, Psych. 745	3
Parent Education, Ch. Welf. 620	2	Psych. of Childhood and Adoles., Psych. 615	3
Nursery School Procedures, Ch. Welf. 601, Nursery School Administration, Ch. Welf. 815	3	Psych. of Exceptional Children, Psych. 625	3
Literature and Music for the Young Child, Ch. Welf. 520	3	Abnormal Psychology, Psych. 605	3
Play Act. and Materials, Ch. Welf. 525.....	3	Social Psychology, Psych. 635	3
		Cultural Anthropology, Soc. 650	3

5. Child Welfare with Community Services

Child Guidance I, Ch. Welf. 410	3	Mental Hygiene, Psych. 655	3
Child Guidance II, Ch. Welf. 510	3	Sociology, Soc. 250	3
Family Relationships, Ch. Welf. 450	2	Social Pathology, Soc. 625	3
The Family, Ch. Welf. 550	3	Com. Org. and Leadership, Soc. 635	3
Family Health, Ch. Welf. 490	3	Democracy and Education, Cit. 410	3
Seminar in Child Develop., Ch. Welf. 610, Seminar in The Family, Ch. Welf. 650	2	General Psychology, Psych. 310	3
Parent Education, Ch. Welf. 620	2	Psych. of Childhood and Adoles., Psych. 615	3
Home Management, Hshld. Ec. 502	3	Abnormal Psychology, Psych. 605	3
Economic Problems of the Family, Hshld. Ec. 552	2	Social Psychology, Psych. 635	3
Prin. and Technics of Counseling, Psych. 745	3	Psych. of Exceptional Children, Psych. 625	3
		Cultural Anthropology, Soc. 650	3

6. Course Grouping for Elementary Education Majors with Electives in General Home Economics

Students in the Curriculum in Elementary Education may elect at least 24 semester hours of credit from the following:

Selection of Clothing, Clo. Text. 150	2	Child Guidance I, Ch. Welf. 410	3
Family Finance, Hshld. Ec. 102	2	Dev. and Guidance Youth, Ch. Welf. 515,	3
Foods I, Fds. Nutr. 110	5	Family Relationships, Ch. Welf. 450	2
Nutrition for Elementary Teachers, Fds. Nutr. 175	3	Family Health, Ch. Welf. 490	3
Elementary Design I, Art 100	2	The House, Hshld. Ec. 202	3
Interior Decoration I, Art 119	2	Textiles, Clo. Text. 250	2
		Fundamentals of Clothing, Clo. Text. 175.....	2

7. A Course Grouping for Elementary Education Majors with Electives in Child Development and Family Life

Students in the Curriculum of Elementary Education may elect at least 24 semester hours of credit from the following:

	<i>Credit Hours</i>		<i>Credit Hours</i>
Human Relations, Ch. Welf. 210	2	Literature and Music for the Young	
Selection of Clothing, Clo. Text. 150	2	Child, Ch. Welf. 520	3
Family Finance, Hshld. Ec. 102	2	Play Activities and Materials,	
Nutrition for Elementary Teachers,		Ch. Welf. 525	3
Fds. Nutr. 175	3	Child Guidance II, Ch. Welf. 510	3
Child Guidance I, Ch. Welf. 410	3	The Family, Ch. Welf. 550	3
Dev. and Guidance Youth, Ch. Welf. 515, 3		Seminar in Child Development,	
Family Relationships, Ch. Welf. 450	2	Ch. Welf. 610	2
Family Health, Ch. Welf. 490	3	Parent Education, Ch. Welf. 620	2
		Nursery School Procedures, Ch. Welf. 601, 3	

RESEARCH AND TECHNICAL WORK

Students desiring to major in food or nutrition research should choose the Curriculum in Home Economics with Provision for Specialization, selecting the alternates for Man's Physical World I and II. Chemistry I, 5 hours, should be substituted for General Chemistry, 5 hours, and Organic Chemistry I, 5 hours, for General Organic Chemistry, 5 hours. Electives should be selected from the courses listed below:

1. Food

Foods II, Fds. Nutr. 240	3	Meats, H. E., An. Husb. 218	1
Chemistry II, Chem. 230, 250	5	Dietetics, Fds. Nutr. 250	3
Organic Chemistry II, Chem. 515	5	Experimental Cookery, Fds. Nutr. 417	3
Quant. Analysis, Chem. 435	4	Problems in Foods, Fds. Nutr. 557	2
Gen. Biochemistry, Chem. 650	5	Food Analysis, Chem. 440	3
College Algebra, Math. 175	3	Experimental Baking I, Mill. Ind. 481	3
Elements of Statistics, Math. 320	3	Seminar in Foods, Fds. Nutr. 553	2
Plane Trigonometry, Math. 190	3	Adv. Foods I, Fds. Nutr. 770	3
Household Physics, Phys. 210	4	Human Nutrition, Fds. Nutr. 412	3
Philosophy of Science I, Hist. 380	3		

2. Nutrition

Foods II, Fds. Nutr. 240	3	Seminar in Nutrition, Fds. Nutr. 554	2
Chemistry II, Chem. 230, 250	5	Advanced Nutrition, Fds. Nutr. 761	3
Organic Chemistry II, Chem. 515	5	Nutr. of Development, Fds. Nutr. 516	2
Gen. Biochemistry, Chem. 650	5	College Algebra, Math. 175	3
Biochemistry Analysis, Chem. 675	2	Plane Trigonometry, Math. 190	3
Quant. Analysis, Chem. 435	4	Elements of Statistics, Math. 320	3
General Zoology, Zool. 110	5	General Microbiology, Bact. 110	3
Human Physiology, Zool. 465	4	Bacteriological Technic, Bact. 410	3
Dietetics, Fds. Nutr. 250	3	General Physics I, Phys. 110	4
Human Nutr., Fds. Nutr. 412	3	General Physics II, Phys. 120	4
Problems in Nutrition, Fds. Nutr. 558	2	Philosophy of Science I, Hist. 380	3

3. Medical Technology

Students desiring to become medical technicians should choose the Curriculum in Home Economics with Provision for Specialization, selecting the alternates for Man's Physical World I and II and omitting Biology in Relation to Man I and II. Chemistry I, 5 hours, should be substituted for General Chemistry, and Organic Chemistry for General Organic Chemistry. Electives should include the courses listed below which are approved by the Registry of Medical Technologists:

Foods II, Fds. Nutr. 240	3	Human Nutr., Fds. Nutr. 412	3
General Zoology, Zool. 110	5	General Physics I, Phys. 110	4
Human Physiology, Zool. 465	4	General Physics II, Phys. 120	4
Chemistry II, Chem. 230, 250	5	General Microbiology, Bact. 110	3
Gen. Biochemistry, Chem. 650	5	Bact. of Human Diseases, Bact. 610	5
Quant. Analysis, Chem. 435	4	Immunology, Bact. 670	5
College Algebra, Math. 175	3	Bacteriological Technic, Bact. 410	3
Plane Trigonometry, Math. 190	3	Zoological Technic, Zool. 635	2
Dietetics, Fds. Nutr. 250	3		

4. Textile

General Chemistry, Chem. 110	5	Marketing, Econ. 440	3
General Organic Chemistry, Chem. 330	5	Plane Trigonometry, Math. 190	3
Chemistry II, Chem. 230	5	College Algebra, Math. 175	3
Quantitative Analysis, Chem. 435	4	Anal. Geom. and Calc. I, Math. 215	4
Physical Chemistry I, Chem. 585 and 590,	5	Anal. Geom. and Calc. II, Math. 230	4
Colloid Chemistry, Chem. 625	3	Elementary Statistics, Math. 320	3
Chemical Microscopy, Chem. 470	2	General Microbiology, Bact. 110	3
Clothing Economics, Clo. Text. 650	3	Statistical Methods I, Math. 725	3
Advanced Textiles, Clo. Text. 755	3	Statistical Methods II, Math. 730	3
Experimental Textiles, Clo. Text. 760	2	General Physics I, Phys. 110	4
		General Physics II, Phys. 120	4

HOME ECONOMICS IN BUSINESS

1. Clothing Retailing

Mathematics in Human Affairs, Math. 125,	3	Business Cycles, Econ. 480	2
Drawing I, Art 130	2	Psychology of Adv. and Selling, Psych. 705,	3
Historic Fabric Design, Art 434	3	Social Psychology, Psych. 635	3
Clothing Economics, Clo. Text. 650	3	Commercial Correspondence, Engl. 155	3
Intermediate Textiles, Clo. Text. 600	2	Oral English, Engl. 455	3
Adv. Dress Design, Clo. Text. 500	3	World Cultures I, Hist. 494	3
Principles of Tailoring, Clo. Text. 550	3	Reporting I, Tech. Journ. 215	3
History of Costume, Clo. Text. 700	3	The Home Page, Tech. Journ. 445	3
Principles of Accounting, Acctg. 330	3	Advertising Salesmanship, Tech. Journ. 685,	2
Business Management, Econ. 150	2	Prin. of Advertising, Tech. Journ. 255	3
Marketing, Econ. 440	3	Oral Communications II, Sp. 115	2
Gen. Applied Psych., Psych. 325	2	Radio Talk, Radio 385	2
Personnel Psychology, Psych. 715	3	Clothing and Textiles Summary, Clo.	
Retailing, Econ. 445	3	Text. 775	2

2. Clothing and Costume Designing

Elementary Design II, Art 102	2	Principles of Tailoring, Clo. Text. 550	3
Drawing I, Art 130	2	Prob. in Clothing and Textiles,	
Drawing II, Art 132	2	Clo. Text. 750	3
Costume Design II, Art 117	3	History of Costume, Clo. Text. 700	3
Survey of Art I, Art 401	3	Clothing and Textiles Summary,	
Survey of Art II, Art 402	3	Clo. Text. 775	2
Costume Illustration, Art 412	2	General Psychology, Psych. 310	3
Historic Fabric Design, Art 434	3	Psychology of Art, Psych. 765	3
Problems in Costume Design, Art 435	2	Social Psychology, Psych. 635	3
Textiles, Clo. Text. 250	2	World Cultures I, Hist. 494	3
Intermediate Textiles, Clo. Text. 600	2	Oral English, Engl. 455	3
Clothing Economics, Clo. Text. 650	3	Advanced Grammar, Engl. 405	3
Applied Dress Design, Clo. Text. 450	3	Contemporary Fiction, Engl. 645	3
Advanced Dress Design, Clo. Text. 500	3		

3. Food Demonstrating

Students desiring to become food demonstrators in the commercial field should choose the Curriculum in Home Economics with Provision for Specialization, selecting the alternates for Man's Physical World I and II. Electives should be selected from the courses listed below:

Mathematics in Human Affairs, Math. 125,	3	Quantity Food Preparation I,	
General Psychology, Psych. 310	3	Inst. Mgmt. 207	2
Household Physics, Phys. 210	4	Home Management, Hshld. Ec. 502	3
Household Equipment, Hshld. Ec. 352	2	Oral Communications II, Sp. 115	2
Adv. Household Equipment,		Reporting I, Tech. Journ. 215	3
Hshld. Econ. 452	3	Reporting II, Tech. Journ. 225	3
Foods II, Fds. Nutr. 240	3	The Home Page, Tech. Journ. 445	3
Dietetics, Fds. Nutr. 250	3	Radio Talk, Radio 385	2
Food Demonstration Techniques, Fds.		Radio Continuity, Radio 295	3
Nutr. 315	2	Radio Program Partic., Radio 375	1
Experimental Cookery, Fds. Nutr. 417	3	Floral Arrangement I, Hort. 203	2
Seminar in Foods, Fds. Nutr. 553	2	Methods of Teaching Home Economics,	
Gen. Biochemistry, Chem. 650	5	Educ. 656	3
Problems in Foods, Fds. Nutr. 557	1	Meats, H. E., An. Husb. 218	1

4. Art and Costume Designing

Lettering, Art 106	2	App. Dress Design, Clo. Text. 450	3
Drawing I, Art 130	2	Advanced Dress Design, Clo. Text. 500	3
Drawing II, Art 132	2	Principles of Tailoring, Clo. Text. 550	3
Metal Crafts, Art 410	2	History of Costume, Clo. Text. 700	3
Window Display, Art 125	3	Survey of Art I, Art 401	3
Elementary Design II, Art 102	2	Survey of Art II, Art 402	3
Intermediate Design, Art 104	2	Historic Fabric Design, Art 434	3
Advanced Design, Art 405	2	Design in the Crafts I, Art 134	2
Costume Design II, Art 117	3	Principles of Advertising, Tech.	
Costume Illustration, Art 412	2	Journ. 255	3
Figure Composition, Art 115	2	Window Display, Art 125	3
Problems in Costume Design, Art 435	2		

5. Art and Interior Decorating

Window Display, Art 125	3	Problems in Interior Dec., Art 432	2
Elementary Design II, Art 102	2	Interior Decoration II, Art 121	2
Intermediate Design, Art 104	2	Interior Decoration III, Art 431	2
Advanced Design, Art 405	2	Historic Furniture Design, Art 448	3
Problems in Design, Art 417	2	Historic Fabric Design, Art 434	3
Drawing I, Art 130	2	Survey of Art I, Art 401	3
Drawing II, Art 132	2	Survey of Art II, Art 402	3
Drawing III, Art 415	2	Landscape Gardening, Hort. 153	3
Lettering, Art 106	2	Reporting I, Tech. Journ. 215	3
Design in the Crafts I, Art 134	2	The Home Page, Tech. Journ. 445	3
Weaving I, Art 140	2	Principles of Advertising, Tech. Journ. 255	3
Pottery Design, Art 138	2		
Home Furnishing, Art 123	2		

6. Household Economics: Home, Equipment, or Budget Advising

Students interested in this area should choose the Curriculum in Home Economics with Provision for Specialization. Students interested in becoming home or equipment advisers should substitute General Chemistry and Household Physics for Man's Physical World I and II. Students interested in becoming budget advisers should substitute Economics I, Sociology, and one other course for Man and the Social World I and II.

Twenty to twenty-five semester hours, which approximates 50 percent of the elective hours, should be chosen from the courses listed below:

Household Equipment, Hshld. Ec. 352	2	Child Guidance I, Ch. Welf. 410	3
Advanced Household Equipment, Hshld. Ec. 452	3	Methods of Teaching Home Economics, Educ. 275	3
Home Management, Hshld. Ec. 502	3	or	
Consumer and the Market, Hshld. Ec. 572, Economic Problems of the Family, Hshld. Ec. 552	2	Ext. Methods for Home Economists, Educ. 595	3
Problems in Household Economics, Hshld. Ec. 702	2 to 4	Reporting I, Tech. Journ. 215	3
Foods II, Fds. Nutr. 240	3	The Home Page, Tech. Journ. 445	3
Experimental Cookery, Fds. Nutr. 417	3	Radio Speech, Radio 285	2
Food Demonstration Techniques, Fds. Nutr. 315	2	Radio Continuity, Radio 295	3
Family Health, Ch. Welf. 490*	3	Building Materials and Construction, Arch. 300	3
or		Landscape Gardening, Hort. 153	3
Family Relationships, Ch. Welf. 450*	2		

GENERAL

1. Homemaking

Child Guidance I, Ch. Welf. 410	3	Meats, H. E., An. Husb. 218	1
Com. Org. and Lead., Soc. 635	3	Psychology of Childhood and Adolescence, Psych. 615	3
Home Management, Hshld. Ec. 502	3	Economic Problems of the Family, Hshld. Ec. 552	2
Nutr. of Development, Fds. Nutr. 516	2	Food and Sanitary Bacteriology, Bact. 540,	5
Consumers and the Market, Hshld. Ec. 572	3	Applied Dress Design, Clo. Text. 450	3
Child Guidance II, Ch. Welf. 510	3	Advanced Dress Design, Clo. Text. 500	3
Survey of Art I, Art 401	3		
Experimental Cookery, Fds. Nutr. 417	3		

2. Citizenship and Public Service

Women are becoming increasingly active in civic affairs and public life, and many of the vocational opportunities for home economics graduates are found in public agencies. This option is designed for students who wish to prepare themselves for a more active and intelligent role in the affairs of their community, and for students who may enter public service. Citizenship 110 and 140, Freedom and Responsibility, should be taken first in all cases and in the freshman year if possible. An additional 9 or 10 hours will be elected from the courses in the following list:

Democracy and Education, Cit. 410	3	War, Peace, and the World Community, Cit. 570	3
Democracy, Justice, and the Law, Cit. 450	3	Effective Citizenship, Cit. 530	2
Political Economy and the Democratic State, Cit. 490	3		

* Whichever was not taken in the basic curriculum.

ART

DOROTHY BARFOOT, *Head of Department*

Specialization in art is designed to provide a background for home-making or other professional work. Depending upon their interests, the undergraduate students may specialize in design, interior decoration, costume design, or teaching of art. Major work leading to the degree Master of Science is offered in costume design and interior decoration and related phases of the department's work.

FOR UNDERGRADUATE CREDIT

- 100. Elementary Design I.** 2 semester hours. Each semester and summer.

An introduction to the arts and application of their principles to daily living. One hour of recitation and three hours of laboratory a week.

- 102. Elementary Design II.** 2 semester hours. Each semester and summer.

Theory of design and color continued and a practical application of it made to functional items in the home. Prerequisite: Art 100.

- 104. Intermediate Design.** 2 semester hours. First semester.

Theory of color and design. Special emphasis on abstractions and nonsubjective motifs and their influence in contemporary design. Prerequisite: Art 102.

- 106. Lettering.** 2 semester hours. First semester.

Creative design in the field of lettering in relation to historic and modern forms. Prerequisite: Art 100.

- 113. Costume Design I.** 2 semester hours. Each semester and summer.

Line, form, color, texture in costume design and selection as related to the requirements of the individual. This course is a design basis for garment selection and construction. One hour of recitation and three hours of laboratory a week. Prerequisite: Art 100.

- 115. Figure Composition.** 2 semester hours. First semester.

Design and decorative drawing of the figure with reference to various dress silhouettes and styles. Prerequisite: Art 100, 130.

- 117. Costume Design III.** 3 semester hours. First semester.

Creative designing for the fashion figure. Nine hours of laboratory a week. Prerequisite: Art 113, 130.

- 119. Interior Decoration I.** 2 semester hours. Each semester and summer.

The design and furnishing of the modern interior. One hour of recitation and three hours of laboratory. Prerequisite: Art 100.

- 121. Interior Decoration II.** 2 semester hours. First semester.

Interior design in its relation to house types, period furniture and fabrics. Prerequisite: Art 119, 130, or consent of instructor.

- 123. Home Furnishing.** 2 semester hours. Each semester or summer.

Refinishing, restyling, upholstering and/or slipcovering furniture; also designing and making draperies and lamp shades. Prerequisite: Art 119.

- 125. Window Display.** 3 semester hours. Each semester or summer.

Three dimensional designing. Experiments in a variety of materials such as paper sculpture, wire mesh, papier-maché, and plastics. Practical experience is gained through the co-operation of local stores. Prerequisite: Art 106, 130, or consent of instructor.

- 130. Drawing I.** 2 semester hours. Each semester or summer.
Representative and creative sketching in which a variety of media and techniques is employed. Prerequisite: Art 100.
- 132. Drawing II.** 2 semester hours. First or second semester.
Creative work in oils, water colors, pen and ink, and lithograph crayon. The student works both in the studio and outdoors. Prerequisite: Art 130.
- 134. Design in the Crafts I.** 2 semester hours. Each semester and summer.
Basic craft experiences with various methods and techniques such as leatherwork, wood carving, decorative stitchery, art glass etching. Prerequisite: Art 100 or consent of instructor.
- 136. Design in the Crafts II.** 2 semester hours. Second semester or summer.
Further experience in the basic principles and techniques of crafts with special emphasis on plastics, bookbinding, and new materials. Prerequisite: Art 100 and junior standing.
- 138. Pottery Design.** 2 semester hours. Each semester or summer.
Creative design of pottery, its formation, firing, and decoration. Prerequisite: Art 100 or permission of instructor.
- 140. Weaving I.** 2 semester hours. Each semester or summer.
A study of the principles of design, color and texture applied to textile construction. Prerequisite: Art 100 or consent of instructor.
- 172. Contemporary Homes.** 3 semester hours. Each semester and/or summer.
The design of the contemporary home as an art expression of the family in relation to everyday living. Three recitation periods a week. Prerequisite: Art 100 or equivalent.
- 190. Elementary School Art.** 3 semester hours. Each semester and/or summer.
A course in color and form with methods and materials for teaching art at different grade levels in the elementary schools. This course is not to be substituted for Elementary Design I. Staff.
- 192. Crafts for Elementary School Teachers.** 3 semester hours. Each semester and/or summer.
A course in crafts emphasizing design with methods and materials for different grade levels in the elementary schools. This course is not to be substituted for Design in the Crafts I or II. Prerequisite: Art 190.
- FOR GRADUATE AND UNDERGRADUATE CREDIT
- 401. Survey of Art I.** 3 semester hours. First semester or summer.
The culture of various peoples and their homes as shown by their use of color, line, and form in architecture and sculpture and the minor arts. Prerequisite: Art 100.
- 402. Survey of Art II.** 3 semester hours. Second semester or summer.
The culture of various peoples as expressed in historic painting. Prerequisite: Art 401.
- 405. Advanced Design.** 2 semester hours. Second semester or summer.
Special emphasis on art structure. Designs for textiles using modern commercial repeats. Prerequisite: Art 104.
- 410. Metal Crafts.** 2 semester hours. Second semester or summer.
Basic principles and techniques of metal work and jewelry. Prerequisite: Art 134.
- 412. Costume Illustration.** 2 semester hours. Second semester or summer.
Costume figures for fashion illustration rendered in various media suitable for reproduction. Prerequisite: Art 117.

- 415. Drawing III.** 2 semester hours. Each semester and summer.
Creative work in water color, silk screen printing, oil and lithograph crayon. Prerequisite: Art 132.
- 417. Problems in Design.** Credit to be arranged. Each semester or summer.
Problems in design planned to meet the particular needs of the student. Prerequisite: Ten credit hours in art or consent of instructor and senior standing.
- 430. Problems in Teaching Art.** Credit to be arranged. Each semester or summer.
For the high school teacher who is correlating art with home economics, particularly for the teacher of art connected with the vocational home economics program. Lectures and class discussions of methods, consideration of suitable laboratory equipment, use of illustrative material, and preparation of course of study. Prerequisite: Art 102, Educ. 275, or equivalent; twelve credit hours in Art.
- 431. Interior Decoration III.** 2 semester hours. Second semester.
Practical experience is offered in helping townspeople in the interior design of their homes. Functionalism, originality, and contemporary design are stressed. Prerequisite: Art 121.
- 432. Problems in Interior Decoration.** Credit to be arranged. Each semester or summer.
Problems planned with the students to meet their particular needs. Prerequisite: Art 431 or consent of instructor.
- 434. Historic Fabric Design.** 3 semester hours. Each semester or summer.
Design employed in fabrics in each of the great art periods. Prerequisite: Art 100, Clo. Text. 250.
- 435. Problems in Costume Design.** Credit to be arranged. First semester or summer.
Problems planned with the students to meet their particular needs. Prerequisite: Art 117 or consent of instructor.
- 443. Arts of Mexico.** 3 semester hours. Each semester or summer.
A survey of the arts of pre-Spanish, colonial, and modern Mexico, their origins and developments. Prerequisite: Art 100.
- 445. Art of Primitive People.** 3 semester hours. Second semester.
A study of the local art styles of various groups of primitive people, stressing their skills in designing for everyday living. Prerequisite: Art 100.
- 448. Historic Furniture Design.** 3 semester hours. Each semester or summer.
Design expressed in furniture in each of the great art periods. Prerequisite: Art 100.

FOR GRADUATE CREDIT

- 900. Advanced Costume Design.** Credit to be arranged. Each semester and summer.
Individual research problems which may form the basis for the master's thesis. Prerequisite: Consult instructor.
- 904. Advanced Interior Decoration.** Credit to be arranged. Each semester and summer.
Individual research problems which may form the basis for the master's thesis. Consult instructor.
- 906. Problems in Advanced Design.** Credit to be arranged. Each semester and summer.
Individual research problems dealing with the various phases of design may be chosen by the student (with the aid of the instructor) to form the basis of a master's thesis. Prerequisite: Consult instructor.

CHILD WELFARE AND EUTHENICS

LOIS R. SCHULZ, *Head of Department*

The Department of Child Welfare and Euthenics offers opportunities for study of the child and his family with a nursery school as a laboratory of human development. For the student interested in homemaking, the courses are planned to create an awareness of the child as a developing personality and to promote an understanding of the dynamics of family relationships. Many of the courses will be of value to prospective teachers, nurses, dietitians, extension workers, and others, in helping them understand human needs and relationships. For the student interested in professional opportunities such as nursery school teaching, child guidance clinics, family life programs in the public schools, college teaching, child welfare with community agencies, or research in child development and family life, the department offers work toward the degree master of science.

The curriculum for students in Home Economics and Nursing is under the supervision of the Director of Nursing Education, who is a member of the Department of Child Welfare and Euthenics.

FOR UNDERGRADUATE CREDIT

105. The Pre-school Child. 2 semester hours recitation.

How children grow and develop physically, mentally, socially, and emotionally. Emphasis on the understandings and skills necessary to meet these basic needs. Not open for credit to home economics students. (Evening class.)

115. Home Nursing. 1 semester hour.

Knowledge and skills needed to give simple home nursing care under a physician's supervision. Upon satisfactory completion of this course, a certificate is awarded by the American Red Cross. (Not to be substituted for any curriculum requirement.) Two hours laboratory and class discussion.

210. Human Relations. 2 semester hours.

Study of human development and adjustment with emphasis on social relationships. Considers basic human relations during periods of dating, courtship, and engagement leading to the beginning family. Planned primarily for the beginning college student.

310. Family Living. 2 semester hours. Each semester.

An introduction to the study of the family and its relation to the health and growth of the individual at different age levels. Includes planned experiences with children.

FOR UNDERGRADUATE AND GRADUATE CREDIT

410. Child Guidance I. 3 semester hours. Each semester and summer.

Study of the development characteristics of young children, adaptation of the environment to meet their needs, and principles involved in the guidance of children at the preschool age. Two hours of recitation and three hours of laboratory a week. Prerequisite: Junior standing or consent of head of department. Additional charge for luncheon.

450. Family Relationships. 2 semester hours. Each semester and summer.

Effects of family interaction upon individual development; consideration of premarital, marital, and parent-child relationships. Prerequisite: Junior standing.

490. Family Health. 3 semester hours. Each semester and summer.

Meaning of health. Summary of factors conducive to maintaining a high level of health for family members throughout the life cycle including the prenatal and old-age periods. Home care of the ill and injured. Prerequisite: Junior standing or consent of the instructor.

- 510. Child Guidance II.** 3 semester hours. First semester and summer.
Study of the growth sequence in relation to behavior and to the young child's process of adjustment. Two hours of recitation and three hours of laboratory a week. Prerequisite: Ch. Welf. 410, 490, or concurrent; and consent of head of department.
- 515. Development and Guidance of Youth.** 3 semester hours. Each semester and summer.
Study of the developmental characteristics of later childhood as a basis for guidance. Field work arranged. Prerequisite: Ch. Welf. 410.
- 520. Literature and Music for the Young Child.** 3 semester hours. Second semester.
Children's creative experiences with stories, songs, records and dramatized play. Two hours of recitation and three hours of laboratory. Prerequisite: Ch. Welf. 410.
- 525. Play Activities and Materials.** 3 semester hours. First semester.
The young child's use of space and equipment, toys, plastic and graphic materials, with emphasis upon play experiences which will contribute to the needs of individual children. Two hours of recitation and three hours of laboratory. Prerequisite: Ch. Welf. 410.
- 550. The Family.** 3 semester hours. Each semester and alternate summers (Summer, 1955).
Study of contemporary social conditions affecting family functions, emphasizing the influence of subcultures on personality development. Prerequisite: Ch. Welf. 450.
- 601. Nursery School Procedures.** 3 semester hours. Second semester.
Supervised participation in the nursery school with opportunity for planning and directing the program. Six hours of laboratory and one hour of conference. Prerequisite: Ch. Welf. 510.
- 610. Seminar in Child Development.** 2 semester hours. Second semester and alternate summers (Summer, 1954).
Interpretation and evaluation of research relating to the field of child development. Intended primarily for graduate students but open to others with consent of head of department. Prerequisite: Ch. Welf. 510.
- 620. Parent Education.** 2 semester hours. Second semester.
Summary of principles in child development and family relationships; application of these principles to group and individual work with parents; organization of material in a resource unit. Prerequisite: Ch. Welf. 510 or 550.
- 650. Seminar in the Family.** 2 semester hours. First semester and alternate summers (Summer, 1955).
Interpretation and evaluation of research relating to interaction of family members. Intended primarily for graduate students but open to others with consent of head of department. Prerequisite: Ch. Welf. 550.
- 710. Problems in Child Welfare and Euthenics.** Credit to be arranged. Each semester and summer.
Students writing a master's report enroll in this course. Prerequisite: Consult head of department.

FOR GRADUATE CREDIT

- 810. Research in Child Welfare and Euthenics.** Credit to be arranged. Each semester and summer.
Individual research problems which may form the basis for the master's thesis. Consult head of department.
- 815. Nursery School Administration.** 2 semester hours. First semester.
Survey of development of the nursery school; consideration of ad-

ministrative problems, such as physical plant, equipment, records, standards and personnel in relation to the objectives of the nursery school. Prerequisite: Ch. Welf. 510 or concurrent.

CLOTHING AND TEXTILES

ALPHA C. LATZKE, *Head of Department*

The Department of Clothing and Textiles offers courses designed to furnish essential knowledge concerning consumer problems in clothing and textiles. Instruction is provided for students who wish to prepare for vocational, professional, and business positions, such as teachers, extension workers, research workers, textile chemists, clothing consultants, and purchasing agents for institutions and department stores.

FOR UNDERGRADUATE CREDIT

150. Selection of Clothing. 2 semester hours. Each semester.

A study of the clothing needs and practices of individuals and social groups; wardrobe planning and buying procedures.

175. Fundamentals of Clothing. 3 semester hours. Each semester.

Use of commercial patterns in garment construction: Problems adjusted to abilities of students. Students are to be registered in sections according to results of placement examination. Six hours of laboratory a week.

250. Textiles. 2 semester hours. Each semester and summer.

Fundamentals of textiles as related to the problems of the consumer. One hour of recitation and three hours of laboratory a week. Prerequisite: Chem. 330 or Gen. Stud. 120.

FOR UNDERGRADUATE AND GRADUATE CREDIT

450. Applied Dress Design. 3 semester hours. Each semester and summer.

Application of design principles to dress; construction of foundation pattern; flat pattern designing; development of garments in suitable material. One hour of recitation and six hours of laboratory a week. Prerequisite: Clo. Text. 175, Art 113; Clo. Text. 250 recommended.

475. Construction Techniques. 2 semester hours. Second semester and alternate summers.

Emphasis on clothing standards, demonstration techniques, and use of new equipment and processes. For students preparing for teaching and home demonstration work. Four hours of laboratory a week. Prerequisite: Clo. Text. 450 or equivalent.

500. Advanced Dress Design. 3 semester hours. Each semester and summer.

Social significance of fashion; application of design to dress. Designs draped in cotton and then completed in suitable material. One hour of recitation and six hours of laboratory a week. Prerequisite: Clo. Text. 175, Art 113; Clo. Text. 250 recommended.

550. Principles of Tailoring. 3 semester hours. Each semester and summer.

Design as related to the coat or suit; techniques of tailoring; construction of coat or suit. One hour of recitation and six hours of laboratory a week. Prerequisite: Clo. Text. 450 or 500.

600. Intermediate Textiles. 2 semester hours. First semester and alternate summers.

Nontechnical study of current developments in textiles. One hour of recitation and three hours of laboratory a week. Prerequisite: Clo. Text. 250.

650. Clothing Economics. 3 semester hours. Second semester and summer.

The organization of textile industries and markets; consumer problems in relation to market conditions. Prerequisite: Gen. Stud. 220 or equivalent.

700. History of Costume. 3 semester hours. Each semester and alternate summers.

Aspects of the culture of various countries and periods of history as reflected in costume. Prerequisite: Gen. Stud. 250, Hist. 115, or equivalent.

750. Problems in Clothing and Textiles. 1 to 5 semester hours. Each semester and summer.

Consult instructor. Prerequisite: Senior or graduate standing.

Work is offered in: Garment designing, textiles, history of costume, clothing economics.

755. Advanced Textiles. 3 semester hours. First semester and summer.

Physical, chemical, and optical testing of textiles, emphasis placed on research techniques. One hour of recitation and six hours of laboratory a week. Prerequisite: Clo. Text. 250, Chem. 300.

760. Experimental Textiles. 2 to 5 semester hours. Each semester and summer.

Prerequisite: Clo. Text. 755.

775. Clothing and Textiles Summary. 2 semester hours. Second semester and alternate summers.

Summarization and correlation of information from courses in Clothing and Textiles and their application to the family's clothing needs. One hour of recitation and three hours of laboratory a week. Prerequisite: Clo. Text. 250, and 450 or 500.

FOR GRADUATE CREDIT

800. Master's Report. 1 or 2 semester hours. Each semester and summer.

Written report required of students adopting Plan II for meeting the requirements for the degree Master of Science in clothing and textiles. Subject chosen in consultation with major instructor. Consult head of department.

850. Clothing and Textiles Seminar. 1 semester hour. Second semester and alternate summers.

Discussion of current developments in the field. Prerequisite: Graduate standing.

900. Research in Clothing and Textiles. 1 to 6 semester hours. Each semester and summer.

Research in clothing or in textiles which may form the basis for the master's thesis. Consult instructor for time of meeting. Prerequisite: Graduate standing.

FOODS AND NUTRITION

GWENDOLYN L. TINKLIN, *Acting Head of Department*

The Department of Foods and Nutrition provides specialized instruction for homemakers, teachers of foods and nutrition, and dietitians, and for commercial, extension, and research workers. It also gives courses designed for those whose major interest is outside the field of home economics.

FOR UNDERGRADUATE CREDIT

110. Foods I. 5 semester hours. Each semester and summer.

Principles of food preparation and food economics. Experience in

food preparation and meal service. Three hours of recitation and six hours of laboratory a week.

130. Applied Nutrition. 2 semester hours. Each semester and summer.

Introduction to nutrition with emphasis on food requirements, food selection, and food habits. For beginning students in home economics; open to men and women students not majoring in home economics.

175. Nutrition for Elementary Teachers. 3 semester hours.

Second semester and summer sessions. Introduction to nutrition and methods of teaching nutrition to children, including use of visual aids and observation of learning situations. Four hours of recitation and laboratory a week. Not open to students having credit in Fds. Nutr. 130.

