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Kansas State College BULLETIN

Vol. XXXII

February 1, 1948

No. 2

CATALOGUE 1947-1948



KANSAS STATE COLLEGE of
Agriculture and Applied Science
Manhattan, Kansas

KANSAS STATE COLLEGE BULLETIN

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FEBRUARY 1, 1948

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KANSAS STATE COLLEGE OF
AGRICULTURE AND APPLIED SCIENCE
MANHATTAN, KANSAS

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CALENDAR

1947														1948													
JANUARY							JULY							JANUARY							JULY						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
..	..	..	1	2	3	4	..	..	1	2	3	4	5	..	..	..	1	2	3	..	..	..	..	1	2	3	
5	6	7	8	9	10	11	6	7	8	9	10	11	12	4	5	6	7	8	9	10	4	5	6	7	8	9	10
12	13	14	15	16	17	18	13	14	15	16	17	18	19	11	12	13	14	15	16	17	11	12	13	14	15	16	17
19	20	21	22	23	24	25	20	21	22	23	24	25	26	18	19	20	21	22	23	24	18	19	20	21	22	23	24
26	27	28	29	30	31	..	27	28	29	30	31	..	..	25	26	27	28	29	30	31	25	26	27	28	29	30	31
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
FEBRUARY							AUGUST							FEBRUARY							AUGUST						
..	..	..	..	..	..	1	..	..	..	..	..	1	2	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2	3	4	5	6	7	8	3	4	5	6	7	8	9	8	9	10	11	12	13	14	8	9	10	11	12	13	14
9	10	11	12	13	14	15	10	11	12	13	14	15	16	15	16	17	18	19	20	21	15	16	17	18	19	20	21
16	17	18	19	20	21	22	17	18	19	20	21	22	23	22	23	24	25	26	27	28	22	23	24	25	26	27	28
23	24	25	26	27	28	..	24	25	26	27	28	29	30	29	..	..	..	..	..	..	29	30	31	..	..	..	..
..	..	..	..	..	..	..	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
MARCH							SEPTEMBER							MARCH							SEPTEMBER						
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2	3	4	5	6	7	8	7	8	9	10	11	12	13	7	8	9	10	11	12	13	5	6	7	8	9	10	11
9	10	11	12	13	14	15	14	15	16	17	18	19	20	14	15	16	17	18	19	20	12	13	14	15	16	17	18
16	17	18	19	20	21	22	21	22	23	24	25	26	27	21	22	23	24	25	26	27	19	20	21	22	23	24	25
23	24	25	26	27	28	29	28	29	30	..	..	..	..	28	29	30	31	..	..	..	26	27	28	29	30	..	..
30	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
APRIL							OCTOBER							APRIL							OCTOBER						
..	..	1	2	3	4	5	..	..	..	1	2	3	4	..	..	..	1	2	3	..	..	..	..	1	2	..	..
6	7	8	9	10	11	12	5	6	7	8	9	10	11	4	5	6	7	8	9	10	3	4	5	6	7	8	9
13	14	15	16	17	18	19	12	13	14	15	16	17	18	11	12	13	14	15	16	17	10	11	12	13	14	15	16
20	21	22	23	24	25	26	19	20	21	22	23	24	25	18	19	20	21	22	23	24	17	18	19	20	21	22	23
27	28	29	30	..	..	..	26	27	28	29	30	31	..	25	26	27	28	29	30	..	24	25	26	27	28	29	30
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	..	..	..	..	..	..
MAY							NOVEMBER							MAY							NOVEMBER						
..	..	..	1	2	3	..	..	..	..	..	..	1	..	..	..	..	1	..	1	2	3	4	5	6	..	..	..
4	5	6	7	8	9	10	2	3	4	5	6	7	8	2	3	4	5	6	7	8	7	8	9	10	11	12	13
11	12	13	14	15	16	17	9	10	11	12	13	14	15	9	10	11	12	13	14	15	14	15	16	17	18	19	20
18	19	20	21	22	23	24	16	17	18	19	20	21	22	16	17	18	19	20	21	22	21	22	23	24	25	26	27
25	26	27	28	29	30	31	23	24	25	26	27	28	29	23	24	25	26	27	28	29	28	29	30	..	..	..	..
..	..	..	..	..	..	..	30	..	..	..	..	..	..	30	31	..	..	..	..	..	..	..	..	..	..	..	..
JUNE							DECEMBER							JUNE							DECEMBER						
1	2	3	4	5	6	7	..	1	2	3	4	5	6	..	..	1	2	3	4	5	..	..	..	1	2	3	4
8	9	10	11	12	13	14	7	8	9	10	11	12	13	6	7	8	9	10	11	12	5	6	7	8	9	10	11
15	16	17	18	19	20	21	14	15	16	17	18	19	20	13	14	15	16	17	18	19	12	13	14	15	16	17	18
22	23	24	25	26	27	28	21	22	23	24	25	26	27	20	21	22	23	24	25	26	19	20	21	22	23	24	25
29	30	..	..	..	..	..	28	29	30	31	..	..	..	27	28	29	30	..	..	..	26	27	28	29	30	31	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

ACADEMIC AND FINANCIAL CALENDAR

NOTE.—Students who do not complete their assignments during the regular registration period and those who do not complete registration by payment of fees before the end of the first week of any semester or summer session (see Calendar following) must pay a late registration fee of \$2.50.

FIRST SEMESTER, 1947-1948

<i>Date, Time, Days</i>	<i>Academic calendar</i>	<i>Financial calendar</i>
Sept. 1		Beginning of pay period for 9-months staff.
Sept. 10, 8:00 a. m., Wednesday	Aptitude tests and physical examinations, for transfer students.	
Sept. 10, Wednesday.....	Freshman advisers meet.	
Sept. 10, 1:30 p. m., Wednesday	Assigners meet.	
Sept. 11-15, Thurs.-Mon.....	Testing, orientation, and physical examination for freshmen.	
Sept. 11, 8:00 a. m., Thursday...	Entrance examinations.	Semester begins.
Sept. 11-15, Thurs.-Mon.....	Registration, except freshmen.	
Sept. 16-17, Tues.-Wed.....	Freshman registration.	
Sept. 18, 7:00 a. m., Thursday...	Classes begin.	
Sept. 20, Noon, Saturday.....		Last day of first week. All fees except matriculation refunded to students withdrawing on or before this date. Fees must be paid on or before this date to avoid penalty.
Oct. 11, Noon, Saturday.....		Last day of fourth week.
Oct. 11, Saturday.....	Examinations to remove conditions.	
Oct. 18, Saturday.....	Deficiency reports.	
Oct. 22, 5:00 p. m., Wednesday.....		Fifty percent of fees except matriculation and student health refunded to students withdrawing on or before this date. No refunds after this date.
Nov. 1, Noon, Saturday.....	Last day for reassignment before midsemester.	
Nov. 8		Last day of eighth week.
Nov. 11, 6:00 p. m., Tuesday.....		End of first half of semester.
Nov. 15, Saturday.....	Midsemester deficiency reports.	
Nov. 18, 7:00 p. m., Tuesday....	English proficiency examination.	
Nov. 25, 10:00 p. m., Tuesday...	Thanksgiving vacation begins.	
Dec. 1, 7:00 a. m., Monday....	Classes resume.	
Dec. 6, Noon, Saturday.....		Last day of twelfth week.
Dec. 20, Noon, Saturday.....	Christmas vacation begins.	
Jan. 5, 7:00 a. m., Monday....	Classes resume.	
Jan. 17, Noon, Saturday.....		Last day of sixteenth week.
Jan. 19-22, Mon.-Thurs.....	Examinations for candidates for degrees.	
Jan. 24, Noon, Saturday.....	Grades to registrar for candidates for degrees.	
Jan. 26-29, Mon.-Thurs.....	Semester examinations.	
Jan. 30, Friday.....	Commencement.	
Jan. 30, 4:00 p. m., Friday.....	Deficiency reports, semester ends.	Semester ends.
Jan. 31, Noon, Saturday.....	Grades to registrar.	

SECOND SEMESTER, 1947-1948

<i>Date, Time, Days</i>	<i>Academic calendar</i>	<i>Financial calendar</i>
Jan. 30-31, 8:00 a. m., Fri.-Sat.,	Testing, orientation, and physical examinations for freshmen and transfer students.	
Feb. 2, 8:00 a. m., Monday.....	Entrance examinations.	Semester begins.
Feb. 2-4, Mon.-Wed.....	Registration.	
Feb. 5, 7:00 a. m., Thurs.....	Classes begin.	
Feb. 7, Noon, Saturday.....		Last day of first week. All fees except matriculation refunded to students withdrawing on or before this date. Fees must be paid on or before this date to avoid penalty.
Feb. 23, Monday.....	Holiday—Washington's birthday.	
Feb. 28, Saturday.....	Examinations to remove conditions.	
Feb. 28, Noon, Saturday.....		Last day of fourth week.
March 6, Saturday.....	Deficiency reports.	
March 11, 5:00 p. m., Thursday.....		Fifty percent of fees except matriculation and student health refunded to students withdrawing on or before this date. No refunds after this date.
March 20, Saturday.....	Last day for reassignment before midsemester.	
March 25, 10:00 p. m., Thursday.....	Easter vacation begins.	
March 27, Noon, Saturday.....		Last day of eighth week.
March 30, 7:00 a. m., Tuesday..	Classes resume.	
April 1, 6:00 p. m., Thursday.....		End of first half of semester.
April 3, Saturday.....	Midsemester deficiency reports.	
April 6, 7:00 p. m., Tuesday....	English proficiency examination.	
April 24, Noon, Saturday.....		Last day of twelfth week.
May 19-22, Wed.-Sat.....	Examinations for candidates for degrees.	
May 22, Saturday.....		Last day of sixteenth week.
May 25-29, Noon-noon, Tues.-Sat.	Semester examinations.	
May 25, 5:00 p. m., Tuesday....	Grades to registrar for candidates for degrees.	
May 29, Saturday.....	Alumni Day.	
May 30, 8:00 p. m., Sunday....	Commencement.	
May 30, 10:00 p. m., Sunday....	Semester ends.	Semester ends.
May 31, Monday.....	Holiday—Memorial Day.	
June 1-5, Tues.-Sat.....	4-H Club Roundup.	
June 2, Wednesday.....	Deficiency reports.	
June 5, Noon, Saturday.....	Grades to registrar.	

SUMMER SESSION, 1948

<i>Date, Time, Days</i>	<i>Academic calendar</i>	<i>Financial calendar</i>
June 7, 8:00 a. m., Monday.....	Testing, orientation, and physical examinations for freshmen and transfer students.	
June 8, 8:00 a. m., Tuesday.....	Entrance examinations.	Session begins.
June 8-9, Tues.-Wed.....	Registration.	
June 10, Thursday.....	Classes begin.	
June 12, Noon, Saturday.....		Last day of first week. All fees except matriculation refunded to students withdrawing on or before this date. Fees must be paid on or before this date to avoid penalty.
June 28, 5:00 p. m., Monday.....		End of first third of session. Fifty percent of fees except matriculation and student health refunded to students withdrawing on or before this date. No refunds after this date.

<i>Date, Time, Days</i>	<i>Academic calendar</i>	<i>Financial calendar</i>
July 3, Noon, Saturday.....	Last day for reassignment before midsession.	Last day of fourth week.
July 5, Monday.....	Holiday—Independence Day.	
July 9, 6:00 p. m., Friday.....		End of first half of session.
July 10, Noon, Saturday.....	Deficiency reports.	
July 31, Noon, Saturday.....		Last day of eighth week.
July 30-Aug. 2, Fri-Mon.....	Examinations for candidates for degrees.	
Aug. 4, Wednesday.....	Grades to registrar for candidates for degrees.	
Aug. 7, Noon, Saturday.....	Last day of examinations.	Last day of ninth week.
Aug. 8, Sunday.....	Commencement.	
Aug. 10, 4:00 p. m., Tuesday....	Deficiency reports.	Session ends.
Aug. 13, Noon, Friday.....	Grades to registrar.	

FIRST SEMESTER, 1948-1949

<i>Date, Time, Days</i>	<i>Academic calendar</i>	<i>Financial calendar</i>
Sept. 1		Beginning of pay period for 9-months staff.
Sept. 7, 8:00 a. m., Tuesday....	Aptitude tests and physical examinations for transfer students.	
Sept. 7, Tuesday.....	Freshman advisers meet.	
Sept. 7, 1:30 p. m., Tuesday....	Assigners meet.	
Sept. 8, 8:00 a. m., Wednesday..	Entrance examinations.	Semester begins.
Sept. 8-11, Wed.-Sat.....	Testing, orientation, and physical examination for freshmen.	
Sept. 8-11, Wed.-Sat.....	Registration, except freshmen.	
Sept. 13-14, Mon.-Tues.....	Freshman registration.	
Sept. 15, 7:00 a. m., Wednesday..	Classes begin.	
Sept. 18, Noon, Saturday.....		Last day of first week. All fees except matriculation refunded to students withdrawing on or before this date. Fees must be paid on or before this date to avoid penalty.
Oct. 9, Noon, Saturday.....		Last day of fourth week.
Oct. 9, Saturday.....	Examinations to remove conditions.	
Oct. 16, Saturday.....	Deficiency reports.	
Oct. 19, 5:00 p. m., Tuesday.....		Fifty percent of fees except matriculation and student health refunded to students withdrawing on or before this date. No refunds after this date.
Oct. 30, Noon, Saturday.....	Last day for reassignment before midsemester.	
Nov. 6, Noon, Saturday.....		Last day of eighth week.
Nov. 13, Saturday.....	Midsemester deficiency reports.	
Nov. 16, 7:00 p. m., Tuesday....	English proficiency examination.	
Nov. 18, 6:00 p. m., Thursday.....		End of first half of semester.
Nov. 23, 10:00 p. m., Tuesday...	Thanksgiving vacation begins.	
Nov. 29, 7:00 a. m., Monday....	Classes resume.	
Dec. 4, Noon, Saturday.....		Last day of twelfth week.
Dec. 18, Noon, Saturday.....	Christmas vacation begins.	
Jan. 3, 7:00 a. m., Monday.....	Classes resume.	
Jan. 15, Noon, Saturday.....		Last day of sixteenth week.
Jan. 17-20, Mon.-Thurs.....	Examinations for candidates for degrees.	
Jan. 22, Noon, Saturday.....	Grades to registrar for candidates for degrees.	
Jan. 24-27, Mon.-Thurs.....	Semester examinations.	
Jan. 28, Friday.....	Commencement.	
Jan. 28, 4:00 p. m., Friday.....	Deficiency reports, semester ends.	Semester ends.
Jan. 29, Noon, Saturday.....	Grades to registrar.	

SECOND SEMESTER, 1948-1949

<i>Date, Time, Days</i>	<i>Academic calendar</i>	<i>Financial calendar</i>
Jan. 28-29, 8:00 a. m., Fri.-Sat.,	Testing, orientation and physical examinations for freshmen and transfer students.	
Jan. 31, 8:00 a. m., Monday....	Entrance examinations.	Semester begins.
Jan. 31-Feb. 2, Mon.-Wed.....	Registration.	
Feb. 3, 7:00 a. m., Thurs.....	Classes begin.	
Feb. 5, Noon, Saturday.....		Last day of first week. All fees except matriculation refunded to students withdrawing on or before this date. Fees must be paid on or before this date to avoid penalty.
Feb. 22, Tuesday.....	Holiday—Washington's birthday.	
Feb. 26, Saturday.....	Examinations to remove conditions.	
Feb. 26, Noon, Saturday.....		Last day of fourth week.
March 5, Saturday.....	Deficiency reports.	
March 10, 5:00 p. m., Thursday.....		Fifty percent of fees except matriculation and student health refunded to students withdrawing on or before this date. No refunds after this date.
March 19, Saturday.....	Last day for reassignment before midsemester.	
March 26, Noon, Saturday.....		Last day of eighth week.
March 31, 6:00 p. m., Thursday.....		End of first half of semester.
April 2, Saturday.....	Midsemester deficiency reports.	
April 5, 7:00 p. m., Tuesday....	English proficiency examination.	
April 14, 10:00 p. m., Thursday,	Easter vacation begins.	
April 19, 7:00 a. m., Tuesday....	Classes resume.	
April 23, Noon, Saturday.....		Last day of twelfth week.
May 18-21, Wed.-Sat.....	Examinations for candidates for degrees.	
May 21, Noon, Saturday.....		Last day of sixteenth week.
May 24, 5:00 p. m., Tuesday....	Grades to registrar for candidates for degrees.	
May 24-28, Noon - noon, Tues.-Sat.	Semester examinations.	
May 28, Saturday.....	Alumni Day.	
May 29, 8:00 p. m., Sunday....	Commencement.	
May 29, 10:00 p. m., Sunday....	Semester ends.	Semester ends.
May 30, Monday.....	Holiday—Memorial Day.	
May 31-June 4, Tues.-Sat.....	4-H Club Roundup.	
June 1, Wednesday.....	Deficiency reports.	
June 4, Noon, Saturday.....	Grades to registrar.	

SUMMER SESSION, 1949

<i>Date, Time, Days</i>	<i>Academic calendar</i>	<i>Financial calendar</i>
June 6, 8:00 a. m., Monday....	Testing, orientation, and physical examinations for freshmen and transfer students.	
June 7, 8:00 a. m., Tuesday....	Entrance examinations.	Session begins.
June 7-8, Tues.-Wed.....	Registration.	
June 9, Thursday.....	Classes begin.	
June 11, Noon, Saturday.....		Last day of first week. All fees except matriculation refunded to students withdrawing on or before this date. Fees must be paid on or before this date to avoid penalty.
June 27, 5:00 p. m., Monday.....		End of first third of session. Fifty percent of fees except matriculation and student health refunded to students withdrawing on or before this date. No refunds after this date.

<i>Date, Time, Days</i>	<i>Academic calendar</i>	<i>Financial calendar</i>
July 2, Noon, Saturday.....	Last day for reassignment before midsession.	Last day of fourth week.
July 4, Monday.....	Holiday—Independence Day.	
July 8, 6:00 p. m., Friday.....		End of first half of session.
July 9, Noon, Saturday.....	Deficiency reports.	
July 29-Aug. 2, Fri.-Mon.....	Examinations for candidates for degrees.	
July 30, Noon, Saturday.....		Last day of eighth week.
Aug. 3, Wednesday.....	Grades to registrar for candidates for degrees.	
Aug. 6, Noon, Saturday.....	Last day of examinations.	Last day of ninth week.
Aug. 7, Sunday.....	Commencement.	
Aug. 9, 4:00 p. m., Tuesday.....	Deficiency reports.	Session ends.
Aug. 12, Noon, Friday.....	Grades to registrar.	

FIRST SEMESTER, 1949-1950

<i>Date, Time, Days</i>	<i>Academic calendar</i>	<i>Financial calendar</i>
Sept. 1		Beginning of pay period for 9-months staff.
Sept. 6, 8:00 a. m., Tuesday....	Aptitude tests and physical examinations for transfer students.	
Sept. 6, Tuesday.....	Freshman advisers meet.	
Sept. 6, 1:30 p. m., Tuesday....	Assigners meet.	
Sept. 7, 8:00 a. m., Wednesday..	Entrance examinations.	Semester begins.
Sept. 7-10, Wed.-Sat.....	Testing, orientation, and physical examinations for freshmen.	
Sept. 7-10, Wed.-Sat.....	Registration, except freshmen.	
Sept. 12-13, Mon.-Tues.....	Freshman registration.	
Sept. 14, 7:00 a. m., Wednesday,	Classes begin.	
Sept. 17, Noon, Saturday.....		Last day of first week. All fees except matriculation refunded to students withdrawing on or before this date. Fees must be paid on or before this date to avoid penalty.

REGISTRATION AND ASSIGNMENT SCHEDULES

No 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:

SUMMER SESSION, 1948

SCHEDULE FOR ALL STUDENTS

		TUESDAY, JUNE 8, 1948	
Hours			Initial letters
8:00 to 8:45	a. m.	.....	D, O, U
8:45 to 9:30	a. m.	.....	S
9:30 to 10:15	a. m.	.....	C
10:15 to 11:00	a. m.	.....	E, G, Q
12:00 to 12:45	p. m.	.....	A, F
12:45 to 1:30	p. m.	.....	P, T
1:30 to 2:15	p. m.	.....	Wa-Wi
2:15 to 3:00	p. m.	.....	Wj-Wy, J, N
WEDNESDAY, JUNE 9, 1948			
8:00 to 8:45	a. m.	.....	I, K, V, Y
8:45 to 9:30	a. m.	.....	M
9:30 to 10:15	a. m.	.....	Ha-Hol
10:15 to 11:00	a. m.	.....	Hom-Hy, R, X, Z
12:00 to 12:45	p. m.	.....	Ba-Bra
12:45 to 1:30	p. m.	.....	Bre-By, L
1:30 to 3:00	p. m.	.....	Those who failed to report at the period provided for their group.