205. Meal Planning, Preparation, and Service. 3 semester hours. Spring semester.

Consideration given to problems involved in selecting of foods and planning, preparing, and serving of meals. Emphasis on organization and management of time, money, and energy. Not open to students having credit in Fds. Nutr. 110. Two hours of recitation and three hours of laboratory a week. Prerequisite: Two hours credit in food preparation.

218. Meats H. E. 1 semester hour. Each semester.

See An. Husb. 218, Department of Animal Husbandry, School of Agriculture.

240. Foods II. 3 semester hours. Each semester and summer sessions in odd-numbered years.

Chemical and physical properties of food related to preparation and preservation. One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 330 or 510 or Gen. Stud. 120, Fds. Nutr. 110 or 205.

250. Dietetics. 3 semester hours. Each semester and summer sessions in odd-numbered years.

Principles of normal nutrition and practice in planning, adjusting, and preparing dietaries for specific individuals. Energy, protein, mineral, and vitamin computation. Two hours of recitation and three hours of laboratory a week. Prerequisite: Fds. Nutr. 130 or 175, Chem. 330 or 510, or Gen. Stud. 120.

315. Food Demonstration Techniques. 2 semester hours. Second semester.

Objectives and techniques of demonstrations in foods as presented by the classroom teacher and commercial demonstrator. Six hours of laboratory a week. Prerequisite: Fds. Nutr. 240, Educ. 275 or 285 or 595, and senior standing.

FOR UNDERGRADUATE AND GRADUATE CREDIT

412. Human Nutrition. 3 semester hours. Each semester and summer sessions in even-numbered years.

Chemistry of foods and nutrition; emphasizing food nutrients, digestion and metabolism. Prerequisite: Chem. 650, Zool. 420 or 465, or Gen. Stud. 160; for home economics majors, Fds. Nutr. 250.

417. Experimental Cookery. 3 semester hours. Each semester and summer sessions in odd-numbered years.

Food preparation from the experimental standpoint. One hour of recitation and six hours of laboratory a week. Prerequisite: Fds. Nutr. 240, Chem. 330 or 510, and at least second semester junior standing.

514. Dietetics for Abnormal Conditions. 2 semester hours. Each semester and summer sessions in even-numbered years.

Food requirements in pathological conditions. Special diets, prepa-

ration of trays, computation of dietaries, consideration of costs. One hour of recitation and three hours of laboratory a week. Prerequisite: Fds. Nutr. 412.

516. Nutrition of Development. 2 semester hours. Second semester and summer sessions in odd numbered years.

Nutrition in pregnancy and lactation. Food requirements of fetus, infant, preschool and school child through adolescence. Prerequisite: Fds. Nutr. 250.

553. Seminar in Foods. 2 semester hours. Each semester and summer in even-numbered years.

Individual reports and discussions of topics in fields of food, food economics, and food research. Prerequisite or concurrent: Fds. Nutr. 417.

554. Seminar in Nutrition. 2 semester hours. Each semester and summer in odd-numbered years.

Individual reports and discussions of topics in field of nutrition. Prerequisite: Fds. Nutr. 412.

557. Problems in Foods. Credit to be arranged. Each semester and summer.

Problems dealing with preparation and preservation of food. Three hours of laboratory a week for each hour of credit. Prerequisite: Chem. 330 or 510; for home economics majors, Fds. Nutr. 417.

558. Problems in Nutrition. Credit to be arranged. Each semester and summer.

Problems dealing with the nutritive value of foods, animal experimentation, dietary studies, practice in methods commonly used in simple experiments in nutrition. Three hours of laboratory a week for each hour of credit. Prerequisite: Fds. Nutr. 412.

761. Advanced Nutrition. 3 semester hours. First semester and summer in odd-numbered years.

A study of the more complex phases of the metabolism of food within the body. Prerequisite: Fds. Nutr. 412.

770. Advanced Foods I. 3 semester hours. First semester.

Fundamental principles and practices of food preparation approached through applied organic and colloid chemistry. Egg cookery, emulsions, freezing, batters and doughs will be considered. Two hours of recitation and three hours of laboratory a week. Prerequisite: Fds. Nutr. 240, Chem. 515 or 650.

FOR GRADUATE CREDIT

807. Advanced Foods II. 3 semester hours. Second semester.

A continuation of Advanced Foods I. Starches, protein cookery, fats, and oils will be considered. Two hours of recitation and three hours of laboratory a week. Prerequisite: Fds. Nutr. 770.

808. Research Technics in Nutrition. 3 semester hours. First semester.

Fundamental technics relating to energy, protein, mineral, and vitamin metabolism. One hour of recitation and six hours of laboratory a week. Prerequisite: Fds. Nutr. 761.

809. Graduate Seminar in Foods and Nutrition. 1 semester hour. Each semester.

Discussion of investigations and other matters of interest in foods and nutrition. Required of all graduate students in foods and nutrition. May be taken for four semesters for credit.

905. Research in Foods and Nutrition. Credit to be arranged. Each semester and summer.

Three hours a week for each hour of credit. Prerequisite: Consult instructor.

COURSES IN HOME ECONOMICS EDUCATION*

LUCILE O. RUST, *Professor of Home Economics Education
and Special Adviser*

FOR UNDERGRADUATE CREDIT

- 275. Methods of Teaching Home Economics.** 3 semester hours. Each semester and summer.
Prerequisite: Clo. Text. 175, Fds. Nutr. 240; prerequisite or concurrent: Educ. 105.
- 285. Methods of Teaching for Dietetic Students.** 3 semester hours. Each semester.
Prerequisite: Inst. Mgmt. 212 or Fds. Nutr. 250 or concurrent registration.
- 295. Teaching Participation in Home Economics.** 3 to 5 semester hours. Each semester and summer.
Prerequisite: Completion of one home project and Educ. 275.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 575. The Vocational Home Economics Curriculum.** 3 semester hours. Each semester and summer.
Prerequisite: Educ. 275 or concurrent registration.
- 585. Methods in Adult Homemaking Classes.** 1 to 3 semester hours. Summer.
Prerequisite: Educ. 275 or equivalent.
- 795. Problems in Education.** Credit to be arranged. Each semester and summer.
Prerequisite: Educ. 120 and approval of instructor. Work is offered in Home Economics Education.

FOR GRADUATE CREDIT

- 930. Organization and Presentation of Home Economics.** Credit to be arranged. Each semester and summer.
- 935. Research in Organization and Presentation of Home Economics.** Credit to be arranged. Each semester and summer.
- 940. Supervision in Home Economics.** 2 semester hours. Second semester and summer.
Prerequisite: Educ. 295 and experience in teaching home economics.
- 945. Seminar in Home Economics Education.** 2 or 3 semester hours. Summer.
Prerequisite: Educ. 295 and experience in teaching home economics.

GENERAL HOME ECONOMICS

MARGARET M. JUSTIN, *Head of Department*

FOR UNDERGRADUATE CREDIT

- 020. Home Economics Lectures.** R (meetings by appointment).
Required each semester of students enrolled for ten or more credit hours. Students meet for orientation, for vocational guidance, for consideration of professional opportunities and responsibilities, and for special interest programs, in groups arranged according to classification and curriculum.

* The ten courses named here are given by the Department of Education for the School of Home Economics. The staff is appointed co-operatively by that department and the School of Home Economics.

101. Guidance of Freshmen I. 2 semester hours. First semester.

Instruction and practice in group techniques employed in the orientation of freshman women. The residence halls for freshman women will be used as a laboratory. Offered by the School of Home Economics in conjunction with the Dean of Women, the Counseling Center, and other members of staff in specialized areas. Prerequisite: Junior standing and consent of the Dean of Women. Application for enrollment must be made in the preceding semester.

102. Guidance of Freshmen II. 1 semester hour. Second semester.

Instruction and practice in the techniques of working with the individual. Prerequisite: General Home Economics 101 and/or consent of the Dean of Women.

HOUSEHOLD ECONOMICS

FLORENCE MCKINNEY, *Head of Department*

Through the courses in the Department of Household Economics an opportunity is offered to study the management of family resources—personal qualities, time, energy, money, house furnishings, equipment, and others—in the attainment of family goals, and to consider the effect of social and economic forces on the home and its management. Graduate students preparing to become advisers in home management houses, home management specialists in extension, teachers and research workers in these fields, and homemakers find suitable courses in this department.

FOR UNDERGRADUATE CREDIT

102. Family Finance. 2 semester hours. Each semester and alternate summers (Summer, 1955).

Financial problems involved in the effective management of the family's resources.

202. The House. 3 semester hours. Each semester and alternate summers (Summer, 1954).

A consideration of dwellings, their environment, plans, and space requirements, which promote effective utilization of family resources. Six hours of recitation and laboratory a week. Prerequisite: Sophomore standing.

352. Household Equipment. 2 semester hours. Each semester and alternate summers (Summer, 1954).

Selection, use, and care of certain furniture and equipment used in the home. Four hours of recitation and laboratory a week. Prerequisite: Fds. Nutr. 110.

FOR UNDERGRADUATE AND GRADUATE CREDIT

422. Housing Requirements of Families. 2 semester hours. First semester and alternate summers (Summer, 1954).

Housing requirements of families as influenced by their interests, activities, and socio-economic status; effective ways of meeting these requirements in homes in this area. Six hours of recitation and laboratory a week. Field trips. Prerequisite: Hshld. Ec. 202, 352; senior or graduate standing.

452. Advanced Household Equipment. 3 semester hours. Second semester and alternate summers (Summer, 1955).

Fundamental principles underlying the operation and construction of certain household equipment; demonstrations of the practical use of equipment. Six hours of recitation and laboratory a week. Prerequisite: Hshld. Ec. 352, Phys. 210; senior or graduate standing.

- 502. Home Management.** 3 semester hours. Each semester and summer.

The application of principles related to satisfying home life. Opportunity is provided for experience in group living and for management in houses operating on two different income levels. The period of residence in home management houses is one-half a semester, the equivalent of one hour of recitation and six hours of laboratory a week for one semester. Arrangements must be made in advance for living in the house. Prerequisite: Senior standing, or consult instructor.

- 522. Time and Motion in Household Tasks.** 2 semester hours. Second semester and alternate summers (Summer, 1955).

The application of the principles of motion economy in the performance of certain household tasks to promote the more effective use of time and energy. One hour of recitation and two hours of laboratory a week. Prerequisite: Junior standing.

- 552. Economic Problems of the Family.** 2 semester hours. First semester and alternate summers (Summer, 1955).

Study of incomes, investments, and debts, factors determining cost of living; economic problems requiring social action; criteria for appraising plans for improvement of levels of living. Prerequisite or parallel: Gen. Stud. 220 or consult instructor.

- 572. Consumers and the Market.** 3 semester hours. First semester and alternate summers (Summer, 1955).

Problems of the consumer in the present market, market practices, aids toward intelligent buying of commodities, and the types of protection, including legislation. Field trip out of town. Prerequisite or parallel: Gen. Stud. 220 and junior standing.

- 622. Seminar in Household Economics.** 1 to 3 semester hours. Each semester and alternate summers (Summer, 1954).

A review of research literature; trends in the field of household economics; the contribution of the area to the family and community. Prerequisite: Senior or graduate standing.

- 702. Problems in Household Economics.** Credit to be arranged. Each semester and summer.

Individual investigation in standards of living and family expenditures; housing and household equipment; time and motion study; and use of family resources. Prerequisite: Consult instructor.

FOR GRADUATE CREDIT

- 802. Research in Household Economics.** Credit to be arranged. Each semester and summer.

Individual research problems which may form the basis for the master's thesis. Prerequisite: Consult instructor.

INSTITUTIONAL MANAGEMENT

BESSIE B. WEST, *Head of Department*

The Department of Institutional Management provides instruction for those preparing to become school lunchroom managers, or to become dietitians in hospitals, college residence halls, or college, school, commercial, or industrial food service units.

FOR UNDERGRADUATE CREDIT

- 207. Quantity Food Preparation I.** 2 semester hours. Second semester and summer.

Introduction into various areas of institutional management. Food problems of institutions including preparing and serving foods in

large quantity. The campus food units will be used as laboratories for this course. One hour of recitation and four hours of laboratory a week. Prerequisite: Fds. Nutr. 240.

212. Quantity Food Preparation II. 3 semester hours. First semester and summer.

Food problems of institutions including preparing and serving foods in large quantity, menus, planning, and food costs. The campus food units will be used as laboratories for this course. One hour of recitation and six hours of laboratory a week. Prerequisite: Inst. Mgmt. 207.

220. Institutional Purchasing I. 3 semester hours. First semester and summer.

Selection, arrangement, installation, and care of various types of equipment for institutional food service departments. Selection and methods of purchasing foods in large quantities. Prerequisite or concurrent: Inst. Mgmt. 212.

250. Restaurant Management I. 2 semester hours. Second semester.

An introduction to the field of restaurant management including the development of the industry and a survey of its opportunities and responsibilities. Prerequisite: Inst. Mgmt. 212.

FOR UNDERGRADUATE AND GRADUATE CREDIT

403. Organization and Management of Institutions. 3 semester hours. Each semester.

Problems involved in the organization and management of food service units. Women's residence hall or equivalent facilities are used for observation and study. Residence in the hall concurrent with this course is required unless a satisfactory substitute can be arranged with the Committee on Dietetic Education. Prerequisite (or concurrent for graduate students): Inst. Mgmt. 212.

404. Organization and Management of Institutions Laboratory. 2 semester hours. Each semester.

Women's residence hall to be used as laboratory. Six hours of laboratory a week. Prerequisite (or concurrent for graduate students): Inst. Mgmt. 212.

410. Problems in Institutional Management. Credit to be arranged. Each semester and summer.

Individual investigation of problems in institutional management. Conferences and reports at appointed hours. Prerequisite or concurrent: Inst. Mgmt. 403, 404. Consult instructor.

420. Institutional Purchasing II. 3 semester hours. Alternating semesters and summer school.

Advanced studies of the principles of purchasing equipment and food for institutions. Two hours of recitation and three hours of laboratory a week. Prerequisite: Inst. Mgmt. 220 or 430.

425. Restaurant Management II. 5 semester hours. Second semester.

Problems involved in organization and management of restaurants. Advanced study of food service budgets, cost control, supervision and personnel management. Food service units on the campus will be used for laboratory experience. Two hours of recitation and nine hours of laboratory a week. Prerequisite: Inst. Mgmt. 250.

430. School Food Service. 3 semester hours. Each semester and summer.

Consideration given to problems of the school lunch and special meals, including the organization, administration, purchase of food and equipment, food costs, and menu planning. Two hours of recitation and three hours of laboratory a week. Not open to students with credit in Institutional Management 207 or 212. Prerequisite: Fds. Nutr. 110.

450. Tea Room Management Recitation. 1 semester hour. First or second semester.

Problems involved in organization and management of tea room food service. One hour of recitation each week. Prerequisite or concurrent: Inst. Mgmt. 403, 404.

451. Tea Room Management Laboratory. 2 semester hours. First or second semester.

Practical experience in preparing and serving food to the public. The College Tea Room serves as a laboratory for this course. Six hours of laboratory a week. Prerequisite or concurrent: Inst. Mgmt. 403, 404.

460. Seminar in Institutional Management. 2 semester hours. Alternating semesters and summer school.

A review of literature and trends in institutional management as applied to various types of institutions. Prerequisite: Senior or graduate standing.

FOR GRADUATE CREDIT

901. Research in Institutional Management. Credit to be arranged. Each semester and summer.

Prerequisite: Consult instructor.

BUREAU OF RESEARCH IN HOME ECONOMICS

The Bureau of Research in Home Economics conducts investigations in the scientific, economic, and social problems of the home. The purpose of this research is to discover new facts and new methods in 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, foods, food economics, household administration, institutional management, human nutrition, dietetics, and public health.

The laboratories of the School 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 co-operation 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 schools of the College advise or collaborate with officers of the bureau on problems of related interest.

Among the investigations in progress are the following:

Personality Adjustment of College Freshmen as Related to Their Parents' Interpretations of Family Control.

*Studies of Income and Living Costs of Certain Kansas Families.

*Farm Family Living Patterns, Activities and Preferences Used as a Basis for Functional Designing of Farm Houses.

*Factors Affecting the Service Qualities of Certain Cotton Fabrics: Subproject I. A Comparison of the Service Qualities of Certain Sheer Cotton Fabrics. Subproject II. The Effectiveness of Crease-resistant Finishes Commercially Applied to Selected Fabrics and Their Effect on Certain Qualities of the Fabric.

*An Investigation of the Effect upon the Animal Body of Varying the Amount of Vitamin in the Diet: Subproject. An Investigation of the Effect upon the Animal Body of Varying the Amount of Vitamin C in the Diet of the Guinea Pig, etc.

* Projects supported by state or federal funds. Administered by the Agricultural Experiment Station.

- *Vitamin Content of Food in Relation to Human Nutrition. I. Determination of the Vitamin Content of Foods. II. The Vitamin Content of Wheat and Flour and Their Nutritive Value.
- †The Nutritional Significance of the Use of Enriched Flour and Cereals.
- *The Nutritional Status of School Children as Influenced by the School Lunch Program.
- *The Nutritive Value of Beef and Certain Other Proteins Commonly Used in the American Diet.
- *Factors Influencing the Keeping Quality and Nutritional Value of Frozen Meat.
- *Meat Investigations—Influence of Feeding Antibiotics on Carcass Quality of Hogs.
- †Effect of Salt and Other Seasonings upon the Development of Rancidity in Frozen Sausage.
- *Household Cooking Methods for Grass-fed Cows and Other Beef of Low Grades.
- *Factors Affecting the Quality and Nutritive Value of Fruits and Vegetables Preserved by Freezing.
- *The Comparative Quality and Nutritive Value of Market Fresh and Commercially Frozen and Canned Vegetables.
- *Utilization of Turkey as Food.
- *The Relationship of the Activity of the Enzyme Systems Present in Poultry Meat to the Changes Affecting the Acceptability of the Product.

* Projects supported by state or federal funds. Administered by the Agricultural Experiment Station.

† Projects supported by commercial or industrial funds. Also administered by the Agricultural Experiment Station.

The School of Veterinary Medicine

ELDEN E. LEASURE, *Dean*

RALPH R. DYKSTRA, *Dean Emeritus*

VETERINARY ENROLLMENT LIMITED

By authority of the State Board of Regents, enrollment in the Curriculum in Veterinary Medicine is limited to a total of 200 students. Persons wishing to enter this curriculum should apply for admission to the Dean of the School of Veterinary Medicine previous to June 1. Admission to each of the four years is based on the applicant's scholarship record and other evidence of his fitness. When all other factors are equal, first preference is given to applicants who are residents of Kansas, and second preference to applicants who are residents of those states having no standard college of veterinary medicine. In general, no requests for admission will be approved after June 15. Application blanks may be obtained from the Dean of the School of Veterinary Medicine after February 15.

The College is authorized to require each nonresident of Kansas filing an application for selection as a student in the School of Veterinary Medicine to deposit the amount of the nonresident matriculation fee, which at present is \$20. If the application for selection is approved by the Committee on the Selection of Veterinary Students, the deposit is to be applied when the student enrolls as payment of the usual matriculation fee required of nonresidents, or in the case of those nonresidents who have been previously enrolled in the College—though not as students of Veterinary Medicine—is to be applied on other fees. If the applicant is not approved by the Committee on the Selection of Veterinary Students, the deposit is to be returned to him in full. If an approved nonresident applicant does not present himself for registration within ten days after the opening of the next semester following the date of the receipt of the application, 50 percent of the deposit will be forfeited to the College. (A nonresident student is one who is required to pay nonresident matriculation fees.)

Applicants must offer: (1) The high-school units required for admission to the preveterinary adaptation of the freshman year of the Curriculum in Arts and Sciences; (2) sixty-eight hours of college work as prescribed in or equivalent to the two preveterinary years in the School of Arts and Sciences. This work may be done here or in any approved junior college, college, or university, although it is preferred that the second preveterinary year be completed at this College.

VETERINARY READING ROOM

As a result of generous contributions from alumni and friends of the School of Veterinary Medicine, the veterinary school has a well-equipped reading room consisting of approximately 4,500 volumes which deal with all phases of veterinary medical literature and many allied fields. Veterinary students are permitted admission to the reading room at any hour during the day, and from 7:00 to 10:00, Tuesday and Thursday evenings.

FEEES

	<i>Kansas residents and staff members</i>	<i>Nonresidents</i>
1. <i>Assessments:</i>		
A. Matriculation	\$10.00	\$20.00
B. A Semester:		
Student Health	10.00	10.00
Student Union	7.50	7.50
Summer Session, Recreation Fee	2.50	2.50
C. Incidental Fee:		
Veterinary Medicine Students	72.50	142.50
2. <i>Refund Policy:</i>		
See General Statement, p. 22.		
3. <i>Other Fees:</i>		
See General Statement, pp. 20-24.		

CURRICULUM IN VETERINARY MEDICINE

The Curriculum in Veterinary Medicine in 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. Better to fit the veterinarian to deal wisely with the livestock problems which he has to meet, he is required to take the work in livestock feeding, breeding, judging, poultry, in milk and dairy inspection, chemistry, bacteriology, parasitology, and zoology, in addition to his purely professional work.

Work must be taken as prescribed, except that certain courses may be selected from the list of extracurricular electives if the student has the prerequisites.

While not required, third-year students are encouraged to accept summer internships with practicing veterinarians, federal and state regulatory forces.

Curriculum in Veterinary Medicine

For admission requirements to this curriculum consult the "Preveterinary Curriculum," page 132.

The two-year Preveterinary Curriculum and this curriculum lead to the two degrees, Bachelor of Science and Doctor of Veterinary Medicine.

FIRST YEAR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Bact.	310 Vet. Microbiology	3	Bact.	340 Path. Bact. and Virology,	4
Anat.	109 Anatomy I	7	Anat.	120 Anatomy II	6
Path.	104 Histology I	3	Path.	120 Histology II	3
A. H.	130 Animal Husb. A	2	Phys.	435 Comp. Physiol. I	4
A. H.	131 Livestock Judg. A	1	D. H.	111 Dairy Cattle Judg.	1
	Electives	2 or 3			
Engl.	090 English Proficiency	0			
Total		18 or 19	Total		18

SECOND YEAR

Bact.	370 Vet. Immunology	3	Phys.	401 Special Physiology	2
Phys.	445 Comp. Physiol. II	4	Path.	403 Pathology I	5
Zool.	510 Ani. Parasitology	3	Phys.	455 Pharmacodynamics	3
Bot.	150 Medical Botany	2	Surg.	250 Materia Medica	4
Chem.	655 Physiological Chem.	5	A. H.	162 Livestock Feeding	3
Total		17	Total		17

THIRD YEAR

Path.	420 Pathology II	4	Path.	430 Pathology III	3
Path.	500 App. Vt. Parasitology ...	3	Surg.	120 Surgery II	4
Surg.	108 Surgery I	4	Surg.	180 Obst. and Breed. Dis. ...	5
Surg.	260 Therapeutics	3	Surg.	210 Clinics II	1
Surg.	200 Clinics I	1	Surg.	150 Dis. of Lrg. Animals I..	4
Surg.	130 Diagnosis	2	Anat.	135 Topographic Anatomy	1
V. M.	101 Jr.-Sr. Conf.	0	V. M.	110 Jr.-Sr. Conf.	0
Total		17	Total		18

FOURTH YEAR

Surg.	140 Surg. Exercises	1	Surg.	270 Inf. Dis. of Lrg. Animals, ..	5
Surg.	160 Dis. of Lrg. Animals II, ..	4	Path.	455 Poultry Diseases	2
D. H.	153 Dairy Inspection for Vet. Students	2	Path.	450 Food Hygiene and Pub. Health	5
Path.	440 Pathology IV	3	Surg.	290 Med. Econ. and Law	2
Surg.	170 Sm. Animal Surgery	2	Surg.	230 Clinics IV	4
Surg.	220 Clinics III	4	Path.	490 Clinical Path. II	0
Surg.	280 Dis. of Sm. Animal	2	V. M.	130 Jr.-Sr. Conf.	0
Path.	480 Clinical Path. I	0			
V. M.	120 Jr.-Sr. Conf.	0			
Total		18	Total		18

Number of hours required for graduation, 141.

Extracurricular Electives

FIRST OR SECOND SEMESTER

Anat.	420	Applied Anatomy	1 semester hour
Anat.	401	Special Anatomy	Credit to be arranged
Physiol.	415	Problems in Physiology	Credit to be arranged
Physiol.	465	Physiologic Constituents of Body Fluids	2 semester hours
Physiol.	803	Seminar	1 semester hour
Physiol.	815	Histophysiology of Nutritional Deficiencies	3 semester hours
Physiol.	820	Research in Physiology	Credit to be arranged
Path.	460	Pathological Technic and Diagnosis I	2 to 5 semester hours
Path.	470	Pathological Technic and Diagnosis II	2 to 5 semester hours
Path.	802	Research in Pathology	Credit to be arranged
Surg.	240	Extra Clinics	1 semester hour
Surg.	801	Research in Surgery	Credit to be arranged
Surg.	810	Research in Medicine	Credit to be arranged
Mil. Sc.		Mil. I-IV (Vet. Med.)	1-8 semester hours

VETERINARY ROTC

Students in Veterinary Medicine may elect to take the Veterinary ROTC program consisting of four hours' basic credit and four hours' advanced credit. Those students electing the advanced courses will be compensated by the U. S. Government at the rate of 90 cents per day for the period beginning with the third year and ending at graduation. Each student will also receive a daily allowance of \$2.50 for the required attendance at a six weeks' summer camp. All expenses incident to attendance at the camp including travel, board, and lodging will be defrayed by the Army. Upon satisfactory completion of the advanced courses, at graduation each student will be commissioned an officer in the U. S. Army or U. S. Air Force Veterinary Corps Reserve. (See Department of Military Science and Tactics, p. 181.)

ANATOMY

WILLIAM M. McLEOD, *Head of Department*

The classroom instruction consists of lectures, quizzes, recitations, and special dissection of the part under discussion; also a study of dissected specimens, various models, and the Azoux model of the horse. The anatomical museum contains hundreds of anatomical specimens for student use, and various skeleton models and bones for individual study. In addition to the conventional embalming, the anatomical specimens are stored under controlled refrigeration. This equipment makes it possible to use fresh anatomical specimens. 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.

FOR UNDERGRADUATE CREDIT

109. Anatomy I. 7 semester hours. First semester.

A brief study of descriptive terms and osteology of the domestic animals. Dissection of either the thoracic limb and thorax or the pelvic limb and abdomen of the horse. Three hours of recitation and twelve hours of laboratory a week.

120. Anatomy II. 6 semester hours. Second semester.

Dissection of either the thoracic limb and thorax or the pelvic limb and abdomen and head and neck of the horse. Dissection and demonstration of the body cavities and certain superficial regions of other domestic animals. Two hours of recitation and twelve hours of laboratory a week. Prerequisite: Anat. 109.

135. Topographic Anatomy. 1 semester hour. Second semester.

Dissection and demonstration of regions of diagnostic and surgical

importance of the domestic animals. Three hours of laboratory a week. Prerequisite: Third year standing in veterinary medicine. Staff.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 401. Special Anatomy.** Credit to be arranged. Each semester and summer.

The study of any part of the horse (as the digestive or reproductive system), ox, sheep, pig, dog, cat, or poultry. Prerequisite: Anat. 109, 120, Physiol. 131, or equivalent. Staff. Adapted to the work in which the student is specializing.

- 420. Applied Anatomy.** 1 semester hour. First semester.

Dissection of certain areas embraced in performing the various surgical operations, and the study of all the structures in each area and their relation to one another as they would present themselves during an operation. Three hours of laboratory a week. Prerequisite: Anat. 120.

PATHOLOGY

M. J. TWIEHAUS, *Head of Department*

The Department of Pathology presents courses in histology, pathology, and meat inspection, histopathological technic, and research in pathology. Instruction is by lecture, recitation, laboratory work, and demonstrations with visual aid equipment. Practical autopsy experience is gained each afternoon of the week in the autopsy laboratory. Instruction in clinical pathology is required of fourth-year students each afternoon of the week. Students obtain various specimens from clinical patients for blood, blood chemistry, urine and pathological examinations as well as tissue sectioning.

COURSES IN HISTOLOGY

FOR UNDERGRADUATE CREDIT

- 104. Histology I.** 3 semester hours. First semester.

Origin, development, structure, and appearance of the various cells and tissues of the animal body. Particular attention is paid to the relationships between structure and function and to the fundamental similarities and differences of cells and tissues. One hour of recitation and six hours of laboratory a week.

- 120. Histology II.** 3 semester hours. Second semester.

Origin, development, structure, and microscopic appearance of the various organs and systems of the animal body. Particular emphasis is laid on the correlation of tissue distribution and regional function. One hour of recitation and six hours of laboratory a week. Prerequisite: Path. 104.

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 510. Special Histology.** 3 semester hours. Each semester.

Fundamental histological technics studied by means of problems. Nine hours of laboratory a week. Prerequisite: Path. 120.

COURSES IN PATHOLOGY

FOR UNDERGRADUATE AND GRADUATE CREDIT

- 403. Pathology I.** 5 semester hours. First semester.

General pathology deals with the etiology, course and termination of disease. Three hours of recitation and six hours of laboratory a week. Prerequisite: Physiol. 435, Path. 120, Chem. 655.

- 420. Pathology II.** 4 semester hours. Second semester.

Special pathology, study of specific pathological processes occurring

in the various organs of the body. Three hours of recitation and three hours of laboratory a week. Prerequisite: Path. 403.

430. Pathology III. 3 semester hours. Second semester.

Special pathology continued. The pathology of infectious diseases. Two hours of recitation and three hours of laboratory a week. Prerequisite: Path. 420.

440. Pathology IV. 3 semester hours. First semester.

The epidemiology and differential diagnosis of infectious diseases. Three hours of recitation and demonstration a week. Prerequisite: Path. 430.

450. Food Hygiene and Public Health. 5 semester hours. Second semester.

A study of the procedures and regulations covering the ante-mortem and post-mortem inspection of food animals, sanitation, and the inspection of food products of animal origin. The place and work of a veterinarian in a public health organization. Five hours of recitation a week. Prerequisite: Path. 440.

455. Diseases of Poultry. 2 semester hours. Second semester.

The fundamentals of poultry diseases, sanitation and prevention. Prerequisite: Path. 440.

460, 470. Pathological Technic and Diagnosis I and II. 2 to 5 semester hours each. Each semester.

Pathological technic, collecting, fixing, embedding in paraffin, and sectioning of tissues, methods of preserving gross specimens, practice in post-mortem and laboratory diagnosis. Prerequisite: For I, Path. 403; for II, Path. 440, 460.

480, 490. Clinical Pathology I and II. Credit in Clinics III and IV. Each semester.

The unification and practical application of the various laboratory test procedures to clinical diagnosis. Pathological examinations will include autopsies, biopsies, and hematological, bacteriological, serological, chemical, pathological, and parasitological diagnosis. Prerequisite: Surg. 200, 210. Open only to fourth-year students in veterinary medicine and graduate students.

500. Applied Veterinary Parasitology. 3 semester hours. First semester.

The identification of parasites and the diagnosis of parasitosis. A consideration of the important parasitic diseases of livestock. Two hours of recitation and three hours of laboratory a week. Prerequisite: Zool. 510. Limited to veterinary students.

FOR GRADUATE CREDIT

802. Research in Pathology. Credit to be arranged. Each semester.

Individual research in the pathology of an animal disease problem. Prerequisite: Path. 440, 460. This work may form the basis for the master's thesis.

PHYSIOLOGY

GRAVERS K. L. UNDERBJERG, *Head of Department*

The Department of Physiology presents courses in comparative physiology, problems in physiology, urine analysis, pharmacodynamics, and anatomy and physiology. Instruction is by lectures, recitation, laboratory work, and demonstrations. The department is especially well equipped for resident instruction and research.

FOR UNDERGRADUATE CREDIT

131. Anatomy and Physiology. 3 semester hours. First semester.

Physiology of the domestic animals, with special emphasis on di-

gestion, absorption, metabolism, and excretion; sufficient anatomy to give a thorough understanding of the correlation between the two subjects and of the physiologic relations existing among the various organs of the body. Two hours of recitation and three hours of laboratory a week. Adapted to students majoring in animal husbandry.

FOR UNDERGRADUATE AND GRADUATE CREDIT

401. Special Physiology. 2 semester hours. Second semester.

The study of special phases of the physiology of domestic animals, especially reproduction, endocrine function, nutrition, and senses. Prerequisite: Physiol. 445.

415. Problems in Physiology. Credit to be arranged. Each semester.

Individual investigational problems in the physiology of digestion, reproduction, endocrine glands, etc. Prerequisite: Physiol. 131 or 435 or 445.

435. Comparative Physiology I. 4 semester hours. Second semester.

Physiology of the domestic animal; the blood, heart, and blood vessels, the ductless glands and internal secretions, respiration, digestion, and absorption. The laboratory exercises consist of a practical application of the knowledge derived in the classroom. Laboratory directions furnished the student. Three hours of recitation and three hours of laboratory a week. Prerequisite: For veterinary students, Anat. 109, Chem. 330, 655; for others, an approved course in organic chemistry.

445. Comparative Physiology II. 4 semester hours. First semester.

The urine and urinary system, nutrition, animal heat, muscular and nervous systems, locomotion, generation and development, growth and decay, and selected physiological experiments. Three hours of recitation and three hours of laboratory a week. Prerequisite: Same as for Physiol. 435.

455. Pharmacodynamics. 3 semester hours. Second semester.

The study of the physiological and therapeutic action of substances other than foodstuffs in the living structures. Substances to be studied will include drugs, poisons, and hormones used in the practice of veterinary medicine. One hour of recitation and six hours of laboratory a week. Prerequisite: Physiol. 445.

465. Physiologic Constituents of Body Fluids. 2 semester hours. Each semester and summer.

Analysis of body fluids with application to specific and fundamental problems in veterinary medicine. One hour of recitation and three hours of laboratory a week. Prerequisite: Physiol. 445 and consent of staff.

803. Seminar. 1 semester hour. Each semester and summer.

Designed primarily for graduate and senior students enrolled for graduate credit in physiology. Each student is required to give a report on some subject related to physiology. The course is intended to stimulate interest in research and evaluate data. One hour a week. Prerequisite: Consent of staff.

815. Histophysiology of Nutritional Deficiencies. 3 semester hours. Each semester and summer.

The study of changes occurring in tissues from nutritional deficiencies. Two hours of recitation and three hours of laboratory a week. Open to graduate students and veterinary students earning graduate credit. Prerequisite: Consent of staff.

820. Research in Physiology. Credit to be arranged. Each semester and summer.

For graduate students working toward the M. S. and Ph. D. degrees. Prerequisite: Consent of staff.

SURGERY AND MEDICINE

EDWIN J. FRICK, *Head of Department*

The veterinary hospital is equipped with every modern appliance for surgical operations and treatment of animal diseases. The hospital has a capacity for more than fifty horses or cattle, and in addition it can accommodate 100 small animals, such as sheep, swine, cats, dogs, etc. Members of the clinical staff, accompanied by students, operate five ambulatory cars, and make trips at all times of the day and night into the surrounding country to diagnose and treat animal patients for all diseases affecting livestock and poultry.