FIRST SEMESTER 1948-1949

SCHEDULE FOR ALL STUDENTS, EXCEPT FRESHMEN REGISTERING FOR THE FIRST TIME IN KANSAS STATE COLLEGE

		WEDNESDAY, SEPTEMBER 8, 1948	
Hours			Initial letters
8:00 to 9:00	a. m.	.....	I, K, Y
9:00 to 10:00	a. m.	.....	Ma-Me
10:00 to 11:00	a. m.	.....	Mi-Mz, V
12:00 to 1:00	p. m.	.....	Ha-He
1:00 to 2:00	p. m.	.....	Hi-Hz, X, Z
2:00 to 3:00	p. m.	.....	R
THURSDAY, SEPTEMBER 9, 1948			
8:00 to 9:00	a. m.	.....	Ba-BI
9:00 to 10:00	a. m.	.....	Bo-Bz
10:00 to 11:00	a. m.	.....	L
12:00 to 1:00	p. m.	.....	Wa-Wh
1:00 to 2:00	p. m.	.....	Wi-Wz
2:00 to 3:00	p. m.	.....	J, N
FRIDAY, SEPTEMBER 10, 1948			
8:00 to 9:00	a. m.	.....	G
9:00 to 10:00	a. m.	.....	Ca-CI
10:00 to 11:00	a. m.	.....	Co-Cz, E
12:00 to 1:00	p. m.	.....	Q, A, T
1:00 to 2:00	p. m.	.....	F, O
2:00 to 3:00	p. m.	.....	P
SATURDAY, SEPTEMBER 11, 1948			
8:00 to 9:00	a. m.	.....	D, U
9:00 to 10:00	a. m.	.....	Sa-Si
10:00 to 11:00	a. m.	.....	Sj-Sz

SCHEDULE FOR FRESHMAN STUDENTS

REGISTERING FOR THE FIRST TIME IN KANSAS STATE COLLEGE

MONDAY, SEPTEMBER 13, 1948

<i>Hours</i>	<i>Initial letters</i>
8:00 to 8:45 a. m.....	I, K, V, Y
8:45 to 9:30 a. m.....	M
9:30 to 10:15 a. m.....	Ha-Hol
10:15 to 11:00 a. m.....	Hom-Hy, R, X, Z
12:00 to 12:45 p. m.....	Ba-Bra
12:45 to 1:30 p. m.....	Bre-By, L
1:30 to 2:15 p. m.....	Wa-Wi
2:15 to 3:00 p. m.....	Wi-Wz, J, N

TUESDAY, SEPTEMBER 14, 1948

8:00 to 8:45 a. m.....	C
8:45 to 9:30 a. m.....	E, G, Q
9:30 to 10:15 a. m.....	A, F
10:15 to 11:00 a. m.....	P, T
12:00 to 12:45 p. m.....	D, O, U
12:45 to 1:30 p. m.....	S
1:30 to 3:00 p. m.....	All those (including upperclassmen) who failed to report during the period provided for their group.

SECOND SEMESTER, 1948-1949

SCHEDULE FOR ALL STUDENTS

MONDAY, JANUARY 31, 1949

<i>Hours</i>	<i>Initial letters</i>
8:00 to 8:45 a. m.....	Ca-CI
8:45 to 9:30 a. m.....	Co-Cz, E
9:30 to 10:15 a. m.....	G
10:15 to 11:00 a. m.....	Q, A, T
12:00 to 12:45 p. m.....	F, O
12:45 to 1:30 p. m.....	P
1:30 to 2:15 p. m.....	D, U
2:15 to 3:00 p. m.....	Sa-Si

TUESDAY, FEBRUARY 1, 1949

8:00 to 8:45 a. m.....	Sj-Sz
8:45 to 9:30 a. m.....	I, K, Y
9:30 to 10:15 a. m.....	Ma-Me
10:15 to 11:00 a. m.....	Mi-Mz, V
12:00 to 12:45 p. m.....	Ha-He
12:45 to 1:30 p. m.....	Hi-Hz, X, Z
1:30 to 2:15 p. m.....	R
2:15 to 3:00 p. m.....	Ba-BI

WEDNESDAY, FEBRUARY 2, 1949

8:00 to 9:00 a. m.....	Bo-Bz
9:00 to 10:00 a. m.....	L
10:00 to 11:00 a. m.....	Wa-Wh
12:00 to 1:00 p. m.....	Wi-Wz
1:00 to 2:00 p. m.....	J, N
2:00 to 3:00 p. m.....	All those who failed to report for their group.

THE BOARD OF REGENTS

WILLIS N. KELLY, <i>Chairman</i> , Hutchinson LAVERNE B. SPAKE, Kansas City OSCAR S. STAUFFER, Topeka LESTER MCCOY, Garden City	FRED M. HARRIS, Ottawa MRS. ELIZABETH HAUGHEY, Concordia JERRY E. DRISCOLL, Russell DREW McLAUGHLIN, Paola GROVER POOLE, Manhattan
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HUBERT BRIGHTON, Topeka, *Secretary of the Board of Regents*; ED BURGE,
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Administrative Officers of the College

President	MILTON S. EISENHOWER
President Emeritus	F. D. FARRELL
College Historian	J. T. WILLARD
Dean of the School of Agriculture and Director of the Agricultural Experiment Station	R. I. THROCKMORTON
Dean of the School of Engineering and Architecture and Director of the Engineering Experiment Station	R. A. SEATON
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.....	R. R. DYKSTRA
Dean of the Division of College Extension.....	L. C. WILLIAMS
Dean of the Graduate School	HAROLD HOWE
Dean of Administration and Director of Summer School	A. L. PUGSLEY
Director of Admissions	S. A. NOCK
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Comptroller	A. R. JONES
Director, Institute of Citizenship	R. A. WALKER
Director of Student Personnel	M. D. WOOLF
Registrar	ELEANOR TIBBETTS
Librarian	WM. BAEHR
Superintendent of Maintenance	R. F. GINGRICH

The College

As a land-grant college, Kansas State has as one of its primary objectives technical instruction in agriculture, engineering and architecture, home economics, veterinary medicine, and the physical and biological sciences. There is also instruction in music, art, physical education, social and humane studies, business administration, and journalism as related to such fields as agriculture, home economics, engineering, and industry. The College prepares high school teachers in these various fields, and also laboratory technicians and specialists in institutional management.

In addition to this, however, the College gives a broader general education, designed to fit its students for their social and political responsibilities and for exercise of judgment in their individual lives. In policies and in practice, the College tries to stimulate 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.

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 Committee on Admissions gets the student's information blank properly filled in, it will ask the applicant's high school principal to send a transcript of record. If this transcript is satisfactory, the committee 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 two weeks before the date of registration.

Entrance examinations will be given to students who are deficient in high school units. See the dates on the College Calendar (page 5). Applications for such examinations must be made in advance to the Director of Admissions.

As enrollment in the curriculums in Milling and Veterinary Medicine is limited, students who wish to be admitted to those curriculums should read the statements entitled "Milling Enrollment Limited" and "Veterinary Enrollment Limited," under the schools of Agriculture and Veterinary Medicine.

There are certain fixed requirements for all curriculums. Although a high school graduate may enroll in the College if he lacks some of these, he must make up entrance deficiencies. Fixed requirements for all curriculums are 3 units* of English, 1 unit of algebra, 1 unit of plane geometry, and 1 unit of biological or physical science.

For the following curriculums the fixed requirements are 3 units of English, 1 unit of algebra, 1 unit of plane geometry, and 1 unit of biological or physical science:

- Agriculture
- Agriculture (2 years)
- Agricultural Administration
- Agricultural Education
- Agricultural Journalism
- Arts and Sciences
- Biological Science
- Business Administration
- Citizenship Education
- Dairy Manufacturing
- Dietetics and Institutional Management
- Floriculture and Ornamental Horticulture
- Home Economics
- Home Economics and Journalism
- Home Economics and Nursing (5 years)
- Industrial Journalism
- Music, Applied
- Music Education
- Physical Education for Men
- Physical Education for Women
- Preveterinary
- Soil Conservation

For the following curriculums an additional $\frac{1}{2}$ unit of algebra is required:

- Milling Administration
- Milling Chemistry

For the following curriculums an additional $\frac{1}{2}$ unit of algebra and $\frac{1}{2}$ unit of solid geometry are required:

- Agricultural Engineering
- Architecture
- Architectural Engineering
- Chemical Engineering
- Civil Engineering
- Electrical Engineering
- Geology, Applied
- Industrial Arts
- Industrial Chemistry
- Industrial Physics
- Landscape Design
- Mechanical Engineering
- Milling Technology
- Physical Science

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 engineering curriculum, or the curriculums in Applied Geology, Industrial Chemistry, Industrial Physics, Landscape Design, Milling, 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.

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

A 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 complete it by the end of his third semester.

For information about making up deficiencies in algebra and geometry, the student should consult the Department of Home Study. See page 278. 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 required 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 the extra hours he may be given elective credit toward graduation, except in engineering curriculums.

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 engineering curriculums.

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 nonresidents.

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 three units of English and one unit each of algebra, plane geometry, and biological or physical science, he must offer nine units in the subjects listed below. There are eight groups of acceptable subjects shown in the following table with the number of units of each that will be accepted.

<i>Group</i>	<i>Subject</i>	<i>Number of Units Acceptable</i>
I. English	English	3 or 4
	Journalism	$\frac{1}{2}$ or 1
	Speech	$\frac{1}{2}$ or 1
II. Mathematics	General or Applied Mathematics.....	$\frac{1}{2}$ or 1
	Elementary Algebra	1
	Advanced Algebra	$\frac{1}{2}$ or 1
	Plane Geometry	1
	Solid Geometry	$\frac{1}{2}$
	Plane Trigonometry	$\frac{1}{2}$
III. Languages	Foreign Languages	1 to 4
IV. Science	General Science	$\frac{1}{2}$ or 1
	Biology	$\frac{1}{2}$ or 1
	Botany	$\frac{1}{2}$ or 1
	Physical Geography	$\frac{1}{2}$ or 1
	Physiology	$\frac{1}{2}$ or 1
	Chemistry	1
	Physics	1
	Zoölogy	$\frac{1}{2}$ or 1

V. History and Social Studies..	Modern or European History.....	1
	World History	1
	American History	1
	Geography	$\frac{1}{2}$
	Civics	$\frac{1}{2}$ or 1
	Government	$\frac{1}{2}$ or 1
	Constitution	$\frac{1}{2}$
	International Relations	$\frac{1}{2}$
	Vocations	$\frac{1}{2}$ or 1
	Sociology	$\frac{1}{2}$
VI. Commercial Subjects.....	Economics	$\frac{1}{2}$ or 1
	Typewriting	$\frac{1}{2}$ or 1
	Shorthand	$\frac{1}{2}$ or 1
	Bookkeeping	$\frac{1}{2}$ or 1
	Commercial Law	$\frac{1}{2}$
VII. Industrial Subjects.....	Salesmanship	$\frac{1}{2}$
	Agriculture	$\frac{1}{2}$ to 4
	Home Economics	$\frac{1}{2}$ to 4
	Drawing	$\frac{1}{2}$ or 1
	Aeronautics	$\frac{1}{2}$ or 1
	Forging	$\frac{1}{2}$ or 1
	Woodwork	$\frac{1}{2}$, 1, or 2
VIII. Normal Training Subjects...	Printing	$\frac{1}{2}$, 1, or 2
	Methods and Management.....	$\frac{1}{2}$
	Psychology	$\frac{1}{2}$
	Reviews	1
	Grammar, Geography, and Reading, 12 weeks each, or	
	Two of these, 18 weeks each	
	Music	1
	Art	1

In courses consisting of laboratory work, wholly or in part, two periods of laboratory work are considered the equivalent of one recitation period.

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

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. 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 three weeks 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 14) 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 present transcripts of record of their preliminary education and must give evidence of satisfactory preparation for courses they wish to take. They 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. 20.)

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 after the first week of a school term or after such earlier date as may be announced by the College. (See the College Calendar.)

Aptitude Tests

Before he is permitted to enroll, every applicant for admission to the College must take aptitude tests designed to discover in what way he may most satisfactorily direct his efforts. They show in what fields he may best proceed and in what types of work his abilities are strongest.

These tests are given for 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.

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.

In all other curriculums containing a required course in mathematics, students will take a proficiency test in mathematics. This test will be used to determine whether a student must take remedial work in mathematics. The test will be given during the first two weeks of each semester and shall be taken at the first opportunity after the student has satisfied college entrance requirements in mathematics and is in residence.

All new freshmen in the School of Home Economics will be required, at the time of entrance, to take a proficiency test in mathematics. Those enrolled in the Curriculum in General Home Economics or the Curriculum in

Dietetics and Institutional Management who fail the test will be required to take the three-hour course, Mathematics in Human Affairs, in their freshman year. Advanced credit in college mathematics exempts students from the course, Mathematics in Human Affairs.

English Placement Test

Each freshman entering the College for the first time is required to take an English placement test. This test is given in two parts: a theme, and a test on the mechanics of writing. Students making 93 percent or above may elect to take Written Communications II and substitute another English course for Written Communications I, or they may arrange for a special examination for credit in Written Communications I. Those students who make a grade below 9 percent in the placement test are required to take Subfreshman English before they enroll for Written Communications I.

Physical Examinations

Before he is permitted to enroll in the College, every new student must take a comprehensive physical examination given at a specified time by the Department of Student Health. New freshmen will take this examination during the induction period.

Freshman Orientation

Freshmen enrolling for the first time in Kansas State College must come to the campus several days before registration begins. (See Calendar.) Their deans and faculty advisers meet them in small groups to discuss their work and plans, to take them on tours of the campus, and to introduce them to other members of the faculty. The freshmen may meet the clergymen of the Manhattan churches and get acquainted with the officials of the Y. M. C. A. and the Y. W. C. A., the Student Governing Association, and the Collegiate 4-H Club. Before registration, the freshmen will have had their physical examinations and their placement and aptitude tests, and the benefit of other induction activities. They will be ready to begin their classwork with some understanding of the College and its methods, and some acquaintance with faculty, students, and townspeople.

Junior Colleges

There is excellent coöperation between the junior colleges of Kansas and Kansas State College. A student who plans to begin his work in a 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 Junior College, 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
Hutchinson Junior College, Hutchinson
Independence Junior College, Independence
Kansas City Junior College, Kansas City
Parsons Junior College, Parsons
Pratt Junior College, Pratt

PRIVATE

Central Academy and College, McPherson
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 make up what they lack with General Educational Development Tests, 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 or Meteorology courses will in general be accepted as of collegiate grade, and used for advanced credit insofar as it applies on the student's curriculum. Work done in the Army Air Forces 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.

Services for Veterans

College-wide agencies giving special services for veterans are grouped in Anderson Hall. The Veterans Service Office and the Bureau of Counseling are operated by Kansas State College. The Guidance Center and Contact Office are operated by the Federal Veterans Administration. Each veteran attending Kansas State College under the Federal educational benefits program must supply evidence of his eligibility to the College Veterans Service Office. Application for benefits under Public Law 346 may be filled out in that office. Application for vocational counseling for veterans should be made at the Federal Guidance Center.

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

State Vocational Rehabilitation Training

The College coöperates 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.

General Information

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 155 acres carefully landscaped, while beyond the campus there are about 1,500 acres of land belonging to the College, used for experimental work in agriculture.

The College buildings are all constructed of native limestone and so placed as to give maximum effect to the landscaping of the campus.

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.

Applications for farmers' institutes should be made as early in the season as possible to the Division of College Extension. 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 22.

Payment of Fees. The matriculation fee is paid during the first registration in the College only. The incidental fee, the student health fee, the student activities 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.

Payment of Fees by a Sponsor. Foreign governments or other agencies, but excluding individuals, wishing to sponsor financially a student of their choice should advise the college Veterans Service Office, in writing, which fees are to be paid by the sponsor and whether books and supplies are to be included. The sponsor should also furnish a means of identifying the student being sponsored, and give the address to which invoices should be submitted.

Students being so sponsored by any agency should make arrangements with the College Veterans Service Office *before* starting to enroll. Fees once paid by a student will not be refunded to be paid a second time by a sponsor.

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, paid only once, covers the costs of registration and assignment and keeping a student's record throughout his

college course. All students who enroll for credit (including enrollees in workshops and short courses if enrolled for credit) must pay this fee when first enrolling.

Incidental Fee. The incidental fee represents the student's contribution toward the cost of instruction.

Student Activities Fee. In accordance with a vote by the student body, each undergraduate student pays a student activities fee, collected by the College at the same time the fees levied by the state are collected. Payment of the student activities fee gives admission to athletic contests and to plays presented by the Kansas State Players, membership in the Student Governing Association, and subscriptions to the student newspaper, *The Kansas State Collegian*, and the college yearbook, *Royal Purple*. To be entitled to the yearbook, however, a student must pay this fee for both the fall and spring semesters, or pay the fee for one semester and make a cash payment of approximately one-half the purchase price.

Student Health Fee. For a description of the Department of Student Health, see page 32.

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 AND 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.....	40.00	\$40.00
Veterinary Medicine Students.....	50.00	50.00
Student Activities		
Undergraduates	7.50*	7.50*
Graduate Students	Optional	Optional
Student Health	7.50	7.50
Student Union	5.00	5.00
Totals—All except Veterinary Medicine Students,	\$70.00	\$60.00
Totals—Veterinary Medicine Students.....	80.00	70.00

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.....	90.00	\$90.00
Veterinary Medicine Students.....	100.00	100.00
Student Activities		
Undergraduates	7.50*	7.50*
Graduate Students	Optional	Optional
Student Health	7.50	7.50
Student Union	5.00	5.00
Totals—All except Veterinary Medicine Students,	\$130.00	\$110.00
Totals—Veterinary Medicine Students.....	140.00	120.00

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:

* Subject to certain state and federal taxes.

* Subject to certain state and federal taxes.

"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 nonresident 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 and staff members</i>		<i>Nonresidents</i>
Incidental Fee: (regular semester or summer session)			
All except Veterinary Medicine Students, a semester hour....	\$3.25		\$7.25
Veterinary Medicine Students, a semester hour.....	4.00		8.00
Student Union:			
Regular semester	5.00		5.00
Summer term	2.00		2.00
Student Health: (regular semester or summer session).....	Not eligible		Not eligible
Student Activities:			
Regular semester	Optional		Optional
Summer session	1.00*		1.00*

Special Examination. Any student granted permission to attempt to obtain college credit by taking a special examination (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.

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

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 279. Resident students taking work by correspondence are required to pay the *enrollment* fee for that work.

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

A. Withdrawal during first week of a school term—100 percent of fees refunded, except matriculation fee, which is not subject to refund. (See Calendar.)

B. Withdrawal after first week of school term and before one-third of the term has passed—50 percent of fees refunded, except matriculation and student health fees. (See Calendar.)

C. Withdrawal after first week of school term and before one-third of the term has passed—no refund of matriculation and student health fees.

D. Withdrawal after one-third of a school term has passed—no refund of fees.

Late Enrollment, Including Reenrollment After Withdrawal. A late enrollment fee of \$2.50 shall be assessed and collected for each person who fails to complete his registration when regularly scheduled, or fails to pay his fees before the end of the first week of a school term or before such earlier date as may be announced by the President of Kansas State College. This fee shall not be subject to refund; payment of it 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

* Subject to certain state and federal taxes.

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.

Short Courses and Workshops. Fees for short courses and workshops, 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:

	<i>Kansas residents and staff members</i>	<i>Nonresidents</i>
Matriculation	\$10.00	\$20.00
Incidental Fee (a week).....	3.25	5.25
Student Health		
First week	1.00	1.00
Each additional week	.50	.50
Student Activities (summer sessions)		
Less than 4 weeks.....	None	None
For first 4 weeks.....	1.00	1.00
Each additional week	.25	.25
Student Activities (fall and spring semesters).....	Optional	Optional
Student Union		
For first 3 weeks.....	1.00	1.00
Each additional week.....	.25	.25
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
Separate individual lessons, each.....	1.50	2.00

Charges for individual training in flight instruction are based upon actual costs to the College estimated as follows: Dual flying time at the rate of \$10 an hour; solo flying time at the rate of \$8 an hour; and books and supplies as required, estimated not to exceed \$5. Veterans who enroll under Public Law No. 346 must have applied to the Veterans Administration to accelerate their eligibility to a maximum of 225 days, in addition to having sufficient eligibility to cover all other College charges, or make up the difference with a cash deposit at the time of enrollment. Veterans who enroll under Public Law No. 16 must have in addition the Veterans Administration's approval to include the course of flight instruction in their course of training or employment objective. For all other students, a deposit of \$475 is required at the time of enrollment. All unused deposits are refunded when the course is completed.

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 7 and less than 13 weeks.

	<i>Kansas residents and staff members</i>	<i>Nonresidents</i>
Incidental Fee:		
All except Veterinary Medicine students.....	\$27.50	\$57.50
Veterinary Medicine students.....	32.50	62.50
Student Health:		
If taking more than 3 hours.....	3.75	3.75
If taking 3 hours or less.....	Not eligible	Not eligible
Student Union	2.00	2.00
Student Activities	1.00**	1.00**

* 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.

** Subject to certain state and federal taxes.

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.

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 Fee. Each person eligible for a degree shall be assessed \$7.50 for each degree to be conferred, to cover cost of diploma and 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. Payment 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, there shall be charged a fee of \$1 for each transcript. *These fees are not subject to refund.*

Military Uniforms. Every student who takes military training must have a uniform. For the basic courses the uniform, except shoes, is furnished by the war department. The money value of any missing articles will be collected when the uniform is returned. The war department makes a substantial allowance toward the cost of the uniform used in advanced courses. 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.

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 \$7.50 to \$35 a set.

Gymnasium Suits. Every woman taking physical education must have an approved gymnasium suit costing \$3 to \$3.75. In the major course the suit costs \$5 to \$6. The gymnasium suit for a man costs about \$3.50. In the major course the suit costs \$9.

Housing

All boarding and rooming establishments are regularly inspected by the Department of Student Health, on whose recommendation the Faculty Council on Student Affairs gives certificates of approval.

FOR WOMEN

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

The College operates three Residence Halls for women: Van Zile Hall, capacity 169; Waltheim Hall, capacity 78; and East Stadium Hall, capacity 60. The contract is for room and board for a full semester, and may be cancelled only for reasons satisfactory to the Dean of Women or the Director

of Women's Housing. The food service is under the direction of the Department of Institutional Management of the College. The rates, subject to change, are announced by the College before the opening of each semester.

There are thirteen organized off-campus houses for women. Some of these offer both room and board, while others offer room only. The contract in all women's houses is for one full semester.

Other women students live in unorganized off-campus houses or in private homes which have been approved by the College.

Members of fraternities and sororities find living and dining facilities in houses maintained by these groups.

Women should address correspondence about room and board to the Dean of Women.

FOR MEN AND FAMILIES

The College provides accommodations on the campus for 530 single men. The West Stadium Dormitory has a capacity of 146, and the Moro Court Converted Barracks Dormitory houses 384. The rent is \$42 a semester if paid in advance, subject to no refunds, or \$44 if paid in four equal installments of \$11.

For married veteran students, the College operates 101 trailers, 336 P.H.A. family apartments, and 32 spaces to park privately owned trailers. Trailers rent for \$24 (expansible) and \$18 (standard) a month; P.H.A. apartments for \$25 (one bedroom) and \$30 (two bedrooms) a month; trailer space \$14 a month. All rates are subject to change.

Inquiries should be addressed to the Director of Housing for Men.

Board

The College operates cafeterias serving all meals except on College holidays and during vacations. There are also numerous clubs and boarding houses offering meals for about \$10 a week and up.

Duties and Privileges

Students coming to Kansas State have an opportunity to learn personal responsibility for their own lives under the guidance of sympathetic faculty advisers. Every student is very largely responsible for his own affairs as an individual and as a member of the college community. College discipline is usually limited to dismissing from the College those whose further attendance is unprofitable or inadvisable.

There are various societies and clubs that give opportunities for literary, scientific, musical, and forensic activity. See the section on College Organizations, page 34.

Counseling Bureau

The Counseling Bureau offers testing and counseling service to students seeking help for personal problems and those relating to reading deficiencies or vocational or curricular choice. The Bureau serves as a reference agency for advisers who need specialized information or assistance for advisees. It also has available for student use a file of vocational information.

Freshman Orientation Week

Freshmen enrolling for the first time come to the campus several 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 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.

Freshman Advising Program

During Freshman Week the Counseling Bureau compiles a folder for each new freshman, containing the results of all tests taken during Freshman Week, and available to the student's adviser. Freshmen have the opportunity of meeting with their advisers at the beginning of the school year, at midsemester, and just before the end of the semester. 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. The next two 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.

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 21, 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.

Changes in Assignments

Deans will not drop subjects from a student's assignment during the last two weeks of a period covered by midsemester or 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 has arranged a reassignment, his students may comply with notices of this reassignment. If not content with the revision, a student may confer about it 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 drops a subject before midsemester, a mark of Wd (withdrawn) is reported. If he drops a subject after midsemester, he gets a grade for one-half semester; but a subject dropped at any time after midsemester on account of failure gets a semester grade of F. 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

Con, conditioned, is used for unsatisfactory work on which an examination may be taken. If the examination is passed, the grade is D; otherwise, it is F. The examination must be taken at the first opportunity. (See the Calendar.)

Inc, incomplete, shows that a student may have further time to complete the required work. Work for which a mark of Inc is reported must be made up within the first subsequent semester of attendance, or the mark becomes F.

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 F, Con, and Inc 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 their 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 midsemester, a mark of Wd (withdrawn) is reported. Subjects may not be dropped from assignments within the last two weeks of a period covered by midsemester or final scholarship-deficiency reports.

If a student withdraws from College before midsemester, a mark of Wd is reported for each subject, irrespective of the standing of the student in the subject; except that grades below passing of students withdrawing from College during the eighth and ninth weeks or the seventeenth and eighteenth weeks of

a semester are recorded as midsemester or semester grades. Regardless of the time of withdrawal, however, a final grade shall be reported, if all the required work of the course has been completed. If a student goes through the first half of the semester, but not the second half, a half-semester grade is reported for record, and designated as such; but a subject dropped at any time after mid-semester on account of failure is given a semester grade of F.

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. A special procedure is 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 or with the President of the College when severing their connections with the institution.

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 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 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 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.

Absence

Students must attend all meetings of classes. Seniors, and juniors who have done superior work may be excused from such compulsory class attendance.

Examinations

Final examinations are held at the end of the semester, except for candidates for degrees, who take their examinations a few days earlier.

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. The fee is \$2 a semester hour for residents of Kansas, \$6 a semester hour for nonresidents.

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 examination 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. The fee is \$2 a semester hour for residents of Kansas, \$6 a semester hour for nonresidents.

Required Physical Examinations

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.

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.

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.

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 nine less than the number required for the next year of the curriculum. A student deficient in entrance units is not advanced in classification.

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:

<i>Subject</i>	<i>Semester</i>	<i>Total</i>
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
<i>Kansas State Collegian</i> journalism.....	1	4
<i>Agricultural Student</i> journalism.....	1	4
<i>Kansas State Engineer</i> journalism.....	1	4

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.

Bible Study

Bible study is an elective for which two semester hours of credit may be given for each one-year course, but not for more than two courses. Instructors must have college approval as tutors. The Department of Education supervises the work and gives examinations for credit.

Course Numbers

Courses for undergraduates only are numbered from 101 to 199; those for undergraduates and graduates, from 201 to 299; those for graduates only, from 301 to 399. Each department numbers its courses independently. Courses which do not carry college credit are numbered below 100.

Classes

Classes are organized for a minimum of 15 freshmen or 7 members of higher classes.

Assemblies

About once a week students and faculty gather in the auditorium for an assembly program. Often the program is an address by a visitor who is an authority in some field of interest to the College; sometimes it is musical, given by visiting or local artists; it is sometimes of a religious and devotional nature. The programs are designed as part of the liberal education offered to students, and not as entertainment.

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 147,100 bound volumes, besides much unbound material. It receives currently about 2,000 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 the 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 newspaper of the College, published weekly and printed by the Kansas State College Press. It contains college and alumni news. Active members of the Alumni Association get the *Industrialist* free. Subscriptions by others are \$3.

The *Kansas State Collegian*, a newspaper, and *Royal Purple*, the College yearbook, are published by the Board of Student Publications.

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.

Student Health

The Student Health Service is supported by the student health fee fund. There are always on duty full-time physicians with an adequate medical supporting staff to care for the college students. The College Hospital has a capacity of 60 beds.

The Student Health Service is located directly west of the Library in the center of the campus, and is now housed in four barrack-type buildings. The clinical part is open to students each day from 8:00 a. m. until 5:00 p. m., with the exception of Saturday, when the clinic closes at 12 noon. 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. Five days of hospitalization are provided for each student without charge in any semester. In the event that the period of hospitalization exceeds 5 days, \$2 a day extra will be charged. The student-health fee fund is supplemented by small charges, made while the student is under care, for special expensive medicines, laboratory procedures, and extra periods of hospitalization. These charges are, for the most part, the actual cost price of the extra service rendered.

In the event of the necessity of major surgery, the patient will elect his own surgeon and be transported at his own expense to one of the city hospitals. After surgery and whenever advisable, the student may be returned to the College Hospital for the duration of his illness. When a staff physician recommends the transfer, the five days of free hospitalization will apply also to the city hospitals. However, any special medicines or services rendered by other physicians while there will be at the student's own expense.

The Health Service gives a physical examination to all students entering the College for the first time. Periodic health check-ups 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 at any time without extra charge. 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.

College Post Office

The College operates a post office, 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 post office sells stamps, but not money orders, and insures and registers mail. It also facilitates intercommunication of College departments and communications of faculty with students. All students should call for their mail at least once every two days, and preferably every day.

Self-support

Students of limited means are encouraged as much as possible, but if they have to give much time to self-support, they should take lighter assignments of college work and extend their courses. A student ought to have money for the first semester, as he will need some time to make acquaintances and find suitable work.

The College employs student labor at rates varying from 40 to 60 cents an hour, according to the nature of the employment and the experience of the employee. Most of this labor is on the College farm, in the orchards and gardens, in the shops and the printing office, and for the custodian. Students of exceptional ability are sometimes employed in special duties about the College. Many students get employment in town, and there is some opportunity for obtaining board and room in exchange for work with families.

The College does not guarantee student employment. The Y. M. C. A., however, has an employment bureau for men, and the office of the Dean of Women has one for women.

Foreign Students

The College welcomes students from other countries and coöperates in every way possible with the various agencies in charge of student exchange. The Counseling Bureau is equipped to be of special service to foreign students and will assist in orienting them at the College and in Manhattan. It is suggested that the foreign student, on arriving at the College, call as soon as possible at Room 111, Anderson Hall, for any help that he may need.

The College does not have facilities to furnish banking services or management of personal finances to foreign students. In order to assist foreign governments or other foreign sponsors, however, the College will accept checks payable to the College and transfer the entire amount to the student in one lump-sum payment.

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 association legislates in its own behalf in its meetings which are held at least once each semester.

The executive body of the association, The Student Council, consists of nine members elected each spring for the following year to represent the students of the various schools of the college. The council discharges all executive functions of the association and sits as a court in all disciplinary cases. The council is responsible to the members of the S. G. A. as a body, and to the President of the College through the Faculty Council on Student Affairs. The S. G. A., through the Student Council, regulates and coördinates the activities of other student organizations and coöperates with other organizations in the promotion of interest and participation in extracurricular activities. It coöperates with the Faculty Council in administering the funds from activity fees.

The Student Governing Association acts in the belief that student self-government will result in a keener sense of coöperation and responsibility among students as members of the campus 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. Each year a freshman commission is organized for the benefit of the new men, especially those who have had Hi-Y experience. The Y. M. C. A. maintains an employment bureau for men students, and has a complete list of rooms and boarding places for men. The permanent secretary is glad to correspond with prospective students and to receive them for interviews.

THE YOUNG WOMEN'S CHRISTIAN ASSOCIATION

The Y. W. C. A. welcomes each new student through its College Sister Program the first few weeks of the College year. Any young woman who expects to enter college may write to the Association secretary to be assigned to a college sister, an upperclass girl who will help her to become oriented to college life. Student members of the Association, assisted by a full-time secretary and a group of local women, carry on a varied Y. W. C. A. program which includes discussion groups, service projects, worship services, social affairs, and joint activities with the Y. M. C. A. It offers opportunities to all women students for useful service through fun and fellowship.

RELIGIOUS GROUPS

Each of the following organizations fosters spiritual, cultural, and social activity among its members:

Baptist Youth Fellowship and Theta Epsilon.....	Baptist
Newman Club	Catholic
Christian Youth Fellowship and Kappa Beta.....	Christian
Sigma Eta Chi.....	Congregational
Canterbury Club	Episcopal
B'nai B'rith Hillel Counselorship.....	Jewish
Lutheran Student Association.....	Lutheran
Wesley Foundation and Kappa Phi.....	Methodist
Phi Chi Delta.....	Presbyterian
Young People's Christian Union.....	United Presbyterian

RELIGIOUS FEDERATION

The Religious Federation of Kansas State College is composed of representatives of the College Y.M.C.A. and Y.W.C.A., and students in all church groups that wish to coöperate. Each fall the Federation sponsors Religious Emphasis Week, and during the year it fosters four union meetings of all the coöperative groups. It also promotes many activities of the member groups.

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.

Professional Organizations

Election to membership is based on unusual achievement.

Alpha Zeta	Agriculture
Alpha Kappa Psi.....	Business Administration
Alpha Mu	Milling
Eta Kappa Nu.....	Electrical Engineering
K Fraternity	Athletics
Mortar and Ball.....	Military
Mu Phi Epsilon.....	Music
Phi Alpha Mu.....	General, Women
Phi Delta Kappa.....	Education
Phi Epsilon Kappa.....	Physical Education
Phi Lambda Upsilon.....	Chemistry
Pi Kappa Delta.....	Debating
Pi Mu Epsilon.....	Mathematics
Pi Tau Sigma.....	Mechanical Engineering
Quill Club.....	Writing
Scabbard and Blade.....	Military
Sigma Delta Chi.....	Journalism, Men
Sigma Tau	Engineering
Steel Ring	Engineering
Tau Epsilon Kappa.....	Architecture
Theta Sigma Phi.....	Journalism, Women

Honorary Organizations

Election to membership is based on leadership in student affairs.

Blue Key	Senior Men
Mortar Board	Senior Women
Prix	Junior Women

Sororities and Fraternities

Sororities and fraternities offer housing and a social program to both members and pledges of these organizations. Lists of fraternities and sororities, giving the street addresses in Manhattan and names of the presidents, may be secured from the Faculty Adviser of Fraternities and the Faculty Adviser of Sororities.

Independent Women's and Men's Organizations

The purpose of these organizations is to provide programs of recreation and activities for the independent student. There are a number of independent women's and men's organized houses. There is also an organization for independent women students who live in unorganized houses.

Organization for Veterans

This organization furthers the interests of the veterans on the campus and assists in every way possible those who will be returning in the future. There is also an organization for wives of veterans.

The Graduate Club

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

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 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, 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 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 business men.

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

The object of the Medical Technicians Club is to give the students more definite ideas as to the responsibilities and opportunities in this field.

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.

Home Economics Club

The Margaret Justin Home Economics Club includes all students in the School of Home Economics. Its purpose is to promote professional interest by means of social contacts and talks by leaders in home economics. It 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 second and fourth 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 worth-while College activities; sponsors a radio program; publishes the *Who's Whool*, Kansas 4-H Club annual; maintains a loan fund; assists at Round-up and Rural Life Conference; and has contributed to the building of 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.

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 the 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 Military Band is a strictly military organization, made up of R. O. T. C. members who are assigned to Military Band duties in lieu of drill.

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 Organization

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 faculty, graduate and undergraduate students. It 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 Men's or Women's Glee Clubs.

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 first Monday of each month.

The presentation of several plays a season as a part of the drama program of the Speech Department 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.

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 in their line.

The Department of Physical Education and Athletics also 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.

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 and Athletics.

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.

Loan Funds

Student loan activities are coördinated 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, 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 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 six percent a year.

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 interest in Kansas State by sharing in the activities of the Association.

Scholarships and Assistantships

SCHOLARSHIPS

AGRICULTURE

BORDEN. The Borden Agricultural Scholarship will be awarded annually by the Borden Company, 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 this 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 scholarships may be used to enroll for a full-year course in agriculture or home economics at Kansas State College, but not for other courses.

KROGER. Four scholarships of \$150 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.

PATHFINDER CORN PRODUCTS. This scholarship in the amount of \$300 in two installments is awarded by the Pathfinder Corn Products Company to an outstanding junior student majoring in agronomy with emphasis on plant genetics and crop improvement. Under the scholarship the student would undertake special work in the improvement of popcorn. A second award of \$300 may be made to the student in his senior year. The Head of the Department of Agronomy administers this scholarship.

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.

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 George Montgomery 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.

HOME ECONOMICS

BORDEN. A scholarship of \$300 is awarded annually by the Borden Company to the senior student who has taken advanced courses in food economics and nutrition and has maintained the highest scholastic rating and shown other indications of promise of growth. 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*.)

HOME DEMONSTRATION AGENT ASSOCIATION. One scholarship of \$75, the annual gift of the Home Demonstration Agent Association, is given to the farm girl who is the most outstanding student in Home Economics from the county high schools of the state, in those counties where there are Home Demonstration Agents. Applications are submitted through the Home Demonstration Agent in the county of the student's residence. The scholarship may not be held concurrently with any other scholarship.

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

SEARS, ROEBUCK. Ten scholarships of \$200 and five of \$100 are the annual gift 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. Applications are received to February 15 and awards announced by March 1.

INDUSTRIAL JOURNALISM

FAY N. SEATON. A scholarship or scholarships totaling not more than \$300 annually, are made available each year to undergraduate or graduate students in the Department of Industrial Journalism and Printing, 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.

INSTITUTE OF CITIZENSHIP

CITIZENSHIP. Up to fifteen scholarships of \$200 each are made available to high school seniors on the basis of scholastic ability, participation and leadership in school and community activities, and faculty recommendation. Applicants are also asked to take a written examination, which may be taken in their own communities. Winners of the scholarships are expected to enroll in the Curriculum in Citizenship Education in their freshman year. The scholarships are administered by Dr. Robert A. Walker of the Institute of Citizenship, Kansas State College.

VETERINARY MEDICINE

BORDEN. A scholarship of \$300 a year is awarded by the Borden Company 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. A scholarship of \$300, the annual gift of Senator Arthur Capper, is divided equally between the boy and the girl standing highest in the 4-H leadership project in Kansas.

JOHN MORRELL. Two scholarships of \$250 each are awarded annually by John Morrell and Company to one outstanding 4-H Club boy and one girl outstanding in 4-H work. Conditions of the award are leadership, ability, project work, and a good club record. These scholarships are administered by the 4-H office.

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

LAVERNE NOYES. About twenty scholarships annually of \$50 each from funds from the estate of LaVerne 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 September 11, 1918, or are descended by blood from some one who so served. Enlistments must have been previous to May 11, 1918, unless active overseas, prearmistice service was rendered. The student's dean must 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.

GRADUATE ASSISTANTSHIPS AND FELLOWSHIPS

PEPSI-COLA. The Pepsi-Cola scholarship board will award on a regional basis 26 three-year fellowships, each of which will pay full tuition plus a yearly allowance of \$750 for living expenses. These graduate fellowships are available to senior students, and first awards will be made in the spring of 1948. Fellowship holders may select any accredited university in the United States and may pursue work leading to the M.A., Ph.D., M.D., or other professional degrees. Application should be made to the dean of the school in which the student is enrolled.

For information on graduate assistantships, see The Graduate School.

Prizes and Medals

PRIZES

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

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 student of outstanding scholastic and extra-curricular 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.

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

Journalism Memorial Fund. Each year two or more awards of \$25 each are made by the Journalism Memorial Fund Committee of the Department of Industrial Journalism and Printing. These awards are made from funds contributed as memorials to graduates and former students of the Department who are casualties in World War II. Appropriate medals also are presented in connection with these awards.

Kansas Magazine Award. The Kansas Magazine Publishing Association makes a \$25 annual award and presents a medal for the best literary contribution made by a student of the College. This award is made through the Journalism Memorial Fund Committee as a memorial to graduates and former students of the Department of Journalism who are casualties in World War II.

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

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.