In this way the student comes into contact daily with the diseases of animals and their treatment. More than 25,000 clinical cases a year are treated. Third- and fourth-year students are assigned regularly to in-patients and out-patients each afternoon of the week and are responsible for arriving at diagnosis, treatment, and keeping of accurate clinical data all under the supervision of a staff member. During clinical hours knowledge is also gained in the restraint of animals, in the pathology observed in autopsies, and in the clinical pathological laboratory tests and examinations required.

Fourth-year students are required to serve a two-weeks' internship in the veterinary hospital during which time they are responsible for the treatment of all in-patients and out-patients, and the proper conduct of managing a modern hospital. All third- and fourth-year students are regularly assigned in rotation during the year to various specialists of the clinical staff.

COURSES IN SURGERY

FOR UNDERGRADUATE CREDIT

108. Surgery I. 4 semester hours. First semester.

Lectures, recitations, and demonstrations on the fundamental principles of surgery, methods of restraint, asepsis, and antisepsis, anesthesia, division of tissues, union of tissues, control of hemorrhage, neoplasms, and animal dentistry. Four hours of recitation a week. Prerequisite: Third-year standing in veterinary medicine.

120. Surgery II. 4 semester hours. Second semester.

Lectures, recitations, and demonstration on the surgical diseases of domestic animals; horseshoeing is included. Four hours of recitation and demonstration a week. Prerequisite: Surg. 108.

140. Surgical Exercises. 1 semester hour. First semester.

Surgery on anesthetized animals, and on cadavers; fractures, dressings, X-ray techniques. Three hours of laboratory a week. Prerequisite: Surg. 120.

170. Small Animal Surgery. 2 semester hours. First semester.

Description and application of practical surgery on small animals, including anesthesia. Two hours of recitation a week. Prerequisite: Third- or fourth-year standing in veterinary medicine.

FOR GRADUATE CREDIT

801. Research in Surgery. Credit to be arranged. Each semester.

The purpose of this course is to attempt to solve many of the surgical problems confronting the average veterinary practitioner. Prerequisite: Anat. 109, 120, 135, Surg. 108, 120, 260. Offered especially for graduates in veterinary medicine.

COURSES IN OBSTETRICS

FOR UNDERGRADUATE CREDIT

180. Obstetrics and Breeding Diseases. 5 semester hours. Second semester.

Physiology of reproduction, principles of normal and abnormal par-

turition, special attention given to handling of reduced fertility. Five hours of recitation a week. Prerequisite: Third-year standing in veterinary medicine.

COURSES IN CLINIC

FOR UNDERGRADUATE CREDIT

200, 210. Clinics I and II. 1 semester hour each. First and second semesters, respectively.

All species of domestic animals are treated at clinic. Students assist in the restraint of animals, in bandaging, in compounding prescriptions, and in preparing antiseptics and other medicinal agents. Six hours of laboratory a week. Prerequisite: Third- or fourth-year standing in veterinary medicine.

220, 230. Clinics III and IV. 4 semester hours each. First and second semesters, respectively.

Diagnosis and treatment of hospital patients, including keeping clinical records, administering medicines, changing dressings on surgical wounds, X-ray technic, etc.; assisting clinicians in out-clinic work. Twelve hours of laboratory a week. Prerequisite: Third- or fourth-year standing in veterinary medicine.

240. Extra Clinics. 1 semester hour. Each semester and summer.

A course in clinics intended for those undergraduate students desiring clinical training in addition to that offered in the Curriculum in Veterinary Medicine. Three hours of laboratory a week. Prerequisite: Surg. 210 or 230.

COURSES IN MATERIA MEDICA

FOR UNDERGRADUATE CREDIT

250. Materia Medica. 4 semester hours. Second semester.

A detailed study of important drugs; their origin, properties, and classification; their physiological actions, clinical administration, and dosage; metrology, prescription writing, pharmaceutical processes, and pharmaceutical preparations; compounding of prescriptions. Three hours of recitation and three hours of laboratory a week. Prerequisite: Second-year standing in veterinary medicine.

260. Therapeutics. 3 semester hours. First semester.

History of therapeutics; healing methods; types of therapy, including mechanical, chemical, electrical, biological, dietetic, and thermal; toxicology as encountered in veterinary practice. Three hours of recitation a week. Prerequisite: Surg. 250.

COURSES IN MEDICINE

FOR UNDERGRADUATE CREDIT

130. Diagnosis. 2 semester hours. First semester.

Differential diagnostic methods employed for the detection of disease. Two hours of recitation a week. Prerequisite: Third-year standing in veterinary medicine.

150, 160. Diseases of Large Animals I and II. 4 semester hours each. Second semester and first semester, respectively.

I. Noninfectious diseases of the digestive, circulatory, and respiratory organs of the larger animals.

II. Noninfectious diseases of the urinary organs, diseases of metabolism, of the nervous system, the organs and locomotion, the skin, and the eye.

Four hours of recitation a week each semester. Prerequisite: Surg. 250, third- or fourth-year standing in veterinary medicine.

270. Infectious Diseases of Large Animals. 5 semester hours. Second semester.

Five hours of recitation a week. Prerequisite: Surg. 160; fourth-year standing in veterinary medicine.

280. Diseases of Small Animals. 2 semester hours. First semester.

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. Two hours of recitation a week. Prerequisite: Surg. 250, 260; fourth-year standing in veterinary medicine.

290. Medical Economics and Law. 2 semester hours. Second semester.

The veterinarian's legal responsibilities; national and state live-stock laws; quarantine regulations; principles of business law. Two hours of recitation a week. Prerequisite: Fourth-year standing in veterinary medicine.

400. Diseases of Wild Life. 3 semester hours. Fall semester.

Infectious and noninfectious diseases of birds, furbearing animals, zoological animals, and fish, with reference to methods of prevention and control of disease. Prerequisite: Zool. 110, Bact. 110.

FOR GRADUATE CREDIT

810. Research in Medicine. Credit to be arranged. Each semester and summer.

An attempted solution of some of the medical and parasitological problems confronting the practitioner of veterinary medicine. Prerequisite: Surg. 150, 160, 250, 270. Offered especially for graduates in veterinary medicine.

General Veterinary Medicine

V. M. 101, 110, 120, 130. Junior-Senior Conference. Required. Each semester.

A faculty-junior-senior conference for the purpose of reviewing all factors concerned in the diagnosis of animal ailments. One hour a week. Prerequisite: Third- or fourth-year standing in veterinary medicine.

The Division of College Extension

L. C. WILLIAMS, *Dean and Director*

PAUL W. GRIFFITH, *Associate Dean and Director*

The Division of College Extension conducts educational programs for Kansas people who are not enrolled as resident students of the College. The principal purpose of these programs is that of disseminating up-to-date, practical information developed through research and experimentation at this and other institutions.

Extension education is broad in its scope and is designed to meet the needs and requests of the people who are directly interested in the entire Land Grant College program.

The Extension Service

The Extension Service educational program in agriculture, home economics, and boys' and girls' 4-H Club work administered by the Division of Extension is conducted in co-operation with the United States Department of Agriculture and the County Agricultural Extension Councils which have been organized in all counties in conformance with the provisions of a legislative act. County agricultural agents, home demonstration agents, and 4-H Club agents are co-operatively employed by the College, the United States Department of Agriculture, and the county councils. Those who are interested in Extension Service education of various types can obtain further information by contacting their county Extension agents.

HOME STUDY AND CORRESPONDENCE COURSES

The Division of Extension through its Home Study department offers many opportunities to people who can not attend college classes on a campus. Official credit courses are offered in study centers and through correspondence courses. (See details under Department of Home Study.)

ADMINISTRATION

The nine administrative departments of the Division of College Extension are:

1. Extension Information (including radio)
 2. County Extension Program Administration, Eastern District
 3. County Extension Program Administration, Northwest District
 4. County Extension Program Administration, Southwest District
 5. Boys' and Girls' 4-H Club Work
 6. Home Economics in Extension
 7. Agricultural Specialists and Programs
 8. Engineering in Extension
 9. Home Study
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EXTENSION SCHOOLS

Extension schools are meetings of one- or two-day duration held in the various counties and conducted for the purpose of giving practical instruction in agriculture, engineering, and home economics. Most of these schools are organized on a project basis, and they 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 agronomy, soil conservation, plant pathology, veterinary medicine, poultry husbandry, entomology, rodent and predator control, farm management, marketing, foods and nutrition,

clothing and textiles, health and sanitation, home management, engineering, home furnishings, farm forestry, agricultural planning, and in addition to these specialized meetings, schools of a more general character are held, designed to present the extension educational program best suited to the communities of counties of the state. Community projects and general educational information are considered and presented at these meetings.

EXTENSION TOURS AND FIELD DAYS

During the year, particularly in the spring and fall, the agricultural, engineering and home economics specialists assist county extension agents in holding farm and home tours and field days. These tours or field days are held on farms or in homes where a farmer or farm family is conducting a co-operative demonstration on some phase of agricultural production or home making. The many new discoveries made by the Agricultural Experiment Station are tried out in the co-operative demonstrations and then shown to the general public attending the tours and field days.

Each year the county extension agents conduct one or more tours or field days on Boys' and Girls' Club work within each community served by a local 4-H Club.

STATE, DISTRICT, COUNTY, AND LOCAL FAIRS

The agricultural and economics specialists devote some time each year to judging livestock, agricultural and homemaking products at state, county, and local fairs. An excellent opportunity for lectures and demonstration work is furnished, and each specialist endeavors to make his judging work as instructive as possible.

FARM AND HOME WEEK

The purpose of Farm and Home Week is to interest the farmers of the state in methods of production and management that will increase farm profits, to demonstrate to farm women methods of homemaking that will add to the comfort and enjoyment of farm life, and to encourage farm folks in social organizations that will enrich the social life of the rural community.

All meetings, lectures, and demonstrations during Farm and Home Week are free of charge. The United States Department of Agriculture, the Agricultural Experiment Station, the Extension Service agricultural, engineering, and home economics specialists, and leading farmers bring to those in attendance the latest results of investigations in agriculture, home economics, and engineering extension. Problems concerning crops and soils, dairying, beef cattle, horses, hogs, sheep, poultry, horticulture, farm management, community service, beekeeping, and diseases of animals are discussed by some of the leading agricultural authorities in America. In addition lectures and demonstrations on foods and nutrition, clothing and textiles, home management, home furnishings, and family relations are given.

Many of the statewide livestock breed associations, crop associations, farm management associations, and other similar groups hold their annual meetings at Kansas State College during Farm and Home Week.

EXTENSION INFORMATION

LISLE L. LONGSDORF, *Head of Department*

It is the objective of this department to acquaint the peoples of Kansas with the research findings of this land-grant College, its branch experi-

ment stations, and the United States Department of Agriculture, through the mediums of communication. It also has the responsibility of reporting the progress being made, especially by rural people, in the adoption of recommended scientific methods of farming and homemaking for an improved agricultural industry. All means of communication are utilized in the dissemination of information for the benefit of both rural and townspeople.

Scientific information, as written in popular version by the departmental staff, is channelled through all practical means of communication, including newspapers, printed publications, circulars and posters, printed annual reports, exhibits, motion pictures, 2 x 2 slides, and radio.

Each week some 400 weekly newspapers of the state, the farm press, and daily newspaper outlets are provided with news stories on research work of the Kansas Agricultural Experiment Station and the extension service.

County agents are provided a weekly press service and are given special training throughout the year in utilizing to the maximum a balanced information program. The department co-operates with all agents in the 105 organized extension service counties, as well as central office staff workers, in planning and executing information programs that will acquaint people of Kansas with the projects being carried.

Each year nearly one million timely, popular extension service and U. S. D. A. publications are printed and distributed.

A limited library of motion pictures and 2 x 2 slides for visual instruction is maintained for use by county agents, field workers, vocational education instructors, and personnel of co-operating agencies of government. Providing exhibits and other visual aids materials represent an important phase of work in the department.

Radio is divided into two phases: (a) Broadcasting of programs over KSAC, an institution-owned, noncommercial, educational station, and (b) broadcasting script and recorded services and live programs over more than sixty co-operating commercial radio stations in Kansas and on our borders.

Station KSAC, the College-owned radio station, is used exclusively for the dissemination of information from this institution. Engineering data would indicate that there is a potential audience of approximately five million listeners when the station is on the air. Three and one-half hours a day are devoted to the broadcasting of programs originating from within all schools of the College and the Division of College Extension. Approximately fifty percent of the broadcast time is devoted to all-College programs, while fifty percent is devoted to programs originating from within the extension service. The College radio station is also used as a "proving ground" for students enrolled in radio courses.

Daily scripts are mailed to co-operating commercial radio stations, and county agents are given assistance in planning local radio programs. Numerous live programs are arranged for extension service and College staff members to broadcast over these stations when the personnel are in the field.

COUNTY EXTENSION PROGRAM ADMINISTRATION

HARRY C. BAIRD, *District Agent—Northwest*

FRANK BLECHA, *District Agent—Eastern*

E. H. TEAGARDEN, *District Agent—Southwest*

County agent work is an organized activity of Kansas State College to develop and carry out the extension program as stated in national and state legislation. The Smith-Lever Act passed by Congress in 1914 defines extension work as follows:

"The co-operative agricultural extension work shall consist of the giving of instruction and practical demonstrations in agriculture and home

economics to persons not attending or resident in State Colleges in the several communities and imparting to such persons information on said subjects through field demonstrations, publications, and otherwise; and this work shall be carried on in such manner as may be mutually agreed upon by the Secretary of Agriculture and the State Agricultural College or colleges receiving the benefits of this Act."

The 1915 session of the Kansas legislature accepted the provisions of the Smith-Lever Act. The extension program of Kansas State College is conducted in counties of the state in cooperation with county agricultural extension councils. The sole purpose of these councils is to plan and conduct an extension program including agriculture, home economics and 4-H club work among the people of each county. The county agricultural extension council is composed of three representatives from each township and each city not a part of a township. The citizens of voting age in each township and each city entitled to representatives on the council, elect from their number one to represent agriculture, one for home economics and one for 4-H club work. The council elects an executive board which handles all business for the council including the employment of county extension agents.

The Smith-Lever Act and subsequent congressional acts authorize appropriations for the support of extension work. These funds are allocated to the states on the basis of rural or farm population. The Kansas legislature also makes biennial appropriations to Kansas State College for the extension program. The boards of county commissioners also appropriate to this program in accordance with a budget developed annually with the executive board of each county agricultural extension council and the Director of Extension.

Supervisory work by the members of this department include the selection and training of persons interested in becoming county extension agents, representing the director of extension in carrying out his responsibilities as imposed by state law, cooperation with the county agricultural extension councils in planning county extension programs, and otherwise develop the cooperative program in the counties as conducted by the county agricultural extension council and Kansas State College.

BOYS' AND GIRLS' CLUB WORK

J. HAROLD JOHNSON, *Head of Department*

4-H Club work is conducted by the College in cooperation with the county agricultural Extension Councils and the United States Department of Agriculture. Community 4-H clubs are open to all young people between the ages of 10 and 20 years, inclusive. They work under the direction of the county extension agents with the help of local volunteer 4-H Club leaders. County 4-H councils assist the county agents in the supervision and promotion of the 4-H program. 4-H Club members receive valuable help from their county agents and from their local leaders; subject matter material is prepared by specialists and sent out by the state club leader to give members definite information and suggestions on farm and home practices recommended by the College.

The origin of 4-H Club work is obscure. Shortly after 1900, farmers' institutes, farm leaders, and educators, in various parts of the country, made efforts to bring about a more definite connection between real life and school life. They assisted boys and girls to conduct, at home, various educational demonstrations or contests centered around improved agricultural practices.

It became evident that the educational development of boys and girls was of greater importance than the spread of improved farm and home practices; hence, the 4-H Club program was broadened to include not only projects of a farm and home nature, but many activities such as health,

music, conservation of wild life and natural resources, recreation, parliamentary practices, and art. The present 4-H Club program is designed to develop citizenship and leadership among rural young people and to provide opportunity for them to participate with their parents and friends in the adoption of better farm and home practices. Cooperation with the group is promoted, leadership is encouraged, exhibitions and contests are conducted, accurate records and reports are required, and achievements are suitably recognized. Wholesome recreation is promoted, and county and state-wide round-ups, camps, and conferences are arranged.

An educational program for older youth above 4-H Club age is carried on through the Kansas Rural Life Associations. These groups meet regularly for discussions and talks on topics of current interest relating to public policy, homemaking, and agriculture. Community service projects and social activities are important features in the programs of work.

HOME ECONOMICS

GEORGIANA H. SMURTHWAITE, *Head of Department*

Extension work in home economics is carried on in counties through organized study groups, press, and radio. Definite programs are pursued throughout the year by the home demonstration units, 4-H clubs, and special interest groups. Material furnished by the specialists and by home demonstration agents is used by local leaders in their respective communities.

Home demonstration work was made possible in August, 1917, when congress provided funds for the employment of emergency home demonstration agents. The work was instituted under the auspices of city or county organizations, but after a short time the placing of home demonstration agents was deferred until the counties were properly organized for this specific purpose. Since July 1, 1921, a county desiring the services of a home demonstration agent or agents must provide a well-equipped office with adequate stenographic help, transportation facilities, and a county appropriation toward the salaries and expenses of the agent or agents.

The program of work for the various study groups in the county is based on the local situation in the communities in the county. It is evolved through community and committee meetings and includes the development of activities pertaining not only to the home and to the community but also to international problems. On January 1, 1953, 103 counties had appropriations for home demonstration work, and in addition six counties had appropriations for associate home demonstration agents.

AGRICULTURAL SPECIALISTS

WILLIAM G. AMSTEIN, *Head of Department*

This department includes those members of the extension staff who conduct and supervise programs in agricultural education throughout the state. The programs are developed in cooperation with the county extension agents and the residents of the counties through their designated leaders. The department has charge of the scheduling of judges for county and local fairs.

EXTENSION PROJECTS

The agricultural specialists of the Division work in extension schools and institutes during the winter months, and a portion of this time is devoted to cooperative demonstration work in agriculture, home economics and 4-H Club work. During the remainder of the year, they conduct

special extension programs in soil management and crop production, plant pathology, horticulture, animal husbandry, dairying, veterinary medicine, poultry husbandry, entomology, farm management, marketing, agricultural planning, and farm forestry. This phase of the work of the extension specialists is supplemented by cooperative demonstration work. In much of the cooperative work, each specialist has from 10 to 100, or more, cooperators in each county. These men and women work under the direction of the specialist and the county extension agents. They keep records of the work, and demonstration meetings are held at their farms or homes.

The extension specialist takes to the farm and the farm home the results of research work of the Agricultural Experiment Station and the United States Department of Agriculture in a practical, effective, and usable form. He brings back reports of the progress of demonstration work in the field. Likewise he often comes in contact with agricultural problems requiring the attention of research workers.

ENGINEERING EXTENSION

JOHN M. FERGUSON, *Head of Department*

The function of the Department of Engineering Extension is to carry on an educational program throughout the state dealing with the application of engineering principles to various phases of agriculture. The work of this department is carried to every county in the state by means of demonstrations, institutes, training schools, publications, news releases, radio programs, and personal contacts.

When the department was first started in 1910, it dealt chiefly with drainage and irrigation. Other subjects have been added, including the control of soil erosion, water conservation, farm structures, farm machinery, conveniences for the farm home, and farm electrification. Much of the work is conducted in cooperation with the county agricultural agent's office in each county. Some work is done in cooperation with various government agencies, some with commercial farm equipment companies, some with structural supply and appliance companies, some with REA cooperatives, and some with public utilities.

All counties in the state are cooperating with the department in demonstration work involving drainage, irrigation, water conservation, and the control of erosion. Standardized plans for hundreds of farm buildings are furnished to farm operators each year. Advice and suggestions for remodeling farm buildings are furnished upon request to several hundred farm families each year. Recommendations are made for the selection, installation, and operation of practical and efficient systems of water supply, sewage disposal, wiring, lighting, insulation, air conditioning, and heating for the rural home. A program on the selection, use, adjustment, and cost of operation of farm machinery is conducted each year for the rural people. A planned program of 4-H club work is conducted on many of the engineering phases of agriculture.

Farm safety and the prevention of farm fires is a definite part of the over-all engineering extension program.

HOME STUDY

GEORGE GEMMELL, *Head of Department*

The Department of Home Study is a member of the National University Extension Association, comprising 55 leading universities in America with whom extension credits are interchangeable. The members of the department devote their entire time to work of teaching by correspondence. They advise with the various departments of the College, and all credit

courses that are offered by correspondence must first meet the requirements of the regular College departments handling the courses in residence.

There are many people in Kansas and elsewhere who cannot attend develop and carry out the extension program as stated in national and lege to advantage. The Department of Home Study is designed through correspondence courses to enable the College to go to those who cannot come to it. The gross time required to complete correspondence courses is practically the same as is necessary for the same courses in residence.

FOR WHOM INTENDED

Though credit courses offered by the Department of Home Study 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 are unable to attend high school.
2. High-school graduates who are unable to attend college.
3. Students who 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. Aggressive students who do not wish to have their progress retarded by vacations and other interruptions.
6. High-school and grade-school classes in practical courses that need supplementing and enrichment.
7. Teachers who wish further training or who need help in planning and conducting their work.
8. Professional and businessmen 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 work usually takes the form of assigned readings, studies, problems, and investigations, together with a list of questions and directions for a written report. The correspondence lesson is usually much longer than the common lesson in resident class work, eight such lessons being the equivalent of one semester hour of college credit. When necessary, the lessons are supplemented by lectures prepared by the instructor. These lectures contain outlines and explanations, additional subject matter, and such special directions as seem desirable.

As soon as an enrollment card and fee are received at the Department of Home Study, the first assignments are sent out. As reports are received, additional assignments are mailed. The plan keeps work always at hand for the student, making it possible for the instructor to study the student's progress and to offer suggestions to guide the student in his work. 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. In general, 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 is required to write his manuscript, answering the questions carefully and concisely. The manuscript is then mailed to the Department of Home Study, 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. Each student is invited to ask questions, relate his personal experience, and in every way possible seek the advice of his instructors.

The department spares no effort to bring about the nearest possible approach to personal acquaintanceship between each instructor and his students. To this end the student is required to fill out and mail to the department, with his first lesson, a personal acquaintance blank giving full information about himself, his aims, ambitions, and previous experience and education, as well as the conditions of his daily work that necessarily affect his responses to the lessons. This information enables the instructor to enter at once into cordial, sympathetic, and helpful relations with the student.

EXAMINATIONS

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 at the College, under supervision of any one of the other state Colleges or the University, under the Dean or Registrar of any accredited college, or at any examination center sponsored by the various State institutions for this purpose. Students outside Kansas may take their finals under the supervision of school superintendents and high-school principals. High-school students may take their finals under local high-school superintendents and high-school principals. If examinations are taken outside the Home Study Department, 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.

FEES

(Subject to change)

	<i>Kansas residents or staff members</i>	<i>Nonresidents</i>
A. College-level Courses:		
Registration (paid only once and not subject to refund, not required of students previously, regularly matriculated at Kansas State College, or students enrolled in study center classes held on the Manhattan campus)	\$2.50	\$2.50
Enrollment, each semester hour (8 assignments)	6.00	8.00
Enrollment, study center classes, each semester hour (not subject to refund)	7.50	15.00 *
B. High School-level Courses:		
Registration (paid only once and not subject to refund),	2.00	4.00
Enrollment, each one-half unit, high school credit	6.00	8.00
C. Home Study and Study Center Refund Policy:		
Registration fees and study center class fees shall not be subject to refund. Enrollment fees, except study center class fees, are refundable as follows:		
a. If application for withdrawal and refund is received by the College within two weeks after the date of enrollment and prior to the grading of any assignments, all applicable enrollment fees shall be refunded.		
b. If application for withdrawal and refund is received by the College within one year from date of enrollment and prior to issuance of one-third of the assignments, a 50 percent refund of applicable enrollment fees shall be made.		
No refund of enrollment fees will be made after one-third or more of the assignments have been issued by the Home Study Department, or after one year has passed from date of enrollment. Registration fees are not subject to refund.		
Each student pays the postage on his lessons, manuscripts, and communications sent to the department. The department pays the postage for the return of all papers to students.		

REGULATIONS

1. Enrollments for correspondence study will be received at any time during the year, and students may continue their work throughout the entire year.

* The nonresident fee for study center classes is to apply only in case the classes are actually conducted in Kansas City, Missouri, or other border cities outside the State of Kansas.

- 2. Correspondence students are expected to complete any course for which they are enrolled within 12 months from date of enrollment.
- 3. Not more than two courses are advised 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 pre-requisites 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 will be permitted to complete a three-hour course in less than three weeks, a two-hour course in less than two weeks, or a one-hour course in less than one week.
- 8. The student is urged to use every source available for securing information, such as outside texts, family discussions, and discussions with other students taking the course or who have previously taken the course, but copying of papers is not accepted. Lending of papers to be copied is also forbidden. Any student found guilty of either discrepancy will have this fact placed upon his record at Kansas State College.
- 9. The final grade for credit is determined by the quality of the lesson papers and the examination.

STUDY-CENTER EXTENSION CLASSES

Study-center classes conducted by regular instructors from the College may be organized if the demand is sufficient. Regulations concerning such classes are obtainable from the Department of Home Study.

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 can attend high school should do so, for in such attendance they will have the benefits to be derived from association with fellow students, as well as many other advantages that will be helpful to immature students of high school age.

These courses are offered as an aid to those who may be temporarily out of high school, who may not find the work that they desire offered locally, or who wish to 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 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 course offered by the accredited high schools of the state. The same textbooks have been used wherever feasible, and the credits issued by this department are recognized by the colleges and State Board of Education.

List of High School Courses

Course No.			Number of assignments	Unit H. S. credit
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

Course No.	ENGLISH	Number of assignments	Unit H. S. credit
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 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
SCIENCE			
PCS 1.	World 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 COURSES

Numerous college courses paralleling residence courses and carrying the same credit are offered through the Department of Home Study. These will be found especially advantageous for college students who desire to make up deficiencies or to gain credits during the vacation season, for teachers who wish to further their professional training, and for men and women who wish to promote their cultural, technical, or vocational interests. The prerequisites are the same as for corresponding courses in resident instruction.

The following course is available through resident enrollment for graduate and undergraduate credit. Graduates may be enrolled for from one to six hours of research or problem work *in absentia*, on the recommendation of a member of the graduate faculty and with the approval of the Dean of the Graduate School.

Educ. 249. Problems in Extension Education. Credit to be arranged.

Problems in extension met by director, supervisor, county agricultural agent, county home demonstration agent, 4-H Club leader, or specialist. Prerequisite: Econ. 110 or CS 3, and Educ. 310 or CP 8.

List of College Courses

SCHOOL OF AGRICULTURE			Semester hours of credit
Course No.	AGRONOMY	Assignments	
CA 3.	Farm Crops A	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 7.	Landscape Gardening	16	2
POULTRY HUSBANDRY			
CPP 1.	Farm Poultry Production	8	1

SCHOOL OF ENGINEERING

Semester
hours of
credit

Course No.		MACHINE DESIGN	Assignments	
CE 2.	Engineering Drawing	16		2
CE 4.	Mechanism	24		3
CE 6.	Machine Drawing I	16		2
CE 11.	Descriptive Geometry	16		2

SHOP PRACTICE

CE 7.	Metals and Alloys	16		2
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AGRICULTURAL ENGINEERING

CE 3.	Gas Engines and Tractors	16		2
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MECHANICAL ENGINEERING

CE 9.	Steam Turbines	16		2
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SCHOOL OF ARTS AND SCIENCES

ECONOMICS AND SOCIOLOGY

CEc 1.	Economics I	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 II: Learning	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.	General Psychology	24		3
CP 14.	Vocational Education	24		3
CP 17.	Introduction to Philosophy	24		3
CP 19.	Essentials of Reading	24		3
CP 22.	Educational Psychology I: Pupil Development	24		3

ENGLISH

CCE 1.	Written Communications I	24		3
CCE 2.	Written Communications II	16		2
CCE 2a.	Written Communications IIa	8		1
CCE 3.	Commercial Correspondence	24		3
CCE 6a.	English Literature I	24		3
CCE 6b.	English Literature II	24		3
CCE 7a.	American Literature I	24		3
CCE 7b.	American Literature II	24		3
CCE 8.	Children's Literature	24		3

JOURNALISM

CCJ 1.	Agricultural Journalism	24		3
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PHYSICAL EDUCATION

CPE 1.	Personal Hygiene	16		2
CPE 2.	Community Health	8		1
CPE 3.	Playground Activities	16		2

GEOLOGY

CG 1.	General Geology	24		3
CG 2.	Principles of Geography	24		3

HISTORY AND CIVICS

CHC 1.	Community Civics	16		2
CHC 106.	Civilizations I	24		3
CHC 107.	Civilizations II	24		3
CHC 151.	American Government	24		3
CHC 127.	United States Before 1865	24		3
CHC 128.	United States Since 1865	24		3
CHC 7.	Latin-American Nations	24		3

MATHEMATICS

CM 6.	Solid Geometry	16		2
CM 7.	Plane Trigonometry	24		3
CM 8.	College Algebra	24		3
CM 9.	College Algebra A	40		5

Officers of Administration, Instruction, and Research

(As of July 1, 1953)

ADMINISTRATIVE AND SERVICE OFFICES

- HELEN JONES ATHERTON**, Residence Hall Director and Instructor (1951, 1952).
WILLIAM FREDERICK BAEHR, Professor and College Librarian (1943).
 B. S., M. A., University of Illinois.
- MABEL GERTRUDE BAXTER**, Instructor, College Library (1916, 1947).
- MILDRED CAMP**, Assistant Professor, College Library (1927).
 A. B., Eureka College; B. L. S., University of Illinois.
- MARY M. CARLSON**, Instructor, College Library (1950).
 A. B., University of Kansas; B. S., University of Wisconsin.
- WILLIAM GREGORY CRAIG**, Dean of Students (1951).
 A. B., Middlebury College; M. A., University of Minnesota.
- THEODORE RYLAND CROSS**, Head of Student Counseling Center and Associate Professor of Psychology (1952).
 B. A., Iowa State Teachers College; M. A., University of Minnesota.
- ELIZABETH HAMILTON DAVIS**, Associate Professor, College Library (1920, 1947).
 A. B., MacMurray College for Women; B. L. S., University of Illinois.
- GRACE EMILY DERBY**, Professor and Associate Librarian, Emeritus (1911, 1950).
 A. B., Western College for Women.
- AUBREY THORNTON EDWARDS**, Director of Housing and Associate Professor of Psychology (1945, 1949).
 B. S., M. S., Kansas State College.
- GEORGE H. FADEURECHT**, Instructor, College Library (1953).
 M. A., University of Kansas; M. A. L. S., University of Michigan.
- KENNEY LEE FORD**, Alumni Secretary (1928).
 B. S., M. S., Kansas State College.
- CLIFFORD CHARLES FORTIN**, Instructor, College Library (1951).
 B. S., M. A., University of Minnesota.
- ROBERT PORTER GILLESPIE**, Instructor, College Library (1952).
 B. A., Occidental College; M. A. L. S., University of Michigan.
- RANDOLPH FORNEY GINGRICH**, Maintenance Superintendent, Physical Plant (1923, 1945).
 B. S., University of Nebraska; M. S., Kansas State College.
- KATHRYN ANN HARRIES**, Residence Hall Director and Instructor (1952).
 B. A., Iowa State Teachers College; M. A., Northwestern University.
- HAROLD HOWE**, Dean of Graduate School; Professor of Agricultural Economics; Agricultural Economist, Agricultural Experiment Station (1925, 1945).
 B. S., Kansas State College; M. S., University of Maryland; Ph. D., University of Wisconsin; LL. D., St. Benedict's College.
- ARNOLD R. JONES**, Dean of Financial Administration; Comptroller; Professor of Accounting (1928, 1951).
 B. S., University of Kansas.
- WENDELL ROBERT KERR**, Veterans Service Officer; Instructor and Assistant to Housing Director (1947, 1948).
 B. S., M. S., Kansas State College.
- BENJAMIN WILLIAM LAFENE**, College Physician (1946, 1948).
 B. S., Michigan State College; M. D., Western Reserve University.
- FRED Y. M. MA**, Instructor in the Library.
 B. L. L., Sun Yat-Sen University; M. A., B. S. in L. S., University of Minnesota.
- JAMES ALLEN MCCAIN**, President (1950).
 A. B., LL. D., Wofford College; M. A., Duke University; Ed. D., Stanford University.
- JESSIE McDOWELL MACHIR**, Registrar, Emeritus (1913, 1943).
- MAX WESLEY MILBOURN**, Director of Public Service and Associate Professor of Journalism (1949).
 A. B., University of Wichita.

HELEN MOORE, Dean of Women (1940).

A. B., University of Kansas; M. A., Columbia University.

SUMNER BURTON MORRIS, Counselor in Student Counseling Center and Assistant Professor of Psychology (1952).

B. A., Simpson College; M. A., University of Iowa.

CAROL LEE OWSLEY, Instructor, College Library (1942, 1947).

B. S., M. S., Kansas State College.

BERNICE HARRIETT PATON, Assistant Professor, College Library (1947).

B. A., University of Oklahoma; B. S., Columbia University; M. A., University of Michigan.

MARTHA H. PATTERSON, Instructor, College Library (1953).

B. A., University of Arkansas; B. S. in L. S., University of Illinois.

ARTHUR F. PEINE, Director of Development and Endowment (1916, 1953).

A. B., Illinois Wesleyan University; A. B., Illinois State Normal University; A. M., University of Illinois.

HERBERT EUGENE PIFER, Y. M. C. A. Secretary (1950).

B. S., Michigan State College; B. S., Yale University.

JANE PRIER, Instructor and Counselor in Residence Hall (1952).

ALBERT LEROY PUGSLEY, Dean of Academic Administration; Director of the Summer Session; Professor of Structural Engineering (1943, 1951).

B. S., South Dakota State College; M. Arch., Harvard University.

EDITH MARY RIDGEWAY, Instructor, College Library (1943).

A. B., College of Emporia; B. S., University of Illinois.

MARY EILLEN ROBERTS, Assistant Professor, College Library (1938, 1943).

B. S., Kansas State College; B. S. in L. S., University of Illinois; A. M., University of Michigan.

CLARA FRANCES RUMPF, Instructor, College Library (1953).

B. A., University of Wichita; M. A. L. S., University of Michigan.

PHILIP HOWARD SORENSEN, Assistant Dean of Students (1952).

B. A., M. A., State College of Washington.

ARTHUR BOURNE SMITH, Professor and College Librarian, Emeritus (1911, 1943).