Lorentz Schmidt. An award of a \$25 war bond to the student in architecture making the most progress during the freshman year.

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

Pi Tau Sigma. A set of Kent's Mechanical Engineering Handbooks to the mechanical engineering sophomore who has done the most outstanding work in his freshman year.

Quill Club. \$10; for the best short story in the annual contest.

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

Prizes in Veterinary Medicine

Dr. N. D. Harwood, '18. \$7.50 and \$7.50; to second-year students ranking highest in anatomy and in physiology.

Dr. Benjamin F. Pfister, '21, and Dr. Earl F. Hoover, '24. \$10 and \$5; to third-year students ranking highest in therapeutics.

Dr. O. M. Franklin, '12. \$10 and \$5; to fourth-year students ranking highest in pathology.

Dr. C. W. Bower, '18. \$10 and \$5; to fourth-year students leading in work in small animal clinic.

Kansas Veterinary Medical Association. \$15 and \$10; as prizes in general proficiency; to fourth-year students.

MEDALS

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

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

Poultry Club. Name of student winner engraved on plaque, cash prizes, merchandise, and subscription to farm papers, for poultry judging.

Alpha Zeta. To the agricultural student ranking highest in scholarship in the freshman year.

Alpha Rho Chi. To the graduating senior in the Department of Architecture selected for leadership and professional merit.

American Institute of Architects. To the leading senior architect.

Sigma Tau Scholarship Award. To three sophomore engineering students ranking highest in their freshman year.

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

Oratory. By the literary societies through the Inter-Society Council; three cash and medal prizes in the Inter-Society Oratorical Contest.

By the Missouri Valley Oratorical Association; cash and medal awards in its annual contest.

Alpha Mu Award. To the sophomore milling student ranking highest in his freshman year.

United States Coast Artillery Association Medal. Awarded to the outstanding student enrolled in the Artillery Course.

Sons of American Revolution Medal. Awarded for excellence in leadership, military bearing, theoretical and practical R. O. T. C. work.

Signal Corps Medal. Awarded to the outstanding student enrolled in the Signal Corps Unit.

Institute of Citizenship

Director WALKER
Associate Director TJERANDSEN
Associate Professor TEBOW
Associate Professor EDGAR

The Institute of Citizenship is concerned with the development of active, responsible citizens. It offers the Curriculum in Citizenship Education to promote a sound understanding of the basic ideals and changing issues in a democratic society. It prepares students to take an active and constructive part in dealing with the complex political and social life of their time. The Institute was established under a special grant from the William Volker Foundation in Kansas City, Mo.

Following the pattern of basic college programs now offered by a number of leading colleges and universities, the curriculum has been developed to provide a liberal education in the first two years. It includes work in the major arts and science fields. To assist a student who has not decided upon a course of study to make a wise selection, the four comprehensive courses introduce him to each of the major fields of knowledge. The comprehensive courses cover the field of science, its method, and its major areas of discovery, and they acquaint the student with our cultural heritage, the things that man has done and the civilization which he has created.

The Institute itself teaches two courses in the freshman and sophomore years of the program. These courses, differing from any now in general use among the colleges of the country, study the important books and documents which have influenced and shaped American political and social thought. These are read and discussed in informal class sessions, where a premium is put on individual thinking, expression of ideas, and ready participation in discussion. It is believed that the responsible citizen is the person who is able and willing to participate actively in the discussion and solution of public issues.

During the last two years of the Institute curriculum, all students will take a required minimum of advanced courses in history, government, and economics, with one course each semester in the Institute of Citizenship. Apart from this, however, the student may choose between two alternatives. Those who plan to teach the social studies in the high schools will take fifteen hours of education courses. These, plus three hours of general psychology in the sophomore year, make up the eighteen hours of education which the student must have in order to qualify for the State Teacher's Certificate. There still remain, under this program, fourteen hours of free "electives." Courses to meet these elective requirements can be selected from any field in which the student is interested.

If the student does not wish to prepare for a teaching career, the last two years of the Institute curriculum provide an opportunity to do major work in history, government, economics, sociology, or psychology. Such a student would not take the education courses required for a certificate, and consequently his program provides for twenty-nine hours of elective work. The student must select at least fifteen hours in one of the social science fields mentioned above, or, as an alternative, select a minimum of six hours work in any three fields. The remaining electives, in either case, are available for such courses as the student may wish to take.

The advanced Institute courses, which are available to all students in the College, are a continuation of the reading and discussion courses begun in the first and second year. They cover the general fields of law and justice, war and peace, government in economic affairs, and education in a democratic society. In addition, the student is referred to the descriptions of the following courses in which the Institute coöperates:

- Hist. 263 Federal Politics and Administration (p. 158).
Hist. 265 State and Local Politics and Administration (p. 158).
Educ. 225 Methods in Citizenship Education (p. 139).
Jour. 284 The Journalist in a Free Society (same as Cit. 284).

For a minor in the Institute, the student must take Citizenship 110 and 111 (Freedom and Responsibility I and II) and a minimum of nine additional hours elected from the courses offered by the Institute of Citizenship.

The attention of majors in Home Economics is directed to the opportunity to elect the Citizenship and Public Service option. This option is recommended for women who wish to prepare themselves for a more active and informed role in civic affairs and for those who may seek careers in the public service.

Students in Industrial Journalism may find of interest the opportunity to elect fifteen hours from Group 10 (Political Writing) in fulfillment of the requirements of the Social Science option in the Curriculum in Industrial Journalism. The purpose of the option is to provide background and understanding needed by any writer if he expects to write intelligently about political affairs.

Major work leading to the degree Master of Science is offered by the Institute of Citizenship. Prerequisite to graduate work in this field is the completion of a four-year curriculum with such basic work in social science as is necessary to prepare the student for advanced study in citizenship education.

The Graduate School

HAROLD HOWE, *Dean*

JAMES EDWARD ACKERT, *Dean Emeritus*

Admission

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

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. Applicants who are graduates of Kansas State College need not forward transcripts of work taken at this institution. For applicants not graduates of this College, a transcript from each institution attended must be sent direct from the institution to the Dean of the Graduate School.

Registration

Students who have been admitted to graduate study register, obtain their assignments from the Dean of the Graduate School, and pay their fees during the regular registration periods.

Fees*

Graduate students are subject to the same fees as other students except that in the first and second semesters they have the choice of paying the student-activity fee and receiving the student-activity benefits, or not paying the fee and foregoing these benefits. In the summer session there is no option: all students pay the activity fee.

Assignments

A graduate student may be assigned to not more than sixteen hours including research in a single semester, and not more than nine hours during the summer school.

Grades**

A candidate for an advanced degree must make a grade of B or higher in three-fourths of the hours taken for the degree, including research. A failure or absence from the examination in any course may prevent the conferring of the degree, and failure in any course in the major field precludes conferring the degree in the same year.

Degrees

Of the advanced academic degrees, the College confers the degrees Master of Science and Doctor of Philosophy. Degrees are conferred at the end of each semester and at the end of the summer session. Candidates for advanced academic degrees are required to be present at commencement exercises in the academic gown and hood appropriate to the degree, unless permission has been granted in advance for the conferring of the degree *in absentia*. Applications for this privilege should be made to the Dean of the Graduate School.

* See section headed Fees, under General Information.

** See section headed Grades, under General Information.

General Requirements for the Degrees Master of Science and Doctor of Philosophy

Candidates for the degrees Master of Science and Doctor of Philosophy are expected to assume initiative and responsibility. It is important to recognize that graduate work does not consist in the fulfillment of routine requirements alone. The various courses, as well as the assistance and advice of the instructors, are to be regarded simply as aids in acquiring the methods, discipline, and spirit of independent research.

Each candidate for a degree is expected to have a comprehensive knowledge of his subject and of related lines of work, which is usually obtained only by a wide range of reading and study outside the immediate field covered by the formal courses to which he may be assigned.

The branch of knowledge to which the student expects to devote the larger part of his time is termed his major subject. The other fields of study selected, which necessarily are more restricted in scope, are termed minor subjects. The latter should be so chosen as to make the candidate proficient in a second field.

Approximately two-thirds of the student's time is devoted to his major subject and one-third to one or more to minor subjects. Exception may be made to the extent of twenty-four hours in the major subject for those planning to meet the requirement for the school administrator's certificate. The word "subject" is used to designate a recognized field of study, and is not defined by the limits of a department. The nature and distribution of the majors and minors (program of study) are approved by the Graduate Council, upon the recommendation of the major instructor and the head of the department (M.S.), or of the supervisory committee (Ph.D.).

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

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

Requirements for the Degree Master of Science

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

SCHOOL OF AGRICULTURE:

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

SCHOOL OF ENGINEERING AND ARCHITECTURE:

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

SCHOOL OF ARTS AND SCIENCES:

Bacteriology
Botany and Plant Pathology
Chemistry
Economics and Sociology
Education
English
Entomology
Geology and Geography
History and Government
Industrial Journalism and Printing
Institute of Citizenship
Mathematics
Music
Parasitology
Physical Education (Men)
Physics
Psychology
Speech
Zoology

SCHOOL OF HOME ECONOMICS:

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

SCHOOL OF VETERINARY MEDICINE:

Pathology
Physiology
Surgery and Medicine

Minor graduate work is offered in each of the above departments, and in the departments of Anatomy and Modern Languages.

Residence and Credit Requirements. Candidates for the degree Master of Science (M.S.) are required to spend one academic year in residence, except under certain special conditions when the residence may be reduced to one and one-half semesters, or three summer schools of full graduate study.

Two plans are available for obtaining the master's degree. Subject to the approval of the major department, the candidate for the master's degree may choose either of the following plans:

Plan 1. With the master's thesis. Requirements: 30 semester hours of graduate credit including a master's thesis of six to ten semester hours, or

Plan 2. Without the master's thesis. Requirements: 32 semester hours of graduate credit including a written master's report of two semester hours of research or problem on a topic in the major field. On completion the report in duplicate is submitted for approval to the major instructor, the head of the department, and the chairman of the Graduate Council. (See Graduate Calendar for dates.)

Master's Thesis. Each candidate for the master's degree who chooses Plan 1 is required to present a thesis on a subject approved by the major instructor, the head of the department, and the Graduate Council.

The thesis ordinarily demands one-fourth of the student's time and may not exceed one-third of it. The thesis and special reports upon it must be prepared in accordance with specifications to be obtained from the office of the Dean of the Graduate School. On completion, the thesis in triplicate is submitted for approval to the major instructor, the head of the department, and the Graduate Council. (See Graduate Calendar for dates.)

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

Requirements for the Degree Doctor of Philosophy

Departments Offering Major Work. Major work leading to the degree Doctor of Philosophy is offered in the following fields: Bacteriology, Botany, Chemistry, Entomology, Plant Genetics, Poultry Genetics, Genetics, Milling Industry, and Parasitology. Minor work for this degree may be chosen in the departments offering major work for the degree and in supporting fields in other departments offering graduate work.

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

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

Supervisory Committee. For each student who contemplates working for the degree Doctor of Philosophy, a supervisory committee is chosen by the Dean of the Graduate School. This committee, consisting of not fewer than five members representing the major and minor fields, aids the student in the preparation of the program of study, which must be approved by the Graduate Council, and has charge of all examinations except the language examinations. The chairman of the preliminary and final examinations is a member of the Graduate Council.

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

Program of Study and Examinations. Students enrolling in graduate study leading to the degree Doctor of Philosophy work on a tentative program of study until approximately two-thirds of the program, including a substantial portion of the thesis, has been completed. Ordinarily at the close of the second year of graduate study, and not later than the beginning of the year in which he contemplates receiving the degree, the candidate must pass written and oral preliminary examinations over the entire field of study. When the student has passed the language examinations and the preliminary ones, he is recommended by the supervisory committee to the Graduate Council for admission to candidacy for the degree Doctor of Philosophy. The program of study leading to the degree accompanies the recommendation. On completion of three years of graduate study as prescribed in the program of study and on submission of a thesis satisfactory to the supervisory committee, at least one month before commencement, the candidate is given the final examination.

Doctor's Thesis. Early in the graduate work a thesis subject is chosen in the major field and approved by the supervisory committee. The finished thesis must constitute a contribution to knowledge, either presenting conclusions from new material, or reinterpreting previous knowledge. Three complete typewritten copies of the thesis approved by the supervisory committee shall be submitted to the Dean of the Graduate School at least one month before commencement. On the completion of all requirements for the degree, two copies shall be placed in the College Library and the other filed with the head of the department in which the major work is taken.

Before the degree is conferred, the candidate shall guarantee the printing of the doctor's thesis (wholly or in part as determined by the supervisory committee) within three years after the date of the conferring of the degree. This guarantee shall be either a statement from the editor of an appropriate technical serial or publishing company that the thesis has been accepted for publication, or shall be in the form of a bond acceptable to the Graduate Council. When the thesis has been published, twenty-five copies shall be consigned to the College Library. If publication of the thesis, entire or in part, is desired before the degree is conferred, permission must be obtained from the Graduate Council.

Graduate Work in *Absentia*

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 college is not regularly in session.

Two 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 first semester, provided that permission to do so is secured in advance from the major instructor and from the Dean of the Graduate School.

Graduate Assistantships

To facilitate research work, teaching, and the acquisition of advanced degrees, the college has established graduate assistantships in most departments. The assistantships, which may be graduate assistantships or graduate research assistantships, may be on the nine-months 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.

The residence requirement for the master's degree may not be satisfied by any assistant in less than two semesters and one nine-week summer school.

One or more graduate 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, Art (Home Economics), Bacteriology, Botany, Chemical Engineering, Chemistry, Child Welfare, Civil Engineering, Clothing and Textiles, Dairy Husbandry, Economics, Education, Electrical Engineering, English, Entomology, Food Economics and Nutrition, Genetics, Geology, Government, History, Horticulture, Household Economics, Industrial Journalism, Institute of Citizenship, Institutional Management, Machine Design, Mathematics, Mechanical Engineering, Milling Industry, Modern Languages, Music, Parasitology, Physical Education (Men), Physics, Poultry Husbandry, Psychology, Shop Practice, Sociology, Speech, and Zoölogy.

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

Fellowships

A number of industrial fellowships are available each year. A fellow is permitted to carry a full time assignment. The amount or manner of payment of the fellowship stipend does not affect the assignment.

Graduate Loans

Graduate students may borrow 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 has had an opportunity to demonstrate ability to do satisfactory graduate work at Kansas State 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 cosigner must be recommended by his bank as of good financial standing and otherwise satisfactory as a cosigner. The maximum loaned to one student shall not exceed \$250.

The Manhattan Branch of the American Association of University Women maintains a loan fund which is available to graduate women students enrolled in any department of the Kansas State College that offers graduate work. Application for this loan shall be made to the chairman of the Graduate Loan Fund Committee of the Manhattan Branch of the American Association of University Women.

Seniors and Graduate Study

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

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.

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.

GRADUATE CALENDAR

FIRST SEMESTER, 1947-1948

September 11, 12, 13, 15, Thursday-Monday.—Registration.
 September 18, 7 a. m., Thursday.—Classes begin.
 October 18, Saturday.—Deficiency reports.
 November 1, Noon, Saturday.—Last day for reassignment before midsemester.
 November 15, Saturday.—Midsemester deficiency reports.
 November 25, 10 p. m., Tuesday.—Thanksgiving vacation begins.
 December 1, 7 a. m., Monday.—Classes resume.
 December 12, Friday.—Last day to submit doctors' theses (tentative copy).
 December 20, Noon, Saturday.—Christmas vacation begins.
 January 5, 1948, 7 a. m., Monday.—Classes resume.
 January 5, Monday.—Final copies of doctors' theses due.
 January 10, Saturday.—Last day to submit masters' theses or reports (tentative copy).
 January 19-22, Monday-Thursday.—Examination for candidates for degrees.
 January 24, Noon, Saturday.—Grades to registrar for degrees.
 January 26, Monday.—Final copies of masters' theses or reports due; last day for masters' oral examinations.
 January 26-29, Monday-Thursday.—Semester examinations.
 January 30, 4 p. m., Friday.—Semester ends. Commencement.

SECOND SEMESTER, 1947-1948

February 2-4, Monday-Wednesday.—Registration.
 February 5, 7 a. m., Thursday.—Classes begin.
 February 23, Monday.—Washington's birthday, holiday.
 March 6, 6 p. m., Saturday.—Deficiency reports.
 March 20, Saturday.—Last date for reassignment before midsemester.
 March 25, 10 p. m., Thursday.—Easter vacation begins.
 March 30, 7 a. m., Tuesday.—Classes resume.
 April 3, Noon, Saturday.—Midsemester deficiency reports.
 April 10, Saturday.—Last day to submit doctors' theses (tentative copy).
 April 29, Thursday.—Final copies of doctors' theses due.
 May 8, Saturday.—Last day to submit masters' theses or reports (tentative copy).
 May 19-22, Wednesday-Saturday.—Examination for candidates for degrees.
 May 24, Monday.—Final copies of masters' theses or reports due; last day for masters' oral examinations.
 May 25, 5 p. m., Tuesday.—Grades to registrar for all candidates for degrees.
 May 25-29, Tuesday-Saturday.—Semester examinations.
 May 30, 8 p. m., Sunday.—Semester ends. Commencement.

SUMMER SESSION, 1948

June 8 and 9, Tuesday and Wednesday.—Registration.
 June 10, Thursday.—Classes begin.
 June 28, Monday.—Last day to submit doctors' theses (tentative copy).
 July 3, Saturday.—Last day for reassignment before midsemester.
 July 5, Monday.—Holiday—Independence Day.
 July 9, Friday.—Final copies of doctors' theses due.
 July 10, Noon, Saturday.—Deficiency reports.
 July 24, Saturday.—Last day to submit masters' theses or reports (tentative copy).
 July 30-August 2, Friday-Monday.—Examinations for candidates for degrees.
 August 4, Wednesday.—Grades to registrar for all candidates for degrees.
 August 4, Wednesday.—Final copies of masters' theses or reports due; last day for masters' oral examinations.
 August 7, Saturday.—Last day of examinations.
 August 8, Sunday.—Commencement.
 August 10, 4 p. m., Tuesday.—Deficiency reports. End of summer session.
 August 13, Noon, Friday.—Grades to registrar.

FIRST SEMESTER, 1948-1949

September 7, Tuesday.—Physical examinations for all new students.
 September 8-11, Wednesday-Saturday.—Registration.
 September 15, 7 a. m., Wednesday.—Classes begin.
 October 16, Saturday.—Deficiency reports.
 October 30, Noon, Saturday.—Last day for reassignment before midsemester.
 November 13, Saturday.—Midsemester deficiency reports.
 November 23, 10 p. m., Tuesday.—Thanksgiving vacation begins.
 November 29, 7 a. m., Monday.—Classes resume.
 December 10, Friday.—Last day to submit doctors' theses (tentative copy).
 December 18, Noon, Saturday.—Christmas vacation begins.
 January 3, 1949, 7 a. m., Monday.—Classes resume.
 January 3, Monday.—Final copies of doctors' theses due.
 January 5, Wednesday.—Last day to submit masters' theses or reports (tentative copy).

January 17-20, Monday-Thursday.—Examinations for candidates for degrees.
January 22, Noon, Saturday.—Grades to registrar for candidates for degrees.
January 24, Monday.—Final copies of masters' theses or reports due; last day for masters' oral examinations.
January 24-27, Monday-Thursday.—Semester examinations.
January 28, 4 p. m., Friday.—Semester ends. Commencement.

SECOND SEMESTER, 1948-1949

January 29, Saturday.—Physical examinations for all new students.
January 31-February 2, Monday-Wednesday.—Registration.
February 3, 7 a. m., Thursday.—Classes begin.
February 22, Tuesday.—Holiday—Washington's birthday.
March 5, Saturday.—Deficiency reports.
March 19, Saturday.—Last day of reassignment before midsemester.
April 2, Saturday.—Midsemester deficiency reports.
April 9, Saturday.—Last day to submit doctors' theses (tentative copy).
April 14, 10 p. m., Thursday.—Easter vacation begins.
April 19, 7 a. m., Tuesday.—Classes resume.
April 29, Friday.—Final copies of doctors' theses due.
May 5, Thursday.—Last day to submit masters' theses or reports (tentative copy).
May 18-21, Wednesday-Saturday.—Examinations for candidates for degrees.
May 24, 5 p. m., Tuesday.—Final copies of masters' theses or reports due; last day for masters' oral examinations.
May 24-28, Noon, Tuesday-Saturday.—Semester examinations.
May 28, Saturday.—Alumni Day.
May 29, 8 p. m., Sunday.—Commencement.

SUMMER SESSION, 1949

June 6, Monday.—Physical examinations for all new students.
June 7-8, Tuesday-Wednesday.—Registration.
June 9, Thursday.—Classes begin.
June 27, Monday.—Last day to submit doctors' theses (tentative copy).
July 2, Noon, Saturday.—Last day for reassignment before midsemester.
July 4, Monday.—Holiday—Independence Day.
July 8, Friday.—Final copies of doctors' theses due.
July 9, Noon, Saturday.—Deficiency reports.
July 23, Saturday.—Last day to submit masters' theses or reports (tentative copy).
July 29-August 1, Friday-Monday.—Examinations for candidates for degrees.
August 3, Wednesday.—Grades to registrar for all candidates for degrees.
August 3, Wednesday.—Final copies of masters' theses or reports due; last day for masters' oral examinations.
August 6, Saturday.—Last day of examinations.
August 7, Sunday.—Commencement.
August 9, 4 p. m., Tuesday.—Deficiency reports. Summer session ends.
August 12, Noon, Friday.—Grades to registrar.

FIRST SEMESTER, 1949-1950

September 6, Tuesday.—Physical examinations for all new students.
September 7-10, Wednesday-Saturday.—Registration.
September 14, 7 a. m., Wednesday.—Classes begin.

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 is about 120 to 142 semester hours and points, according to the curriculum taken. (A semester hour is one hour of recitation or lecture work, or three hours of laboratory a week, for one semester of eighteen weeks. When no ambiguity is involved, the term "hour" is used for "semester hour" in this catalogue.)

To be considered as a candidate 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, exclusive of 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 transfer student who completes requirements for senior standing and residence in this College may be considered 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 graduation 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 following degrees are conferred on completion of four-year curriculums:

- Bachelor of Science
- Bachelor of Science in Agriculture (Agriculture; Agricultural Administration; Agricultural Education; Dairy Manufacturing; Floriculture and Ornamental Horticulture; Soil Conservation)
- Bachelor of Science in Agricultural Engineering
- Bachelor of Science in Agricultural Journalism
- Bachelor of Science in Architectural Engineering
- Bachelor of Science in Architecture
- Bachelor of Science in Business Administration
- Bachelor of Science in Chemical Engineering
- Bachelor of Science in Civil Engineering
- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Home Economics (Home Economics; Home Economics and Journalism; Dietetics and Institutional Management)
- Bachelor of Science in Industrial Arts
- Bachelor of Science in Industrial Chemistry
- Bachelor of Science in Industrial Journalism
- Bachelor of Science in Landscape Design
- Bachelor of Science in Mechanical Engineering

Bachelor of Science in Milling Industry (Milling Administration; Milling Chemistry; Milling Technology)

Bachelor of Music

Bachelor of Science in Music Education

Bachelor of Science in Physical Education

Doctor of Veterinary Medicine

The degree Bachelor of Science in Architecture is conferred on those who complete the five-year Curriculum in Architecture.

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

The degrees Bachelor of Science and Doctor of Veterinary Medicine are conferred on those who complete the six-year combination of the Preveterinary Curriculum and the Curriculum in Veterinary Medicine.

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 School of Agriculture

RAY IAMS THROCKMORTON, *Dean*

LELAND EVERETT CALL, *Dean Emeritus*

The successful farmer must have scientific and economic knowledge and training. They are quite as essential as practical knowledge of agriculture in the development of an agricultural state such as Kansas. Soil is most effectively utilized by those who have knowledge of how soils have been formed, how fertility has been stored in them, and how the resources of the soil can be maintained.

The successful farmer also knows what kind of plants to grow and how to improve them. He understands the principles of selection, breeding, and feeding of livestock. He knows how to maintain orchards, gardens, and attractive surroundings. He has an appreciation for good and adequate farm buildings and a farm home equipped with modern conveniences. He is familiar with the best methods of marketing the products of the farm.

Kansas State College gives systematic training in agriculture which fits young men for the farm.

The College also prepares students for the scientific investigation 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 1,428 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 soils.

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.

Seven of the four-year curriculums offered in this School lead to the degree Bachelor of Science in Agriculture. The four-year curriculums in Milling Industry lead to the degree Bachelor of Science in Milling Industry.

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.

The Curriculum in Soil Conservation recently has been developed to meet a growing demand on the part of state and federal agencies for men trained in this field. It leads to the degree Bachelor of Science in Agriculture.

The Curriculum in Agricultural Education meets specifically the requirements of men who expect to become teachers of vocational agriculture in Kansas high schools participating in federal funds.

The two-year Curriculum in Agriculture is intended for former service men and others who do not wish to take the time to earn a degree in agriculture. Probably the greatest opportunity for those who pursue the two-year curriculum will be on the farms, ranches, and smaller acreages of Kansas and other Midwestern agricultural states. (See page 61.)

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, Zoölogy, 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 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 Soil Conservation

The Curriculum in Soil Conservation is planned to meet the needs of students who expect to enter soil conservation work with federal, state, or local agencies and for those men who expect to do soil conservation work with public and private lending agencies. The curriculum is sufficiently broad to enable men who major in the Curriculum in Soil Conservation to receive training for work as county agents or farmers, and in other fields in general agriculture.

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.

Any student not expecting to make journalism a career may take work in journalism and at the same time major in any of the departments of the School of Agriculture.

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 coöperation 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 pretheological 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 Bachelor of Science in Landscape Design.

Curriculum in Floriculture and Ornamental Horticulture

The Curriculum in Floriculture and Ornamental Horticulture gives training to those who wish to enter one of the several fields of floriculture. There is opportunity to become trained for the improvement of greenhouse and other floricultural plants and for the growing and selling of flowers. Emphasis is placed on the utilization of flowers in floral arrangements.

Those taking ornamental horticulture receive training in landscape design with particular reference to the production and use of landscape materials.

Curriculums in Milling Industry

The College offers three curriculums in the field of milling: (1) Curriculum in Milling Administration, (2) Curriculum in Milling Chemistry, (3) Curriculum in Milling Technology.

Students choosing the field of milling chemistry 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.

Milling Enrollment Limited

By authority of the State Board of Regents the number of students enrolled in milling industry is limited to 75. Students having their residence in Kansas have first preference. Out-of-state students who have had practical milling experience are given second preference. Selections from either group are further based on scholarship and other evidence of fitness.

Persons wishing to be selected for one of the curriculums in milling industry must apply several weeks before the beginning of the academic year. Applications should be made before August 1. Application blanks may be obtained from the Dean of the School of Agriculture.

State Teacher's Certificate

By selecting the proper electives in the Department 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 eighteen semester hours in the Department of Education and Psychology is required as follows:

Educ. 184, General Psychology.....	3
Educ. 109, Educational Psychology.....	3
Educ. 241, Vocational Education.....	3
Educ. 255, Technics in Agricultural Education.....	3
Educ. 136, Methods of Teaching Agriculture.....	3
Educ. 161, Teaching Participation in Agriculture.....	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 157, Blacksmithing.....	1
Shop 166, Welding.....	1
Agr. Engg. 103, Farm Mechanics.....	2
Agr. Engg. 106, Farm Power.....	3
Agr. Engg. 104, Farm Machinery Repair.....	2
Agr. Engg. 207, Farm Building Construction.....	3
Agr. Engg. 208, Agricultural Engineering Applications.....	2
Agr. Engg. 206, 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 service men and others who have attained an advanced age or who for other reasons do not care to take the time to go through college for a degree.

Admission and Graduation

Only students who are high school graduates may enter upon the two-year Curriculum in Agriculture.

Not all courses are of college level. Certain of these courses are offered without the usual prerequisites.

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.

This is not to hint that a man who has completed the two-year short course in agriculture is ready to take a position carrying the responsibility and requiring the training of a graduate in agriculture. A person completing the two-year curriculum and thereafter accepting a position as an employee may encounter limitations upon his advancement as compared with a man having a degree.

Young men who complete the short course in agriculture, however, will be well fitted to become farmers, stockmen, dairymen, fruit and vegetable producers, poultrymen, hatcherymen, and small acreage operators.

Curriculum in Agriculture

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	<i>Course</i>	<i>Sem. Hrs.</i>		<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	111 Writ. Comm. I.....	3	Engl.	112 Writ. Comm. II	2
Geol.	103 Gen. Geology	3	Speech	103 Oral Comm.	2
Chem.	101 Chemistry I	5	Bot.	102 Gen. Botany	5
An. Husb.	126 El. of An. Husb.....	2 <i>and</i>	Chem.	103 Chem. II Rec.....	3
An. Husb.	129 El. of An. Husb. Lab., 1	<i>or</i>	An. Husb.	126 El. of An. Husb.....	2 <i>and</i>
Dairy Husb.	101 El. of Dairying.....	3	An. Husb.	129 El. of An. Husb. Lab., 1	<i>or</i>
Mil. Sc.	105 Military I.....	1	Dairy Husb.	101 El. of Dairying.....	3
Gen. Agr.	104 Freshman Assembly	R	Mil. Sc.	106 Military II	1
Phys. Ed.	103 Phys. Education M.....	R	Phys. Ed.	103 Phys. Education M.....	R
Gen. Agr.	103 Agr. Seminar*	R	Gen. Agr.	103 Agr. Seminar*	R
Total.....		15	Total.....		16

SOPHOMORE

FIRST SEMESTER				SECOND SEMESTER†			
Math.	108	Math. in Human Affairs..	3	Econ.	101	Economics I.....	3
Hort.	104	El. of Hort. Rec.....	2	An. Husb.	152	Prin. of Feeding.....	3
Hort.	105	El. of Hort. Lab.....	1	Agron.	130	Soils	4 or
Chem.	125	Org. Chemistry (Agr.)....	3	Agron.	110	Farm Crops	3 and
Agron.	130	Soils	4 or	Agron.	111	Farm Crops Lab.....	1
Agron.	110	Farm Crops	3 and	Zoöl.	105	Gen. Zoölogy	5
Agron.	111	Farm Crops Lab.....	1	Mil. Sc.	108	Military IV	1
Poul. Husb.	104	Farm Poul. Prod. Rec....	2	Phys. Ed.	103	Phys. Education M	R
Poul. Husb.	105	Farm Poul. Prod. Lab....	1	Gen. Agr.	103	Agr. Seminar*	R
Mil. Sc.	107	Military III	1				
Gen. Agr.	103	Agr. Seminar*	R				
Total.....			17	Total.....			16

JUNIOR

FIRST SEMESTER				SECOND SEMESTER			
An. Husb.	221	Genetics	3 or	Ent.	203	Gen. Econ. Entomol.....	3
Bact.	105	Agr. Microbiology§	3	An. Husb.	221	Genetics	3 or
Physiol.	131	Anat. and Physiology†, 3 or		Bact.	105	Agr. Microbiology§	3
Bot.	208	Plant Physiology I.....	3	Ind. Jour.	160	Agr. Journalism	3
Agr. Econ.	106	Farm Organization	3	Gen. Agr.	103	Agr. Seminar*	R
Gen. Agr.	103	Agr. Seminar*	R			Elective	7
Engl.	169	English Proficiency	R				
		Elective	7				
Total.....			16	Total.....			16

SENIOR

FIRST SEMESTER				SECOND SEMESTER			
Comp.	181	Man and Cul. World I...	4	Comp.	182	Man and Cul. World II...	4
Gen. Agr.	108	Agr. Seminar*	R	Gen. Agr.	103	Agr. Seminar*	R
		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. 208) 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.

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 directly 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, Zoölogy, 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

	<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	111 Written Comm. I.....	3
An. Husb.	126 El. of An. Husb.....	2 and
An. Husb.	129 El. of An. Husb. Lab., 1 or	
Dairy Husb.	101 El. of Dairying.....	3
Comp.	111 Biol. in Rel. Man I.....	4
Comp.	101 Man's Phys. World I.....	4
Mil. Sc.	105 Military I	1
Gen. Agr.	104 Freshman Assembly	R
Phys. Ed.	103 Phys. Education M.....	R
Gen. Agr.	103 Agr. Seminar*	R
Total.....		15

SECOND SEMESTER

	<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	112 Written Comm. II.....	2
Speech	103 Oral Comm.....	2
Dairy Husb.	101 El. of Dairying.....	3 or
An. Husb.	126 El. of An. Husb.....	2 and
An. Husb.	129 El. of An. Husb. Lab....	1
Comp.	112 Biol. in Rel. Man II.....	4
Comp.	102 Man's Phys. World II....	4
Mil. Sc.	106 Military II	1
Phys. Ed.	103 Phys. Education M.....	R
Gen. Agr.	103 Agr. Seminar*	R
Total.....		16

SOPHOMORE

FIRST SEMESTER

Econ.	101 Economics I	3
Math.	103 Math. in Human Affairs..	3
Agron.	130 Soils	4 or
Agron.	110 Farm Crops	3 and
Agron.	111 Farm Crops Lab.....	1
Agr. Econ.	156 Rural Sociology	3
Poul. Husb.	104 Farm Poul. Prod. Rec....	2
Poul. Husb.	105 Farm Poul. Prod. Lab....	1
Mil. Sc.	107 Military III	1
Phys. Ed.	103 Phys. Education M.....	R
Gen. Agr.	103 Agr. Seminar*	R
Total.....		17

SECOND SEMESTER

Econ.	104 Economics II	3
An. Husb.	152 Prin. of Feeding.....	3
Agron.	110 Farm Crops	3 and
Agron.	111 Farm Crops Lab.....	1 or
Agron.	130 Soils	4
Hort.	104 El. of Hort.....	2
Hort.	105 El. of Hort. Lab.....	1
Mil. Sc.	108 Military IV	1
Phys. Ed.	103 Phys. Education M.....	R
Gen. Agr.	103 Agr. Seminar*	R
	Elective	2
Total.....		16

JUNIOR

FIRST SEMESTER

Agr. Econ.	112 Farm Accounting	3
Agr. Econ.	218 Land Economics	3
Comp.	131 Man and Cul. World I... 4	
Gen. Agr.	103 Agr. Seminar*	R
Engl.	169 English Proficiency	R
	Elective	6
Total.....		16

SECOND SEMESTER

Agr. Econ.	106 Farm Organization	3
Agr. Econ.	202 Marketing Farm Prod....	3
Comp.	132 Man and Cul. World II.. 4	
Ind. Jour.	160 Agr. Journalism	3
Gen. Agr.	103 Agr. Seminar*	R
	Elective	3
Total.....		16

SENIOR

FIRST SEMESTER

Gen. Agr.	103 Agr. Seminar*	R
	Elective	16
Total.....		16

SECOND SEMESTER

Agr. Econ.	215 Agr. Econ. Summary.....	2
Gen. Agr.	103 Agr. Seminar*	R
	Elective	14
Total.....		16

Number of hours required for graduation, 128.

Electives

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

	<i>Semester Hours</i>
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	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 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 Vocational Agriculture Teachers)

FRESHMAN

FIRST SEMESTER

	Course	Sem. Hrs.
Engl.	111 Written Comm. I.....	3
Bot.	102 Gen. Botany	5
Geol.	103 Gen. Geology	3
An. Husb.	126 Elem. of An. Husb.	2
An. Husb.	129 Elem. of An. Husb. Lab..	1
Mil. Sc.	105 Military I	1
Gen. Agr.	104 Freshman Assembly.....	R
Phys. Ed.	103 Phys. Education	R
Gen. Agr.	103 Agr. Seminar*	R

Total..... 15

SECOND SEMESTER

	Course	Sem. Hrs.
Engl.	112 Written Comm. II.....	2
Chem.	110 Gen. Chemistry	5
Dairy Husb.	101 El. of Dairying	3
Educ.	184 Gen. Psychology	3
Shop	157 Blacksmithing	1
Mil. Sc.	166 Welding	1
Phys. Ed.	106 Military II	1
Gen. Agr.	103 Phys. Education	R
	103 Agr. Seminar*	R

Total..... 16

SOPHOMORE

FIRST SEMESTER

Chem.	125 Org. Chemistry (Agr.)....	3
Speech	103 Oral Communications.....	2
Speech	126 Parl. Procedure	1
Hort.	104 El. of Horticulture Rec...	2
Hort.	105 El. of Horticulture Lab...	1
Agron.	130 Soils	4
Agr. Engg.	103 Farm Mechanics	2
Mil. Sc.	107 Military III	1
Phys. Ed.	103 Phys. Education	R
Gen. Agr.	103 Agr. Seminar*	R

Total..... 16

SECOND SEMESTER

Agron.	110 Farm Crops Rec.....	3
Agron.	111 Farm Crops Lab.....	1
An. Husb.	152 Prin. of Feeding.....	3
Econ.	101 Economics I	3
Educ.	109 Educ. Psychology	3
Agr. Engg.	106 Farm Power	3
Mil. Sc.	108 Military IV	1
Phys. Ed.	103 Phys. Education	R
Gen. Agr.	103 Agr. Seminar*	R

Total..... 17

JUNIOR

FIRST SEMESTER

Agron.	244 Soil Conservation I.....	3
An. Husb.	171 Livestock Production.....	3
An. Husb.	141 Prin. of Lvst. Sel.....	3
Poul. Husb.	104 Farm Poul. Prod. Rec....	2
Poul. Husb.	105 Farm Poul. Prod. Lab....	1
Bot.	205 Plant Pathology I.....	3
Educ.	241 Voc. Education	3
Gen. Agr.	103 Agr. Seminar*	R
Engl.	169 English Proficiency	R

Total..... 18

SECOND SEMESTER

Agr. Econ.	112 Farm Accounting	3
An. Husb.	168 Meats	3 or
Dairy Husb.	108 Milk Production	3
Ent.	203 Gen. Econ. Entomology...	3
Ind. Jour.	160 Agr. Journalism	3
Educ.	255 Techniques in Agr. Educ..	3
Agr. Engg.	104 Farm Machinery Repair..	2
Gen. Agr.	103 Agr. Seminar*	R

Total..... 17

SENIOR

FIRST SEMESTER

Agr. Econ.	202 Marketing Farm Prods...	3
Agr. Econ.	106 Farm Organization	3
Educ.	136 Meth. of Teaching Agr...	3
Agr. Engg.	207 Farm Bldgs. Constr.....	3
Agr. Engg.	208 Agr. Engg. Applications..	2
Gen. Agr.	103 Agr. Seminar*	R
	Elective†	3

Total..... 17

SECOND SEMESTER

An. Husb.	188 An. Husb. Practicums...	2
Agron.	108 Grain Gradg. and Judg...	2
Poul. Husb.	216 Poul. Management	3
Educ.	161 Tchg. Partic. in Agr.....	3
Agr. Engg.	206 Farm Mechanics Meth....	3
Gen. Agr.	103 Agr. Seminar*	R
	Elective†	3

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.

Curriculum in Agricultural Journalism

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Engl.	111 Written Comm. I.....	3	Engl.	112 Written Comm. II.....	2
Comp.	111 Biol. Rel. Man I.....	4	Comp.	112 Biol. Rel. Man II.....	4
Comp.	101 Man's Phys. World I.....	4	Comp.	102 Man's Phys. World II....	4
An. Husb.	126 El. of An. Husb.....	2 and	Dairy Husb.	101 El. of Dairying.....	3
An. Husb.	129 El. of An. Husb. Lab....	1	Hort.	104 El. of Hort.....	2
Mil. Sc.	105 Military I	1	Hort.	105 El. of Hort. Lab.....	1
Ind. Jour.	109 Ind. Jour. Lecture.....	R	Mil. Sc.	106 Military II	1
Gen. Agr.	104 Freshman Assembly.	R	Ind. Jour.	199 Ind. Jour. Lecture.....	R
Phys. Ed.	103 Phys. Education M.....	R	Phys. Ed.	103 Phys. Education M.....	R
Gen. Agr.	103 Agr. Seminar*	R	Gen. Agr.	103 Agr. Seminar*	R
Total.....		15	Total.....		17

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Speech	103 Oral Comm.....	2	An. Husb.	152 Prin. of Feeding.....	3
Comp.	121 Man and Soc. World I... 4	4	Comp.	122 Man and Soc. World II... 4	4
Agron.	130 Soils	4	Agr. Engg.	108 Farm Machinery	3
Poul. Husb.	104 Farm Poul. Prod.....	2	Ind. Jour.	157 Ind. Writing	3
Poul. Husb.	105 Farm Poul. Prod. Lab....	1	Ent.	203 Gen. Econ. Entomol.....	3
Ind. Jour.	160 Agr. Journalism	3	Mil. Sc.	108 Military IV	1
Mil. Sc.	107 Military III	1	Ind. Jour.	199 Ind. Jour. Lecture.....	R
Ind. Jour.	199 Ind. Jour. Lecture.....	R	Phys. Ed.	103 Phys. Education M.....	R
Phys. Ed.	103 Phys. Education M.....	R	Gen. Agr.	103 Agr. Seminar*	R
Gen. Agr.	103 Agr. Seminar*	R	Total.....		17
Total.....		17	Total.....		17

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Econ.	101 Economics I	3	Agr. Econ.	106 Farm Organization	3
Agron.	110 Farm Crops	3	Physics	151 Photography	2
Agron.	111 Farm Crops Lab.....	1	Ind. Jour.	162 Radio News	2 or
Ind. Jour.	167 News and Mag. Writing..	2	Ind. Jour.	181 Rural Press	2
Ind. Jour.	177 Prin. of Advertising.....	3	Ind. Jour.	166 Editing	2
Ind. Jour.	199 Ind. Jour. Lecture.....	R	Ind. Jour.	199 Ind. Jour. Lecture.....	R
Gen. Agr.	103 Agr. Seminar*	R	Agr. Econ.	202 Mktg. Farm Prod.....	3
Engl.	169 English Proficiency.....	R	Gen. Agr.	103 Agr. Seminar*	R
	Elective†	4		Elective†	4
Total.....		16	Total.....		16

SENIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Comp.	131 Man and Cult. World I..	4	Comp.	132 Man and Cult. World II..	4
Ind. Jour.	253 Contemp. Affairs I.....	3	Ind. Jour.	255 Contemp. Affairs II.....	3
Bot.	205 Plant Pathology I.....	3	Ind. Jour.	145 News Photography	1
Ind. Jour.	199 Ind. Jour. Lecture.....	R	Ind. Jour.	199 Ind. Jour. Lecture.....	R
Gen. Agr.	103 Agr. Seminar*	R	Gen. Agr.	103 Agr. Seminar*	R
	Elective†	6		Elective†	8
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.