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

JOHN A. F. SPELLMAN, Associate Professor, College Library (1952).

B. A., A. B. in L. S., University of Washington; M. A. in L. S., University of Michigan.

MARTHA STUCKY, Instructor, College Library (1953).

B. A., Bethel College; M. A., University of Denver.

ERIC T. TEBOW, Director of Admissions and Registrar (1947, 1950).

B. S., Kansas State College; M. A., Columbia University.

MABEL LOUISE THOMAS, Instructor, College Library (1952).

B. S., East Tennessee State College; M. A. L. S., George Peabody College.

GALEN MARTIN TICE, Consulting Radiologist, Student Health (1939).

A. B., McPherson College; M. D., University of Kansas.

SCHOOL OF AGRICULTURE

ERWIN ARMEYER, Assistant Professor of Horticulture; Assistant Pomologist, Northeast Kansas Experiment Fields (1934, 1935).

B. S., Kansas State College.

LOUIS CORNELIUS ARCHER, Professor of Animal Husbandry; Animal Husbandman, Agricultural Experiment Station (1921, 1952).

B. S., Kansas State College.

KLING LEROY ANDERSON, Professor of Agronomy; Agronomist, Agricultural Experiment Station (1936, 1946).

B. S., University of California; M. S., Kansas State College; Ph. D., University of Nebraska.

FLOYD WARNICK ATKESON, Professor and Head of Department of Dairy Husbandry; Dairy Husbandman, in charge, Agricultural Experiment Station (1918, 1935).

B. S., University of Missouri; M. S., Kansas State College.

C. HARRY ATKINSON, Associate Professor of Agronomy; Soil Scientist, Soil Conservation Service, U. S. D. A., Agricultural Experiment Station (1949).

B. S., M. S., Pennsylvania State College.

CLIFF ERRETT AUBEL, Professor of Animal Husbandry; Animal Husbandman, Agricultural Experiment Station (1915, 1938).

B. S., Pennsylvania State College; M. S., Kansas State College; Ph. D., University of Minnesota.

- THOMAS BURT AVERY**, Professor of Poultry Husbandry; Poultry Husbandman, Agricultural Experiment Station (1937, 1950).
B. S., M. S., Kansas State College.
- MILBURN CLINTON AXELTON**, Instructor in Agronomy; Assistant Agronomist, Southwest Kansas Experiment Fields (1929, 1951).
B. S., Kansas State College.
- ROBERT JOHN BARNETT**, Professor of Horticulture, Emeritus; Chairman, Editorial Committee, Agricultural Experiment Station (1907, 1944).
B. S., M. S., Kansas State College.
- ERLE EDWIN BARTLEY**, Associate Professor of Dairy Husbandry; Associate Dairy Nutritionist, Agricultural Experiment Station (1949, 1952).
B. S., Allahabad University (India); M. S., Ph. D., Iowa State College.
- WILLIAM MAYFIELD BAXTER**, Instructor and Assistant to the Superintendent, Fort Hays Agricultural Experiment Station (1949, 1952).
B. S., Kansas State College.
- GLENN HANS BECK**, Professor of Dairy Husbandry; Dairy Husbandman, Agricultural Experiment Station (1936, 1950).
B. S., University of Idaho; M. S., Kansas State College; Ph. D., Cornell University.
- FLOYD WAYNE BELL**, Professor of Animal Husbandry; Animal Husbandman, Agricultural Experiment Station (1918, 1921).
B. S., Cornell University.
- THOMAS DONALD BELL**, Professor of Animal Husbandry; Animal Husbandman, Agricultural Experiment Station (1950).
B. S., M. S., University of Idaho; Ph. D., University of Wisconsin.
- ORVILLE WILLARD BIDWELL**, Assistant Professor of Agronomy; Assistant Agronomist, Agricultural Experiment Station (1950).
A. B., Oberlin College; B. S., Ph. D., Ohio State University.
- CHARLES FREDERICK BORTFELD**, Associate Professor of Agricultural Economics, Associate Economist, Agricultural Experiment Station (1948).
B. S., M. A., University of Nebraska.
- JOHN EDWIN BRAUM**, Assistant Professor of Agronomy; Assistant Agronomist, East Central Kansas Experiment Fields (1950, 1952).
B. S., Kansas State College.
- DONALD JAMES BRAY**, Graduate Assistant in Poultry Husbandry, Agricultural Experiment Station (1950).
B. S., Iowa State College.
- JAMES OSCAR BRAY**, Assistant Professor of Agricultural Economics; Assistant Economist, Agricultural Experiment Station (1951).
B. S., M. S., Purdue University; M. A., University of Chicago.
- LOREN VIRGIL BURNS**, Feed Technologist in Flour and Feed Milling Industries, Agricultural Experiment Station (1952).
B. S., Washburn Municipal University.
- LELAND EVERETT CALL**, Professor; Dean and Director, Emeritus (1907, 1946).
B. S., M. S., Ohio State University.
- RONALD WAYNE CAMPBELL**, Associate Professor of Horticulture; Associate Pomologist, Agricultural Experiment Station (1946, 1949).
B. S., M. S., Kansas State College.
- WILLIAM JOHN CARPENTER**, Assistant Professor of Horticulture (1953).
B. S., University of Maryland; M. S., Michigan State College; Ph. D., University of Michigan.
- ALFRED JACKSON CASADY**, Assistant Professor and Assistant in Forage Crops and Diseases, Fort Hays Branch Agricultural Experiment Station (1949, 1952).
B. S., M. S., Kansas State College.
- RALPH BOYD CATHCART**, Associate Professor of Animal Husbandry; Associate Animal Husbandman, Agricultural Experiment Station (1935, 1948).
B. S., Kansas State College; M. S., University of Nebraska.
- WILLIAM STEVEN CHEPIL**, Professor of Agronomy; Agronomist, Agricultural Experiment Station (1948).
B. S., M. S., University of Saskatchewan (Canada); Ph. D., University of Minnesota.
- ALFRED LESTER CLAPP**, Professor of Agronomy; Agronomist, Agricultural Experiment Station (1915, 1939).
B. S., M. S., Kansas State College.

- THOMAS JOSEPH CLAYDON**, Associate Professor of Dairy Husbandry; Associate Dairy Husbandman, Agricultural Experiment Station (1946).
B. S., University of Saskatchewan (Canada); M. S., Ph. D., Iowa State College.
- RUTH ELLA CLIFTON**, Temporary Research Assistant, Agricultural Economics, Agricultural Experiment Station (1947, 1952).
B. S., M. S., Kansas State College.
- EARL WARREN COLE**, Graduate Research Assistant in Flour and Feed Milling Industries, Agricultural Experiment Station (1951, 1952).
B. S., Kansas State College.
- EMBERT HARVEY COLES**, Superintendent, Colby Branch Agricultural Experiment Station (1921, 1929).
B. S., Kansas State College.
- LAURENCE LARUE COMPTON**, Professor of Agronomy; Agronomist, Kansas Crop Improvement Association, Agricultural Experiment Station (1930, 1947).
B. S., M. S., Kansas State College.
- RUFUS FRANCIS COX**, Professor and Head of Department of Animal Husbandry; Animal Husbandman, in charge, Agricultural Experiment Station (1930, 1949).
B. S., Oklahoma Agricultural and Mechanical College; M. S., Iowa State College; Ph. D., Cornell University.
- STANLEY MEANS CREEK**, Temporary Instructor in Agricultural Journalism and Station Editor, Agricultural Experiment Station (1952).
B. S., Kansas State College.
- FLOYD EWING DAVIDSON**, Professor and Superintendent in charge, Mound Valley Branch Agricultural Experiment Station (1934, 1952).
B. S., M. S., Kansas State College.
- CHARLES DEFOREST DAVIS**, Professor of Agronomy, Emeritus (1921, 1949).
B. S., M. S., Kansas State College.
- ELMO WARREN DAVIS**, Associate Professor of Horticulture; Associate Olericulturist, Agricultural Experiment Station (1952).
B. S., University of Idaho; M. S., Ph. D., University of California.
- WILBERT WILLIAM DUTSMAN**, Associate Professor and Superintendent, in charge, Fort Hays Branch Agricultural Experiment Station (1941, 1952).
B. S., Kansas State College.
- FRANKLIN ELMER ELDRIDGE**, Associate Professor of Dairy Husbandry; Associate Dairy Geneticist, Agricultural Experiment Station (1941, 1947).
B. S., University of Idaho; M. S., Kansas State College; Ph. D., Cornell University.
- ROSCOE ELLIS, JR.**, Assistant Professor of Agronomy; Assistant Agronomist, Agricultural Experiment Station (1948, 1952).
B. S., M. S., Kansas State College.
- HENRY CLAIRE ENGDAHL**, Assistant Professor and Assistant Agronomist, Colby Branch Agricultural Experiment Station (1951, 1952).
B. S., University of Nebraska; M. S., University of Wisconsin.
- ANDREW BRIAN ERHART**, Professor and Superintendent, in charge, Garden City Branch Agricultural Experiment Station (1931, 1952).
B. S., Kansas State College.
- WILLIAM JOSEPH EWASIUK**, Temporary Assistant in Agricultural Economics, Agricultural Experiment Station (1951, 1952).
B. S., University of Alberta (Canada).
- MORRIS BRILEY EWING**, Assistant Professor of Dairy Husbandry; Assistant in Dairy Improvement, Agricultural Experiment Station (1951).
B. S., University of Missouri.
- EARL LEROY FARMER**, Assistant Professor of Dairy Husbandry; Assistant in Dairy Improvement, Agricultural Experiment Station (1949).
B. S., University of Missouri.
- EUGENE PATRICK FARRELL**, Milling Technologist in Flour and Feed Milling Industries, Agricultural Experiment Station (1949).
B. S., Kansas State College.
- FRANCIS DAVID FARRELL**, President, Emeritus; Professor of Rural Institutions (1918, 1943).
B. S., Utah State Agricultural College; Agr. D., University of Nebraska; LL. D., Washburn Municipal University.

- GEORGE ALBERT FILINGER, Professor of Horticulture; Pomologist, Agricultural Experiment Station (1931, 1946).
B. S., M. S., Kansas State College; Ph. D., Ohio State University.
- KARL FREDERICK FINNEY, Professor of Flour and Feed Milling Industries; Chemist, U. S. D. A., Agricultural Experiment Station (1938, 1947).
A. B., Kansas Wesleyan University; B. S., M. S., Kansas State College.
- HOMER B. FLETCHER, Instructor in Agricultural Economics (1953).
B. S., Washington State College; Ph. D., Vanderbilt University.
- FORREST CHARLES FOUNTAINE, Professor of Dairy Husbandry; Dairy Nutritionist, Agricultural Experiment Station (1947).
B. S., University of Wisconsin; M. S., Ph. D., University of Minnesota.
- WAYNE LOVELLE FOWLER, Assistant Professor and Assistant in Cereal Crops and Diseases, Fort Hays Branch Agricultural Experiment Station (1951, 1952).
B. S., Kansas State College.
- MAX J. FRIESEN, Instructor in Agricultural Economics; Assistant Economist, Agricultural Experiment Station (1952).
B. S., Kansas State College.
- DON LADDOYT GOOD, Assistant Professor of Animal Husbandry; Assistant Animal Husbandman, Agricultural Experiment Station (1947, 1949).
B. S., Ohio State University; M. S., Kansas State College.
- JANIS GRAVA, Instructor in Agronomy (1952).
Cand. Agr., Academy of Agriculture (Latvia); M. S., Ph. D., University of Goettingen (Germany).
- JAMES KIBLER GREIG, JR., Assistant Professor of Horticulture; Assistant Olericulturist, Agricultural Experiment Station (1952).
B. S., M. S., University of Arkansas.
- BEN LEO GROVER, Assistant Professor and Assistant Agronomist, Garden City Branch Agricultural Experiment Station (1950, 1952).
B. S., M. S., Utah State Agricultural College.
- FRED BENTON HADLE, Instructor in Horticulture; Assistant Pomologist, Agricultural Experiment Station (1951).
B. S., Kansas State College.
- CHARLES V. HALL, Assistant Professor of Horticulture (1953).
B. S., M. S., University of Arkansas.
- ALICE GEORGIA HARTLEY, Instructor in Agronomy; Assistant Agronomist, Agricultural Experiment Station (1948).
- ROY BARRETT HERRING, Assistant Professor and Assistant Agronomist, Garden City Branch Agricultural Experiment Station (1951, 1952).
B. S., Oklahoma Agricultural and Mechanical College.
- ELMER GEORGE HEYNE, Professor of Agronomy; Agronomist, Agricultural Experiment Station (1936, 1947).
B. S., University of Nebraska; M. S., Kansas State College; Ph. D., University of Minnesota.
- JAMES ROBERT HOATH, Assistant Professor of Agricultural Economics; Assistant Economist, Agricultural Experiment Station (1952).
B. S., M. S., Kansas State College.
- JAMES ARTHUR HOBBS, Associate Professor of Agronomy; Associate Agronomist, Agricultural Experiment Station (1950, 1952).
B. S., M. S., University of Manitoba (Winnipeg); Ph. D., Purdue University.
- JULIAN ADAIR HODGES, Professor of Agricultural Economics; Economist, Agricultural Experiment Station (1923, 1941).
B. S., M. S., University of Kentucky; A. M., Ph. D., Harvard University.
- LEWIS ALTON HOLLAND, Assistant Professor of Animal Husbandry; Assistant Animal Geneticist, Agricultural Experiment Station (1951).
B. S., New Mexico College of Agriculture and Mechanic Arts; M. S., Colorado Agricultural and Mechanical College.
- LEO MICHAEL HOOVER, Assistant Professor of Agricultural Economics; Assistant Economist, Agricultural Experiment Station (1947, 1949).
B. S., Kansas State College; M. S., Iowa State College.
- HEMAN LAURITZ IBSEN, Professor of Animal Husbandry; Animal Geneticist, Agricultural Experiment Station (1919, 1924).
B. S., M. S., Ph. D., University of Wisconsin.

- JOHN ALEXANDER JOHNSON, Associate Professor of Flour and Feed Milling Industries; Associate in Milling and Baking Research, Agricultural Experiment Station (1940, 1947).
B. S., North Dakota Agricultural College; M. S., Kansas State College.
- LLOYD CHARLES JONES, Assistant Professor and Assistant Agronomist, Mound Valley Branch Agricultural Experiment Station (1947, 1952).
B. S., Kansas State College.
- RAY ALBERT KEEN, Assistant Professor of Horticulture; Assistant Ornamental Horticulturist, Agricultural Experiment Station (1947).
B. S., Kansas State College; M. S., Ohio State University.
- PAUL LEO KELLEY, Assistant Professor of Agricultural Economics; Assistant Economist, Agricultural Experiment Station (1943, 1947).
B. S., M. S., Kansas State College.
- FRANK BOONE KESSLER, Assistant Professor and Assistant Animal Husbandman, Fort Hays Branch Agricultural Experiment Station (1946, 1952).
B. S., Kansas State College.
- JAMES IRVIN KIRKWOOD, Graduate Research Assistant in Agronomy, Agricultural Experiment Station (1952).
B. S., Kansas State College.
- CARL JACOB KNAUSS, JR., Graduate Research Assistant in Agronomy, Agricultural Experiment Station (1952).
B. S., Kansas State College.
- DALE ALPHEUS KNIGHT, Assistant Professor of Agricultural Economics; Assistant Economist, Agricultural Experiment Station (1948).
B. S., Kansas State College; M. S., Cornell University; M. A., University of Chicago.
- JAMES ELWOOD KNOX, Assistant Professor and Assistant Dairy Husbandman, Mound Valley Branch Agricultural Experiment Station (1949, 1952).
B. S., Mississippi State College.
- JOSEPH WENDELL KOUDELE, Assistant Professor of Agricultural Economics; Assistant Economist, Agricultural Experiment Station (1947, 1949).
B. S., University of Nebraska; M. S., University of Minnesota.
- HILMER HENRY LAUDE, Professor of Agronomy; Agronomist, Agricultural Experiment Station (1911, 1931).
B. S., Kansas State College; M. S., Texas Agricultural and Mechanical College System; Ph. D., University of Chicago.
- ROBERT FULLERTON LEYDEN, Graduate Research Assistant in Agronomy, Agricultural Experiment Station (1952).
B. S., New Mexico College of Agriculture and Mechanic Arts.
- NORMAN EDWARD LLOYD, Graduate Research Assistant in Flour and Feed Milling Industries, Agricultural Experiment Station (1952).
B. S., Rockhurst College.
- ALVIN ERNEST LOWE, Assistant Professor and Associate Agronomist, Garden City Branch Agricultural Experiment Station (1937, 1952).
B. S., M. S., Kansas State College.
- FRANK ELLSWORTH LOWRY, Assistant Professor of Agronomy; Assistant Agronomist, Sandyland Kansas Experiment Fields (1951, 1952).
B. S., University of Nebraska.
- CHARLES WILBUR McCAMPBELL, Professor and Head of Department of Animal Husbandry, Emeritus (1910, 1952).
B. S., D. V. M., B. S. A., Kansas State College.
- JOHN HENRY MCCOY, Assistant Professor of Agricultural Economics; Assistant Economist, Agricultural Experiment Station (1940, 1948).
B. S., M. S., Kansas State College.
- CLARENCE EUGENE McDONALD, Graduate Research Assistant in Flour and Feed Milling Industries; Agricultural Experiment Station (1952).
B. A., McPherson College.
- DAVID LESLIE MACKINTOSH, Professor of Animal Husbandry; Animal Husbandman, Agricultural Experiment Station (1921, 1947).
B. S., University of Minnesota; M. S., Kansas State College.
- ERNEST LEE MADER, Associate Professor of Agronomy; Associate Agronomist, Agricultural Experiment Station (1948).
B. S., M. S., Oklahoma Agricultural and Mechanical College.

MILTON LLOYD MANUEL, Associate Professor of Agricultural Economics; Associate Economist (Agricultural Co-operatives), Agricultural Experiment Station (1945, 1949).

B. S., M. S., Kansas State College; Ph. D., University of Minnesota.

HAROLD GENE MARSHALL, Graduate Research Assistant in Agronomy, Agricultural Experiment Station (1952).

B. S., Purdue University.

WILLARD HUNGATE MARTIN, Professor of Dairy Husbandry; Dairy Husbandman, Agricultural Experiment Station (1925, 1928).

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

BYRON SLOANE MILLER, Associate Professor of Flour and Feed Milling Industries; Associate Chemist, U. S. D. A., Agricultural Experiment Station (1946, 1947).

B. S., University of Nebraska; M. S., Purdue University; Ph.D., Kansas State College.

GERALD DALE MILLER, Assistant Professor of Flour and Feed Milling Industries; Assistant Cereal Chemist, Agricultural Experiment Station (1946, 1947).

B. S., University of Nebraska.

MAX MILNER, Professor of Flour and Feed Milling Industries; Cereal Chemist, Agricultural Experiment Station (1947).

B. S., University of Saskatchewan (Canada); M. S., Ph. D., University of Minnesota.

CHARLES J. MODE, Graduate Research Assistant in Agronomy, Agricultural Experiment Station (1952).

B. S., North Dakota Agricultural College.

WALTER ASHTON MOORE, Assistant Professor of Agronomy; Assistant Agronomist, South Central Kansas Experiment Fields (1943, 1951).

B. S., Kansas State College.

CLYDE DEWEY MUELLER, Professor of Poultry Husbandry; Poultry Geneticist, Agricultural Experiment Station (1948).

B. S., Kansas State College; M. S., Ph. D., Cornell University.

CLYDE WILLIAM MULLEN, Assistant Dean; Associate Professor of Agronomy (1937).

B. S., Oklahoma Agricultural and Mechanical College; M. S., Kansas State College.

HAROLD EDWIN MYERS, Assistant Dean and Associate Director, Agricultural Experiment Station; Professor of Agronomy (1929, 1952).

B. S., Kansas State College; M. S., University of Illinois; Ph. D., University of Missouri.

RAYMOND VERLIN OLSON, Professor and Head of Department of Agronomy; Agronomist, in charge, Agricultural Experiment Station (1947, 1952).

A. B., North Dakota School of Forestry; B. S., North Dakota Agricultural College; M. S., Ph. D., University of Wisconsin.

MERTON LOUIS OTTO, Associate Professor of Agricultural Economics; Associate Economist (agricultural finance), Agricultural Experiment Station (1939, 1947).

B. S., M. S., Kansas State College.

CARL BENJAMIN OVERLEY, Assistant Professor of Agronomy; Assistant Agronomist, Kansas Hybrids Association, Agricultural Experiment Station (1946, 1947).

B. S., Kansas State College.

DONALD LEROY PALMER, Instructor in Flour and Feed Milling Industries; Assistant Milling Technologist, Agricultural Experiment Station (1951, 1952).

B. S., Kansas State College.

ARLAND WALTER PAULI, Instructor in Agronomy; Assistant Agronomist, Agricultural Experiment Station (1951, 1952).

B. S., University of Missouri; M. S., Kansas State College.

DALE JAMES PAULSEN, Graduate Research Assistant in Agricultural Economics, Agricultural Experiment Station (1952).

LOYAL FREDERICK PAYNE, Professor and Head of Department of Poultry Husbandry; Poultry Husbandman, in charge, Agricultural Experiment Station (1921, 1923).

B. S., Oklahoma Agricultural and Mechanical College; M. S., Kansas State College.

- ROYCE OWEN PENCE**, Associate Professor of Flour and Feed Milling Industries; Associate Milling Technologist, Agricultural Experiment Station (1927, 1939).
B. S., M. S., F. M. E., Kansas State College.
- VERLIN HOWARD PETERSON**, Instructor in Agronomy; Assistant Agronomist, Southeast Kansas Experiment Fields (1948, 1951).
B. S., M. S., Kansas State College.
- WILLIAM MAURICE PHILIPS**, Assistant Professor and Assistant Agronomist, Fort Hays Branch Agricultural Experiment Station (1952).
B. S., M. S., Kansas State College.
- ROBERT COOPER PICKETT**, Assistant Professor of Agronomy; Assistant Agronomist, Agricultural Experiment Station (1949).
B. S., Kansas State College; Ph. D., University of Wisconsin.
- WILLIAM FRANCIS PICKETT**, Professor and Head of Department of Horticulture; Horticulturist, in charge, Agricultural Experiment Station (1918, 1936).
B. S., M. S., Kansas State College; Ph. D., Michigan State College.
- WILFRED HAROLD PINE**, Professor of Agricultural Economics; Economist, Agricultural Experiment Station (1934, 1949).
B. S., M. S., Kansas State College; Ph. D., University of Minnesota.
- LEON REED QUINLAN**, Professor of Horticulture; Ornamental Horticulturist, Agricultural Experiment Station (1927, 1931).
B. S., Colorado Agricultural and Mechanical College; M. L. A., Harvard University.
- JEAN JOSEPH RADISSON**, Graduate Research Assistant in Dairy Husbandry, Agricultural Experiment Station (1952).
B. S., Michigan State College.
- WARREN W. RASMUSSEN**, Assistant Professor of Agronomy (1953).
B. S., M. A., Utah State Agricultural College.
- DRAYTFORD RICHARDSON**, Professor of Animal Husbandry; Animal Nutritionist, Agricultural Experiment Station (1951).
B. S., Clemson Agricultural College; M. S., Ph. D., Iowa State College.
- FLETCHER EUGENE RIGGS**, Assistant Professor of Agricultural Economics; Assistant Economist, Agricultural Experiment Station (1948, 1951).
B. S., M. S., Kansas State College.
- OLIVER GEORGE RUSS**, Instructor in Agronomy; Assistant Agronomist, Agricultural Experiment Fields (1949, 1952).
B. S., Kansas State College.
- WILLIAM DEAN RUTZ**, Associate Professor of Dairy Husbandry; Associate Dairy Husbandman, Agricultural Experiment Station (1952).
B. S., Oklahoma Agricultural and Mechanical College; M. S., Kansas State College; Ph. D., University of Wisconsin.
- PAUL EVERETT SANFORD**, Associate Professor of Poultry Husbandry; Poultry Nutritionist, Agricultural Experiment Station (1949).
B. S., Kansas State College; M. S., Ph. D., Iowa State College.
- JOHN WESLEY SCHMIDT**, Assistant Professor of Agronomy; Assistant Agronomist, Agricultural Experiment Station (1947, 1951).
A. B., Tabor College; M. S., Kansas State College; Ph. D., University of Nebraska.
- LEONARD WILLIAM SCHRUBEN**, Professor of Agricultural Economics; Economist, Agricultural Experiment Station (1949, 1951).
B. S., Kansas State College; M. S., University of Illinois; M. P. A., M. A., Ph. D., Harvard University.
- JOHN ALFRED SHELLENBERGER**, Professor and Head of Department of Flour and Feed Milling Industries; Cereal Chemist, in charge, Agricultural Experiment Station (1944, 1945).
B. S., University of Washington; M. S., Kansas State College; Ph. D., University of Minnesota.
- MERLE DENNIS SHOGREN**, Graduate Research Assistant in Flour and Feed Milling Industries, Agricultural Experiment Station (1952).
B. S., Bethany College.
- CHARLES ABRAHAM SIMKINS**, Graduate Research Assistant in Agronomy, Agricultural Experiment Station (1952).
B. S., M. S., Kansas State College.

- ROBERT FRED SLOAN, Assistant Professor of Agronomy; Assistant Agronomist, North Central Kansas Agricultural Experiment Fields (1936, 1951).
B. S., M. S., Kansas State College.
- EDGAR FITZHUGH SMITH, Assistant Professor of Animal Husbandry; Assistant Animal Husbandman, Agricultural Experiment Station (1946, 1948).
B. S., Texas Agricultural and Mechanical College System; M. S., Kansas State College.
- FLOYD WILLIAM SMITH, Professor of Agronomy; Agronomist, Agricultural Experiment Station (1946, 1950).
B. S., Kansas State College; M. S., Ph. D., Michigan State College.
- LOREN BROOKS SMITH, Research Assistant in Flour and Feed Milling Industries, Agricultural Experiment Station (1950, 1951).
Graduate, American Institute of Baking and Wilton School of Decorative and Candy Making.
- WALTER HENRY SMITH, Assistant Professor of Animal Husbandry; Assistant Animal Husbandman, Agricultural Experiment Station (1948, 1950).
B. S., M. S., Kansas State College.
- JACK WILLARD SNYDER, Instructor in Dairy Husbandry; Assistant in Dairy Improvement, Agricultural Experiment Station (1952).
B. S., West Virginia University; M. S., Michigan State College.
- RALPH POLLISTER SOULE, JR., Assistant Professor of Animal Husbandry; Assistant Animal Husbandman, Agricultural Experiment Station (1951).
B. S., M. S., Michigan State College.
- THOMAS BRUCE STINSON, Assistant Professor and Superintendent, in charge, Tribune Branch Agricultural Experiment Station (1924, 1952).
B. S., Kansas State College.
- LOYD ALLEN TATUM, Professor of Agronomy; Agronomist, U. S. D. A., Agricultural Experiment Station (1941, 1950).
B. S., University of Arizona; M. S., Ph. D., Iowa State College.
- FRED CARL THORP, Temporary Graduate Research Assistant in Agronomy, Agricultural Experiment Station (1952).
B. S., University of Illinois.
- RAY IAMS THROCKMORTON, Professor of Agronomy; Dean and Director, Emeritus, Agricultural Experiment Station (1911, 1952).
B. S., Pennsylvania State College; M. S., Kansas State College.
- JAKE RALPH UBEL, Instructor in Agronomy; Assistant Agronomist, Kansas Crop Improvement Association, Agricultural Experiment Station (1952).
B. S., Kansas State College.
- TED LOWELL WALTER, Assistant Professor and Assistant Agronomist, Colby Branch Agricultural Experiment Station (1951).
B. S., University of Nebraska; M. S., Colorado Agricultural and Mechanical College.
- ARLIN BRUCE WARD, Assistant Professor of Flour and Feed Milling Industries; Assistant Milling Technologist, Agricultural Experiment Station (1946, 1947).
B. S., M. S., Kansas State College.
- ARTHUR D. WEBER, Dean; Director, Agricultural Experiment Station; Professor of Animal Husbandry (1923, 1952).
B. S., M. S., Kansas State College; Ph. D., D. Sc., Purdue University.
- HENRY C. WIGGIN, Graduate Research Assistant in Agronomy (1953).
B. S., South Dakota University; M. S., Purdue University.
- HOWARD D. WILKIN, Graduate Research Assistant in Agronomy (1953).
B. S., Kansas State College.
- WILLIAM WAYNE WILLIS, Assistant Professor of Horticulture; Assistant Floriculturist, Agricultural Experiment Station (1944, 1946).
A. B., College of Emporia.
- CHARLES PEAIRS WILSON, Assistant Director of Agricultural Experiment Station; Associate Professor of Agricultural Economics (1938, 1952).
B. S., M. S., Kansas State College.
- GEORGE WILLIAM WRIGHT, Instructor in Agronomy; Assistant Agronomist, Agricultural Experiment Station (1950, 1952).
B. S., Kansas State College.
- JAMES WALTER ZAHNLEY, Professor of Agronomy; Agronomist, Agricultural Experiment Station (1915, 1947).
B. S., B. S. in Agri., M. S., Kansas State College.

SCHOOL OF ARTS AND SCIENCES

- NELLIE ABERLE, Professor of English (1921, 1948).
B. S., M. S., Kansas State College.
- JAMES EDWARD ACKERT, Professor of Zoology, Emeritus; Dean of Graduate School, Emeritus (1913, 1950).
A. B., A. M., Ph. D., University of Illinois.
- DONALD GOULD ALBRIGHT, Assistant Professor of Military Science (1952).
B. S., United States Military Academy; Graduate, Infantry School.
- OSCAR WILLIAM ALM, Professor of Psychology (1929, 1933).
A. B., University of Nebraska; M. A., Columbia University; Ph. D., University of Minnesota.
- INEZ ALSOP, Associate Professor of History (1923, 1941).
B. S., Kansas State Teachers College (Emporia); M. S., University of Kansas.
- MALCOLM LLEWELLYN ALSOP, Assistant in Physics (1947, 1949).
B. S., M. S., Kansas State College.
- DONALD JULES AMEEL, Professor and Head of Department of Zoology; Zoologist, in charge, Agricultural Experiment Station (1937, 1945).
A. B., Wayne University; M. A., D. Sc., University of Michigan.
- EDGAR MCCALL AMOS, Associate Professor of Technical Journalism, Emeritus (1921, 1950).
B. S., Kansas State College.
- DONALD MARK ANDERSON, Graduate Research Assistant in Physics, Agricultural Experiment Station (1952).
B. S., McPherson College.
- RICHARD ALLEN ANDERSON, Graduate Assistant in Physics (1952).
B. A., Augustana College.
- ROBERT ARTHUR ANDERSON, Temporary Instructor in Economics and Sociology (1949).
B. S., M. S., Kansas State College.
- ARTHUR CLINTON ANDREWS, Professor of Chemistry; Physical Chemist, Agricultural Experiment Station (1926, 1952).
B. S., Ph. D., University of Wisconsin; M. S., Kansas State College.
- ORA JOYE ANSDALL, Instructor in English (1946, 1947).
B. S., Kansas State College; M. A., University of Michigan; B. L. S., University of Chicago.
- KENNETH WILBUR AUNGST, Instructor in Air Science (1951).
Graduate, Academic Instructors School, Air University.
- JAMES ERWIN AVAMPATO, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1952).
B. S., M. S., University of Connecticut.
- MADALYN AVERY, Associate Professor of Physics (1924, 1946).
B. S., M. S., Kansas State College.
- RODNEY WHITTEMORE BABCOCK, Dean; Professor of Mathematics (1930).
B. A., University of Missouri; M. A., Ph. D., University of Wisconsin.
- EDGAR SIDNEY BAGLEY, Professor of Economics and Sociology (1940, 1950).
B. A., M. A., University of California; Ph. D., State University of Iowa.
- HARRY LEIGH BAKER, Professor of Education (1946, 1951).
A. B., LL. D., Baker University; B. S., Kansas State College; A. M., University of Chicago; Ph. D., Yale University.
- HAROLD NATHAN BARHAM, Professor of Chemistry; Industrial Chemist, Agricultural Experiment Station (1929, 1943).
A. B., Bethany College; M. S., Ohio State University; Ph. D., University of Kansas.
- ROGER D. BAUER, Graduate Assistant in Chemistry (1953).
B. S., Beloit College.
- LAURA FALKENRICH BAXTER, Associate Professor of Education (1927, 1941).
B. S., M. S., Kansas State College.
- ROY ELWIN BEAUCHENE, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1951).
B. S., Morningside College.
- HENRY VOORHEES BECK, Assistant Professor of Geology (1946, 1952).
B. S., M. S., Kansas State College.
- CLAIRE ERNESTINE BEETCH, Temporary Assistant Instructor in English (1952).
B. S., Minnesota State Teachers College (Mankato).

- ELLSWORTH BENJAMIN BEETCH, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1949, 1952).
B. S., Minnesota State Teachers College (Mankato).
- CLARENCE A. BELL, Graduate Research Assistant in Physics (1953).
B. S., Kansas State College.
- MARVIN EDWIN BENNETT, Instructor in Military Science (1951).
- ROBERT HARRISS BERKLEY, Instructor in Education (1949).
B. S., University of Missouri.
- WILLIAM RAYMOND BRACKETT, Associate Professor of Physics (1919, 1923).
B. A., University of Colorado.
- DOROTHY MARY BRADLEY, Temporary Instructor in Economics and Sociology (1947, 1952).
B. S., Northwestern University; M. S., Kansas State College.
- HOWARD RALEY BRADLEY, Assistant Professor of Education (1951).
B. S., M. S., Kansas State College.
- EDWARD LOWELL BRANDNER, Associate Professor of Technical Journalism (1947, 1951).
A. B., B. S., Kansas State Teachers College (Emporia); M. S., Kansas State College.
- ARTHUR HILLS BRAYFIELD, Professor and Head of Department of Psychology (1951).
B. S., Ph. D., University of Minnesota.
- AUGUSTIN WILBUR BREEDEN, Associate Professor of English, Emeritus (1926, 1952).
B. Ph., M. A., University of Chicago.
- BARBARA BROWN, Temporary Instructor in Physical Education (1952).
B. S., University of Denver.
- LAURENCE CLIFFORD BROWN, Professor and Head of Department of Military Science (1952).
B. S., Syracuse University; Graduate, AF Staff College.
- HOWARD BRUBAKER, Professor of Chemistry, Emeritus (1913, 1948).
B. S., Carleton College; Ph. D., University of Pennsylvania.
- HARRY RAY BRYSON, Associate Professor of Entomology; Associate Entomologist, Agricultural Experiment Station (1924, 1942).
B. S., M. S., Kansas State College.
- RAYMOND KENNETH BURKHARD, Assistant Professor of Chemistry; Assistant Biochemist, Agricultural Experiment Station (1950, 1952).
A. B., Arizona State College; Ph. D., Northwestern University.
- CHRISTIAN CARL BURKHARDT, Instructor in Entomology; Assistant Entomologist, Agricultural Experiment Station (1951).
B. S., M. S., Kansas State College.
- FRANK EDWARD BYRNE, Professor of Geology (1930, 1946).
B. S., Ph. D., University of Chicago.
- JAMES PHILLIP CALLAHAN, Professor of English (1924, 1946).
B. S., Fort Hays Kansas State College; M. A., University of Kansas.
- ALVIN BOYD CARDWELL, Professor and Head of Department of Physics; Physicist in charge, Agricultural Experiment Station (1936, 1937).
B. S., University of Chattanooga; M. S., Ph. D., University of Wisconsin.
- JAMES CHARLES CAREY, Associate Professor of History (1948, 1950).
B. A., Nebraska State Teachers College (Wayne); M. A., Ph. D., University of Colorado.
- JOHN HOLDEN CARR, Graduate Assistant in Bacteriology (1950).
B. S., Kansas State Teachers College (Emporia); M. S., Kansas State College.
- ERNEST KNIGHT CHAPIN, Associate Professor of Physics (1923, 1932).
A. B., M. S., University of Michigan.
- JOSEPH RUDOLPH CHELIKOWSKY, Professor of Geology (1937, 1947).
B. A., M. A., Ph. D., Cornell University.
- JACK E. CHINN, Graduate Research Assistant in Chemistry (1953).
B. A., Cornell College.
- WILLIAM JAMES CLARK, Associate Professor of Economics and Sociology (1946, 1948).
B. S., Kansas State Teachers College (Pittsburg); M. A., State University of Iowa.

- ROBERT EDWARD CLEGG, Associate Professor of Chemistry; Associate Biochemist, Agricultural Experiment Station (1948).
B. S., University of Rhode Island; M. S., University of North Carolina; Ph. D., Iowa State College.
- CHARLES EDWIN COFFMAN, Assistant Professor of Air Science (1950).
Graduate, Academic Instructors Course, Air University; Air Force Aircraft Maintenance Engineering School.
- CHARLES WILLIAM COLVER, Professor of Chemistry (1919, 1925).
B. S., M. S., University of Idaho; Ph. D., University of Illinois.
- HOMER CARROLL COMBS, Professor of English (1952).
A. B., Georgetown College; M. A., Ph. D., Northwestern University.
- PAUL KOHLER CONN, Graduate Assistant in Chemistry (1951).
B. A., Kenyon College.
- ROBERT WARREN CONOVER, Professor of English (1915, 1920).
A. B., M. A., Wesleyan University.
- CHARLES MECLAIN CORRELL, College Historian; Professor of History, Emeritus (1922, 1950).
B. S., Kansas State College; Ph. B., Ph. M., University of Chicago.
- JUNIETA COWAN, Temporary Instructor in Education (1952).
B. S., Kansas State College.
- EUGENE BARKELAY COX, Graduate Assistant in Physics (1951).
B. A., University of Wichita.
- THOMAS CARTER COX, Instructor in Military Science (1947).
- GOLDA MILDRED CRAWFORD, Assistant Professor of History (1946, 1949).
B. S., M. S., Kansas State College.
- NAOMI ZIMMERMAN CRAWFORD, Temporary Instructor in Chemistry (1922, 1951).
B. S., M. S., University of Nebraska.
- NELSON ANTRIM CRAWFORD, Temporary Professor of Technical Journalism (1952).
B. A., State University of Iowa; M. A., University of Kansas.
- EDWARD MERCER CROCKETT, Professor of Air Science (1949).
B. B. A., University of Texas; Graduate, Academic Instructors Course.
- BERT CROZIER CROSS, Assistant Professor of Technical Journalism (1952).
B. A., University of Washington; M. S., University of Oregon.
- JOHN HERBERT CUDMORE, Athletic Coach (1951, 1952).
B. S., Stetson University; M. A., University of Maryland.
- CECIL EARL CURTIS, Instructor in Air Science (1951).
Graduate, Aircraft Maintenance School, Aircraft Engines School.
- PAUL ADOLPH DAHM, Associate Professor of Entomology; Associate Entomologist, Agricultural Experiment Station (1947, 1950).
A. B., A. M., Ph. D., University of Illinois.
- RALPH EUGENE DAKIN, Assistant Professor of Economics and Sociology (1948).
B. F. A., M. A., University of Colorado.
- ROBERT DODDS DAUGHERTY, Assistant Professor of Mathematics, Emeritus (1930, 1948).
Ph. D., Iowa Wesleyan College; M. S., State University of Iowa.
- ALLEN PARK DAVIDSON, Professor of Education (1919, 1930).
B. S., M. S., Kansas State College.
- EARLE ROSCO DAVIS, Professor and Head of Department of English (1949, 1950).
A. B., B. M., Monmouth College; M. A., University of Illinois; Ph. D., Princeton University.
- HAMLAM WALKER DAVIS, Professor of English (1913, 1950).
A. B., Indiana University; A. M., Columbia University.
- ERVIN ROY DEAL, Graduate Assistant in Mathematics (1951).
A. B., Nebraska Wesleyan University.
- GEORGE ADAM DEAN, Professor of Entomology, Emeritus (1902, 1945).
B. S., M. S., Kansas State College; D. Sc., Southwestern College.
- DONALD FRANK DECOU, Associate Professor of Economics and Sociology (1947).
B. S., Kansas State Teachers College (Pittsburg); M. B. A., Northwestern University.
- JOHN WESLEY DEMAND, Assistant Professor of Psychology (1940, 1947).
A. B., University of Kansas; M. S., Kansas State College.

- LEONARD WESLEY DEWHIRST, Instructor in Zoology (1948, 1952).
B. S., M. S., Kansas State College.
- THEODORE ORICE DODGE, Assistant Professor of Economics and Sociology (1946, 1948).
B. S., Kansas State College.
- ESTHER BEACHEL DOMINICK, Instructor in English (1948).
A. B., Kansas Wesleyan University; M. S., Kansas State College.
- CARL ALFRED DORF, Assistant Professor of Chemistry (1931, 1948).
A. B., Bethany College; M. S., Kansas State College.
- LOUIS HARTWELL DOUGLAS, Professor of Government (1949).
A. B., Hastings College; M. A., Ph. D., University of Nebraska.
- WILLIAM VICTOR DOWNER, JR., Assistant Professor of Military Science (1950).
B. S., United States Naval Academy; Graduate, Artillery School.
- EDWARD STANLEY DOYLE, Instructor in Air Science (1952).
Graduate, Air Inspectors School, Personnel Management School.
- RUSSELL DEAN DRAGSDORF, Associate Professor of Physics; Associate Physicist, Agricultural Experiment Station (1948, 1951).
S. B., Ph. D., Massachusetts Institute of Technology.
- EDWARD LEE DUBOWSKY, Graduate Assistant in Mathematics (1952).
B. S., Northwest Missouri State College.
- LOWELL MYERS DUFFEY, Graduate Research Assistant in Zoology, Agricultural Experiment Station (1952).
B. S., Maryville College.
- ROBERT CLARENCE EARNEST, Temporary Assistant Professor of Economics and Sociology (1951).
B. S., M. B. A., University of Denver.
- VERLIN ROBERT EASTERLING, Associate Professor of History (1946, 1952).
B. A., Northwestern State College; M. A., Ph. D., University of Colorado.
- GEORGE ORVAL EBBERTS, Assistant to the Dean; Assistant Professor (1946, 1949).
B. S., M. S., Kansas State College.
- EARL EUGENE EDGAR, Professor of Philosophy (1946, 1949).
B. A., DePauw University; M. A., University of Nebraska; Ph. D., University of Cincinnati.
- JOHN RICHARD EGERTON, Graduate Research Assistant in Zoology, Agricultural Experiment Station (1950, 1952).
B. S., Colorado Agricultural and Mechanical College.
- JOE EISENBACH, JR., Temporary Assistant to the Dean and Instructor (1948, 1952).
B. S., Kansas State Teachers College (Emporia).
- ABRAHAM EISENSTARK, Associate Professor of Bacteriology; Associate Poultry Bacteriologist and Virologist, Agricultural Experiment Station (1951).
B. A., M. A., Ph. D., University of Illinois.
- HELEN ELIZABETH ELCOCK, Professor of English (1920, 1947).
A. B., College of Emporia; A. M., University of Chicago.
- ALBERT COOLIDGE ELDRIDGE, Assistant Professor of Government (1948).
A. B., University of Massachusetts; A. M., University of Chicago.
- BYRON ELBRIDGE ELLIS, Professor of Technical Journalism (1949, 1950).
A. B., Pacific Union College; A. M., University of Southern California.
- LOUIS DANIEL ELLSWORTH, Associate Professor of Physics (1946).
B. S., Case Institute of Technology; M. S., Ph. D., Ohio State University.
- OTTO HERMAN ELMER, Professor of Botany and Plant Pathology; Plant Pathologist, Agricultural Experiment Station (1927, 1952).
B. S., M. S., Oregon State College; Ph. D., Iowa State College.
- RICHARD LLOYD ELTON, Graduate Assistant in Zoology (1952).
B. A., Concordia College.
- DONALD WARREN EMERICH, Instructor in Chemistry (1951).
B. S., Pennsylvania State College.
- ALFRED THEODORE ERICSON, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1951).
B. S., Kansas State Teachers College (Emporia).
- CONRAD JOHN KERULF ERIKSEN, Associate Professor of Economics and Sociology (1946, 1947).
B. A., University of Kansas; M. B. A., Harvard University.

- LESTER EDGAR ERWIN, Associate Professor of Bacteriology; Associate Poultry Bacteriologist, Agricultural Experiment Station (1946, 1950).
B. S., Kansas State College; M. S., Ph. D., Iowa State College.
- EDWARD ELBERT ESAU, Graduate Research Assistant in Botany and Plant Pathology, Agricultural Experiment Station (1952).
B. S., Bethel College.
- ELBERT LEE ESHBAUGH, Assistant Professor of Entomology; Assistant Entomologist, Agricultural Experiment Station (1945, 1952).
B. S., M. S., Kansas State College.
- CHARLES CLIFFORD EUSTACE, Assistant Professor of Education (1946).
B. S., Kansas State College.
- THOMAS MARION EVANS, Professor and Head of Department of Physical Education (1942, 1950).
B. S., Kansas State College; M. S., University of Michigan.
- JACOB OLIN FAULKNER, Professor of English (1922, 1927).
B. A., Washington and Lee University; M. A., Pennsylvania State College.
- GEORGE ROBERT FELL, Instructor in Speech (1950).
B. A., University of South Dakota.
- DORIS HAY FENTON, Temporary Instructor in English (1946).
B. A., Swarthmore College; M. S., Kansas State College.
- MAXINE CORRINE FISH, Graduate Research Assistant in Botany and Plant Pathology, Agricultural Experiment Station (1951).
B. S., James Millikin University; M. S., Kansas State Teachers College (Pittsburg).
- WALTER DUMMER FISHER, Assistant Professor of Economics and Sociology (1951).
A. B., Harvard University; Ph. D., University of Chicago.
- EUSTACE VIVIAN FLOYD, Professor of Physics, Emeritus (1911, 1948).
B. S., Earlham College.
- VERNON DANIEL FOLTZ, Professor of Bacteriology and Acting Head of Department; Bacteriologist, in charge, Agricultural Experiment Station (1927, 1952).
B. S., M. S., Kansas State College.
- CLARENCE MAXWELL FOWLER, Associate Professor of Physics (1949, 1951).
B. S., University of Illinois; M. S., Ph. D., University of Michigan.
- WOODROW WILSON FRANKLIN, Assistant Professor of Entomology; Assistant Entomologist, Agricultural Experiment Station (1948, 1950).
B. S., McPherson College; Ph. D., Kansas State College.
- JOHN CARROLL FRAZIER, Professor of Botany and Plant Pathology; Plant Physiologist, Agricultural Experiment Station (1926, 1947).
A. B., DePauw University; M. A., University of Nebraska; Ph. D., University of Chicago.
- NORMAN DUGARD FRENCH, Temporary Assistant Professor of Economics and Sociology (1951).
B. S., M. S., University of Illinois.
- HOLLY CLAIRE FRYER, Professor of Mathematics; in Charge of Statistical Laboratory, Agricultural Experiment Station (1940, 1945).
B. S., University of Oregon; M. S., Oregon State College; Ph. D., Iowa State College.
- LEONARD EUGENE FULLER, Assistant Professor of Mathematics (1952).
B. A., University of Wyoming; M. S., Ph. D., University of Wisconsin.
- SLAVA FURLAN, Graduate Assistant in Mathematics (1952).
B. A., Marymount College.
- ALBERT FURMAN, Assistant Professor of Mathematics (1947).
B. S., M. S., University of New Hampshire.
- PERCY LEIGH GAINNEY, Professor of Bacteriology; Soil Bacteriologist, Agricultural Experiment Station (1914, 1952).
B. S., M. S., University of North Carolina; Ph. D., Washington University.
- JAMES HAMLIN GARDNER, Head Basketball Coach; Professor of Athletics (1939, 1952).
B. S., M. S., University of Southern California.
- FRANK CALEB GATES, Professor of Botany and Plant Pathology; Taxonomist and Ecologist, Agricultural Experiment Station (1919, 1928).
A. B., University of Illinois; Ph. D., University of Michigan.
- ANTHONY BERNARD GAYDOS, Graduate Assistant in Physical Education (1952).
B. S., Kansas State College.

- JOSEPH GEMM, Instructor in Air Science (1951).
Graduate, Academic Instructors School, Air University.
- KATHERINE GEYER, Professor of Physical Education (1927, 1947).
B. S., Ohio State University; M. A., Columbia University.
- HERSCHEL THOMAS GIER, Associate Professor of Zoology; Associate Embryologist, Agricultural Experiment Station (1947).
A. B., Kansas State Teachers College (Pittsburg); Ph. D., Indiana University.
- KINGSLEY WALTON GIVEN, Professor of Speech (1925, 1950).
B. A., Park College; M. A., State University of Iowa.
- BLAINE LOGAN GLENDENING, Assistant Chemist, Assistant Biochemist and Nutritionist, Agricultural Experiment Station (1947, 1951).
A. B., M. S., Kansas State Teachers College (Pittsburg).
- BERNEY LOU GOLDEN, Graduate Research Assistant in Zoology (Endocrinology), Agricultural Experiment Station (1952).
A. B., Hunter College.
- ARTHUR LEONARD GOODRICH, Professor of Zoology (1929, 1947).
B. S., College of Idaho; M. S., University of Idaho; Ph. D., Cornell University.
- FINIS MCCRADY GREEN, Professor and Head of Department of Education (1948, 1952).
B. S., Kansas State Teachers College (Pittsburg); M. S., University of Kansas; Ed. D., University of Colorado.
- FLORENCE NADINE GREEN, Temporary Instructor in Economics and Sociology (1949, 1951).
B. S., M. S., Kansas State College.
- JAMES ALLAN GRIFFITH, Assistant Professor of Air Science (1952).
B. A., Bluffton College; Graduate, AF Cryptographic School, Academic Instructors Course.
- HILDA ROSINE GROSSMAN, Assistant Professor of Music (1927, 1932).
B. M., Chicago Musical College; B. S., Kansas State College; M. A., Stanford University.
- MORRIS PAUL GROTHEER, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1951).
B. S., M. S., Kansas State Teachers College (Pittsburg).
- DOROTHY BELLE GUDGEY, Instructor in Economics and Sociology (1943, 1947).
B. S., M. S., Kansas State College.
- RALPH EUGENE GUERRANT, Assistant Professor of Chemistry (1946).
A. B., Westminster College; M. A., Ph. D., Missouri University.
- MERLE EDWIN GUGLER, Assistant Professor of Economics and Sociology (1947, 1948).
B. S., Kansas State Teachers College (Emporia); M. S., Kansas State College.
- LOUIS ARTHUR GUGLIEMELLI, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1952).
B. S., Pennsylvania State College; M. S., Marshall College.
- ALPHAUS MATTHEW GUHL, Associate Professor of Zoology; Associate Zoologist (animal behavior), Agricultural Experiment Station (1943, 1947).
B. A., North Central College; M. S., Ph. D., University of Chicago.
- RICHARD RAY HAHN, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1952).
B. S., Bethany College.
- JOSEPH LOWE HALL, Associate Professor of Chemistry; Associate Chemist (meats), Agricultural Experiment Station (1922, 1949).
B. S., M. S., Ph. D., University of Illinois.
- LAWRENCE FENOR HALL, Associate Professor of Education (1926, 1941).
B. S., M. S., Kansas State College.
- MINA GOEHRING HALL, Temporary Instructor in Chemistry (1933, 1952).
B. S., University of Nebraska; M. S., Ph. D., State University of Iowa.
- MERLE FREDERICK HANSEN, Associate Professor of Zoology; Associate Parasitologist, Agricultural Experiment Station (1950, 1951).
B. A., M. A., University of Minnesota; Ph. D., University of Nebraska.
- EARL DAHL HANSING, Professor of Botany and Plant Pathology; Plant Pathologist, Agricultural Experiment Station (1935, 1947).
B. S., University of Minnesota; M. S., Kansas State College; Ph. D., Cornell University.
- MURVILLE JENNINGS HARBAUGH, Professor of Zoology (1929, 1945).
A. B., A. M., Montana State University; Ph. D., University of Nebraska.

DWIGHT LeROY HARLEY, Assistant Professor of Air Science (1952).

B. A., Coe College; M. A., State University of Iowa; Graduate, Air University Academic Instructors School, Logistics Staff Officers School.

MARY THERESA HARMAN, Professor of Zoology, Emeritus (1912, 1950).

B. A., M. A., Ph. D., Indiana University.

CLARENCE LLOYD HARR, Temporary Instructor in Geology (1952).

B. S., Kansas State College.

JOHN ORVILLE HARRIS, Professor of Bacteriology; Bacterial Physiologist, Agricultural Experiment Station (1941, 1952).

B. S., Ph. D., Kansas State College; M. S., University of Hawaii.

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

B. S., M. S., Kansas State College.

ALICE RAE HARTIG, Instructor in Speech (1952).

B. S., Kansas State College.

JULIA RUTH HARTMAN, Assistant Professor of Music (1924).

B. S., Columbia University.

LLOYD ERVIN HAYES, Graduate Assistant in Physics (1952).

B. S., Kansas State College.

WARD HILLMAN HAYLETT, Head Track Coach; Associate Professor of Athletics (1928, 1952).

A. B., Doane College.

HERBERT HENLEY HAYMAKER, Professor of Botany and Plant Pathology (1917, 1927).

B. S., Kansas State College; M. S., Ph. D., University of Wisconsin.

ROBERT WILSON HAYS, Assistant Professor of Music (1946).

B. A., Carroll College; M. S., Union Theological Seminary.

DOROTHY KLEINERT HEDLUND, Instructor in Music (1950).

B. M., M. A., State University of Iowa.

HARRY JEAN HEDLUND, Assistant Professor of Music (1946, 1948).

B. M., M. A., State University of Iowa.

RICHARD EARL HEIN, Associate Professor of Chemistry; Associate Chemist, Agricultural Experiment Station (1950, 1952).

B. S., State University of Iowa; Ph. D., Iowa State College.

JOHN HENRY HENNES, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1951).

B. S., University of Florida.

DONALD FRANCIS HERMES, Assistant Professor of Speech (1948, 1952).

B. F. A., M. F. A., College of William and Mary.

EARL HOWARD HERRICK, Professor of Zoology; Mammalogist, Agricultural Experiment Station (1935, 1941).

B. S., M. S., Kansas State College; Ph. D., Harvard University.

FRED HALL HIGGINSON, Assistant Professor of English (1950, 1951).

A. B., M. A., University of Wichita.

HOWARD TEMPLETON HILL, Professor and Head of Department of Speech (1920, 1921).

B. S., Iowa State College; J. D., University of Chicago.

RANDALL CONRAD HILL, Professor of Economics and Sociology (1929, 1935).

B. S., M. S., Kansas State College; Ph. D., University of Missouri.

WILLIAM HOWARD HOCK, Temporary Graduate Research Assistant in Chemistry (1951).

LINWOOD LAMB HODGDON, Assistant Professor of Economics and Sociology (1949, 1950).

B. A., American International College (Massachusetts); M. A., Ph. D., Michigan State College.

HAROLD DEAN HOLT, Temporary Instructor in Geology (1952).

B. S., Cornell University.

ADRIAN AUGUSTUS HOLTZ, Professor of Economics and Sociology (1919, 1942).

A. B., Colgate University; Ph. M., B. D., Ph. D., University of Chicago.

EARL GODFREY HOOVER, Professor of Speech (1943, 1947).

B. A., Illinois College; M. A., State University of Iowa.

HELEN PANSY HOSTETTER, Professor of Technical Journalism (1926, 1946).

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

- FLORENCE VIRGINIA HOWE**, Associate Professor of Speech (1947, 1952).
A. B., Elmira College; M. S., Boston University.
- ANGUS JOSEPH HOWITT**, Graduate Research Assistant in Entomology, Agricultural Experiment Station (1952).
B. S., Ontario Agricultural School (Ontario); M. S., Montana State College.
- JOSIAH SIMPSON HUGHES**, Professor of Chemistry; Biochemist and Nutritionist, Agricultural Experiment Station (1910, 1920).
B. S., M. S., Ohio Wesleyan University; M. A., Ph. D., Ohio State University.
- WILLIAM CASTLE HUMMEL**, Professor of English (1950).
A. B., Allegheny College; M. A., Ph. D., University of Pittsburgh.
- MARVIN WRIGHT HUNT**, Instructor in Military Science (1952).
- EMMA HYDE**, Associate Professor of Mathematics, Emeritus (1920, 1951).
B. A., University of Kansas; A. M., University of Chicago.
- ERNEST ALVA IKENBERRY**, Research Assistant in Chemistry, Agricultural Experiment Station (1948, 1952).
A. B., McPherson College; M. S., Kansas State College.
- IVOR VICTOR ILES**, Professor of Government, Emeritus (1911, 1949).
B. A., M. A., University of Kansas.
- JOHN PATRICK IRWIN**, Assistant Professor of Air Science (1951).
B. A., Sacramento State College; Graduate, Academic Instructors School, Air University.
- MILFORD FELIX ITZ**, Professor and Head of Department of Air Science (1951).
B. S., Kansas State College; M. B. A., Columbia University; Graduate, Command and Staff School.
- EDWIN K. IVES**, Graduate Assistant in Chemistry (1951).
B. S., Colorado Agricultural and Mechanical College.
- ROBERT JOHN JAKOBSEN**, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1951, 1952).
B. S., College of Emporia.
- WILLIAM CHARLES JANES**, Associate Professor of Mathematics (1922, 1946).
B. S., Northwestern University; M. A., University of Nebraska.
- ERLAND GODFREY JOHNSON**, Assistant Professor of Air Science (1951).
Graduate, Aircraft Maintenance School and Academic Instructors Course.
- GEORGE DANA JOHNSON**, Assistant Professor of Chemistry (1952).
A. B., M. A., Oberlin College; Ph. D., University of Michigan.
- DALE VINCENT JONES**, Associate Professor of English (1946, 1951).
B. S., M. S., Kansas State College.
- CLYDE JUSSILA**, Instructor in Music (1949, 1952).
B. M., University of Washington; M. S., Kansas State College.
- HARRISON M. KASH**, Graduate Assistant in Chemistry (1952).
B. S., Kansas State Teachers College (Pittsburg).
- JOHN EDWARD KATON**, Graduate Assistant in Chemistry (1952).
B. A., Bowling Green State University.
- ROBERT KATZ**, Associate Professor of Physics; Associate Physicist, Agricultural Experiment Station (1949, 1951).
B. A., Brooklyn College; M. A., Columbia University; Ph. D., University of Illinois.
- DONALD CLIFFORD KELLEY**, Assistant Professor of Military Science (1950).
D. V. M., M. S., Kansas State College; Graduate, Medical Field Service School.
- JOHN GILBERT KENYON**, Assistant Professor of Economics and Sociology (1948).
B. A., M. A., State University of Iowa.
- JAMES FRANKLIN KESNER**, Instructor in Military Science (1951).
- KENNETH CHARLES KLASSEN**, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1952).
B. S., Kansas State Teachers College (Emporia).
- ROBERT JOSEPH KLOTZ**, Graduate Assistant in Physics (1952).
B. A., Kansas State Teachers College (Emporia).
- FRITZ GUSTAVE KNORR**, Assistant Director of Athletics (1942, 1952).
B. S., M. S., Kansas State College.
- WILLIAM ERNEST KOCH**, Assistant Professor of English (1946, 1947).
B. A., North Dakota State Teachers College; M. S., Kansas State College.
- JAMES DAVID KOERNER**, Assistant Professor of English (1952).
B. A., M. A., Ph. D., Washington University.

- HERALD WESLEY KRUSE**, Graduate Research Assistant in Physics, Agricultural Experiment Station (1950, 1952).
B. A., Doane College; M. S., Kansas State College.
- DONALD G. KUNDIGER**, Associate Professor of Chemistry; Associate Chemist, Agricultural Experiment Station (1941, 1952).
B. S., Ph. D., University of Wisconsin.
- RUSSELL LAMAN**, Assistant Professor of English (1935, 1946).
B. S., Kansas State College; M. A., State University of Iowa.
- JACK LEEPER LAMBERT**, Assistant Professor of Chemistry; Assistant Chemist, Agricultural Experiment Station (1950, 1952).
A. B., M. S., Kansas State Teachers College (Pittsburg); Ph. D., Oklahoma Agricultural and Mechanical College.
- KEITH LEON LAMBERT**, Athletic Coach (1951, 1952).
B. A., University of Southern California; M. A., Butler University.
- ROY CLINTON LANGFORD**, Professor of Psychology (1925, 1941).
B. S., M. S., Kansas State College; Ph. D., Leland Stanford Junior University.
- ARTHUR LEROY LANGVARDT**, Assistant Professor of English (1947).
A. B., Kansas State Teachers College (Emporia); M. A., University of Colorado.
- FRANCIS CHOWNING LANNING**, Assistant Professor of Chemistry (1942, 1946).
B. S., M. S., University of Denver; Ph. D., University of Minnesota.
- LOUIS EVERETT LARSON**, Assistant Professor of Air Science (1951).
B. A., M. A., University of Minnesota; Graduate, Public Relations School, Academic Instructors School, Air University.
- SARA CHARLOTTE LARSON**, Instructor in Geography (1946).
A. B., Knox College; B. E., Illinois State Normal University; M. S., University of Chicago.
- MENDEL ELMER LASH**, Professor of Chemistry (1922, 1947).
A. B., M. S., Ph. D., Ohio State University.
- RALPH RICHARD LASHBROOK**, Professor and Head of Department of Technical Journalism (1934, 1944).
B. S., Kansas State College; M. S., University of Wisconsin.
- FRED AVERY LAWSON**, Assistant Professor of Entomology (1952).
B. S., University of Arkansas; M. S., Ph. D., Ohio State University.
- BORIS LEAF**, Associate Professor of Physics (1946, 1947).
B. S., University of Washington; Ph. D., University of Illinois.
- HOWARD K. LEARNED**, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1952).
B. S., Kansas State College.
- LUTHER OMAR LEAVENGOD**, Professor and Head of Department of Music (1945).
B. S., University of Kansas; M. M., University of Michigan.
- MILFORD RAY LEE**, Assistant Instructor in Physics, Agricultural Experiment Station (1949, 1952).
B. S., M. S., Kansas State College.
- GEORGE EDWIN LEEDHAM**, Assistant Professor of Music (1949).
B. M., University of Rochester.
- RICHARD BEVERLY LEMAR**, Assistant Professor of Air Science (1951).
B. A., University of Nebraska; Graduate, Academic Instructors School, Air University.
- GUY WILLIAM LEONARD, JR.**, Associate Professor of Chemistry; Associate Chemist, Agricultural Experiment Station (1949, 1952).
B. S., A. M., Indiana University; Ph. D., Massachusetts Institute of Technology.
- HERBERT PAUL LEVAN**, Graduate Assistant in Chemistry (1952).
B. S., M. S., Kansas State Teachers College (Pittsburg).
- CLARENCE FLAVIUS LEWIS**, Associate Professor of Mathematics (1920, 1926).
A. B., University of Denver; M. S., Kansas State College.
- HSIOH CHIEN LI**, Graduate Assistant in History (1952).
B. A., University of Nanking (China).
- LOUIS HENRY LIMPER**, Professor of Modern Languages, Emeritus (1914, 1944).
A. B., Baldwin-Wallace College; A. M., University of Wisconsin; Ph. D., State University of Iowa.
- WILLIAM GUSTAVE LINDQUIST**, Professor of Music (1921, 1947).
B. M., Cosmopolitan School of Music.
- ELLIS RIDGEWAY LIPPINCOTT**, Associate Professor of Chemistry (1951).
B. A., Earlham College; M. A., Ph. D., Johns Hopkins University.
- CHARLES HOWARD LOCKHART**, Assistant Professor of Zoology (1940, 1947).
B. S., M. S., Kansas State College.

- GLENN WESLEY LONG, Assistant Professor of Economics and Sociology (1938, 1945).
A. B., Baker University; M. S., Kansas State College.
- THOMAS HENRY LORD, Professor of Bacteriology (1941, 1952).
B. S., University of Massachusetts; M. S., Ph. D., University of Illinois.
- HELEN ANNABEL LOY, Temporary Instructor in Mathematics (1952).
B. A., Ottawa University; M. S., Kansas State Teachers College (Emporia).
- CARROL EUGENE LUND, Graduate Assistant in Mathematics (1951).
B. A., Augustana College.
- EVA CAROLINE LYMAN, Associate Professor of Physical Education (1943, 1947).
B. S., Battle Creek College; M. A., State University of Iowa.
- ERIC ROSS LYON, Associate Professor of Physics (1921, 1928).
A. B., M. S., Phillips University.
- GEORGE WILLIAM MCBRIDE, Instructor in Military Science (1952).
- ROBERT BRUCE MCCLELLAN, Instructor in Air Science (1951).
- ELIZABETH UNGER MCCracken, Associate Professor of Botany and Plant Pathology; Associate Cytogeneticist, Agricultural Experiment Station (1938, 1950).
B. A., M. A., Wellesley College; Ph. D., University of California.
- ROBERT AUSTIN MCDANIEL, Graduate Research Assistant in Chemistry (1952).
B. S., Sterling College.
- MAYNARD LEE MCDOWELL, Assistant Professor of Chemistry (1926, 1945).
A. B., Central College of Missouri; A. M., University of Missouri; Ph. D., State University of Iowa.
- ROBERT HAROLD MCFARLAND, Associate Professor of Physics; Associate Physicist, Agricultural Experiment Station (1946, 1947).
A. B., B. S., Kansas State Teachers College (Emporia); Ph. M., Ph. D., University of Wisconsin.
- KATHERYN ANN MCKINNEY, Assistant Professor of Physical Education (1946).
B. S., Kansas State College; M. A., George Peabody College for Teachers.
- KENNETH JAMES MCMAHON, Instructor in Bacteriology (1949, 1951).
B. S., South Dakota State College of Agriculture and Mechanic Arts; M. S., Oklahoma Agricultural and Mechanical College.
- HERBERT HENRY MACCOBY, Temporary Assistant Professor of Sociology (1950).
A. B., Western Reserve University; M. A., Columbia University.
- BRENTON HOWARD MADISON, Graduate Assistant in Chemistry (1952).
B. S., Kansas State College.
- BOYD ROBERT MANGUS, Instructor in Speech (1952).
A. B., Transylvania College; M. S., Purdue University.
- MAX RAUEB MARTIN, Assistant in Music (1929, 1950).
- DAVID LEONARD MATTHEW, JR., Graduate Research Assistant in Entomology, Agricultural Experiment Station (1951, 1952).
B. S., Kansas State College.
- CHARLES WALTON MATTHEWS, Professor of English (1921, 1925).
B. S., Kansas State Teachers College (Pittsburg); M. A., University of Chicago.
- GEORGE WILLARD MAXWELL, Assistant Professor of Physics (1927, 1928).
A. B., M. S., University of Michigan.
- CALVIN MEDLIN, Professor of Technical Journalism (1934, 1949).
B. S., M. S., Kansas State College.
- WILLIAM MERIDAS MEEK, Head Football Coach; Professor of Athletics (1951, 1952).
B. A., University of Tennessee.
- LEO EDWARD MELCHERS, Professor of Botany and Plant Pathology; Plant Pathologist, Agricultural Experiment Station (1913, 1952).
B. S., M. S., Ohio State University.
- GEORGE PEARSON MELLOR, Graduate Research Assistant in Physics, Agricultural Experiment Station (1950, 1952).
B. A., Colorado College.
- JOSEPH FARRINGTON MERRILL, Assistant Chemist, Agricultural Experiment Station (1921).
B. S., University of Maine.

- JAMES EDWIN MESSER**, Instructor in Air Science (1951).
BLANCHARD LEROY MICKEL, Graduate Assistant in Chemistry (1949, 1950).
B. S., Washburn Municipal University of Topeka; M. S., Kansas State College.
- ALLEN DAVID MILLER**, Associate Professor of Government (1946).
B. A., University of Kansas; M. A., University of Texas.
- CECIL HALE MILLER**, Professor of Philosophy (1945, 1951).
A. B., University of Kansas; M. A., University of California.
- JORDAN YALE MILLER**, Instructor in English (1950).
B. A., Yale University.
- WILLIAM ARTHUR MILLER**, Associate Professor of Bacteriology; Associate Dairy Bacteriologist, Agricultural Experiment Station (1947, 1952).
B. S., Ph. D., University of Illinois; M. S., University of Pennsylvania.
- HOWARD LEE MITCHELL**, Associate Professor of Chemistry; Associate Biochemist, Agricultural Experiment Station (1946, 1952).
B. S., Oklahoma Agricultural and Mechanical College; Ph. D., Purdue University.
- MAURICE CHARLES MOGGIE**, Professor of Education (1930, 1945).
B. S., M. S., Kansas State College; Ph. D., Ohio State University.
- GEORGE MONTGOMERY**, Professor and Head of Department of Economics and Sociology (1925, 1947).
B. S., M. S., Kansas State College.
- DORIS PAULINE MOORE**, Temporary Assistant Instructor in Chemistry (1952).
B. S., Northwestern State College (Oklahoma).
- FRANK ARCHER MOORE**, Graduate Assistant in Chemistry (1952).
B. S., Fort Hays Kansas State College; M. S., Kansas State College.
- FRITZ MOORE**, Professor and Head of Department of Modern Languages (1934).
A. B., University of Akron; A. M., Ph. D., University of Illinois.
- IRENE ZACK MOORE**, Temporary Instructor in English (1952).
B. S., M. S., University of Illinois.
- KEITH ALBERT MORE**, Graduate Research Assistant in Physics, Agricultural Experiment Station (1951, 1952).
B. S., Kansas State College.
- LAURENCE MORGAN**, Athletic Trainer (1951).
B. S., St. Ambrose College.
- MAURICE BRADLEY MORGAN**, Temporary Instructor in Institute of Citizenship (1952).
B. S., M. S., Kansas State College.
- THIRZA ADELINE MOSSMAN**, Associate Professor of Mathematics (1922, 1946).
B. A., University of Nebraska; M. A., University of Chicago.
- ALVIN EDGAR MULANAX**, Assistant Professor of Economics and Sociology (1947, 1951).
B. S., M. S., Kansas State College.
- LAURENCE ANTHONY MULLINS**, Director of Athletics (1951, 1952).
A. B., University of Notre Dame.
- DONALD FARNHAM MUNRO**, Associate Professor of Modern Languages (1940).
B. S., M. A., Acadia University (Canada); Ph. D., University of Illinois.
- ROBERT ALLEN MURRAY**, Graduate Assistant in History (1952).
B. A. in Ed., Nebraska State Teachers College (Wayne).
- FRANK LEWIS MYERS**, Assistant Professor of Physical Education (1925, 1947).
B. S., Kansas State College.
- ROBERT KIRKLAND NABOURS**, Professor of Zoology, Emeritus (1910, 1945).
B. Ed., Ph. D., University of Chicago.
- RICHARD DAVID NELSON**, Graduate Research Assistant in Chemistry (1952).
A. B., Cornell College.
- WALLACE BOYD NELSON**, Assistant Professor of Economics and Sociology (1950).
B. S., Southern Illinois University; M. A., Ph. D., State University of Iowa.
- MARGARET ALICE NEWCOMB**, Associate Professor of Botany and Plant Pathology (1925, 1941).
B. S., M. S., Kansas State College.
- JACK IRWIN NORTHAM**, Assistant Professor of Mathematics (1947).
B. A., New York University; M. A., Michigan State College.
- CARROLL FRANK OAKLEY**, Associate Professor of Physics (1948).
B. A., Milton College; M. A., University of Wisconsin.