By electing 12 additional hours in any department in the School of Agriculture the student can earn a major in that department. 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 Industrial Journalism and Printing.

Curriculum in Dairy Manufacturing

FRESHMAN

FIRST SEMESTER

	Course	Sem. Hrs.
Engl.	111 Writ. Comm. I.....	3
Comp.	111 Biol. in Rel. Man I.....	4
Chem.	101 Chemistry I.....	5
Dairy Husb.	101 El. of Dairying.....	3
Mil. Sc.	105 Military I.....	1
Gen. Agr.	104 Freshman Assembly.....	R
Phys. Ed.	103 Phys. Education M.....	R
Gen. Agr.	103 Agr. Seminar*.....	R

Total..... 16

SECOND SEMESTER

	Course	Sem. Hrs.
Engl.	112 Writ. Comm. II.....	2
Speech	103 Oral Comm.....	2
Comp.	112 Biol. in Rel. Man II.....	4
Chem.	103 Chemistry II Rec.....	3
Chem.	104 Chemistry II Lab.....	2 or
Dairy Husb.	105 Dairy Cattle Judg.....	2
An. Husb.	126 El. of An. Husb.....	2
An. Husb.	129 El. of An. Husb. Lab....	1
Mil. Sc.	106 Military II.....	1
Phys. Ed.	103 Phys. Education M.....	R
Gen. Agr.	103 Agr. Seminar*.....	R

Total..... 17

SOPHOMORE

FIRST SEMESTER

Dairy Husb.	106 Dairy Inspection.....	2
Math.	103 Math. in Human Affairs..	3
Bact.	101 Gen. Microbiology.....	3
Chem.	125 Organic Chem. (Agr.)....	3
Comp.	121 Man and Soc. World I... 4	
Mil. Sc.	107 Military III.....	1
Phys. Ed.	103 Phys. Education M.....	R
Gen. Agr.	103 Agr. Seminar*.....	R

Total..... 16

SECOND SEMESTER

Poul. Husb.	104 Farm Poul. Prod. Rec....	2
Poul. Husb.	105 Farm Poul. Prod. Lab....	1
Agron.	110 Farm Crops Rec.....	3
Bact.	212 Dairy Bacteriology.....	3
Dairy Husb.	116 Market Milk.....	3
Comp.	122 Man and Soc. World II... 4	
Mil. Sc.	108 Military IV.....	1
Phys. Ed.	103 Phys. Education M.....	R
Gen. Agr.	103 Agr. Seminar*.....	R

Total..... 17

JUNIOR

FIRST SEMESTER

Econ.	101 Economics I.....	3
Econ.	136 Prin. of Accounting.....	3
An. Husb.	221 Genetics.....	3 or
Dairy Husb.	130 Ice Cream Mkg.....	3
Dairy Husb.	110 Butter Making.....	3
Gen. Agr.	103 Agr. Seminar*.....	R
Engl.	169 Engl. Proficiency.....	R
	Elective†.....	5

Total..... 17

SECOND SEMESTER

Dairy Husb.	128 Cond. and Pwd. Milk... 3 or	
Dairy Husb.	135 Cheese Making.....	3
Dairy Husb.	103 Milk Production.....	3
An. Husb.	152 Prin. of Feeding.....	3
Gen. Agr.	103 Agr. Seminar*.....	R
	Elective.....	8

Total..... 17

SENIOR

FIRST SEMESTER

An. Husb.	221 Genetics.....	3 or
Dairy Husb.	130 Ice Cream Making.....	3
Dairy Husb.	226 Dairy Plant Mgt.....	2
Comp.	131 Man and Cul. World I... 4	
Gen. Agr.	103 Agr. Seminar*.....	R
	Elective.....	7

Total..... 16

SECOND SEMESTER

Dairy Husb.	128 Cond. and Pwd. Milk... 3 or	
Dairy Husb.	135 Cheese Making.....	3
Dairy Husb.	202 Dairy Seminar.....	1
Dairy Husb.	230 Tech. Controls.....	2
Comp.	132 Man and Cul. World II... 4	
Gen. Agr.	103 Agr. Seminar*.....	R
	Elective.....	6

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.

Curriculum in Floriculture and Ornamental Horticulture

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Engl.	111 Written Comm. I.....	3	Engl.	112 Written Comm. II.....	2
Bot.	102 Gen. Botany	5	Speech	103 Oral Comm.	2
Hort.	114 Farm Forestry	3	Chem.	101 Chemistry I	5
Geol.	103 Gen. Geology	3	Hort.	104 El. of Hort. Rec.....	2
Mil. Sc.	105 Military I (men).....	1	Hort.	105 El. of Hort. Lab.....	1
Gen. Agr.	104 Freshman Assembly	R	Hort.	127 G. H. Cons. and Mgt....	3
Phys. Ed.	103 Phys. Ed. M.....	R or	Mil. Sc.	106 Military II (men).....	1
Phys. Ed.	151 Phys. Ed. W.....	R	Phys. Ed.	103 Phys. Ed. M.....	R or
Gen. Agr.	103 Agr. Seminar*	R	Phys. Ed.	151 Phys. Ed. W.....	R
			Gen. Agr.	103 Agr. Seminar*	R
Total.....			14 or 15	Total.....	
				15 or 16	

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Chem.	103 Chem. II Rec.....	3	Agron.	130 Soils	4
Hort.	125 Land. Gardening	3	Chem.	125 Org. Chemistry (Agr.)....	3
Hort.	101 Plant Propagation	3	An. Husb.	221 Genetics	3
Math.	103 Math. in Human Affairs..	3	Econ.	101 Economics I	3
Bot.	225 Tax. Bot. Flrg. Plts.....	3	Bot.	228 Plant Ecology	3
Mil. Sc.	107 Military III (men).....	1	Mil. Sc.	108 Military IV (men).....	1
Phys. Ed.	103 Phys. Ed. M.....	R or	Phys. Ed.	103 Phys. Ed. M.....	R or
Phys. Ed.	151 Phys. Ed. W.....	R	Phys. Ed.	151 Phys. Ed. W.....	R
Gen. Agr.	103 Agr. Seminar*	R	Gen. Agr.	103 Agr. Seminar*	R
Total.....			15 or 16	Total.....	
				16 or 17	

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Comp.	131 Man and Cul. World I... 4		Comp.	132 Man and Cul. World II... 4	
Bot.	102 Plant Materials I..... 3		Hort.	103 Plant Materials II..... 3	
Bot.	208 Plant Physiology I..... 3		Econ.	136 Prin. of Acctg..... 3	
Hort.	140 Comm. Floriculture I.... 3		Econ.	126 Bus. Mgt. 2	
Agron.	208 Plant Genetics	3	Gen. Agr.	103 Agr. Seminar*	R
Gen. Agr.	103 Agr. Seminar*	R		Electives†	4
Engl.	169 English Proficiency..... R				
Total.....			16	Total.....	
				16	

SENIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Bot.	205 Plant Pathology I.....	3	Ind. Jour.	160 Agr. Jour.	3
Ent.	203 Gen. Econ. Ent.....	3	Hort.	207 Spraying	3
Hort.	120 Forest Nurs. Pract.....	3	Hort.	208 Lit. of Hort.....	2
Hort.	135 Floral Arrgt. I.....	2	Hort.	235 Hort. Seminar	1
Hort.	235 Hort. Seminar	1	Gen. Agr.	103 Agr. Seminar*	R
Gen. Agr.	103 Agr. Seminar*	R	Hort.	211 Arboriculture	3
	Electives	5		Electives	4
Total.....			17	Total.....	
				16	

Suggested Electives

Floriculture			Ornamental Horticulture		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Hort.	136 Floral Arrgt. II.....	2	Mch. Des.	101 Engg. Drawing	2
Hort.	141 Comm. Flori. II.....	3	Hort.	227 Lands. Constr.	3
Hort.	133 Veg. Gardening	3	Hort.	243 Theo. Lands. Des.....	2
Hort.	214 Hort. Cash Crops.....	2	Hort.	228 Planting Design	2
			Hort.	238 Lands. Design I	3
			Arch.	112 Freehand Drawing I.....	2

Number of hours required for graduation: Women, 125; men, 129.

* Four meetings each semester.

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

Curriculum in Landscape Design*

FRESHMAN

FIRST SEMESTER

	Course	Sem. Hrs.
Bot.	102 Gen. Botany	5
Comp.	101 Man's Phys. World I....	4
Engl.	111 Writ. Comm. I.....	3
Arch.	112 Freehand Draw. I.....	2
Mach. Des.	101 Engg. Draw.	2
Mil. Sc.	105 Military I (men).....	1
Gen. Agr.	104 Freshman Assembly	R
Phys. Ed.	103 Phys. Ed. M.....	R or
Phys. Ed.	151 Phys. Ed. W.....	R
Gen. Agr.	103 Agr. Seminar†.....	R

SECOND SEMESTER

	Course	Sem. Hrs.
Hort.	104 El. of Hort. Rec.....	2
Hort.	105 El. of Hort. Lab.....	1
Comp.	102 Man's Phys. World II....	4
Engl.	112 Writ. Comm. II.....	2
Arch.	113 Freehand Draw. II.....	2
Mach. Des.	106 Desc. Geom.	2
Math.	101 Plane Trig.	3
Mil. Sc.	106 Military II (men).....	1
Phys. Ed.	103 Phys. Ed. M.....	R or
Phys. Ed.	151 Phys. Ed. W.....	R
Gen. Agr.	103 Agr. Seminar†	R

Total..... 16 or 17

Total..... 16 or 17

SOPHOMORE

FIRST SEMESTER

Hort.	125 Lands. Gardening	3
Arch.	106 El. of Arch. I.....	4
Arch.	103 Shades and Shadows....	1
Arch.	179A Hist. Paintg. and Sculpt..	3
Bot.	205 Plant Pathology I.....	3
Bot.	225 Tax. Bot. Flrg. Plts.....	3
Mil. Sc.	107 Military III (men).....	1
Phys. Ed.	103 Phys. Ed. M.....	R or
Phys. Ed.	151 Phys. Ed. W.....	R
Gen. Agr.	103 Agr. Seminar†.....	R

SECOND SEMESTER

Geol.	110 Physiographic Geology ...	3
Arch.	107 El. of Arch. II.....	4
Arch.	104 Perspective Drawing	1
Arch.	125 Apprec. of Arch.....	3
Bot.	228 Plant Ecology	3
Sp.	103 Oral Comm.	2
Mil. Sc.	108 Military IV (men).....	1
Phys. Ed.	103 Phys. Ed. M.....	R or
Phys. Ed.	151 Phys. Ed. W.....	R
Gen. Agr.	103 Agr. Seminar†	R

Total..... 17 or 18

Total..... 16 or 17

JUNIOR

FIRST SEMESTER

Hort.	243 Theo. Lds. Des.....	2 or
Hort.	227 Lands. Constr.	3
Hort.	102 Plant Materials I.....	3
Civ. Engg.	102 Surveying I	2
Agron.	130 Soils	4
Arch.	116 Pencil Sketch	2
Gen. Agr.	103 Agr. Seminar†.....	R
Engl.	169 English Proficiency	R
	Electives‡	3

SECOND SEMESTER

Hort.	228 Planting Design	2 or
Hort.	223 Civic Art	3
Hort.	103 Plant Materials II.....	3
Ent.	203 Gen. Econ. Ent.....	3
Arch.	118 Water Color I.....	2
Civ. Engg.	103 Topo. Surveying	3
Gen. Agr.	103 Agr. Seminar†	R
	Electives	3

Total..... 16 or 17

Total..... 16 or 17

SENIOR

FIRST SEMESTER

Hort.	238 Lands. Design I.....	3
Hort.	227 Lands. Constr.	3 or
Hort.	243 Theo. Lands. Des.....	2
Comp.	121 Man and Soc. World I... 4	
Gen. Agr.	103 Agr. Seminar†.....	R
	Electives	7

SECOND SEMESTER

Hort.	246 Lands. Design II.....	3
Hort.	223 Civic Art	3 or
Hort.	228 Planting Design	2
Comp.	122 Man and Soc. World II... 4	
Ind. Jour.	160 Agr. Journalism	3
Gen. Agr.	103 Agr. Seminar†	R
	Electives	4

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.

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

Curriculum in Milling Administration

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Chem.	101 Chemistry I.....	5	Chem.	103 Chemistry II Rec.....	3
Engl.	111 Writ. Comm. I.....	3	Engl.	112 Writ. Comm. II.....	2
Mach. Des.	101 Engg. Drawing	2	Speech	103 Oral Comm.....	2
Math.	104 College Algebra.....	3	Ent.	117 Milling Entomology.....	2
Mill. Ind.	102 Surv. of Mill. Ind.....	1	Hist.	125 Contemp. World Hist.....	2
Mil. Sc.	105 Military I	1	Math.	101 Plane Trigonometry.....	3
Gen. Agr.	104 Freshman Assembly.....	R	Mill. Ind.	101 El. of Milling.....	2
Phys. Ed.	103 Phys. Education M.....	R	Mil. Sc.	106 Military II.....	1
Mill. Ind.	118 Milling Ind. Seminar*....	R	Phys. Ed.	103 Phys. Education M.....	R
			Mill. Ind.	118 Milling Ind. Seminar*....	R
Total.....		15	Total.....		17

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Bot.	102 Gen. Botany	5	Chem.	125 Organic Chem. (Agr.)....	3
Econ.	133 Accounting I	3	Econ.	134 Accounting II	3
Mill. Ind.	103 Flow Sheets	2	Econ.	161 Economics I.....	3
Phys.	102 Gen. Physics I.....	4	Mill. Ind.	109 Mill. Practice I.....	3
Speech	226 Public Discussion	2	Phys.	103 Gen. Physics II.....	4
Mil. Sc.	107 Military III	1	Mil. Sc.	108 Military IV.....	1
Phys. Ed.	103 Phys. Education M.....	R	Phys. Ed.	103 Phys. Education M.....	R
Mill. Ind.	118 Milling Ind. Seminar*....	R	Mill. Ind.	118 Milling Ind. Seminar*....	R
Total.....		17	Total.....		17

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Agron.	115 Mkt. Grading Cereals....	3	Econ.	116 Money and Banking.....	3
Agr. Econ.	202 Mktg. Farm Prods.....	3	Econ.	104 Economics II.....	3
Agr. Econ.	156 Rural Sociology	3	Hist.	164 Business Law II.....	3
Educ.	184 Gen. Psychology	3	Mill. Ind.	212 Qual. of Wheat and Flour,	3
Hist.	163 Business Law I.....	3	Mill. Ind.	118 Milling Ind. Seminar*....	R
Mill. Ind.	118 Milling Ind. Seminar*....	R		Elective	4
Engl.	169 English Proficiency	R			
	Elective	2			
Total.....		17	Total.....		16

SENIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Agr. Econ.	203 Grain Marketing	3	Comp.	132 Man and Cul. World II... 4	
Comp.	131 Man and Cul. World I... 4		Econ.	215 Bus. Org. and Fin..... 3	
Engl.	123 Writ. and Oral Sales.... 3		Econ.	234 Labor Economics	3
Mill. Ind.	118 Milling Ind. Seminar*.... R		Engl.	122 Coml. Correspondence.... 3	
	Elective	7	Mill. Ind.	118 Milling Ind. Seminar*.... R	
				Elective	3
Total.....		17	Total.....		16

Number of hours required for graduation, 132.

* One meeting each month in addition to Agricultural Seminar (Gen. Agr. 103).

Curriculum in Milling Chemistry

FRESHMAN

FIRST SEMESTER

	Course	Sem. Hrs.
Chem.	101 Chemistry I	5
Engl.	111 Writ. Comm. I	3
Mach. Des.	101 Engg. Drawing	2
Math.	104 College Algebra	3
Mill. Ind.	102 Survey of Mill. Ind.	1
Mill. Sc.	105 Military I	1
Gen. Agr.	104 Freshman Assembly	R
Phys. Ed.	103 Phys. Education M.	R
Mill. Ind.	118 Milling Ind. Seminar*....	R

SECOND SEMESTER

	Course	Sem. Hrs.
Chem.	103 Chemistry II Rec.....	3
Chem.	104 Chemistry II Lab.....	2
Engl.	112 Writ. Comm. II.....	2
Speech	103 Oral Comm.	2
Ent.	117 Mill. Entomology	2
Math.	101 Plane Trigonometry	3
Mill. Ind.	101 El. of Milling	2
Mill. Sc.	106 Military II	1
Phys. Ed.	103 Phys. Education M.	R
Mill. Ind.	118 Milling Ind. Seminar*....	R

Total..... 15

Total..... 17

SOPHOMORE

FIRST SEMESTER

Bot.	102 Gen. Botany	5
Chem.	122 Gen. Organic Chem.....	5
Mill. Ind.	103 Flow Sheets	2
Phys.	102 Gen. Physics I.....	4
Mill. Sc.	107 Military III	1
Phys. Ed.	103 Phys. Education M.	R
Mill. Ind.	118 Milling Ind. Seminar*....	R

Total..... 17

SECOND SEMESTER

Chem.	215 Quan. Analysis	5
Math.	110 Plane Anal. Geom.....	4
Mill. Ind.	109 Milling Practice I.....	3
Phys.	103 Gen. Physics II.....	4
Mill. Sc.	108 Military IV	1
Phys. Ed.	103 Phys. Education M.	R
Mill. Ind.	118 Milling Ind. Seminar*....	R

Total..... 17

JUNIOR

FIRST SEMESTER

Agron.	115 Mkt. Grading of Cereals..	3
Econ.	101 Economics I	3
Bact.	101 Gen. Microbiology	3
Math.	114 Calculus I	4
Mill. Ind.	205 Wht. and Flour Testing... 3	
Mill. Ind.	118 Milling Ind. Seminar*....	R
Engl.	169 English Proficiency	R

Total..... 16

SECOND SEMESTER

Chem.	240 Biochemistry	5
Mill. Ind.	212 Qual. of Wheat and Flour, 3	
Mill. Ind.	207 Exptl. Baking	4
Mill. Ind.	118 Milling Ind. Seminar*....	R
	Elective	5

Total..... 17

SENIOR

FIRST SEMESTER

Chem.	252 Chem. of Proteins.....	3
Chem.	260 Physical Chem. I.....	5
Comp.	131 Man and Cul. World I... 4	
Mill. Ind.	118 Milling Ind. Seminar*....	R
	Elective	5

Total..... 17

SECOND SEMESTER

Chem.	261 Phys. Chem. II Rec.....	3
Chem.	262 Phys. Chem. II Lab.....	2
Chem.	268 Colloid Chemistry	2
Comp.	132 Man and Cul. World II... 4	
Mill. Ind.	210 Adv. Wht. and Flour Tstg., 2	
Mill. Ind.	118 Milling Ind. Seminar*....	R
	Elective	3

Total..... 16

Number of hours required for graduation, 132.