- OWEN KENNETH O'FALLON, Associate Professor of Education (1950).
A. B., M. A., Western State College of Colorado; Ed. D., University of Colorado.
- GEORGE ARTHUR OLSON, Associate Professor of Education (1949).
A. B., A. M., University of Kansas.
- LEROY JUSTIN OLSON, Graduate Assistant in Zoology (1951).
B. A., Concordia College.
- ELWIN B. W. OVIST, Graduate Assistant in Chemistry (1951).
B. A., College of Idaho; M. S., University of Idaho.
- STUART MCGREGOR PADY, Professor and Head of Department of Botany and Plant Pathology; Mycologist, Agricultural Experiment Station (1952).
B. A., M. A., McMaster University (Canada); Ph. D., University of Toronto (Canada).
- CLARICE MARIE PAINTER, Assistant Professor of Music (1924).
Certificate, New England Conservatory of Music.
- REGINALD HENRY PAINTER, Professor of Entomology; Entomologist, Agricultural Experiment Station (1926, 1941).
B. A., M. A., University of Texas; Ph. D., Ohio State University.
- RALPH LANGLEY PARKER, Professor of Entomology; Entomologist and State Apiarist, Agricultural Experiment Station (1925, 1930).
B. S., University of Rhode Island; M. S., Brown University; M. S., Iowa State College; Ph. D., Cornell University.
- S. THOMAS PARKER, Professor of Mathematics (1947, 1951).
B. A., M. A., University of British Columbia (Canada); Ph. D., University of Cincinnati.
- FRED MAC PARRIS, Assistant Professor of Technical Journalism (1944, 1949).
B. S., Kansas State College; M. A., State University of Iowa.
- DONALD BAKER PARRISH, Associate Professor of Chemistry; Associate Biochemist and Nutritionist, Agricultural Experiment Station (1943, 1952).
B. S., M. S., Ph. D., Kansas State College.
- FRED LOUIS PARRISH, Professor and Head of Department of History, Government and Philosophy (1927, 1942).
A. B., M. A., Northwestern University; B. D., Garrett Biblical Institute; Ph. D., Yale University.
- ROBERT STANLEY PEARSON, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1952).
B. S., Kansas State Teachers College (Pittsburg).
- MARION HERFORD PELTON, Assistant Professor of Music (1928, 1931).
B. M., University of Wisconsin; B. S., Kansas State College.
- ALFRED THOMAS PERKINS, Professor of Chemistry; Soil Chemist, Agricultural Experiment Station (1925, 1938).
B. S., Pennsylvania State College; M. S., Ph. D., Rutgers University.
- BHAGIRATH R. B. PERSAUD, Graduate Research Assistant in Zoology, Agricultural Experiment Station (1951, 1952).
B. S., The American University.
- JOE GREGORY PETERSON, Research Assistant in Chemistry, Agricultural Experiment Station (1951, 1952).
B. S., M. S., Alabama Polytechnic Institute.
- JOHN CHRISTIAN PETERSON, Professor of Psychology (1917, 1920).
A. B., University of Utah; Ph. D., University of Chicago.
- DOROTHY BRADFORD PETTIS, Associate Professor of Modern Languages (1927, 1937).
B. A., M. A., University of Nebraska; Certificate, University of Paris, Middlebury College.
- PAUL VASTINE PEURIFOY, Graduate Assistant in Chemistry (1951).
B. S., Florida Southern College; M. S., University of Miami.
- LEE LANEY PIDCOCK, Instructor in Air Science (1950).
Graduate, Air University, Academic Instructors School.
- HUEY PLEDGER, JR., Graduate Research Fellow in Chemistry, Agricultural Experiment Station (1950, 1952).
B. S., M. S., Kansas State College.
- KENNETH ANDREW POLLART, Graduate Assistant in Chemistry (1952).
B. S., Regis College.
- ROYAL A. PRICE, Athletic Coach (1951, 1952).
B. S., University of Tennessee.
- RALPH EDWARD PYKE, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1951).
B. A., Baker University.

- ROBERT EMMETT PYLE, Assistant Professor of Modern Languages (1938, 1947).
B. A., M. A., University of Kansas.
- WILLIAM I. PYLE, Graduate Research Assistant in Physics (1953).
A. B., Kansas State College (Emporia).
- GEORGE ELLSWORTH RABURN, Professor of Physics, Emeritus (1910, 1935).
A. B., M. S., University of Michigan.
- MANUEL D. RAMIREZ, Assistant Professor of Modern Languages (1946).
B. A., M. A., University of Florida.
- CHARLES MCPHAIL RAPHUN, Assistant Professor of Military Science (1952).
- ANTONE PACHECO RAPOSA, Assistant Professor of Military Science (1952).
- LEON MERLE REYNARD, Instructor in Physical Education (1947).
B. S., M. S., Kansas State College.
- ESTHER IONE RHYMER, Assistant Professor of Bacteriology (1951).
B. Ed., Illinois State Normal University; M. S., Ph. D., University of Illinois.
- ADA RICE, Professor of English, Emeritus (1899, 1946).
B. S., M. S., Kansas State College.
- RICHARD WILLIS RIPPER, Graduate Assistant in Bacteriology (1951).
B. S., M. S., Kansas State College.
- DUANE ALLAN RITTIS, Assistant in Physics (1949, 1950).
- WILLIAM EDWARD ROBBINS, Graduate Research Assistant in Entomology, Agricultural Experiment Station (1951).
B. S., Morris Harvey College.
- JOHN LUTTRELL ROBSON, Assistant Professor of Speech (1952).
B. A., West Virginia University; M. A., Ph. D., University of Southern California.
- NOBLE WARREN ROCKEY, Professor of English, Emeritus (1921, 1952).
A. B., A. M., Ohio State University.
- FRED ROGERS, Temporary Instructor in Speech (1951).
B. S., Kansas State College; M. A., State University of Iowa.
- SAMUEL NICHOLAS ROGERS, JR., Assistant Chemist, Agricultural Experiment Station (1947).
B. S., Kansas State College.
- CLARK THOMAS ROGERSON, Assistant Professor of Botany and Plant Pathology; Assistant Mycologist, Agricultural Experiment Station (1950).
B. S., Utah State Agricultural College; Ph. D., Cornell University.
- ROBERT RYAN ROHS, Graduate Assistant in Chemistry (1951).
B. S., Fordham University.
- JAKE R. ROWDEN, Athletic Coach (1951, 1952).
B. A., University of Maryland.
- LUCILE OSBORN RUST, Professor of Education (1924, 1929).
B. S., Kansas State Teachers College (Pittsburg); M. S., Kansas State College.
- CARROL MARY SACHTJEN, Graduate Assistant in History (1951).
B. A., Nebraska State Teachers College (Wayne).
- ADELBERT BOWER SAGESER, Professor of History (1938, 1941).
B. A., Nebraska State Teachers College (Wayne); M. A., Ph. D., University of Nebraska.
- ROBERT LOUIS SALISBURY, Graduate Assistant in Zoology (1952).
B. S., Ottawa University.
- MERRILL ERNEST SAMUELSON, Assistant Professor of Technical Journalism (1950, 1952).
B. S., Oklahoma City University.
- RALPH GRAFTON SANGER, Professor and Head of Department of Mathematics (1946).
B. S., M. S., Ph. D., University of Chicago.
- JOHN HORATIO SCHESSER, Graduate Research Assistant in Entomology, Agricultural Experiment Station (1952).
B. S., Kansas State College.
- PAUL STEWARD SCHMIDT, Assistant Professor of English (1951, 1952).
B. A., State University of Iowa; M. A., University of Chicago; Ph. D., University of Minnesota.
- WILLIAM GEORGE SCHRENK, Professor of Chemistry; Physical Chemist, Agricultural Experiment Station (1938, 1951).
A. B., Westmar College; M. S., Ph. D., Kansas State College.
- LAWRENCE WILLIAM SCOTT, Graduate Assistant in Chemistry (1952).
B. S., Kansas State College.

- SCOTT SEARLES, JR., Associate Professor of Chemistry; Associate Chemist, Agricultural Experiment Station (1952).
B. A., M. A., University of California; Ph. D., University of Minnesota.
- CLAUDE WESLEY SHENKEL, JR., Assistant Professor of Geology (1949, 1952).
B. S., Kansas State College; M. S., Ph. D., University of Colorado.
- G. A. SHIVANI, Graduate Research Assistant in Zoology (1953).
Diploma, Bombay Veterinary College.
- DONALD FOX SHOWALTER, Associate Professor of Psychology (1928, 1949).
A. B., M. A., University of Nebraska; Ph. D., University of Kansas.
- RALPH E. SILKER, Professor and Head of Department of Chemistry; Chemist, in charge, Agricultural Experiment Station (1941, 1948).
B. A., University of Dubuque; M. S., Ph. D., State University of Iowa.
- WEBSTER HARRISON SILL, JR., Assistant Professor of Botany and Plant Pathology; Assistant Plant Pathologist, Agricultural Experiment Station (1952).
B. S., West Virginia Wesleyan College; M. A., Boston University; Ph. D., University of Wisconsin.
- GILES MERTEN SINCLAIR, Instructor in English (1949).
A. B., Western State Teachers College (Michigan); A. M., Duke University.
- SARAH GOLDA SITZ, Temporary Instructor in Mathematics (1952).
B. S., Iowa State College.
- WENDELL HARTMAN SLABAUGH, Assistant Professor of Chemistry; Assistant Chemist, Agricultural Experiment Station (1950).
B. A., North Central College; M. S., North Dakota Agricultural College; Ph. D., State College of Washington.
- CHARLES MERVYN SLAGG, Assistant Professor of Botany and Plant Pathology (1946, 1950).
B. S., M. S., University of Wisconsin.
- FLOYD B. SLOAT, Assistant Professor of Mathematics (1946, 1947).
B. A., Ouachita College; M. A., University of Arkansas.
- HARRY WYNN SMODES, Temporary Instructor in Geology (1951).
B. S., University of Washington.
- DELBERT ELMORE SMITH, Sergeant Major in Air Science (1950).
- PAUL LAWRENCE SMITH, Graduate Assistant in Mathematics (1951).
B. A., Gustavus Adolphus College.
- ROBERT PAUL SMITH, Graduate Assistant in Mathematics (1952).
B. A., Drake University.
- WILLIAM C. SMITH, Graduate Assistant in Mathematics (1953).
B. S., St. Benedict's College.
- BENJAMIN LEVI SMITS, Assistant Professor of Chemistry, Emeritus (1926, 1952).
B. S., M. S., Ph. D., Michigan State College.
- HOMER EDWARD SOCOLOFSKY, Assistant Professor of History (1946, 1952).
B. S., M. S., Kansas State College.
- BILL SPENCER, Graduate Assistant in Mathematics (1952).
A. B., William Jewell College.
- ARTHUR BRADLEY SPERRY, Professor and Head of Department of Geology and Geography (1921, 1927).
B. S., University of Chicago.
- KARL STACEY, Associate Professor of Geography (1943, 1948).
B. A., M. A., University of Colorado.
- JOHN ELSWORTH STANTON, Instructor in Military Science (1952).
- DONALD RICHARD STEHLEY, Assistant Athletic Coach (1952).
B. S., Kansas State College.
- THOMAS BERNARD STEUNENBERG, Professor of Music (1947).
B. M., Northwestern University; M. M., University of Michigan.
- HARRY MARTIN STEWART, Professor of Economics and Sociology (1926, 1941).
A. B., M. B., University of Kansas.
- EDWARD SIEMANTEL STICKLEY, Assistant Professor of Chemistry; Assistant Industrial Chemist, Agricultural Experiment Station (1941, 1951).
B. S., Washburn Municipal University of Topeka; M. S., Ph. D., Kansas State College.
- CHARLES WILLIAM STRATTON, Professor of Music (1927, 1947).
B. M., M. S., Kansas State College.
- WILLIAM TIMOTHY STRATTON, Professor of Mathematics, Emeritus (1910, 1951).
A. B., A. M., Indiana University; Ph. D., University of Washington.

- VIVAN LEWIS STRICKLAND, Professor of Education, Emeritus (1917, 1950).
A. B., M. S., Ph. D., University of Nebraska.
- ANNA MARIE STURMER, Professor of English, Emeritus (1920, 1950).
A. B., A. M., University of Nebraska.
- CLARENCE HENRY SUELTER, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1951).
B. S., Kansas State College.
- VERNE SEBASTIAN SWEEDLUN, Professor of History (1941, 1947).
A. B., Bethany College; M. A., University of Kansas; Ph. D., University of Nebraska.
- LEROY SWIM, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1952).
B. S., Kansas State College.
- JAMES BEAL SWINEHART, Adjutant, Air Science (1951).
Graduate, Academic Instructors School, Air University.
- WILLIAM SYLVESTER, Assistant Professor of English (1952).
B. A., Columbia University; M. A., University of Chicago; Ph. D., University of Minnesota.
- JOHN ROLF TAYLOR, Instructor in Air Science (1951).
Graduate, Academic Instructors School, Air University, Aircraft Maintenance School.
- FRANK JAMES THOMPSON, Assistant Professor of Physical Education (1937, 1949).
B. S., Minnesota State Teachers College (Mankato); B. S., M. Ed., M. Ph. Ed., Springfield College.
- OTTO WILLIAM TIEMEIER, Assistant Professor of Zoology; Assistant Wildlife Conservationist, Agricultural Experiment Station (1947, 1948).
A. B., M. A., University of Kansas; Ph. D., University of Illinois.
- ELVIN WAYNE TILTON, Instructor in Entomology; Assistant Entomologist, Agricultural Experiment Station (1951).
B. S., M. S., Kansas State College.
- CHARLES FRANKLIN TISDALE, Assistant Professor of Military Science (1950).
B. S., Clemson College; Graduate, Infantry School.
- OSCAR WILLIAM TOLLEFSON, Assistant Professor of Geology (1946).
B. S., Huron College; M. A., University of Colorado.
- ROBERT CHARLES TONGUE, Assistant Professor of Military Science (1950).
B. S., United States Military Academy; Graduate, Artillery School.
- HENRY TUCKER, Assistant Professor of Mathematics; Assistant Statistical Consultant, Agricultural Experiment Station (1951).
B. S., New Mexico College of Agriculture and Mechanic Arts; M. A., State College of Washington.
- LOIS BELLE TURNER, Instructor in History (1946).
B. S., M. S., Kansas State College.
- JACQUELYN RUTH VAN GAASBEEK, Instructor in Physical Education (1949).
B. S., University of Virginia; M. S., West Virginia University.
- LAWRENCE WARREN VAN MEIR, Assistant Professor of Economics and Sociology (1947, 1949).
B. S., University of Illinois; M. S., Kansas State College.
- CLYDE HUNTUS VAN SICKLE, Athletic Coach (1951, 1952).
B. S., University of Arkansas.
- WILLIAM ALEXANDER VAN WINKLE, Associate Professor of Chemistry, Emeritus (1922, 1952).
B. S., M. S., Ph. D., University of Illinois.
- GEORGE FRANCIS VIERTAL, Assistant Professor of Military Science (1951).
- CECIL COLEMAN WALKER, Instructor in Military Science (1951).
- MARGARET FRANCES WALKER, Instructor in Music (1948).
B. A., University of Washington.
- WARREN VINCENT WALKER, Assistant Professor of Music (1948, 1952).
B. A., University of Washington; M. M., Cincinnati Conservatory of Music.
- CHARLES PHILIP WALTERS, Assistant Professor of Geology (1936, 1948).
B. S., M. S., Kansas State College.
- DALE BERTON WARD, Assistant Professor of Air Science (1952).
B. S., University of Illinois; Graduate, Air University, Academic Instructors School, Air Force Instrument School.
- LOUIS P. WASHBURN, Professor of Physical Education (1926, 1931).
B. S., Carleton College; B. P. E., M. P. E., Springfield College.

- FRANK HIDEO WATANABE**, Graduate Research Assistant in Chemistry, Agricultural Experiment Station (1952).
B. S., University of Utah.
- RAYMOND AUGUST WAUTHIER**, Assistant Professor of Physical Education (1949).
B. S., Albion College; M. S., Drake University.
- ROBERT D. WEAVER**, Graduate Research Assistant in Chemistry (1952).
B. A., Blackburn College.
- ALICE JUN WEI**, Temporary Assistant Chemist, Agricultural Experiment Station (1949, 1951).
B. S., Catholic University (China); M. S., Kansas State College.
- CARL JOSEPH WELLS, JR.**, Assistant Professor of Air Science (1951).
B. S., Nebraska State Teachers College (Wayne); Graduate, Radio School, Academic Instructors School, Air University.
- FOREST L. WHAN**, Professor of Speech (1953).
B. S., Kansas State College; M. A., University of Illinois; Ph. D., State University of Iowa.
- DONALD DEAN WHEELER**, Research Assistant in Chemistry, Agricultural Experiment Station (1950, 1952).
B. S., University of Wisconsin.
- ELDON GUY WHEELER**, Assistant Professor of Education (1948).
B. A., College of Wooster; M. A., University of Chicago.
- LOREN EDGAR WHIPPS**, Instructor in Education (1946, 1947).
B. S., Kansas State College.
- STUART ESTES WHITCOMB**, Professor and Head of Department of Physics; Physicist, Agricultural Experiment Station (1942, 1947).
B. S., Antioch College; M. S., Syracuse University; Ph. D., Ohio State University.
- ALFRED EVERETT WHITE**, Professor of Mathematics, Emeritus (1909, 1950).
B. S., M. S., Purdue University.
- MARY FRANCES WHITE**, Assistant Professor of English (1947, 1951).
B. S., M. S., Kansas State College.
- CARRELL HENRY WHITNAH**, Associate Professor of Chemistry; Associate Chemist, Agricultural Experiment Station (1929, 1949).
B. A., Ph. D., University of Nebraska; M. S., University of Chicago.
- DONALD ALDEN WILBUR**, Professor of Entomology; Entomologist, Agricultural Experiment Station (1928, 1949).
B. S., Oregon State College; A. M., Ohio State University.
- GEORGE DENT WILCOXON**, Professor of History (1946, 1948).
A. B., M. A., Ph. D., University of California.
- DAVID PRESTON WILLIAMS**, Graduate Assistant in Mathematics (1952).
B. A., Berea College.
- DWIGHT WILLIAMS**, Professor of Government (1926, 1939).
B. A., LL. B., M. A., University of Minnesota.
- EDWARD JOSEPH WIMMER**, Professor of Zoology (1928, 1941).
B. A., M. A., Ph. D., University of Wisconsin.
- WILLIAM KENNETH WINTER**, Graduate Research Assistant in Physics, Agricultural Experiment Station (1950, 1952).
B. A., University of Wisconsin.
- GRACE SHAW WOLDT**, Temporary Instructor in Mathematics (1951, 1952).
A. B., Ohio Wesleyan University.
- ELDEN DUANE WOLLEY**, Graduate Assistant in Physics (1952).
B. S., Kansas State College.
- CHARLES JEWELL WOOD**, Temporary Assistant Professor of Music (1951).
B. M., Grinnell College; M. M., American Conservatory of Music.
- MAURICE DUFFIELD WOOLF**, Professor of English (1945).
B. S., Northeast Missouri State Teachers College; M. S., Ed. D., University of Missouri.
- DAVID EUGENE WORLEY**, Graduate Assistant in Zoology (1951).
B. A., College of Wooster.
- HELEN IAMS WROTEN**, Assistant Professor of English (1949).
B. S., M. S., Kansas State College; Ph. D., University of Illinois.
- PAUL MCCLURE YOUNG**, Professor of Mathematics (1947, 1951).
A. B., Miami University; M. A., Ph. D., Ohio State University.
- WILLIAM FRANK ZORNOW**, Temporary Assistant Professor of History (1951).
A. B., A. M., Ph. D., Western Reserve University.

SCHOOL OF ENGINEERING AND ARCHITECTURE

- BOYD BERTRAND BRAINARD, Professor of Mechanical Engineering (1923, 1938).
B. S., University of Colorado; S. M., Massachusetts Institute of Technology.
- JOHN HENRY BRENNEMAN, Instructor in Architecture (1950).
B. A., Iowa State College; M. A., Rice Institute.
- EARLE CONRAD BYERS, Instructor in Shop Practice (1946).
A. B., Greenville College.
- WALTER WILLIAM CARLSON, Professor of Shop Practice, Emeritus (1910, 1950).
B. S., M. E., Kansas State College.
- DALE RINGWALT CARVER, Associate Professor of Applied Mechanics (1947, 1952).
B. S., M. S., Kansas State College; Ph. D., University of Illinois.
- THEODORE AVERY CHADWICK, Professor of Architecture (1927, 1947).
B. S., North Dakota Agricultural College.
- EDWIN RICHARD CHUBBUCK, Assistant Professor of Applied Mechanics (1953).
B. S., M. S., Kansas State College.
- JOHN PAUL CLIFTON, Assistant Professor of Shop Practice (1947).
B. S., University of Kansas.
- HOWELL EDWARD COBB, Assistant Professor of Architecture (1946).
B. S., B. Arch., Georgia Institute of Technology.
- LOWELL EDWIN CONRAD, Professor of Civil Engineering, Emeritus (1908, 1949).
B. S., C. E., Cornell College; M. S., Lehigh University.
- ROBERT EUGENE CRANK, Assistant Professor of Mechanical Engineering (1947, 1951).
B. S., M. S., Kansas State College.
- JAMES FRED CRARY, Assistant Professor of Applied Mechanics (1947, 1952).
B. S., Kansas State College.
- WILLIAM WESLEY CRAWFORD, Professor of Civil Engineering, Emeritus (1923, 1949).
B. Di., M. Di., Iowa State Teachers College; A. B., State University of Iowa; B. S., Iowa State College.
- HAROLD EUGENE CRUMRINE, Instructor in Architecture (1949).
B. S., University of Illinois.
- ROBERT EUGENE DAHL, Instructor in Civil Engineering (1951, 1952).
B. S., Kansas State College.
- EARL GILBERT DARBY, Professor of Shop Practice (1941, 1952).
B. S., M. S., Kansas State College.
- MARTIN DECKER, JR., Instructor in Agricultural Engineering; Assistant Agricultural Engineer, Agricultural Experiment Station (1951).
B. S., Kansas State College.
- HARVEY FREDERICK DIETRICH, Instructor in Shop Practice (1948).
- MERLE RILEY DODGE, Instructor in Shop Practice (1943).
- DENNIS EUGENE DRAYER, Graduate Research Assistant in Chemical Engineering (1952).
B. S., South Dakota School of Mines and Technology.
- ALLEY HUGH DUNCAN, Associate Professor of Mechanical Engineering (1942, 1949).
B. S., M. S., Kansas State College.
- MERRILL AUGUSTUS DURLAND, Dean; Professor of Machine Design; Director, Engineering Experiment Station (1917, 1949).
B. S., M. S., Kansas State College.
- GUSTAVE EDMUND FAIRBANKS, Associate Professor of Agricultural Engineering (1941, 1950).
B. S., M. S., Kansas State College.
- LIANG-TSENG FAN, Graduate Research Assistant in Chemical Engineering, Agricultural Experiment Station (1952).
B. S., National Taiwan University (Formosa).
- NATHANDALE FARRIS, Graduate Research Assistant in Mechanical Engineering (1952).
B. S., Kansas State College.

- FREDERICK CHARLES FENTON, Professor and Head of Department of Agricultural Engineering; Agricultural Engineer, Engineering Experiment Station, Agricultural Experiment Station (1928).
B. S., M. S., Iowa State College.
- ARTHUR ORAN FLINNER, Professor of Mechanical Engineering (1929, 1947).
B. S., M. S., Kansas State College; S. M., Massachusetts Institute of Technology.
- WILLIAM ROY FORD, Assistant Professor of Electrical Engineering (1947, 1950).
B. S. in E. E., B. S. in B. A., M. S., Kansas State College.
- FORREST FAYE FRAZIER, Professor of Civil Engineering (1911, 1922).
C. E., Ohio State University.
- JOHN WILLIAM FUNK, Assistant Professor of Agricultural Engineering (1947, 1951).
B. S., M. S., Kansas State College.
- CHARLES LOUIS HAFERMEHL, Instructor in Drawing and Painting (1946, 1947).
B. F. A., Bethany College.
- RAYMOND CLARENCE HALL, Assistant Professor of Chemical Engineering, (1950, 1952).
B. S., Iowa State College; M. S., Kansas State College.
- RICHARD EUGENE HANSON, Instructor in Agricultural Engineering (1951).
B. S., Kansas State College.
- KENNETH ALFRED HARKNESS, Instructor in Agricultural Engineering (1952).
B. S., Kansas State College.
- JOHN CRANSTON HEINTZELMAN, Associate Professor of Architecture (1947).
B. A., Massachusetts Institute of Technology; M. A., Columbia University.
- LINN HELANDER, Professor and Head of Department of Mechanical Engineering (1935).
B. S., University of Illinois.
- JOHN FREDERIC HELM, JR., Professor of Drawing and Painting (1924, 1938).
B. D., Syracuse University; D. F. A., Bethany College.
- RUSSELL LOUIS HERPICH, Graduate Research Assistant in Agricultural Engineering (1951, 1952).
B. S., Kansas State College.
- LELAND STANFORD HOBSON, Professor of Industrial Engineering; Assistant Director, Engineering Experiment Station (1946, 1947).
B. S., Kansas State College.
- WILLIAM HENRY HONSTEAD, Associate Professor of Chemical Engineering; Associate Chemical Engineer, Agricultural Experiment Station (1943, 1947).
B. S., M. S., Kansas State College.
- ABRAM ELDRED HOSTETTER, Professor of Shop Practice (1931, 1952).
B. S., McPherson College; M. S., Ph. D., Kansas State College.
- ORVILLE DON HUNT, Professor of Electrical Engineering (1923, 1947).
B. S., State College of Washington; M. S., Kansas State College.
- CLINTON OTTO JACOBS, Instructor in Agricultural Engineering (1949).
B. S., Kansas State College.
- LOUIS MARK JORGENSEN, Professor of Electrical Engineering (1925, 1951).
B. S., M. S., Kansas State College.
- RUSSELL MARION KERCHNER, Professor of Electrical Engineering (1922, 1934).
B. S., University of Illinois; M. S., Kansas State College.
- WILLIAM ROBERT KIMEL, Assistant Professor of Machine Design (1946, 1947).
B. S., M. S., Kansas State College.
- ROYCE GERALD KLOEFFLER, Professor and Head of Department of Electrical Engineering; Electrical Engineer, Engineering Experiment Station (1916, 1927).
B. S., University of Michigan; S. M., Massachusetts Institute of Technology.
- LOREN BILLY KNEE, Instructor in Mechanical Engineering (1951).
B. S., Kansas State College.
- GLEN ALDEN KRIDER, Assistant Professor of Architecture (1949, 1950).
B. S., Kansas State College.
- HAROLD LEROY KUGLER, Professor of Agricultural Engineering (1946, 1950).
B. S., M. S., Kansas State College.

- GEORGE HERBERT LARSON, Professor of Agricultural Engineering (1939, 1950).
B. S., M. S., Kansas State College.
- SHANG WU LIN, Instructor in Applied Mechanics (1949, 1951).
B. S., National Fu-Ton University (China); M. S., Kansas State College.
- EDWIN CURGUS LINDLY, Instructor in Applied Mechanics (1949).
B. S., Oklahoma Agricultural and Mechanical College; M. S., Purdue University.
- RALPH IDEN LIPPER, Assistant Professor of Agricultural Engineering (1946, 1948).
B. S., M. S., Kansas State College.
- WILLIAM JOSEPH LLENICKA, Instructor in Civil Engineering (1952).
B. S., University of Nebraska.
- DANIEL EMMETT LYNCH, Professor of Shop Practice, Emeritus (1914, 1950).
- FRANK JAMES McCORMICK, Professor of Applied Mechanics (1939, 1947).
B. S., M. S., Iowa State College.
- JOHN GERALD McENTYRE, Assistant Professor of Civil Engineering (1946, 1949).
B. S., M. S., Kansas State College.
- ALVA ERNEST MESSENHEIMER, Assistant Professor of Machine Design (1942, 1946).
B. S., Kansas State College.
- REED FRANKLIN MORSE, Professor and Head of Department of Civil Engineering; Civil Engineer, Engineering Experiment Station (1923, 1947).
B. A., Cornell College; B. S., Iowa State College; M. S., Kansas State College; Ph. D., Cornell University.
- DONALD GEORGE MOSS, Instructor in Electrical Engineering (1947, 1948).
B. S. in E. E., B. S. in Bus. Adm., M. S., Kansas State College.
- CLARENCE LESLIE NELSON, Instructor in Shop Practice (1943).
- RALPH GRIFFITH NEVINS, Associate Professor of Mechanical Engineering (1948, 1952).
B. M. E., M. S., University of Minnesota; M. S., Kansas State College, University of Illinois.
- ROSS IRWIN PAULI, Instructor in Shop Practice (1947).
B. A., Westmar College; M. S., Kansas State Teachers College (Pittsburg).
- CLINTON ELLICOTT PEARCE, Professor and Head of Department of Machine Design (1917, 1922).
B. S., Massachusetts Institute of Technology; M. S., Cornell University.
- RICHARD CARTER POTTER, Assistant Dean; Professor of Mechanical Engineering (1949, 1952).
B. S., M. S., Ph. D., Purdue University.
- POLLY HOLSTROM PRATT, Library Assistant in Architecture (1952).
B. S., Kansas State College.
- MILTON EDWARD RAVILLE, Assistant Professor of Applied Mechanics (1946, 1950).
B. S., Norwich University; M. S., Kansas State College.
- WALTER FREDERICK ROBOHN, Assistant Professor of Civil Engineering (1947, 1952).
B. S., M. S., Kansas State College.
- HARVEY DEWEY ROSE, Assistant Instructor in Mechanical Engineering (1947).
- RICHARD DOUGLAS ROWLAND, Graduate Research Assistant in Electrical Engineering (1952).
B. S., Kansas State College.
- DANIEL JOHN SCHLEEF, Instructor in Mechanical Engineering (1950, 1952).
B. S., University of Arkansas.
- CHARLES HENRY SCHOLER, Professor and Head of Department of Applied Mechanics; Materials Testing Engineer, Engineering Experiment Station (1919, 1922).
B. S., Kansas State College.
- HARRY WILLIAM SCHULTZ, JR., Graduate Research Assistant in Electrical Engineering (1948).
B. S., Kansas State College.
- ROY ANDREW SEATON, Dean and Director Emeritus; Professor of Applied Mechanics, (1904, 1949).
B. S., M. S., Kansas State College; S. B., Massachusetts Institute of Technology; Sc. D., Northwestern University.

- GABE ALFRED SELLERS, Professor and Head of Department of Shop Practice; Industrial Engineer, Engineering Experiment Station (1919, 1946).
B. S., M. S., Kansas State College.
- GORDON GEORGE SETTERLUND, Instructor in Applied Mechanics (1949).
B. S., University of North Dakota.
- JOHN WALLACE SHUPE, Assistant Professor of Applied Mechanics (1947, 1951).
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- WAYNE DELBERT SIEH, Assistant Professor of Machine Design (1946, 1952).
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- EARL LEROY SITZ, Professor of Electrical Engineering (1927, 1948).
B. S., Iowa State College; M. S., Kansas State College.
- JACOB JAY SMALTZ, Professor of Shop Practice (1939, 1952).
B. S., Bradley Polytechnic Institute; M. S., Kansas State College.
- HOWARD DEWIGHT SMETHERS, Assistant Professor of Shop Practice (1947, 1951).
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- BOB LEE SMITH, Instructor in Civil Engineering (1947, 1948).
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- GERALD MAX SMITH, Assistant Professor of Applied Mechanics (1947, 1951).
B. S., M. S., Kansas State College.
- FLOYD ALONZO SMUTZ, Professor of Machine Design (1918, 1934).
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- ROLLIN GEORGE TAECKER, Associate Professor of Chemical Engineering; Associate Chemical Engineer, Agricultural Experiment Station (1947).
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- DELOS CLIFTON TAYLOR, Associate Professor of Applied Mechanics (1931, 1947).
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- INGOLF EUGENE THORSON, Associate Professor of Architecture (1948, 1952).
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- WILSON TRIPP, Professor of Mechanical Engineering (1936, 1947).
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- SHU-LUNG WANG, Assistant Professor of Chemical Engineering; Assistant Chemical Engineer, Agricultural Experiment Station (1952).
B. S., M. S., D. Sc., Washington University.
- HENRY TIBBELS WARD, Professor and Head of Department of Chemical Engineering; Chemical Engineer, in charge, Engineering Experiment Station, Agricultural Experiment Station (1948).
B. S., Ph. D., University of Michigan; M. S., University of Wyoming.
- JOSEPH EVANS WARD, JR., Associate Professor of Electrical Engineering (1940, 1947).
B. S., University of Texas; M. S., University of Illinois.
- PAUL WEIGEL, Professor and Head of Department of Architecture and Allied Arts; Architect, Engineering Experiment Station (1921, 1924).
B. Arch., Cornell University.
- LEON VINCENT WHITE, Professor of Civil Engineering, Emeritus (1918, 1952).
B. S., M. S., C. E., Kansas State College.
- RONALD WHITELEY, Associate Professor of Architecture (1947, 1952).
B. Arch., University of Manitoba (Winnipeg); M. Arch., Harvard University.
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B. S. in E. E., B. S. in B. A., Kansas State College.
- JOHN EDMOND WOLFE, Associate Professor of Electrical Engineering (1946, 1947).
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- JOE NATE WOOD, Professor of Machine Design, (1936, 1947).
B. S., State University of Iowa.
- LEONARD EUGENE WOOD, Instructor in Applied Mechanics (1948, 1949).
B. S., M. S., Kansas State College.
- CLAUSE LOWELL WOODARD, Instructor in Shop Practice (1949).
B. S., M. S., Kansas State College.
- SHEE MANG YEN, Temporary Assistant Professor of Mechanical Engineering (1951).
B. S., Chiao-Tung University (China); M. S., Ph. D., University of Illinois.

ALLEN ROY YOWELL, Instructor in Shop Practice (1947).

DALE EDWIN ZABEL, Assistant Professor of Shop Practice (1946, 1951).

B. S., M. S., Kansas State College.

SCHOOL OF HOME ECONOMICS

ANNA TESSIE AGAN, Associate Professor of Household Economics; Associate Household Economist, Agricultural Experiment Station (1929, 1943).

B. S., University of Nebraska; M. S., Kansas State College.

CORAL KERR ALDOUS, Associate Professor of Child Welfare and Euthenics (1940, 1947).

B. S., Utah State Agricultural College; M. A., Columbia University.

JESS MCFADDEN ALEXANDER, Assistant Professor of Art (1946).

A. B., Winthrop College; M. A., Columbia University.

LEAH ASCHAM, Professor of Foods and Nutrition, Emeritus; Food Economist, Agricultural Experiment Station (1927, 1951).

A. B., Ohio Northern University; B. S., Ohio State University; Ph. D., Yale University.

DOROTHY BARFOOT, Professor and Head of Department of Art (1930, 1935).

B. A., State University of Iowa; M. A., Columbia University.

JANE WILSON BARNES, Assistant Professor of Household Economics; Assistant Household Economist, Agricultural Experiment Station (1939, 1945).

B. S., M. S., Kansas State College.

GLADYS IRENE BELLINGER, Associate Professor of Child Welfare and Euthenics (1950).

B. S., Kansas State Teachers College (Emporia); M. S., Ph. D., Cornell University.

NINA MYRTLE BROWNING, Associate Professor of Foods and Nutrition (1930, 1943).

B. S., M. S., Kansas State College.

ESTHER EVAGLINE CHRISTENSEN, Instructor in Institutional Management (1946).

B. S., Kansas State College.

HELEN EDITH CLARK, Assistant Professor of Foods and Nutrition; Assistant Food Economist, Agricultural Experiment Station (1950).

B. H. Sc., University of Saskatchewan (Canada); M. S., Ph. D., Iowa State College.

FRANCES WARD CLEARY, Instructor in Art (1949, 1950).

B. S., M. S., Iowa State College.

ESTHER MARGARET CORMANY, Associate Professor of Clothing and Textiles; Associate Textile Economist, Agricultural Experiment Station (1936, 1941).

B. S., M. S., Kansas State College.

MYRTLE GUNSELMAN CORRELL, Associate Professor of Household Economics; Associate Household Economist, Agricultural Experiment Station (1926, 1937).

B. S., Kansas State College; A. M., University of Chicago.

INA FOOTE COWLES, Associate Professor of Clothing and Textiles, Emeritus (1918, 1944).

B. S., Kansas State College; M. S., University of Wisconsin.

BARBARA EDITH DENSMORE, Instructor in Clothing and Textiles; Assistant Textile Economist, Agricultural Experiment Station (1950).

B. S., Michigan State College; M. S., Iowa State College.

NINA EDELBLUTE, Associate Professor of Institutional Management (1940, 1952).

B. S., M. S., Kansas State College.

JANE HELEN FERRELL, Instructor in Child Welfare and Euthenics (1950).

B. A., University of Kansas; M. S., University of Wisconsin.

MARIE GERALDINE GAGE, Instructor in Household Economics (1951).

B. S., Drexel Institute of Technology; M. A., Columbia University.

ALICE LOUISE GEIGER, Assistant Professor of Art (1945).

A. B., B. F. A., University of Kansas; M. A., Colorado State College of Education.

VIDA AGNES HARRIS, Associate Professor of Art (1924, 1941).

B. S., Kansas State College; A. M., University of Chicago.

DOROTHY LUCILLE HARRISON, Professor of Foods and Nutrition; Associate Food Economist, Agricultural Experiment Station (1947, 1952).

B. S., Dakota Wesleyan University; M. S., Ph. D., Iowa State College.

- MARJORIE MCCALL HEMPHILL, Instructor in Institutional Management (1939, 1950).
B. S., M. S., Kansas State College.
- KATHARINE PADDOCK HESS, Associate Professor of Clothing and Textiles, Emeritus (1925, 1950).
B. S., M. S., Kansas State College.
- OPAL BROWN HILL, Instructor in Art (1944, 1946).
B. S., M. S., Kansas State College.
- ANNA SAVILLE HOOPER, Research Assistant in Foods and Nutrition, Agricultural Experiment Station (1952).
B. S., Kansas State College.
- HAZEL DELL HOWE, Associate Professor of Clothing and Textiles (1936, 1947).
B. S., M. S., Kansas State College.
- MARGARET M. JUSTIN, Dean; Professor of Home Economics (1923).
B. S., Kansas State College; B. Ed., Columbia University; Ph. D., Yale University.
- ROSAMOND HARRIET KEDZIE, Associate Professor of Art (1938, 1946).
B. S., Michigan State College; M. A., University of California.
- LEONE BOWER KELL, Professor of Child Welfare and Euthenics (1927, 1947).
B. S., M. S., Kansas State College.
- MARTHA MORRISON KRAMER, Assistant Dean; Professor of Foods and Nutrition (1922, 1945).
B. S., University of Chicago; M. S., Ph. D., Columbia University.
- DOROTHY ALICE LARERY, Graduate Assistant in Household Economics (1952).
B. S., Kansas State Teachers College (Pittsburg).
- ALPHA CORINNE LATZKE, Professor and Head of Department of Clothing and Textiles; Textile Economist, Agricultural Experiment Station (1927, 1935).
B. S., M. S., Kansas State College.
- BURNADINE LANGSTON LEWIS, Research Assistant in Foods and Nutrition, Agricultural Experiment Station (1952).
B. S., Prairie View Agricultural and Mechanical College; M. S., Colorado Agricultural and Mechanical College.
- GERTRUDE ELISE LIENKAEMPER, Associate Professor of Clothing and Textiles (1941, 1948).
B. S., Oregon State College; M. A., University of Washington.
- MARGARET LEE MCCORD, Graduate Research Assistant in Foods and Nutrition, Agricultural Experiment Station (1952).
B. S., University of Missouri.
- FLORENCE ELIZABETH MCKINNEY, Professor and Head of Department of Household Economics; Household Economist, Agricultural Experiment Station (1937, 1949).
B. S., Kansas State College; M. S., Iowa State College; Ph. D., Ohio State University.
- EVA MYRTLE McMILLAN, Associate Professor of Foods and Nutrition (1930, 1939).
Ph. B., S. M., University of Chicago.
- ABBY LINDSEY MARLATT, Professor of Foods and Nutrition; Food Economist, Agricultural Experiment Station (1945, 1952).
B. S., Kansas State College; Ph. D., University of California.
- EVELYN LEIGEBER MAY, Graduate Research Assistant in Foods and Nutrition, Agricultural Experiment Station (1951).
B. S., Butler University.
- ELSIE LEE MILLER, Assistant Professor of Foods and Nutrition (1941, 1947).
B. S., M. S., Kansas State College.
- MARIA MORRIS, Associate Professor of Art (1925, 1941).
B. S., M. S., Kansas State College.
- IVA MANILLA MULLEN, Assistant Professor of Foods and Nutrition (1936, 1947).
B. S., Kansas State College; M. S., Iowa State College.
- MARGUERITE MARIE NEARNBERG, Instructor in Institutional Management (1952).
B. S., M. S., Michigan State College.
- MARGARET ELIZABETH RAFFINGTON, Assistant Professor of Child Welfare and Euthenics (1938, 1939).
B. S., M. S., Kansas State College.

- LOIS RUTH SCHULZ, Professor and Head of Department of Child Welfare and Euthenics; Director of College Nursery School (1947).
Ph. B., University of Chicago; M. A., University of Michigan; Ed. D., University of California.
- GRACE MABEL SHUGART, Assistant Professor of Institutional Management (1951).
B. S., State College of Washington; M. S., Iowa State College.
- GWENDOLYN LAVERNE TINKLIN, Associate Professor and Acting Head of Department of Foods and Nutrition; Assistant Food Economist, Agricultural Experiment Station (1943, 1949).
B. S., M. S., Kansas State College.
- DOROTHY ANN TREPAL, Temporary Graduate Assistant in Art (1952).
B. S., University of Connecticut.
- CATHERINE TURNER, Instructor in Institutional Management (1951).
B. S., Winthrop College; M. S., Woman's College.
- FLORENCE HARRIS WALKER, Instructor in Institutional Management (1928, 1951).
B. S., M. S., Kansas State College.
- BESSIE BROOKS WEST, Professor and Head of Department of Institutional Management (1928).
A. B., M. A., University of California; M. S., Michigan State Normal College.
- BEULAH DOROTHEA WESTERMAN, Professor of Foods and Nutrition; Food Economist, Agricultural Experiment Station (1941, 1947).
B. S., University of Missouri; M. S., University of Chicago; Ph. D., University of Illinois.
- JENNIE WILLIAMS, Professor of Child Welfare and Euthenics (1932, 1947).
B. S., M. S., Kansas State College; Graduate, University of Michigan School of Nursing.
- MERNA BEATRICE ZEIGLER, Associate Professor of Institutional Management (1939, 1947).
B. S., M. S., Kansas State College.

SCHOOL OF VETERINARY MEDICINE

- AUGUST RUSSELL BORGMANN, Assistant Professor of Pathology; Assistant Pathologist, Agricultural Experiment Station (1941, 1949).
B. S., Colorado Agricultural and Mechanical College; M. S., D. V. M., Kansas State College.
- JAMES HENRY BURT, Professor of Anatomy, Emeritus (1905, 1947).
V. S., Ontario Veterinary College (Canada); D. V. M., Ohio State University.
- JAMES HAWLEY COWAN, Assistant Professor of Surgery and Medicine (1952).
V. M. D., University of Pennsylvania.
- OTTO JOHN EGGERS, JR., Assistant Professor of Surgery and Medicine (1953).
B. S., Ph. D., University of California.
- LAWRENCE EARLE EVANS, Assistant Professor of Anatomy (1951, 1952).
D. V. M., Kansas State College.
- DEAN SYDNEY FOLSE, Associate Professor of Pathology; Associate Pathologist, Agricultural Experiment Station (1952).
B. S., D. V. M., Texas Agricultural and Mechanical College; M. S., Kansas State College.
- EDWARD RAYMOND FRANK, Professor of Surgery and Medicine (1926, 1935).
B. S., M. S., D. V. M., Kansas State College.
- EDWIN JACOB FRICK, Professor and Head of Department of Surgery and Medicine (1919, 1935).
D. V. M., Cornell University.
- HOWARD EUGENE GILL, Assistant Professor of Surgery and Medicine (1952).
B. S., D. V. M., Kansas State College.
- DENNIS DONALD GOETSCH, Instructor in Physiology; Assistant Physiologist, Agricultural Experiment Station (1952).
B. S., D. V. M., Kansas State College.
- WILLIAM HAROLD HAY, Instructor in Surgery and Medicine (1952).
B. S., D. V. M., Kansas State College.
- WENDELL LEE KANAWYER, Assistant Professor of Pathology; Assistant Pathologist, Agricultural Experiment Station (1952).
D. V. M., Kansas State College.
- ALICE DAY KIMBALL, Instructor in Pathology; Assistant Pathologist, Agricultural Experiment Station (1934, 1947).
B. S., Kansas State College.

- CHARLES HOWARD KITSELMAN, Professor of Pathology; Pathologist, Agricultural Experiment Station (1919, 1933).
V. M. D., University of Pennsylvania; M. S., Kansas State College.
- ELDEN EMANUEL LEASURE, Dean; Professor of Physiology; Veterinarian, in charge, Agricultural Experiment Station (1926, 1948).
D. V. M., M. S., Kansas State College..
- JOHN WALLACE LUMB, Professor of Anatomy (1924, 1951).
D. V. M., M. S., Kansas State College..
- WILLIAM MAX MCLEOD, Professor and Head of Department of Anatomy (1919, 1944).
D. V. M., Iowa State College.
- JACOB EUGENE MOSIER, Associate Professor of Surgery and Medicine (1945, 1950).
D. V. M., M. S., Kansas State College..
- FAYNE HIGGINS OBERST, Associate Professor of Surgery and Medicine (1943, 1948).
D. V. M., Kansas State College.
- LEE MILES RODERICK, Professor of Pathology; Pathologist, Agricultural Experiment Station, (1938).
D. V. M., Ohio State University; B. S., M. S., North Dakota Agricultural College; Ph. D., University of Chicago.
- EARL JOHN SPLITTER, Assistant Professor of Pathology; Assistant Pathologist, Agricultural Experiment Station (1946).
D. V. M., M. S., Kansas State College.
- MELVIN JOHN SWENSON, Associate Professor of Physiology; Associate Physiologist, Agricultural Experiment Station (1950, 1952).
D. V. M., Kansas State College; M. S., Ph. D., Iowa State College.
- MARVIN JOHN TWIEHAUS, Professor and Head of Department of Pathology; Pathologist, Agricultural Experiment Station (1937, 1950).
D. V. M., M. S., Kansas State College..
- GRAVERS K. L. UNDERBJERG, Professor and Head of Department of Physiology; Physiologist, Agricultural Experiment Station (1948).
B. S., Royal Veterinary and Agricultural College (Copenhagen); D. V. M., Ph. D., Iowa State College.

DIVISION OF EXTENSION

- ROBERT EDGAR ACRE, JR., Agricultural Agent, Osborne County (1950, 1952).
Osborne.
B. S., Kansas State College.
- GERTRUDE EDNA ALLEN, Professor and Extension Specialist in Foods and Nutrition (1929, 1947).
B. S., University of Minnesota; M. S., Kansas State College.
- JOHN ORLO ALLMAN, JR., Agricultural Agent, Stanton County (1949, 1951).
Johnson.
B. S., Kansas State College.
- WILLIAM GERALD AMSTEIN, Professor of Horticulture and Head of Department of Agricultural Specialists (1929, 1952).
B. S., Amherst College; M. S., Kansas State College.
- JOAN McDOWELL AMSTUTZ, Home Demonstration Agent, Pratt County (1948, 1951). Pratt.
B. S., Kansas State College.
- FRANK ANDERSON, JR., County Club Agent, Russell County (1952). Russell.
B. S., Kansas State College.
- MAHALA MARY ARGANBRIGHT, Home Demonstration Agent, Norton County (1949, 1951). Norton.
B. S., Kansas State College.
- HARRY CHARLES BAIRD, Professor of Extension Education and District Agent (1919, 1952).
B. S., Kansas State College.
- EVANS EUGENE BANBURY, Agricultural Agent, Sherman County (1940). Goodland.
B. S., Kansas State College.

- W. H. BARKER, Agricultural Agent, Cherokee County (1950). Columbus.
B. S., Oklahoma Agricultural and Mechanical College.
- CLARENCE EDWARD BARTLETT, Assistant Professor of Agricultural Economics and Extension Economist in Farm Management (1937, 1947). Clay Center.
B. S., University of Nebraska.
- JOHN WINFIELD BARTON, Agricultural Agent, Cowley County (1950, 1951). Winfield.
B. S., Oklahoma Agricultural and Mechanical College.
- ELLEN MARGARET BATCHELOR, Assistant in Home Economics (1917, 1942).
B. S., Kansas State College.
- CLIFFORD BECKWITH, County Club Agent, Leavenworth County (1948). Leavenworth.
- ROSELLA MARGARETTE BERRY, Home Demonstration Agent, Thomas County (1950, 1951). Colby.
B. S., Kansas State College.
- SHIRLEY MARGENE BESSEY, Instructor and Extension Specialist in Recreation (1952).
B. S., Colby College.
- FRANK GEARHART BIEBERLY, Associate Professor and Extension Specialist of Agronomy (1941, 1949).
B. S., M. S., Kansas State College.
- ADA GRACE BILLINGS, Professor of History and Government, Home Study (1921, 1946).
B. S., M. S., Kansas State College.
- BENNIE BIRD, Agricultural Agent, Clark County (1950). Ashland.
B. S., Kansas State College.
- RUTH HELEN BISHOP, Home Demonstration Agent, Nemaha County (1947). Seneca.
B. S., Kansas State College.
- LUCY C. BLACK, Associate Home Demonstration Agent, Reno County (1953). Hutchinson.
B. S., University of Missouri.
- CORA ALICE BLACKWELL, Home Demonstration Agent, Kearney County (1948, 1950). Lakin.
B. S., Fort Hays Kansas State College.
- ELMER WARFORD BLANKENHAGEN, Agricultural Agent, Riley County (1950, 1952). Manhattan.
B. S., Kansas State College.
- FRANK OTTO BLECHA, Professor of Extension Education and District Agent (1917, 1948).
B. S., M. S., Kansas State College.
- WILLIS LEE BLUME, Agricultural Agent, Haskell County (1948). Sublette.
B. S., Texas Agricultural and Mechanical College System.
- EDWIN RALPH BONEWITZ, Assistant Professor and Extension Specialist of Dairy Husbandry (1943, 1949).
B. S., Kansas State College.
- MARY ELSIE BORDER, Associate Professor of Junior Extension; Assistant State Club Leader (1927, 1944).
B. S., Ohio State University; M. A., Columbia University; M. S., Cornell University.
- ETHEL PAULINE BRENNER, Home Demonstration Agent, Johnson County (1949, 1952). Olathe.
B. S., University of Missouri.
- LEE JUSTIN BREWER, Agricultural Agent, Chase County (1936, 1952). Cottonwood Falls.
B. S., Kansas State College.
- LULU MAUD BRIGGS, Home Demonstration Agent, Chautauqua County (1953). Sedan.
B. S., Kansas State College.
- VIVIAN BAHB BRIGGS, Assistant Professor and Extension Specialist in Family Life (1946, 1951).
B. S., University of Nebraska; M. S., Kansas State College.

- MARTHA ESTHER BRILL, Assistant Professor and Extension Specialist in Health (1946, 1948).
B. S., Kansas State College; R.N., University of Kansas.
- BLANCHE BROOKS, Home Demonstration Agent, Clay County (1941, 1951).
Clay Center.
B. S., Kansas State College.
- ARLO ALLEN BROWN, Agricultural Agent, Stafford County (1942, 1944). St. John.
B. S., Kansas State College.
- DONALD ALBERT BROWN, Agricultural Agent, Franklin County (1950, 1951).
Ottawa.
B. S., Kansas State College.
- HERBERT WILLIAM BULK, Agricultural Agent, Nemaha County (1949, 1952).
Seneca.
B. S., Kansas State College.
- ROBERT NORTHCUTT BURLINGAME, Instructor in English, Home Study (1952).
B. A., M. A., University of New Mexico; Ph. D., Brown University.
- MARGARET KIRBY BURTIS, Associate Professor of Extension Education and District Home Demonstration Agent (1943, 1947).
B. S., M. S., Kansas State College.
- GLEN MORTON BUSSET, Assistant Professor of Junior Extension and Assistant State Club Leader (1941, 1948).
B. S., Kansas State College.
- ELGIN R. BUTTON, Agricultural Agent, McPherson County (1943, 1950). McPherson.
B. S., Kansas State College.
- WALTER W. CAMPBELL, Agricultural Agent, Osage County (1942, 1946). Lyon.
B. S., Colorado Agricultural and Mechanical College.
- KENNETH DALE CARSON, Agricultural Agent, Bourbon County (1953). Fort Scott.
B. S., Kansas State College.
- ALICE MARIE CASEY, Home Demonstration Agent, Chase County (1952). Cottonwood Falls.
B. S., Kansas State College.
- JEAN K. CARLSON, Home Demonstration Agent, Edwards County (1953). Kinsley.
B. S., Kansas State College.
- JACOB WAYNE CHAMBERS, County Club Agent, Ford County (1949). Dodge City.
B. S., Kansas State College.
- JAMES R. CHILDERS, County Club Agent, Sedgwick County (1944). Wichita.
B. S., Oklahoma Agricultural and Mechanical College.
- MARVIN BROWN CLARK, Assistant Professor of Agricultural Economics and Extension Economist in Farm Management (1947, 1949).
B. S., Kansas State College.
- MONTE CHARLES CLARK, Agricultural Agent, Kiowa County (1950). Greensburg.
B. S., Kansas State College.
- EUGENE ARTHUR CLEAVINGER, Professor and Extension Specialist of Agronomy (1926, 1947).
B. S., Kansas State College.
- ROGER KENNETH COLBY, Agricultural Agent, Cloud County (1949, 1952). Concordia.
B. S., Kansas State College.
- HELEN ELIZABETH COOL, Home Demonstration Agent, Geary County (1950). Junction City.
B. S., Kansas State College.
- JOHN HERBERT COOLIDGE, Professor of Agricultural Economics and Extension Economist in Farm Management (1926, 1949).
B. S., M. S., Kansas State College.
- LOUIS WILTON COOPER, Agricultural Agent, Ottawa County (1945, 1947). Minneapolis.
B. S., Kansas State College.

- MABEL COVERDILL, Home Demonstration Agent, Washington County (1947, 1949). Washington.
A. B., College of Emporia; M. S., University of Wisconsin.
- LAWRENCE JOSEPH COX, County Club Agent, Dickinson County (1952). Abilene.
B. S., Oklahoma Agricultural and Mechanical College.
- MANFORD LESTER COX, Agricultural Agent, Chautauqua County (1945). Sedan.
B. S., Kansas State College.
- VERNON S. CRIPPEN, Agricultural Agent, Seward County (1920, 1948). Liberal.
B. S., Kansas State College.
- ROSEMARY ALTHEA CRIST, Home Demonstration Agent, Seward County (1950). Liberal.
B. S., Kansas State College.
- LAURENCE ROBERT DANIELS, Agricultural Agent, Greeley County (1934, 1945). Tribune.
B. S., Kansas State College.
- ORVILLE FREDERICK DENTON, Agricultural Agent, Woodson County (1949). Yates Center.
B. S., Kansas State College.
- PAUL FRANKLIN DEWEESE, Instructor in Technical Journalism and Assistant Director of Radio Station KSAC (1948).
B. S., Kansas State College.
- MIRIAM LENORE DEXTER, Assistant Professor of Technical Journalism and Assistant Extension Editor (1944, 1947).
B. S., M. S., Kansas State College.
- DARRELL DEAN DICKEN, Agricultural Agent, Lincoln County (1942). Lincoln.
B. S., Kansas State College.
- JOE BENDER DIVINE, Agricultural Agent, Allen County (1944). Iola.
B. S., Oklahoma Agricultural and Mechanical College.
- ISABEL NAOMI DODRILL, Home Demonstration Agent, Finney County (1941, 1948). Garden City.
B. A., Fort Hays Kansas State College; B. S., Kansas State College.
- MARILYN GERTRUDE DOOLITTLE, Home Demonstration Agent, Wallace and Greeley Counties (1952). Sharon Springs.
B. S., University of Nebraska.
- JOHN ALLEN DOTSON, Instructor in Agricultural Economics and Extension Economist in Farm Management (1948, 1952).
B. S., Kansas State College.
- DONALD THOMAS DOWNS, Instructor in Economics and Sociology, Home Study (1952).
A. B., M. A., University of Nebraska.
- HARRY G. DUCKERS, JR., Agricultural Agent, Wyandotte County (1943, 1948). Kansas City.
B. S., Kansas State College.
- GEORGE RICHARD DUNN, Agricultural Agent, Edwards County (1949). Kinsley.
B. S., Kansas State College.
- RUTH C. DUREE, Home Demonstration Agent, Linn County (1952). Mound City.
B. S., Kansas State College.
- DALE H. EDELBLUTE, Agricultural Agent, Harvey County (1947, 1952). Newton.
B. S., Kansas State College.
- MARY LOU EDWARDS, Home Demonstration Agent, Greenwood County (1949, 1952). Eureka.
B. S., Kansas State College.
- CARL GEORGE ELLING, Professor and Extension Specialist in Animal Husbandry, Emeritus (1907, 1951).
B. S., Kansas State College.
- VERA MAY ELLITHROPE, Associate Professor and Extension Specialist in Home Management (1938, 1947).
B. S., M. S., Kansas State College.
- RUTH ALLEEN ENGELLAND, Home Demonstration Agent, Osborne County (1952). Osborne.
B. S., Kansas State College.

- KERMIT VERNON ENGLE, Agricultural Agent, Ellsworth County (1936, 1946).
Ellsworth.
B. S., Kansas State College.
- TALMAGE LONDON ENGLES, County Club Agent, Neosho County (1950). Erie.
B. S., Kansas State College.
- EVELYN LOIS ERICHSEN, Home Demonstration Agent, Sherman County (1949, 1950). Goodland.
B. S., Kansas State College.
- HAROLD EDWIN EVERSMEYER, County Club Agent, Johnson County (1951).
Olathe.
B. S., Kansas State College.
- RAYMOND LEROY EVERSON, Instructor in Engineering Extension and Extension Architect (1951).
B. S., Kansas State College.
- CECIL LAVERNE EYESTONE, County Club Agent, Montgomery County (1946).
Independence.
B. S., Kansas State College.
- MERLE LINTON EYESTONE, County Club Agent, Shawnee County (1947). Topeka.
B. S., Kansas State College.
- JOHN JOSEPH FEIGHT, JR., County Club Agent, Atchison County (1952). Effingham.
B. S., Kansas State College.
- JOHN MOSES FERGUSON, Professor and Head of the Department of Engineering Extension (1937, 1945).
B. S., Kansas State College.
- DONALD LLOYD FLENTIE, Agricultural Agent, Leavenworth County (1952).
Leavenworth.
B. S., Kansas State College.
- MARY GENEVIEVE FLETCHER, Associate Professor and Extension Specialist in Foods and Nutrition (1936, 1947).
B. S., M. S., Kansas State College.
- RAYMOND EUGENE FORT, Instructor in Junior Extension; Assistant State Club Leader (1950, 1951).
B. S., Kansas State College.
- LESLIE P. FRAZIER, Agricultural Agent, Rice County (1953). Lyons.
B. S., Kansas State College.
- NEOSHO LOUISE FREDENBERG, Morris County (1953). Council Grove.
B. S., Kansas State College.
- HOBART W. FREDERICK, Agricultural Agent, Sumner County (1941, 1948).
Wellington.
B. S., Kansas State College.
- RAYMOND GLENN FRYE, County Club Agent, Sumner County (1943, 1950).
Wellington.
B. S., Kansas State College.
- PATRICIA ANN GALLAGHER, Home Demonstration Agent, Cheyenne County (1950, 1952). St. Francis.
B. S., St. Mary's College.
- HAROLD GREEN GALLAHER, Assistant Professor and Extension Specialist in Farm Forestry (1951).
B. S., University of Missouri.
- DELL EDWARD GATES, Assistant Professor and Extension Specialist in Entomology (1948, 1950).
B. S., M. S., Kansas State College.
- JEWELL OLIVER GEBHART, Agricultural Agent, Ellis County (1945). Hays.
B. S., Oklahoma Agricultural and Mechanical College.
- GEORGE ALBERT GEMMELL, Professor of Education, Emeritus, Home Study (1918, 1952).
B. S., Kansas State Teachers College (Pittsburg); B. S., M. S., Kansas State College; Ph. D., University of Missouri.
- ALMA HOLBOWER GILES, Home Demonstration Agent, Scott County (1949, 1952). Scott City.
B. S., Kansas State College.

- GLADYS LUCILLE GILKISON, Home Demonstration Agent, Stafford County (1951). St. John.
B. S., Kansas State College.
- PAUL GILPIN, Agricultural Agent, Smith County (1946). Smith Center.
B. S., Kansas State College.
- OTIS BENTON GLOVER, Associate Professor in Extension Education and District Supervisor (1929, 1947).
B. S., Kansas State College.
- HARVEY E. GOERTZ, Agricultural Agent, Brown County (1937, 1950). Hiawatha.
B. S., Kansas State College.
- JOE MYRON GOODWIN, Agricultural Agent, Morris County (1919, 1951). Council Grove.
B. S., Kansas State College.
- LAURENZ S. GREENE, Agricultural Agent, Phillips County (1953). Phillipsburg.
B. S., Kansas State College.
- LESTER EDWARD GRIFFITH, Agricultural Agent, Wilson County (1949, 1950). Fredonia.
B. S., Kansas State College.
- PAUL WILSON GRIFFITH, Associate Dean and Associate Director (1935, 1950).
B. S., M. S., Kansas State College.
- OTIS RAY GRIGGS, Agricultural Agent, Stevens County (1951). Hugoton.
B. S., Kansas State College.
- HENRY PAUL GRONWOLLER, Agricultural Agent, Decatur County (1952). Oberlin.
B. S., New Mexico College of Agriculture and Mechanic Arts.
- WILLIAM DONALD GUY, Agricultural Agent, Jackson County (1951). Holton.
B. S., Kansas State College.
- PAUL B. GWIN, Agricultural Agent, Geary County (1921). Junction City.
B. S., Kansas State College.
- PAUL HERBERT GWIN, County Club Agent, Cowley County (1951). Winfield.
B. S., Kansas State College.
- CHARLES ADRIAN HAGEMAN, Agricultural Agent, Reno County (1936, 1947). Hutchinson.
B. S., Kansas State College.
- FRANK ALEXANDER HAGANS, Associate Professor of Extension Education and District Supervisor (1930, 1951).
B. S., Kansas State College.
- CHARLES THOMAS HALL, Agricultural Agent, Johnson County (1934, 1939). Olathe.
B. S., Kansas State College.
- JOHN BONAR HANNA, Assistant Professor of Junior Extension; Assistant State Club Leader (1935, 1947).
B. S., Kansas State College.
- EDITH A. HANSEN, Home Demonstration Agent, Lyon County (1953). Emporia.
B. S., Kansas State College.
- HAROLD BYRON HARPER, Assistant Professor of Agronomy and Extension Specialist in Soil Conservation (1932, 1946).
B. S., Kansas State College.
- ALFRED EUGENE HARRIS, Agricultural Agent, Meade County (1938, 1940). Meade.
B. S., Kansas State College.
- EDWIN HEDSTROM, Agricultural Agent, Marshall County (1935, 1951). Marysville.
B. S., Kansas State College.
- FLOYD DONALD HEFLEY, County Club Agent, Harper County (1950, 1951). Anthony.
B. S., Kansas State College.
- H. MARIE HENDERSHOT, Home Demonstration Agent, Marshall County (1946, 1951). Marysville.
B. S., Kansas State College.
- ROGER LYMAN HENDERSHOT, Agricultural Agent, Harper County (1946, 1951). Anthony.
B. S., Kansas State College.

- CHRISTIE C. HEPLER, Home Demonstration Agent, Leavenworth County (1928, 1952). Leavenworth.
B. S., Kansas State College.
- IDA HILDEBRAND, Home Demonstration Agent, McPherson County (1940). McPherson.
B. A., Friends University.
- ROBERT DONALD HILGENDORF, Associate Professor of Technical Journalism and Director of Radio Station KSAC (1947, 1952).
B. S., M. S., Kansas State College.
- JO EVA HINKHOUSE, Home Demonstration Agent, Phillips County (1952). Phillipsburg.
B. S., Kansas State College.
- ARTHUR LAWRENCE HJORT, Administrative Assistant (1947, 1948).
- DEBORAH HOBBLE, Home Demonstration Agent, Ford County (1946, 1947). Dodge City.
B. S., Kansas State College.
- CLARENCE ATHEL HOLLINGSWORTH, Agricultural Agent, Greenwood County (1937, 1939). Eureka.
B. S., Kansas State College.
- WILLIAM ALLEN HONEYMAN, Agricultural Agent, Lane County (1951). Dighton.
B. S., Kansas State College.
- ARLISS EVELYN HONSTEAD, Home Demonstration Agent, Jackson County (1946, 1949). Holton.
B. S., Kansas State College.
- RAY MITCHELL HOSS, Assistant Professor of Agricultural Economics and Extension Economist in Marketing (1935, 1946).
B. S., Kansas State College.
- GERTRUDE HOVE, Home Demonstration Agent, Montgomery County (1949). Independence.
B. S., Oklahoma Agricultural and Mechanical College.
- RUTH K. HUFF, Home Demonstration Agent, Pawnee County (1931, 1952). Larned.
B. S., Kansas State College.
- VELMA GOOD HUSTON, Associate Professor of Extension Education and District Home Demonstration Agent (1935, 1949).
B. S., M. S., Kansas State College.
- CLARENCE IMEL, Agricultural Agent, Kingman County (1950). Kingman.
B. S., M. S., Kansas State College.
- DONALD WALTER INGLE, Agricultural Agent, Sedgwick County (1930, 1947). Wichita.
B. S., University of Missouri.
- CLARENCE ROY JACCARD, Professor of Agricultural Economics and Extension Economist in Agricultural Planning (1922, 1946).
B. S., Kansas State College.
- MARION EVERT JACKSON, Assistant Professor and Extension Specialist in Poultry Husbandry and Egg Marketing (1945).
B. S., Purdue University.
- RICHARD ALAN JAMESON, County Club Agent, Franklin County (1951, 1952). Ottawa.
B. S., Kansas State College.
- HAROLD DEAN JOHNSON, Agricultural Agent, Scott County (1944, 1948). Scott City.
B. S., Kansas State College.
- JOHN HAROLD JOHNSON, Professor of Junior Extension and Head of Department of Boys' and Girls' Club Work; State Club Leader (1927, 1945).
B. S., Kansas State College; M. S., George Washington University.
- LEONARD BEN JOHNSON, JR., Agricultural Agent, Rush County (1950). La-Crosse.
B. S., Kansas State College.
- NAOMI MARIE JOHNSON, Associate Professor and Extension Specialist in Clothing and Textiles (1938, 1950).
B. S., M. S., Kansas State College.