* One meeting each month in addition to Agricultural Seminar (Gen. Agr. 103).

Curriculum in Milling Technology

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Chem.	101 Chemistry I	5	Chem.	103 Chemistry II Rec.....	3
Engl.	111 Writ. Comm. I.....	3	Engl.	112 Writ. Comm. II.....	2
Mach. Des.	101 Engg. Drawing	2	Speech	103 Oral Comm.....	2
Math.	104 College Algebra.....	3	Ent.	117 Mill. Entomology	2
Mill. Ind.	102 Survey of Mill. Ind.....	1	Mach. Des.	106 Desc. Geom.....	2
Mill. Sc.	105 Military I	1	Math.	101 Plane Trigonometry	3
Gen. Agr.	104 Freshman Assembly	R	Mill. Ind.	101 El. of Milling.....	2
Phys. Ed.	103 Phys. Education M.....	R	Mill. Sc.	106 Military II	1
Mill. Ind.	118 Milling Ind. Seminar*	R	Phys. Ed.	103 Phys. Education M.....	R
			Mill. Ind.	118 Milling Ind. Seminar*	R
Total.....		15	Total.....		17

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Bot.	102 Gen. Botany	5	Chem.	125 Organic Chem. (Agr.)....	3
Math.	110 Plane Anal. Geom.....	4	Mach. Des.	111 Mach. Drawing I.....	2
Mill. Ind.	103 Flow Sheets	2	Math.	114 Calculus I	4
Phys.	102 Gen. Physics I.....	4	Mill. Ind.	109 Mill. Practice I.....	3
Mill. Sc.	107 Military III	1	Phys.	103 Gen. Physics II.....	4
Phys. Ed.	103 Phys. Education M.....	R	Mill. Sc.	108 Military IV	1
Mill. Ind.	118 Milling Ind. Seminar*	R	Phys. Ed.	103 Phys. Education M.....	R
			Mill. Ind.	118 Milling Ind. Seminar*	R
Total.....		16	Total.....		17

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Agron.	115 Mkt. Grading of Cereals..	3	Ap. Mech.	202 Applied Mech.....	4
Econ.	101 Economics I.....	3	Elec. Engg.	102 Elec. Engg. C Rec.....	2
Mach. Des.	121 Mechanism	3	Elec. Engg.	106 Elec. Engg. C Lab.....	1
Math.	115 Calculus II	4	Mech. Engg.	120 Steam and Gas Engg. C..	2
Mill. Ind.	111 Mill. Practice II.....	3	Mill. Ind.	212 Qual. of Wht. and Flr....	3
Shop	166 Welding	1	Mill. Ind.	118 Milling Ind. Seminar*	R
Mill. Ind.	118 Milling Ind. Seminar*	R		Elective	5
Engl.	169 English Proficiency.....	R			
Total.....		17	Total.....		17

SENIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Ap. Mech.	212 Mech. of Matl. I Rec....	4	Comp.	132 Man and Cul. World II... 4	
Comp.	121 Man and Cul. World I... 4		Mech. Engg.	135 Air Conditioning A.....	3
Mill. Ind.	201 Milling Tech. I.....	2	Mill. Ind.	203 Flour Mill. Const.....	3
Shop	168 Gas Welding	1	Mill. Ind.	202 Milling Tech. II.....	2
Mill. Ind.	118 Milling Ind. Seminar*	R	Mill. Ind.	118 Milling Ind. Seminar*	R
	Elective	6		Elective	4
Total.....		17	Total.....		16

Number of hours required for graduation, 132.

* One meeting each month in addition to Agricultural Seminar (Gen. Agr. 103).

Curriculum in Soil Conservation

FRESHMAN

FIRST SEMESTER

	Course	Sem. Hrs.
Engl.	111 Writ. Comm. I.....	3
Geol.	103 Gen. Geology	3
Chem.	101 Chemistry I	5
An. Husb.	126 El. of An. Husb.....	2 and
An. Husb.	129 El. of An. Husb. Lab., 1 or	
Dairy Husb.	101 El. of Dairying.....	3
Mil. Sc.	105 Military I.....	1
Gen. Agr.	104 Freshman Assembly.....	R
Phys. Ed.	103 Phys. Education M.....	R
Gen. Agr.	103 Agr. Seminar*	R
Total.....		15

SECOND SEMESTER

	Course	Sem. Hrs.
Engl.	112 Writ. Comm. II.....	2
Speech	103 Oral Comm.	2
Bot.	102 Gen. Botany	5
Chem.	103 Chemistry II Rec.....	3
An. Husb.	126 El. of An. Husb.....	2 and
An. Husb.	129 El. of An. Husb. Lab., 1 or	
Dairy Husb.	101 El. of Dairying.....	3
Mil. Sc.	106 Military II	1
Phys. Ed.	103 Phys. Education M.....	R
Gen. Agr.	103 Agr. Seminar*	R
Total.....		16

SOPHOMORE

FIRST SEMESTER

Math.	103 Math. in Human Affairs..	3
Hort.	104 El. of Horticulture.....	2
Hort.	105 El. of Horticulture Lab...	1
Chem.	125 Org. Chemistry (Agr.)...	3
Agron.	130 Soils	4 or
Agron.	110 Farm Crops	3 and
Agron.	111 Farm Crops Lab.....	1
Poul. Husb.	104 Farm Poul. Prod. Rec....	2
Poul. Husb.	105 Farm Poul. Prod. Lab....	1
Mil. Sc.	107 Military III	1
Phys. Ed.	103 Phys. Education M.....	R
Gen. Agr.	103 Agr. Seminar*	R
Total.....		17

SECOND SEMESTER

Econ.	101 Economics I	3
An. Husb.	152 Prin. of Feeding.....	3
Agron.	130 Soils	4 or
Agron.	110 Farm Crops	3 and
Agron.	111 Farm Crops Lab.....	1
Zoöl.	105 General Zoölogy	5
Mil. Sc.	108 Military IV	1
Phys. Ed.	103 Phys. Education M.....	R
Gen. Agr.	103 Agr. Seminar*	R
Total.....		16

JUNIOR

FIRST SEMESTER

An. Husb.	221 Genetics	3 or
Bact.	105 Agr. Microbiology	3
Agr. Econ.	106 Farm Organization	3
Agron.	203 Pasture Imp. I.....	3
Mach. Des.	101 Engg. Drawing	2
Bot.	208 Plant Physiology I.....	3
Gen. Agr.	103 Agr. Seminar*	R
Engl.	169 English Proficiency.....	R
	Elective	2
Total.....		16

SECOND SEMESTER

An. Husb.	221 Genetics	3 or
Bact.	105 Agr. Microbiology.....	3
Ent.	203 Gen. Econ. Entomol.....	3
Ind. Jour.	160 Agr. Journalism.....	3
Agron.	244 Soil Conservation I.....	3
Gen. Agr.	103 Agr. Seminar*	R
	Elective	4
Total.....		16

SENIOR

FIRST SEMESTER

Agron.	231 Soil Conservation II.....	2
Hort.	114 Farm Forestry	3
Zoöl.	249 Wild Life Conservation..	3
Comp.	131 Man. and Cul. World I... 4	
Gen. Agr.	103 Agr. Seminar*	R
	Elective†	4
Total.....		16

SECOND SEMESTER

Agr. Engg.	240 Drainage, Erosion Con. and Irrig.	3
Agron.	235 Devel. and Classif. of Soils,	3
Comp.	132 Man and Cul. World II... 4	
Gen. Agr.	103 Agr. Seminar*	R
	Elective	6
Total.....		16

Suggested Electives

FIRST SEMESTER

Agron.	217 Weed Control	2
Agron.	211 Crop Ecology	2
Agron.	248 Soil Fertility	3
Physics	102 Gen. Physics I.....	4
Physics	146 Intro. Meteorology.....	3

SECOND SEMESTER

Agr. Econ.	156 Rural Sociology	3
Agr. Econ.	212 Conservation of Natural Resources	2
Physics	151 Photography	2

Number of hours required for graduation, 128.

* Four meetings each semester.

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

Electives must be approved by both the head of the Department of Agronomy and the Dean of the School of Agriculture.

Two-year Curriculum in Agriculture

FIRST YEAR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Engl.	111 Written Comm. I.....	3	Engl.	112 Written Comm. II.....	2
Hort.	104 El. of Hort. Rec.*.....	2 and	Speech	103 Oral Comm.....	2
Hort.	105 El. of Hort. Lab.*.....	1	Agron.	117 Soils and Fertilizers.....	3
Agron.	116 General Crops*.....	4	Dairy Husb.	101 El. of Dairying*.....	3
An. Husb.	126 El. of An. Husb.*.....	2 and	Poul. Husb.	104 Farm Poul. Prod. Rec.*..	2
An. Husb.	129 El. of An. Husb. Lab.*...	1	Poul. Husb.	105 Farm Poul. Prod. Lab.*..	1
Mil. Sc.	105 Military I.....	1	Mil. Sc.	106 Military II.....	1
Gen. Agr.	104 Freshman Assembly.....	R	Phys. Ed.	103 Phys. Education M.....	R
Phys. Ed.	103 Phys. Education M.....	R	Gen. Agr.	103 Agr. Seminar†.....	R
Gen. Agr.	103 Agr. Seminar†.....	R		Elective‡.....	2
	Elective‡.....	2			
Total.....			16	Total.....	

Total..... 16

SECOND YEAR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
An. Husb.	152 Prin. of Feeding (SC)....	3	Ent.	113 Farm Insects.....	3
Bot.	127 Plant Diseases.....	3	Agr. Ec.	106 Farm Organization.....	3
Econ.	101 Economics I.....	3	Agr. Engg.	108 Farm Machinery.....	3
Mil. Sc.	107 Military III.....	1	Mil. Sc.	108 Military IV.....	1
Phys. Ed.	103 Phys. Education M.....	R	Phys. Ed.	103 Phys. Education M.....	R
Gen. Agr.	103 Agr. Seminar†.....	R	Gen. Agr.	103 Agr. Seminar†.....	R
	Elective‡.....	6		Elective‡.....	6
Total.....			16	Total.....	

Total..... 16

*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 73) for suggestions in the selection of electives.

Agricultural Economics

Section of

Economics and Sociology

Professor MONTGOMERY
 Professor FARRELL
 Professor CALL
 Professor HOWE
 Professor HILL
 Professor HODGES
 Professor ANDERSON
 Associate Professor DOLL
 Associate Professor OTTO
 Associate Professor WILSON

Assistant Professor PINE
 Assistant Professor KELLEY
 Instructor MANUEL
 Instructor KOPPER
 Instructor HOOVER
 Instructor KOUDELE
 Temporary Research Assistant MCCOY
 Graduate Assistant RILEY
 Graduate Assistant THOMAS

Work in economics and sociology is offered in the schools of Agriculture and Arts and Sciences. The more general courses are listed in the Arts and Sciences section of the catalogue. Those courses listed here have a direct bearing on agriculture.

The investigational work in agricultural economics and rural sociology brings together the latest information concerning the business problems of agriculture and the problems of rural life. These data are used in the instructional work of the department. The student has an opportunity to learn of the factors and economic forces involved in farm management, marketing, taxation, land utilization, agricultural finance, rural life, and other closely related subjects.

COURSES IN AGRICULTURAL ECONOMICS

FOR UNDERGRADUATE CREDIT

106. 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. 101, Agron. 130, and An. Husb. 152. Hodges, Doll, Kopper.

112. Farm Accounting. 3 semester hours. Each semester.

Systems of farm records and accounts. Analysis and utilization of cost of production data. Two hours of recitation and three hours of laboratory a week. Prerequisite: Econ. 101. Pine, Hoover.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. Marketing of Farm Products. 3 semester hours. Each semester.

Marketing services and functions and price-making forces. Three hours of recitation a week. Prerequisite: Econ. 101. Wilson, Kelley, Koudele.

203. Grain Marketing. 3 semester hours. First 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. 101. Montgomery.

206A. 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. 106. Hodges.

211. Agricultural Industries. 2 semester hours. Second semester.

Study of geographic, economic, and social factors controlling the establishment and maintenance of the major agricultural industries. Offered in 1948-'49 and alternate years thereafter. Two hours of recitation a week. Prerequisite: Econ. 101; junior standing. Farrell.

- 212. Conservation of Natural Resources.** 2 semester hours. Second semester.
Offered in 1947-'48 and alternate years thereafter. Two hours of recitation a week. Prerequisite: Econ. 101; junior standing. Farrell.
- 213. 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. 101 or Comp. 112. Senior standing. Call.
- 215. 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. Staff.
- 218. Land Economics.** 3 semester hours. First semester.
Relation of population to land supply; land utilization, land tenure, and land valuation. Three hours of recitation a week. Prerequisite: Econ. 101. Anderson.
Land Law. See Hist. 276.
- 225. 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. 101. Otto.
- 226. Market Prices.** 3 semester hours. Second semester.
Explanation of price analysis and forces determining prices. Three hours of recitation a week. Prerequisite: Econ. 101. Doll.
- 227. Farmer Movements.** 3 semester hours. Second semester.
Principles underlying successful organization of farmers. Three hours of recitation a week. Prerequisite: Econ. 101. Hodges.
- 235. Livestock Marketing.** 3 semester hours. Second semester.
Livestock marketing services, functions, and prices. Three hours of recitation a week. Prerequisite: Econ. 101. Wilson.
- 240. Principles of Coöperation.** 3 semester hours. Second semester.
Principles underlying successful coöperative activities. Three hours of recitation a week. Prerequisite: Econ. 101. Montgomery.
- 251. Marketing of Dairy Products.** 3 semester hours. Second semester.
Factors affecting prices; dairy marketing organizations. Three hours of recitation a week. Prerequisite: Econ. 101. Kelley.
- 270. Agricultural Economic Problems.** Credit to be arranged. Each semester and summer.
Prerequisite: Consult instructor. Staff.
- 271. Economic Analysis and Interpretation.** 3 semester hours. First semester.
Three hours of recitation a week. Prerequisite: Econ. 101. Hodges.

FOR GRADUATE CREDIT

- 301. 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. Staff.

COURSES IN RURAL SOCIOLOGY**FOR UNDERGRADUATE CREDIT**

- 156. Rural Sociology.** 3 semester hours. First semester and summer.
Three hours of recitation a week. Preferably preceded by a course in sociology. Hill, Testerman.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 256. Advanced Rural Sociology.** 3 semester hours. Second semester.
A continuation of Econ. 156. Three hours of recitation a week. Prerequisite: Econ. 156. Hill.

FOR GRADUATE CREDIT

- 350. Research in Rural Sociology.** Credit to be arranged. Each semester and summer.
Prerequisite: Econ. 156. Hill.

Agronomy

Professor MYERS
Professor LAUDE
Professor ANDERSON
Professor HEYNE
Professor ZAHNLEY
Associate Professor OLSON
Associate Professor TATUM

Associate Professor DAVIS
Assistant Professor JONES
Assistant Professor SMITH
Instructor YOUNG
Instructor RAKE
Seed Analyst LAMBERT

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 excellent opportunities 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**

- 108. 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. 110, 111. Zahnley, Rake.
- 110. Farm Crops.** 3 semester hours. Each semester.
To be taken concurrently with Agronomy 111. Distribution, importance, characteristics and production of the common field crops. Three hours of recitation a week. Prerequisite: Bot. 102 or Comp. 112. Davis, Rake.
- 111. Farm Crops Laboratory.** 1 semester hour. Each semester.
To be taken concurrently with Agron. 110. Study of species and types of the principal field crops. Three hours of laboratory a week. Prerequisite: Bot. 102 or Comp. 112. Davis, Rake.
- 112. Seed Testing.** 2 semester hours. First semester.
Offered in 1948-49 and alternate years thereafter. Laboratory testing of seeds, including identification, purity, and germination. Six hours of laboratory a week. Prerequisite: Bot. 102 or Comp. 112. Lambert.

- 114. 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. 108. Zahnley, Davis.
- 115. Market Grading of Cereals.** 3 semester hours. First semester.
Offered in 1948-'49 and alternate years thereafter. Market grades of cereals and factors that influence them. One hour of recitation, six hours of laboratory. Prerequisite: Mill. Ind. 101. Zahnley, Rake.
- 116. 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. Davis.
- 117. 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. Young.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 202. Crop Improvement.** 3 semester hours. Second semester.
Principles of pure seed production and of breeding, selection and hybridization of field crops, including laboratory, greenhouse, and field methods of plant breeding. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 110 and An. Husb. 221. Heyne.
- 203. Pasture Improvement I.** 3 semester hours. Second semester.
Establishment, management, and utilization of tame and native pastures. Three hours of recitation a week. Prerequisite: Agron. 110 and 111. Anderson.
- 206. Principles of Agronomic Experimentation.** 3 semester hours. First semester.
Methods and principles of research and statistical analysis of experimental data. Offered in 1949-'50 and alternate years thereafter. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 110, 111 and 130. Laude.
- 208. Plant Genetics.** 3 semester hours. First semester.
An advanced course dealing with genetic principles as applied to plant species. Offered in 1948-'49 and alternate years thereafter. Three hours of recitation a week. Prerequisite: An. Husb. 221. Heyne.
- 209. Genetics Seminar.** 1 semester hour. Each semester.
Study and criticism of genetic experiments in plants and animals and of the biological and mathematical methods employed. One hour of recitation a week. Prerequisite: Consult instructor. Heyne.
- 210. Crop Problems.** Credit to be arranged. Each semester and summer.
Prerequisite: Agron. 110 and 130. Staff.
- 211. Crop Ecology.** 2 semester hours. Second semester.
A study of environmental conditions that influence growth of crops; natural and economic factors primarily responsible for the concentration of crop production in different regions and countries. Two hours of recitation a week. Prerequisite: Agron. 110, 111, and 130. Laude.
- 214. Advanced Crops.** 3 semester hours. First semester.
Growth habits, production methods, classification and grading of forage, fiber, sugar, root, and other crops not considered in previous courses. Offered in 1949-'50 and alternate years thereafter. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 110, 111. Zahnley.

- 216. Agronomic Literature.** 2 semester hours. First semester.
A review of recent developments in agronomy. Two hours of recitation a week. Prerequisite: Senior standing. Laude, Smith.
- 217. Weed Control.** 2 semester hours. Second semester.
Identification, growth habits, and methods of control of weeds. Two hours of recitation a week. Prerequisite: Agron. 110, 111. Zahnley.
- 218. Pasture Improvement I Laboratory.** 1 semester hour. Each semester.
To be taken concurrently with or subsequent to Agron. 203. 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: Agron. 110, 111. Anderson.
- 219. 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. 203, 218 and Bot. 218 or 225. Anderson.

FOR GRADUATE CREDIT

- 301. 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 thesis. Prerequisite: Consult instructor. Staff.

COURSES IN SOILS

FOR UNDERGRADUATE CREDIT

- 130. 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. 101, Geol. 103, or Comp. 102. Myers, Smith, Young.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 231. Soil Conservation II.** 2 semester hours. Each semester.
Principles of soil and water conservation, management and use under light rainfall conditions. Two hours of recitation a week. Prerequisite: Agron. 130. Jones.
- 235. 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. 130. Olson, Young.
- 236. Soil Problems.** Credit to be arranged. Each semester and summer.
Prerequisite depends on the problem assigned. Staff.
- 244. Soil Conservation I.** 3 semester hours. Each semester.
Erosion control, nitrogen maintenance, crop rotations, and use of lime, manure, and commercial fertilizer under humid conditions. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 110, 130. Jones.
- 249. Methods of Soil Investigation.** 2 semester hours. First semester.
Laboratory procedure for chemical and physical studies of soils. Six hours of laboratory a week. Prerequisite: Agron. 130, Chem. 211, 212, or 215, or concurrent registration.
- 250. 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. 130. Olson.

251. Soil Fertility. 3 semester hours. First semester.

Fundamentals of soil fertility. Three hours of recitation a week. Prerequisite: Agron. 130 and Botany 208. Smith.

252. 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. 130. Olson.

FOR GRADUATE CREDIT**331. 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 thesis. Prerequisite: Consult instructor. Staff.

Animal Husbandry

Professor WEBER

Professor McCAMPBELL

Professor COX

Professor AUBEL

Professor MACKINTOSH

Professor BELL

Professor IBSEN

Associate Professor PICKETT

Assistant Professor CATHCART

Instructor GOOD

Graduate Assistant EDGAR

Graduate Assistant HENRICKSON

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 1,767 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**126. Elements of Animal Husbandry.** 2 semester hours. Each semester and summer.