- ODA DORIS KEENEY, Home Demonstration Agent, Bourbon County (1944, 1945).
Fort Scott.
B. S., Kansas State College.
- DONNA JONES KEMPTON, Home Demonstration Agent, Jefferson County (1948, 1949). Oskaloosa.
B. S., Kansas State College.
- BEVERLY LOUISE KINDLER, Home Demonstration Agent, Decatur County (1951, 1952). Oberlin.
B. S., Kansas State College.
- CLAUDE LEWIS KING, Assistant Professor and Extension Specialist in Plant Pathology (1934, 1946).
B. S., Kansas State College.
- RUSSELL CHARLES KLOTZ, Agricultural Agent, Labette County (1943, 1950).
Altamont.
B. S., Kansas State College.
- HARVEY REUBEN KOPPER, Assistant Professor of Agricultural Economics and Extension Economist in Farm Management (1946, 1948). Hutchinson.
B. S., M. S., Kansas State College.
- WILBUR S. KRAISINGER, Agricultural Agent, Pratt County (1947, 1950). Pratt.
B. S., Kansas State College.
- RICHARD S. KUBIK, Agricultural Agent, Thomas County (1949). Colby.
B. S., Kansas State College.
- DONALD LEE LAWRENCE, County Club Agent, Lyon County (1949). Emporia.
B. S., Kansas State College.
- WILBUR EUGENE LEVERING, Agricultural Agent, Shawnee County (1949, 1951).
Topeka.
B. S., Kansas State College.
- REUBEN CARL LIND, Professor of Agronomy and Extension Specialist in Soil Conservation (1933, 1950).
B. S., Kansas State College.
- NELLIE MARGARET LINDSAY, Home Demonstration Agent, Osage County (1941).
Lyndon.
B. S., Kansas State Teachers College (Pittsburg).
- MERLIN ELMER LINE, Agricultural Agent, Kearney County (1946, 1949). Lakin.
B. S., Kansas State College.
- JAMES WALTON LINN, Professor and Extension Specialist in Dairy Husbandry (1924, 1944).
B. S., Kansas State College.
- LISLE LESLIE LONGSDORF, Professor of Technical Journalism and Head of Department of Extension Information; Extension Editor and Radio Manager (1927, 1946).
B. S., M. S., University of Wisconsin.
- HELEN M. LOOFBURROW, Home Demonstration Agent, Ellsworth County (1942).
Ellsworth.
B. S., Kansas State College.
- BESSIE SPARKS LOOSE, Instructor in Extension Education and District Home Demonstration Agent (1940, 1952).
B. S., Kansas State College.
- DONALD EDWIN LOVE, Agricultural Agent, Jewell County (1952). Mankato.
B. S., Kansas State College.
- HAROLD CLYDE LOVE, Assistant Professor of Agricultural Economics and Extension Economist in Farm Management (1935, 1948).
B. S., M. S., Kansas State College.
- DONALD GLEN LOYD, County Club Agent, Crawford County (1948, 1949).
Girard.
B. S., Kansas State College.
- VERL EPHRAIM MCADAMS, Assistant Professor and Extension Specialist in Animal Husbandry (1934, 1952).
B. S., Kansas State College.
- BETTY GRACE MCBEE, Home Demonstration Agent, Elk County (1952). Howard.
B. S., Kansas State Teachers College (Pittsburg).

- MILDRED MARIE MCCALVEY, Home Demonstration Agent, Cloud County (1950).
Concordia.
B. S., Kansas State College.
- EVERETT LYNN MCCLELLAND, Agricultural Agent, Washington County (1936, 1942). Washington.
B. S., Kansas State College.
- HELEN MAUD MCCOLLUM, Home Demonstration Agent, Lane County (1951).
Dighton.
B. S., Northeastern State College.
- VELMA MAYSLE MCGAUGH, Assistant Professor of Junior Extension; Assistant State Club Leader (1943, 1948).
B. S., Kansas State College.
- MURIEL KATHRYN MCHALE, Home Demonstration Agent, Miami County (1949, 1950). Paola.
B. S., St. Mary's College.
- BRUCE EDWARD MCCLAURY, Agricultural Agent, Linn County (1950, 1951).
Mound City.
B. S., Kansas State College.
- GERALD ORESTES MCMASTER, Agricultural Agent, Rooks County (1951). Stockton.
B. S., M. S., Kansas State College.
- KENNETH LEROY MCREYNOLDS, Agricultural Agent, Sheridan County (1950).
Hoxie.
B. S., Kansas State College.
- E. CLIFFORD MANRY, Agricultural Agent, Pawnee County (1940, 1947). Larned.
B. S., Oklahoma Agricultural and Mechanical College.
- DAROLD DEAN MARLOW, Agricultural Agent, Wabaunsee County, (1950). Alma.
B. S., Kansas State College.
- JEAN MOORE MARTIN, Home Demonstration Agent, Sedgwick County (1947, 1950). Wichita.
B. S., Kansas State College; M. S., Colorado State College.
- RICHARD CYRUS MASON, County Club Agent, Kingman County (1950, 1951).
Kingman.
B. S., Kansas State College.
- MARGARET NETTLETON MAUK, Home Demonstration Agent, Saline County (1944, 1945). Salina.
B. S., Kansas State College.
- JOHN VIRGIL MAXWELL, Agricultural Agent, Elk County (1951). Howard.
B. S., Kansas State College.
- PAUL HENRY MAYGINNES, County Club Agent, Wyandotte County (1951).
Kansas City.
B. S., Kansas State College.
- EARL THOMAS MEANS, Assistant Professor of Agricultural Economics and Extension Economist in Farm Management (1944, 1945).
B. S., Kansas State College.
- MARY E. MEEK, Home Demonstration Agent, Woodson County (1953). Yates Center.
B. S., Kansas State Teachers College (Emporia); M. S., Kansas State College.
- STANLEY RUDOLPH MEINEN, County Club Agent, McPherson County (1949, 1951). McPherson.
B. S., Kansas State College.
- ELIA MABLE MEYER, Assistant Professor of Extension Education and District Home Demonstration Agent (1925, 1940).
B. S., Kansas State College.
- HELEN RUTH MEYER, Home Demonstration Agent, Dickinson County (1943, 1944). Abilene.
B. S., Kansas State College.
- FRIEDA MIDDENDORF, Home Demonstration Agent, Barber County (1948, 1951).
Medicine Lodge.
A. B., University of Kansas.
- FRANKLIN XAVERIUS MILLER, Agricultural Agent, Ness County (1947, 1948).
Ness City.
B. S., Kansas State College.

- MAX BYRON MILLER, Assistant Professor of Agriculture, Home Study (1946, 1951).
B. S., M. S., Kansas State College.
- DONNA MAE MOLZ, Home Demonstration Agent, Comanche County (1952). Coldwater.
B. S., Oklahoma Agricultural and Mechanical College.
- LUCILLE ERNA MORDY, Instructor in Education, Home Study (1947, 1948).
B. S., Kansas State Teachers College (Emporia); M. S., Kansas State College.
- WENDELL AUSTIN MOYER, Assistant Professor and Extension Specialist in Animal Husbandry (1941, 1952).
B. S., Kansas State College.
- WESLEY GALE MULLEN, Agricultural Agent, Russell County (1950, 1952). Russell.
B. S., Kansas State College.
- GLADYS MYERS, Associate Professor and Extension Specialist in Home Management and Consumer Education (1930, 1947).
B. S., Kansas State College; M. S., Cornell University.
- ERMA M. NEELY, Home Demonstration Agent, Ness County (1950). Ness City.
B. S., Kansas State College.
- LEONARD FAY NEFF, Associate Professor of Extension Education and District Supervisor (1924, 1947).
B. S., Purdue University.
- HELEN DEANE NEIGHBOR, Instructor and Extension Specialist in Consumer Education (1948, 1952).
B. S., Kansas State College.
- JOSEPH PLEASANT NEILL, Agricultural Agent, Mitchell County (1946, 1951). Beloit.
B. S., Kansas State College.
- BETH KATHLEEN NEWELL, Home Demonstration Agent, Russell County (1949). Russell.
B. S., Kansas State College.
- OSCAR WOODROW NORBY, Agricultural Agent, Finney County (1942, 1952). Garden City.
B. S., Kansas State College.
- ROBERT FRED NUTTLEMAN, Agricultural Agent, Montgomery County (1941, 1944). Independence.
B. S., Kansas State College.
- BRYCE ORR, Agricultural Agent, Coffey County (1953). Burlington.
B. S., Kansas State College.
- CALVIN COOLIDGE ORR, Agricultural Agent, Pottawatomie County (1950). Westmoreland.
B. S., Kansas State College.
- MELVIN WILLIAM OSBURN, Assistant Professor and Extension Specialist in Veterinary Medicine (1952).
D. V. M., Iowa State College.
- GENE OWEN OTT, Agricultural Agent, Graham County (1953). Hill City.
B. S., Kansas State College.
- MARION JEAN PARKER, Home Demonstration Agent, Pottawatomie County (1951, 1952). Westmoreland.
B. S., Kansas State College.
- CHARLES ELLWOOD PARKS, Assistant Professor and Extension Specialist in Landscape Architecture (1949, 1950).
B. S., University of Illinois.
- RALPH STANLEY PARSONS, Agricultural Agent, Lyon County (1949, 1952). Emporia.
B. S., Kansas State College.
- INEZ PASS, Home Demonstration Agent, Ottawa County (1947, 1949). Minneapolis.
B. S., Oklahoma Agricultural and Mechanical College.
- FLOYD HOLMES PATTISON, Professor of Mechanical Engineering, Home Study (1919, 1927).
B. S., Kansas State College; M. S., Massachusetts Institute of Technology.

- PHYLLIS JEAN PATTON, Home Demonstration Agent, Atchison County (1951, 1952). Effingham.
B. S., Kansas State College.
- VICTOR EUGENE PAYER, Agricultural Agent, Butler County (1939, 1941). El Dorado.
B. S., Kansas State College.
- THELMA E. PIERCE, Home Demonstration Agent, Cowley County (1951). Winfield.
B. S., Kansas State College.
- HAROLD HOMER RAMSOUR, Instructor in Engineering Extension and Extension Agricultural Engineer (1948).
B. S., Kansas State College.
- LEON G. RANDOLPH, Associate Agricultural Agent, Sedgwick County (1951). Wichita.
B. S., Kansas State College.
- VELDA FRANCES RANKIN, Home Demonstration Agent, Sumner County (1952). Wellington.
B. S., Kansas State College.
- CLAYRE DONNELLY RATZLAFF, Home Demonstration Agent, Cherokee County (1948). Columbus.
B. S., Kansas State Teachers College (Pittsburg).
- MARY BETZ REED, Home Demonstration Agent, Mitchell County (1944, 1952). Beloit.
B. S., Kansas State College.
- ROGER ELI REGNIER, Associate Professor of Junior Extension; Assistant State Club Leader (1934, 1944).
B. S., M. S., Kansas State College.
- WILFRED GLEN REIST, Agricultural Agent, Comanche County (1952). Coldwater.
B. S., Kansas State College.
- FLOYD ELBRIDGE RICKER, County Club Agent, Finney County (1947, 1951). Garden City.
B. S., Kansas State College.
- CHARLES FRANCIS ROBOHN, Agricultural Agent, Miami County (1952). Paola.
B. S., Kansas State College.
- LOIS M. ROHRBAUGH, Home Demonstration Agent, Smith County (1953). Smith Center.
B. S., Kansas State College.
- PEARL S. ROOTS, Home Demonstration Agent, Graham County (1950). Hill City.
B. S., Kansas State College.
- BRACE DONALD ROWLEY, Agricultural Agent, Saline County (1941, 1952). Salina.
B. S., Kansas State College.
- ELLEN M. RYAN, Home Demonstration Agent, Harvey County (1953). Newton.
A. B., University of Kansas.
- ARMIN OTTO SAMUELSON, County Club Agent, Harvey County (1946, 1952). Newton.
B. S., Kansas State College.
- JOHN RALPH SCHLENDER, Agricultural Agent, Cheyenne County (1950, 1951). St. Francis.
B. S., Kansas State College.
- DORTHEA ANN SCHROEDER, Home Demonstration Agent, Wyandotte County (1942, 1950). Kansas City.
B. S., Kansas State College.
- MARTINE AUGUSTA SEATON, Professor and Extension Specialist in Poultry Husbandry (1928, 1946).
B. S., University of Missouri.
- WALTER ELSWORTH SELBY, Assistant Professor of Engineering Extension and Extension Agricultural Engineer (1944, 1947).
B. S., Kansas State College.

- ETHEL WATSON SELF, Instructor and Extension Specialist in Home Management (1943, 1946).
B. S., M. S., Kansas State College.
- LUCILLE MAY SHAFER, Home Demonstration Agent, Butler County (1949, 1951). El Dorado.
B. S., St. Mary's College.
- HAROLD GLEASON SHANKLAND, Associate Professor of Technical Journalism and Associate Extension Editor (1943, 1949).
A. B., College of Emporia.
- JOSEPH LYMAN SHAWCROFT, Agricultural Agent, Logan County (1951). Oakley.
B. S., Brigham Young University.
- NORMAN R. SHEETS, Agricultural Agent, Wallace County (1951). Sharon Springs.
B. S., Kansas State College.
- LESTER SHEPARD, Agricultural Agent, Neosho County (1928). Erie.
B. S., Iowa State College; B. A., State University of Iowa.
- JOAN J. SHINN, Home Demonstration Agent, Clark County (1952). Ashland.
B. S., Kansas State College.
- GEORGE W. SIDWELL, Agricultural Agent, Trego County (1919, 1951). Wakeney.
A. B., Fairmount College; B. S., Kansas State College.
- DORTHY D. SILLERS, Home Demonstration Agent, Wilson County (1950). Fredonia.
B. S., State Teachers College.
- DEAL D. SIX, Agricultural Agent, Douglas County (1935). Lawrence.
B. S., Kansas State College.
- JOHN FREDERICK SMERCHECK, Assistant Professor of Agricultural Economics and Extension Economist in Farm Management (1942, 1950).
B. S., Kansas State College.
- FORREST LEROY SMITH, County Club Agent, Barton County (1950, 1952). Great Bend.
B. S., Kansas State College.
- FRANCES BALDWIN SMITH, Home Demonstration Agent, Franklin County (1949, 1952). Ottawa.
B. S., Kansas State College.
- VIRGINIA MARGARET SMITH, Home Demonstration Agent, Anderson County (1951, 1952). Garnett.
B. S., Kansas State College.
- GEORGIANA HOPE SMURTHWAITE, Professor of Extension Education and State Home Demonstration Leader (1924, 1937).
B. S., Utah State College; M. S., Kansas State College.
- BEVERLY DAVID STAGG, Agricultural Agent, Norton County (1940, 1946). Norton.
B. S., Kansas State College.
- WINONA MCNEIGHT STARKEY, Instructor and Extension Specialist in Home Furnishing (1944, 1951).
B. S., Kansas State College.
- WILMA MAXINE STELOVICH, Assistant Home Demonstration Agent, Sedgwick County (1952). Wichita.
B. S., Oklahoma Agricultural and Mechanical College.
- HAROLD EARL STOVER, Associate Professor of Engineering and Extension Agricultural Engineer (1936, 1946).
B. S., Kansas State College.
- NELSON E. STROUD, Agricultural Agent, Jefferson County (1952). Oskaloosa.
B. S., Kansas State College.
- JAMES WADELL STURDEVANT, Agricultural Agent, Crawford County (1948, 1952). Girard.
B. S., Kansas State College.
- KATHRYN SUGHRUE, Home Demonstration Agent, Reno County (1937, 1950). Hutchinson.
B. S., Kansas State College.
- MAX L. SUTTON, Agricultural Agent, Gove County (1952). Gove.
B. S., Kansas State College.

- WILLIAM RICHARD SWEARINGEN, County Club Agent, Pratt County (1952).
Pratt.
B. S., M. S., Kansas State College.
- LOT FORMAN TAYLOR, Associate Professor and Extension Specialist in Animal Husbandry (1935, 1949).
B. S., M. S., Kansas State College.
- EARL HICKS TEAGARDEN, Professor of Extension Education and District Agent (1929, 1952).
B. S., Kansas State College.
- MARJORIE ANN TENNANT, Instructor in Technical Journalism and Assistant Extension Editor (1946, 1952).
B. S., Kansas State College.
- MILTON N. THOMAS, Agricultural Agent, Gray County (1949, 1952). Cimarron.
B. S., Kansas State College.
- WILTON BRADLEY THOMAS, Agricultural Agent, Dickinson County (1946, 1952).
Abilene.
B. S., Kansas State College.
- WAYNE MERRILL THOMPSON, Agricultural Agent, Hamilton County (1952).
Syracuse.
B. S., Kansas State College.
- DANNY DALE TRAYER, Agricultural Agent, Hodgeman County (1950, 1951).
Jetmore.
B. S., Kansas State College.
- JOSEPH BOMAN TURNEY, County Club Agent, Labette County (1952). Altamont.
B. S., Oklahoma Agricultural and Mechanical College.
- WILLIAM VINCENT VANSKIKE, County Club Agent, Clay County (1950, 1951).
Clay Center.
B. S., Kansas State College.
- CLARENCE WILLIAM VETTER, Agricultural Agent, Atchison County (1918, 1943).
Effingham.
B. S., Iowa State College.
- FAYE EVELYN VICE, Home Demonstration Agent, Labette County (1946, 1947).
Altamont.
B. S., Kansas State College.
- KENNETH EARL VISSER, County Club Agent, Marshall County (1952). Marysville.
B. S., Kansas State College.
- MARSHALL FRANCIS WALKER, JR., Agricultural Agent, Grant County (1951).
Ulysses.
B. S., Kansas State College.
- MILDRED LUCILLE WALKER, Home Demonstration Agent, Jewell County (1952).
Mankato.
B. S., Kansas State College.
- MARIAN JUNE WALTERS, Home Demonstration Agent, Kiowa County (1950, 1952). Greensburg.
B. S., University of Kansas.
- EUGENE DECATUR WARNER, Associate Professor of Technical Journalism and Associate Extension Editor (1935, 1947).
B. S., Kansas State College.
- EDWARD DALE WATSON, County Club Agent, Rice County (1943, 1952). Lyons.
B. S., Kansas State College.
- MAE K. WEAVER, Associate Home Demonstration Agent, Barton County (1952). Great Bend.
B. S., Kansas State College.
- KATHERYN FAIRES WEINHOLD, Home Demonstration Agent, Republic County (1950). Belleville.
B. S., Kansas State Teachers College (Pittsburg).
- LEO THEODORE WENDLING, Assistant Professor of Engineering Extension and Extension Agricultural Engineer (1947, 1949).
B. S., Kansas State College.
- JAY ALFRED WEST, Agricultural Agent, Doniphan County (1952). Troy.
B. S., Kansas State College.

- HERMAN W. WESTMEYER, Agricultural Agent, Ford County (1936, 1947).
Dodge City.
B. S., University of Missouri.
- WILBUR WALDO WHITE, Agricultural Agent, Morton County (1942, 1943). Elkhart.
A. B., Southwestern College; B. S., Kansas State College.
- NORMAN VINCENT WHITEHAIR, Assistant Professor of Agricultural Economics and Extension Economist in Marketing (1946, 1949).
B. S., Kansas State College.
- MARY KATHLEEN WHITMER, Home Demonstration Agent, Kingman County (1950). Kingman.
B. S., University of Kansas.
- LOWELL DELMER WICKHAM, County Club Agent, Allen County (1950). Iola.
B. S., Oklahoma Agricultural and Mechanical College.
- MARY CHRISTINE WIGGINS, Associate Professor and Extension Specialist in Clothing and Textiles (1930, 1947).
B. S., Kansas State College; M. S., Columbia University.
- LEWIS COLEMAN WILLIAMS, Dean and Director (1915, 1947).
B. S., Kansas State College.
- WILLIAM GRANT WILLIS, County Club Agent, Ellsworth County (1950, 1951). Ellsworth.
B. S., Kansas State College.
- LUTHER EARL WILLOUGHBY, Professor and Extension Specialist in Agronomy (1918, 1944).
B. S., Kansas State College.
- JACK H. WILSON, Agricultural Agent, Wichita County (1946, 1950). Leoti.
B. S., Kansas State College.
- PAUL HENRY WILSON, Agricultural Agent, Barton County (1946, 1947). Great Bend.
B. S., Kansas State College.
- RICHARD WAYNE WINGER, County Club Agent, Saline County (1949). Salina.
B. S., Kansas State College.
- JACK D. WISE, Agricultural Agent, Rawlins County (1948, 1950). Atwood.
B. S., Kansas State College.
- LLOYD LESLIE WISEMAN, County Club Agent, Marion County (1949, 1950). Marion.
B. S., Kansas State College.
- RALPH EDWIN WITTMAYER, County Club Agent, Reno County (1947, 1951). Hutchinson.
B. S., University of Missouri.
- ELIZABETH WONER, Home Demonstration Agent, Harper County (1948, 1950). Anthony.
A. B., Southwestern College.
- LOUISE ANN WONER, Home Demonstration Agent, Riley County (1953). Manhattan.
B. S., Kansas State College.
- MARY DUNLAP ZEIGLER, Home Demonstration Agent, Shawnee County (1928). Topeka.
B. S., Kansas State College.

Statistical Summary for 1951-1952

Students by States, Foreign Countries, and Kansas Counties

States

Arizona	3	Nebraska	74
Arkansas	18	Nevada	1
California	21	New Hampshire	2
Colorado	17	New Jersey	52
Connecticut	11	New Mexico	6
District of Columbia	2	New York	106
Florida	8	North Carolina	2
Georgia	4	North Dakota	5
Idaho	3	Ohio	10
Illinois	55	Oklahoma	18
Indiana	21	Oregon	4
Iowa	15	Pennsylvania	24
Kansas	4652	Rhode Island	3
Kentucky	8	South Dakota	15
Louisiana	4	Tennessee	5
Maine	1	Texas	31
Maryland	12	Utah	8
Massachusetts	16	Virginia	8
Michigan	12	Washington	4
Minnesota	14	West Virginia	2
Mississippi	6	Wisconsin	9
Missouri	174	Wyoming	5
Montana	3		
		Total	5474

Foreign Countries and Territories Outside the Continental United States

Africa	1	Netherlands	1
Argentina	3	Nicaragua	2
Bolivia	9	Norway	2
British Guiana	1	Pakistan	1
Canada	5	Palestine	4
China	3	Panama	4
Colombia	2	Peru	2
Egypt	3	Philippine	2
Ethiopia	1	Puerto Rico	3
Germany	2	Switzerland	1
Greece	2	Syria	1
Haiti	1	Turkey	1
Hawaii	23	Venezuela	1
Hong Kong	2	West Indies	1
India	8	West Africa	1
Iraq	17		
Iran	7	Total	124
Israel	4	Grand Total:	
Korea	1	States	5474
Manila	1	Countries	124
Mexico	1		
			5598

Kansas Counties

Allen	22	Logan	25
Anderson	29	Lyon	33
Atchison	49	McPherson	48
Barber	29	Marion	32
Barton	79	Marshall	90
Bourbon	17	Meade	14
Brown	55	Miami	30
Butler	60	Mitchell	48
Chase	18	Montgomery	49
Chautauqua	8	Morris	41
Cherokee	12	Morton	5
Cheyenne	12	Nemaha	31
Clark	17	Neosho	36
Clay	75	Ness	18
Cloud	63	Norton	42
Coffey	24	Osage	25
Comanche	11	Osborne	24
Cowley	62	Ottawa	44
Crawford	24	Pawnee	21
Decatur	25	Phillips	27
Dickinson	103	Pottawatomie	85
Doniphan	25	Pratt	34
Douglas	14	Rawlins	14
Edwards	24	Reno	112
Elk	6	Republic	39
Ellis	21	Rice	47
Ellsworth	16	Riley	781
Finney	36	Rooks	30
Ford	29	Rush	14
Franklin	49	Russell	50
Geary	91	Saline	107
Gove	11	Scott	12
Graham	18	Sedgwick	227
Grant	7	Seward	10
Gray	17	Shawnee	216
Greeley	6	Sheridan	12
Greenwood	37	Sherman	19
Hamilton	12	Smith	45
Harper	27	Stafford	35
Harvey	53	Stanton	10
Haskell	8	Stevens	3
Hodgeman	18	Sumner	66
Jackson	36	Thomas	23
Jefferson	27	Trego	10
Jewell	39	Wabaunsee	33
Johnson	82	Wallace	6
Kearney	4	Washington	63
Kingman	22	Wichita	7
Kiowa	13	Wilson	33
Labette	23	Woodson	12
Lane	5	Wyandotte	160
Leavenworth	33		
Lincoln	25		
Linn	26		
		Total	4652

Record of Enrollment and Degrees Conferred 1863-1952

Advanced degrees...	Graduated	Net total	Counted twice	Graduate	Senior	Junior	Sophomore	Freshman	Vocational school ..	Subfreshman	Preparatory	Special	Apprentice	Farmers' short course	Dairy short course..	Dairy Mfg. short course	Housekeepers' short course	Summer school	YEAR
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RECORD OF ENROLLMENT AND DEGREES CONFERRED, 1863-1952—CONCLUDED

YEAR	Summer school	Housekeepers' short course	Dairy Mfg. short 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....
1930-'31 ..	995	.....	24	.....	52	.....	50	.....	7	.....	1077	790	605	528	506	589	4045	424	91
1931-'32 ..	1059	.....	12	.....	29	.....	54	.....	.....	.....	933	752	633	572	572	688	3928	486	119
1932-'33 ..	995	.....	.....	.....	.....	.....	72	.....	.....	.....	666	596	552	590	518	630	3359	523	118
1933-'34 ..	655	.....	.....	.....	.....	.....	61	.....	.....	.....	707	558	520	522	327	422	2928	423	70
1934-'35 ..	722	.....	.....	.....	.....	.....	52	.....	.....	.....	1081	616	548	557	316	456	3436	470	52
1935-'36 ..	989	.....	.....	.....	.....	.....	69	.....	.....	.....	1330	820	660	574	391	572	4261	478	72
1936-'37 ..	917	.....	.....	.....	.....	.....	64	.....	.....	.....	1326	947	774	623	440	634	4457	521	90
1937-'38 ..	890	.....	.....	.....	.....	.....	67	.....	.....	.....	1297	972	810	787	409	537	4695	637	92
1938-'39 ..	911	.....	.....	.....	.....	.....	61	.....	.....	.....	1246	959	864	855	463	559	4800	720	86
1939-'40 ..	920	.....	.....	.....	.....	.....	61	.....	.....	.....	1306	958	926	871	490	622	4910	710	79
1940-'41 ..	935	.....	.....	.....	.....	.....	40	.....	.....	.....	1284	969	905	900	524	655	4902	734	85
1941-'42 ..	880	.....	.....	.....	.....	.....	17	.....	.....	.....	1274	926	807	748	417	590	4479	617	68
1942-'43 ..	1178	.....	.....	.....	.....	.....	21	.....	.....	.....	1234	717	587	717	253	846	3861	646	28
1943-'44* ..	1181	.....	.....	.....	.....	.....	21	.....	.....	.....	1234	717	587	717	217	888	3786	.....	.....
1943-'44 ..	911	.....	.....	.....	.....	.....	18	.....	.....	.....	483	371	312	440	193	619	2109	390	28
1944-'45 ..	881	.....	.....	.....	.....	.....	48	.....	.....	.....	601	383	289	260	196	594	2064	261	27
1945-'46 ..	2785	.....	.....	.....	.....	.....	227	.....	.....	.....	1730	771	524	468	331	1784	5052	464	55
1946-'47 ..	2859	.....	.....	.....	.....	.....	183	.....	.....	.....	3453	1910	1019	856	383	2849	7814	779	102
1947-'48 ..	2446	.....	.....	.....	.....	.....	97	.....	.....	.....	2100	2325	1595	1123	456	1976	8166	988	118
1948-'49 ..	2246	.....	.....	.....	.....	.....	64	.....	.....	.....	1883	1768	1927	1753	550	1825	8366	1488	178
1949-'50 ..	1808	.....	.....	.....	.....	.....	44	.....	.....	.....	1941	1692	1512	1952	775	82	7834	1902	219
1950-'51 ..	1582	.....	.....	.....	.....	.....	42	.....	.....	.....	1802	1487	1263	1446	850	58	6867	1421	222
1951-'52 ..	1043	.....	.....	.....	.....	.....	36	.....	.....	.....	1765	1293	1139	1278	830	743	5598	1017	193

† Figures above this column include neither graduate students in summer session, nor undergraduate students pursuing graduate work.

* Beginning with this year this summary is made at the close of the summer session instead of at the close of the spring semester as before.

COLLEGE REGISTRATION, 1951-1952

SCHOOL	Men	Women	Total
SCHOOL OF AGRICULTURE	1068	7	1075
Graduate students	93	1	94
Seniors	197	.....	197
Juniors	198	2	200
Sophomores	228	2	230
Freshmen	352	2	354
Special students .....	.....	.....	.....
SCHOOL OF ARTS AND SCIENCES	1557	602	2159
Graduate students	241	27	268
Seniors	252	111	363
Juniors	239	109	348
Sophomores	327	135	462
Freshmen	490	215	705
Special students	8	5	13
SCHOOL OF ENGINEERING AND ARCHITECTURE	1060	9	1069
Graduate students	45	2	47
Seniors	333	2	335
Juniors	228	1	229
Sophomores	205	2	207
Freshmen	244	2	246
Special students	5	.....	5
SCHOOL OF HOME ECONOMICS	3	703	706
Graduate students .....	.....	30	30
Seniors .....	.....	110	110
Juniors .....	.....	142	142
Sophomores .....	.....	171	171
Freshmen	3	249	252
Special students .....	.....	1	1
SCHOOL OF VETERINARY MEDICINE	258	1	259
Graduate students	4	.....	4
Seniors	70	.....	70
Juniors	65	1	66
Sophomores	59	.....	59
Freshmen	60	.....	60
Special students .....	.....	.....	.....
Totals	3946	1322	5268
Counted twice	28	.....	28
Net totals	3918	1332	5240
SUMMER SCHOOL, 1952	717	326	1043
Totals	4635	1648	6283
Counted twice	524	161	685
Net grand totals	3111	1487	5598
GRADUATE SCHOOL .....	.....	.....	.....
Graduate students in regular sessions	383	60	443
Graduate students in summer school	268	92	360
Counted twice	153	20	173
Net in summer school only	498	132	630
Graduate students in absentia	42	4	48
Undergraduate students carrying graduate work	18	1	19

Degrees Conferred in the Year 1952

SCHOOL	Men	Women	Total
SCHOOL OF AGRICULTURE (B. S.)	181		181
Agriculture	147		147
Agricultural Journalism	6		6
Landscape Design	7		7
Milling Industry	21		21
SCHOOL OF ARTS AND SCIENCES (B. S.)	262	120	382
Bachelor of Science	144	91	235
Business Administration	84	14	98
Industrial Chemistry	5		5
Bachelor of Music		1	1
Music Education	2	1	3
Physical Education	18	5	23
Technical Journalism	9	8	17
SCHOOL OF ENGINEERING AND ARCHITECTURE (B. S.)	262	1	263
Agricultural Engineering	27		27
Architecture	42	1	43
Architectural Engineering	29		29
Chemical Engineering	16		16
Civil Engineering	39		39
Electrical Engineering	42		42
Industrial Arts	19		19
Mechanical Engineering	48		48
SCHOOL OF HOME ECONOMICS (B. S.,		121	121
Home Economics		110	110
Home Economics and Journalism		5	5
Home Economics and Nursing		6	6
SCHOOL OF VETERINARY MEDICINE (D. V. M.)	70		70
Veterinary Medicine	70		70
Total undergraduate degrees	775	242	1017
GRADUATE SCHOOL (M. S.)			
Accounting	1		1
Agricultural Economics	5	1	6
Agricultural Engineering	4		4
Agronomy	11	1	12
Animal Husbandry	9		9
Applied Mechanics	2		2
Architecture		1	1
Bacteriology	6		6
Botany and Plant Pathology	4		4
Chemical Engineering	2		2
Chemistry	16		16
Child Welfare and Euthenics		2	2
Civil Engineering	4		4
Clothing and Textiles		3	3
Dairy Husbandry	2		2
Economics	2		2
Education	21	2	23
Education and Institutional Management		1	1
Electrical Engineering	3		3
English		1	1
Entomology	4		4
Flour and Feed Milling Industries	2		2
Foods and Nutrition		2	2
General Home Economics		1	1
General Home Economics and Art		1	1
Geology	3		3
History	2		2
Horticulture	1		1
Home Economics Education		1	1
Household Economics		3	3
Institutional Management		1	1
Machine Design	1		1
Mathematics	5	1	6
Mechanical Engineering	4		4
Milling Industry	2		2
Modern Language	1		1
Music	1	2	3
Pathology	1		1
Physical Education	2		2

Degrees Conferred in the Year 1952—Concluded

SCHOOL	Men	Women	Total
GRADUATE SCHOOL (M. S.)—Concluded			
Physics	6	.....	6
Poultry Husbandry	5	.....	5
Psychology	2	2	2
Shop Practice	2	.....	2
Speech	2	1	3
Technical Journalism	1	.....	1
Zoology	10	1	11
GRADUATE SCHOOL (Ph. D.)			
Agronomy	14	2	16
Bacteriology	2	.....	2
Bacteriology	1	.....	1
Chemistry	8	.....	8
Entomology	3	.....	3
Foods and Nutrition .....	.....	2	2
Total degrees conferred in 1952	938	272	1210
Certificate—2-Year Agriculture	1		1

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Special Students	16
Late Admission	16
Veterans	18
Advanced Credit	15

		Agriculture	Agricultural Administration	Agricultural Education	Agricultural Journalism	Dairy Manufacturing	Feed Technology	
								06
								70
								39
								08
								66
								61
								04
								00
								64
								64
								81
								84
								33
								37
	M	W	M	M	M	M	M	97
								89
UNDERGRADUATES:	80	.....	29	22	6	3	.....	23
Senior	104	1	28	16	5	3	.....	36
Junior	93	1	46	38	4	4	.....	93
Sophomore	198	1	43	35	6	2	.....	27
Freshman .....	.....	.....	.....	.....	.....	.....	.....	16
Special .....	.....	.....	.....	.....	.....	.....	.....	.....
Total in Regular Session	475	3	146	111	21	12	.....	20
Summer Session, 1952	34	1	13	25	1	2	.....	39
Total Undergraduates	509	4	159	136	22	14	1	21
								16
								18
GRADUATES:	93	1	.....	.....	.....	.....	.....	80
In regular sessions	41	1	.....	.....	.....	.....	.....	08
In summer sessions	(11)	(....)	.....	.....	.....	.....	.....	40
In absentia .....	.....	.....	.....	.....	.....	.....	.....	30
Undergraduates carrying graduate work	134	2	.....	.....	.....	.....	.....	9
Total graduate students .....	.....	.....	.....	.....	.....	.....	.....	.....
GRAND TOTALS	643	6	159	136	22	14	1	25
Counted Twice	56	1	12	21	1	2	.....	26
NET GRAND TOTAL	587	5	147	115	21	12		54
Group totals	592		147	115	21	12		

ANALYSIS OF REGISTRATION, 1951-52

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