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. Bell.

129. Elements of Animal Husbandry Laboratory. 1 semester hour. Each semester and summer.

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

141. Principles of Livestock Selection. 3 semester hours. First semester.

One hour of recitation and six hours of laboratory a week. Prerequisite: An. Husb. 129. Origin, development, characteristics, and adaptation of different breeds of livestock, with special emphasis on the selection of breeding animals. Good.

144. 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. 141 or consent of instructor. Good.

146. 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. 144. Good.

- 152. 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. 125 or equivalent. Cathcart.
- 154. Beef Cattle Production.** 3 semester hours. Second semester and summer.
Three hours of recitation a week. Prerequisite: An. Husb. 152. Weber.
- 157. Swine Production.** 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: An. Husb. 152. Aubel.
- 160. Sheep Production.** 3 semester hours. First semester.
Three hours of recitation a week. Prerequisite: An. Husb. 152. Cox.
- 165. Horse Production.** 2 semester hours. First semester.
Two hours of recitation a week. Prerequisite: An. Husb. 152. Cathcart.
- 168. Meats.** 3 semester hours. Each semester.
Killing, dressing, cutting, curing, judging, selecting, and grading meats. Two hours of recitation and three hours of laboratory a week. Prerequisite: An. Husb. 129. Mackintosh.
- 171. 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. 152. Staff.
- 176. 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. Prerequisite: Foods II, 107. Mackintosh.
- 188. 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. Staff.
- 190. Livestock Feeding.** 3 semester hours. Second semester.
A resumé of digestion and nutrition dealing primarily with practical feeding. Open only to students in the Curriculum in Veterinary Medicine. Three hours of recitation a week. Prerequisite: Chem. 122 and Physiol. 222. McCampbell.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 221. Genetics.** 3 semester hours. Each semester and summer.
Variation, Mendelian inheritance, and related subjects. Three hours of recitation a week. Prerequisite: Zoöl. 105 or Bot. 102. Ibsen.
- 225. 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. 221. Ibsen.
- 226. 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. 221. Cox.
- 227. Genetics Seminar.** 1 semester hour. Each semester.
Genetics experiments in plants and animals, the biological and mathematical methods employed, and the validity of conclusions drawn. One hour of recitation a week. Prerequisite: Consult instructors. Nabours, Ibsen, Reitz, Warren.

- 229. Research in Genetics.** Credit to be arranged. Each semester.
Problems in which small mammals are used as the experimental animals.
Prerequisite: An. Husb. 225. Ibsen.
- 234. 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. 152. Weber.
- 244. 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. 152. Cox.
- 245. Animal Husbandry Problems.** Credit to be arranged. Each semester and summer.
Prerequisite: An. Husb. 152 and other courses; consult instructor. Staff.
- 260. Livestock and Meat Industry.** 3 semester hours. Second semester.
The livestock and meat industry; its organization, operation, and development; relation to the public. Lectures, assigned reading, and reports. Three hours of recitation a week. Prerequisite: An. Husb. 126 and 152. McCampbell.
- 268. 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. 152 and 221. Cox, Ibsen, Mackintosh.
- 275. 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. 168. Mackintosh.
- 290. 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. 129, Agron. 111, Poult. 101, Dairy Husb. 101, and one year's teaching experience. Staff.

FOR GRADUATE CREDIT

- 301. 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. Staff.
- 311. 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. 160. Cox.

Dairy Husbandry

Professor ATKESON
Professor MARTIN
Professor FOUNTAINE

Associate Professor BECK
Associate Professor CHILSON
Assistant Professor BENNETT

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 problems of milk production and manufacturing of dairy products requires technically trained men. Men who have taken courses in bacteriology, chemistry, mathematics, accounting, and engineering and commercial subjects as a background for the dairy courses have a decided advantage.

The Department of Dairy Husbandry offers instruction in dairy production, which includes dairy cattle feeding, management, breeding, milk production, and judging. Instruction in the dairy products field includes the manufacture of butter, cheese, ice cream, condensed milk, and market milk.

A purebred herd of Holstein, Guernsey, Jersey, and Ayrshire cattle owned by the College provides animals for dairy judging classes and for feeding and breeding experiments. The department also operates a dairy products processing plant where students may get actual experience in the processing of dairy products.

FOR UNDERGRADUATE CREDIT

101. 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. Beck, Chilson, Bennett.

104. Dairy Cattle Judging for Veterinary Students. 1 semester hour. Second semester.

Three hours of laboratory a week. Fountaine.

105. Dairy Cattle Judging. 2 semester hours. Second semester.

Six hours of laboratory a week. Prerequisite: Dairy Husb. 101. Beck.

106. Dairy Inspection. 2 semester hours. First semester.

Advanced work in testing dairy products and testing for adulteration; practice in use of dairy farm and milk plant score cards; state and city ordinances; duties of city, state, and government inspectors. One hour of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 101. Chilson.

108. Milk Production. 3 semester hours. Second 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. 101 and An. Husb. 152 or 190. Atkeson.

110. 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 1949-'50 and alternate years thereafter. Two hours of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 101 and Bact. 101. Martin.

116. Market Milk. 3 semester hours. Second semester.

Classes of market milk; clean milk production; relation of clean milk to producer, dealer, and consumer; milk inspection, score cards, and milk and cream contests; milk plants. Actual processing of market milk and cream. Two hours of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 101 and Bact. 101. Chilson.

119. Dairy Inspection for Veterinary Students. 2 semester hours. Second 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. Chilson.

120. Advanced Dairy Cattle Judging. 1 semester hour. First semester.

Continuation of Dairy Husb. 105; visits to some of the best farms in the state. Three hours of laboratory a week. Prerequisite: Dairy Husb. 105. Beck.

128. 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 1948-'49 and alternate years thereafter. Two hours of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 101 and Bact. 101. Martin.

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

Theory and practice in the manufacture of frozen dairy foods. Offered in 1948-'49 and alternate years thereafter. Two hours of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 106 and Bact. 101. Martin.

135. Cheese Making. 3 semester hours. Second semester.

Theory and practice in the manufacture of various types of cheese. Offered in 1949-'50 and alternate years thereafter. Two hours of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 106 and Bact. 101. Martin.

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

Three hours of laboratory a week. Prerequisite: Dairy Husb. 101. Chilson.

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

Three hours of laboratory a week. Continuation of Dairy Husb. 140. Chilson.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. 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. 101, 106, and 108. Atkeson.

207. Feeding and Management of Dairy Cattle. 3 semester hours. Second semester.

Includes fitting of animals for show and sale. Offered in 1948-'49 and alternate years thereafter. Two hours of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 108 and Animal Husb. 152. Fountaine.

214. Dairy Cattle Breeding and Selection. 3 semester hours. Second 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 1949-'50 and alternate years thereafter. Beck.

216. Dairy Production Problems. Credit to be arranged. Each semester and summer.

Prerequisite: Dairy Husb. 101, 105, 108, and An. Husb. 152. Atkeson, Fountaine.

221. Dairy Manufacturing Problems. Credit to be arranged. Each semester.

Prerequisite: Dairy Husb. 101, 106, and 110. Martin.

226. Dairy Plant Management. 2 semester hours. First semester.

Offered in 1948-'49 and alternate years thereafter. Two hours of recitation a week. Prerequisite: Dairy Husb. 110. Martin.

230. Technical Control of Dairy Products. 2 semester hours. Second semester.

Coördination 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. Prerequisite: Senior standing in dairy manufacturing, or graduate standing. Required of all students pursuing the Curriculum in Dairy Manufacturing. Chilson.

FOR GRADUATE CREDIT

- 301. 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 a master's thesis. Prerequisite: Consult instructor. Atkeson, Martin, Fountaine, Beck.

Dairy Mechanics. See Agr. Engg. 202.

Dairy Bacteriology. See Bact. 212.

Dairy Chemistry. See Chem. 275.

Marketing of Dairy Products. See Agr. Econ. 251.

General Agriculture

Dean THROCKMORTON

Professor CALL

Associate Professor MULLEN

- 103. Agricultural Seminar.** Required. Each semester. Four meetings each semester. Programs presented by students, members of faculty, invited speakers.
- 104. Freshman Assembly.** Required of freshmen. First semester. A survey of fields of opportunity in agriculture. Throckmorton, Call, Mullen, departmental heads.
- 109. Agricultural Student Journalism.** 1 semester hour. Each semester. Maximum, 4 semester hours of credit.

Horticulture

Professor PICKETT

Professor Emeritus BARNETT

Professor QUINLAN

Professor FILINGER

Associate Professor BATES

Assistant Professor ABMEYER

Assistant Professor CAMPBELL

Assistant Professor KEEN

Assistant Professor WILLIS

Assistant Professor LOBENSTEIN

Research Assistant ———

Graduate Assistant JANNE

Graduate Assistant ———

Instruction offered in the Department of Horticulture includes general horticulture, landscape design, vegetable gardening, floriculture, pomology, and forestry.

Thorough preparation for those interested in professional or commercial fruit growing or vegetable growing is provided through available groups of electives in the Curriculum in Agriculture.

The four-year 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 four-year Curriculum in Floriculture and Ornamental Horticulture is intended for those who wish to become florists or nurserymen with emphasis on the production and use of landscape materials.

The horticultural farm, the campus, the greenhouses, and the research laboratories provide plant materials and equipment for instructional and research use.

COURSES IN GENERAL HORTICULTURE

FOR UNDERGRADUATE CREDIT

- 101. 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. 102. Keen.
- 104. 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. Staff.

- 105. Elements of Horticulture Laboratory.** 1 semester hour. Each semester. Study of horticultural plants, including identification, propagation, pruning, spraying, transplanting, cover crops, fruit varieties, etc. Three hours of laboratory a week. To be taken concurrently with Hort. 104, if possible. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 207. 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. Campbell.
- 208. 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 1948-'49 and alternate years thereafter. Two hours of recitation a week. Filinger.
- 211. 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. Keen.
- 235. 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. Pickett.
- 244. Horticultural Problems.** Credit to be arranged. Each semester and summer. Investigations and reports in pomology; olericulture; floriculture; forestry; or landscape design. Prerequisite: Consult instructor. Staff.

FOR GRADUATE CREDIT

- 301. Research in Horticulture.** Credit to be arranged. Each semester and summer. Problems in pomology, olericulture, floriculture, or landscape design. Data collected may form basis for a master's thesis. Prerequisite: Consult instructor. Staff.

COURSES IN FORESTRY

FOR UNDERGRADUATE CREDIT

- 114. Farm Forestry.** 3 semester hours. First semester. Management and utilization of woodlots and tree belts. Two hours of recitation and three hours of laboratory a week. Prerequisite: Bot. 102. Pickett.
- 119. Silviculture.** 3 semester hours. First semester. Ecology of the forest; regions, types. Two hours of recitation and three hours of laboratory a week. Prerequisite: Bot. 102. Pickett.
- 120. Forest Nursery Practice.** 3 semester hours. First semester. Tree seed; planting practice; regeneration. Two hours of recitation and three hours of laboratory a week. Prerequisite: Bot. 102. Pickett.

COURSES IN LANDSCAPE DESIGN**FOR UNDERGRADUATE CREDIT**

- 102. 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. 102. Quinlan, Keen.
- 103. 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. 102. Quinlan, Keen.
- 125. 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. Quinlan.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 223. Civic Art.** 3 semester hours. Second semester.
Growth and development of cities and towns; land subdivision. Offered in 1949-'50 and alternate years thereafter. One hour of recitation and six hours of laboratory a week. Prerequisite: Hort. 243. Quinlan.
- 227. Landscape Construction.** 3 semester hours. First semester.
Topographic maps; grading plans, structures, sewerage, water supply, lighting, and drainage on the private estate. Offered in 1948-'49 and alternate years thereafter. Two hours of recitation and three hours of laboratory a week. Quinlan.
- 228. Planting Design.** 2 semester hours. Second semester.
The use of plants in landscape composition. Perspective and elevational sketches and plans. Offered in 1948-'49 and alternate years thereafter. Six hours of laboratory a week. Prerequisite: Hort. 103. Quinlan.
- 238. Landscape Design I.** 3 semester hours. First semester.
Elementary designing of the home grounds; country estates; special gardens; sketch problems. One hour of recitation and six hours of laboratory a week. Prerequisite: Hort. 103 and 125. Quinlan.
- 243. 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 1949-'50 and alternate years thereafter. Prerequisite: Hort. 125. Quinlan.
- 246. Landscape Design II.** 3 semester hours. Second semester.
Advanced course in designing of large parks, cemeteries, golf courses, educational groups; and high-class land subdivisions. Sketch problems. One hour of recitation and six hours of laboratory a week. Prerequisite: Hort. 238 and 243. Quinlan.

COURSES IN POMOLOGY**FOR UNDERGRADUATE CREDIT**

- 108. Small Fruits.** 2 semester hours. Second semester.
Growing, harvesting, and marketing small fruits. Two hours of recitation a week. Prerequisite: Bot. 102. Campbell.
- 111. 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. Prerequisite: Hort. 104 and 105. Flinger, Campbell.

112. 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. Filing.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. 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. Prerequisite: Hort. 111. Filing.

205. Advanced Pomology. 3 semester hours. First semester.

A course in the fundamentals of orcharding, advanced judging. Two hours of recitation and three hours of laboratory a week. Prerequisite: Hort. 111. Pickett, Campbell.

COURSES IN VEGETABLE GARDENING AND FLORICULTURE

FOR UNDERGRADUATE CREDIT

127. Greenhouse Construction and Management. 3 semester hours. Second semester.

Greenhouse maintenance, heating, ventilation, soils, and water. Three hours of recitation a week. Willis.

133. 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. Lobenstein.

135. Floral Arrangement I. 2 semester hours. First semester.

The commercial flower shop, source of supplies, sales, arrangement of flowers for various occasions. Consult instructor for prerequisites. One hour of recitation and three hours of laboratory a week. Willis.

136. Floral Arrangement II. 2 semester hours. Second semester.

Care of cut flowers, packing, delivery, and arrangements. Continuation of Hort. 135. One hour of recitation and three hours of laboratory a week. Consult instructor for prerequisites. Willis.

140. 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. Willis.

141. Commercial Floriculture II. 3 semester hours. Second semester.

Two hours of recitation and three hours of laboratory a week. Continuation of Hort. 140. Prerequisite: Hort. 140. Willis.

FOR GRADUATE AND UNDERGRADUATE CREDIT

210. 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. Prerequisite: Agron. 130 and Hort. 133. Lobenstein.

214. Horticultural 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. Prerequisite: Agron. 130 and Hort. 133. Lobenstein.

Milling Industry

Professor SHELLENBERGER
 Professor SWANSON
 Professor MILNER
 Professor KELLER
 Associate Professor PENCE

Associate Professor JOHNSON
 Assistant Professor WARD
 Assistant Professor MILLER
 Assistant Professor WICHSE
 Instructor FLEMING

The Department of Milling Industry offers courses to prepare students for work in flour-milling operation, products control, or administration.

The department has a flour mill of 130 sacks daily capacity, equipped as a commercial plant and also with many features designed for research and instruction. For the study of elements of milling and special problems in milling technology, there are several units of experimental mills.

The baking laboratory has dough mixers, proofing cabinets, ovens, and other apparatus needed for baking tests in elementary and advanced work. The chemical laboratory has the usual chemical apparatus for wheat and flour testing, and special equipment for work on advanced problems.

FOR UNDERGRADUATE CREDIT

101. **Elements of Milling.** 2 semester hours. Each semester.
 Elementary milling of wheat. One hour of lecture, two hours of laboratory, and one hour of unassembled laboratory a week. Ward, Fleming.
102. **Survey of Milling Industry.** 1 semester hour. First semester.
 A general survey of the milling industry field. One hour of lecture a week. Shellenberger.
103. **Flow Sheets.** 2 semester hours. First semester.
 The construction and assembling of a flow sheet. Six hours of laboratory a week. Prerequisite: Mill. Ind. 101 and Mach. Des. 101. Pence.
109. **Milling Practice I.** 3 semester hours. Each semester.
 A study of milling machinery and methods of checking flour mill operation. One hour of lecture and six hours of laboratory a week. Prerequisite: Mill. Ind. 103. Ward, Keller.
111. **Milling Practice II.** 3 semester hours. First semester.
 A study of roll and bolting surfaces, millwright work, and controls of flour mill operation. One hour of lecture and six hours of laboratory a week. Prerequisite: Mill. Ind. 109. Pence, Keller.
118. **Milling Industry Seminar.** Required. Each semester.
 Discussion of problems of general interest to all students in milling industry. One lecture each in milling and in agriculture seminar a month. Ward.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. **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. 109. Pence, Ward.
202. **Milling Technology II.** 2 semester hours. Second semester.
 A study of the physical, chemical, and engineering principles used in control of flour mill operation. Six hours of laboratory a week. Prerequisite: Mill. Ind. 111. Pence.
203. **Flour Mill Construction.** 3 semester hours. Second semester.
 A study of mill flows and the design of a flour mill. Eight hours of laboratory and one hour of unassembled laboratory a week. Prerequisite: Mill. Ind. 111, Mach. Des. 111 and 121. Pence.
205. **Wheat and Flour Testing.** 3 semester hours. First semester.
 Special quantitative tests of cereals and their products; methods of analysis and interpretation of results. Nine hours of laboratory a week. Prerequisite: Chem. 122 and 215. Milner, Miller.

- 207. Experimental Baking.** 4 semester hours. Second semester.
Practice in baking tests; comparison of methods, formulas and flours; interpretation of results. One hour of lecture, six hours of laboratory, and three hours of unassembled laboratory a week. Prerequisite: Chem. 125. Johnson.
- 208. 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 a week. Prerequisite: Chem. 122 and 240. Milner.
- 210. Advanced Wheat and Flour Testing.** 1 to 5 semester hours. Each semester.
Physical and chemical methods used in testing wheat and flour. Three hours of laboratory a week for each semester credit. Prerequisite: Mill. Ind. 205. Milner.
- 212. 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 of lecture and recitation a week. Prerequisite: Chem. 122 or 125. Shellenberger.
- 214. Milling Industry Problems.** Credit to be arranged. Each semester and summer.
Prerequisite: Mill. Ind. 212 or such other courses as are necessary for the problem selected. Staff.

FOR GRADUATE CREDIT

- 301. 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.
- 318. Graduate Seminar in Milling Industry.** 1 semester hour. Each semester.
Discussion of technical problems in the cereal industry. Required of all graduate students in milling industry. One hour of recitation a week. Milner.

Poultry Husbandry

Professor PAYNE
Professor WARREN
Associate Professor AVERY

Assistant Professor GISH
Farm Superintendent HALL

The poultry plant, occupying about thirty 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. Payne.
- 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. Avery, Gish.
- 109. 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 and 105. Avery.

116. 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 1949-'50 and alternate years thereafter. Prerequisite: Poul. Husb. 104 and 105. Gish.

120. Artificial Incubation and Brooding. 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 and 105, Zoöl. 105. Avery.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. 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. Offered 1947-'48 and alternate years thereafter. Prerequisite: Poul. Husb. 104 and 105, An. Husb. 152. Gish.

204. Poultry Genetics. 3 semester hours. Second semester.

Special reference to the bearing of genetics on practical poultry breeding problems. Three hours of recitation a week. Prerequisite: An. Husb. 221. Warren.

206. Poultry Problems. Credit to be arranged. Each semester.

Investigation of a practical nature which may be continued into the next semester if necessary. One to three hours a week by appointment. Prerequisite: Poul. Husb. 104 and 105; consult instructors. Payne, Warren.

210. Genetic Seminar. 1 semester hour. Each semester.

Genetic experiments in plants and animals; the biological and mathematical methods employed; and the validity of conclusions drawn. One hour in classroom a week. Prerequisite: Consult Warren.

216. 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 and 105; senior or graduate standing. Payne.

220. 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 and 105. Warren.

FOR GRADUATE CREDIT

301. 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, 109, 116, and 120; consult instructors. Warren, Payne.

Advanced (Poultry) Farm Organization. See Agr. Econ. 206A.

Poultry Sanitation. See Bact. 218.

Special (Poultry) Anatomy. See Anat. 202.

The Agricultural Experiment Station

RAY IAMS THROCKMORTON, *Director*

LELAND EVERETT CALL, *Director Emeritus*

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 \$50,000 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 cooperation in research on regional and national levels. The amount of funds directly available to Kansas was approximately \$34,000 for the first fiscal year. Provision is made in the act for this sum to be increased annually for a period of five years. In addition some money 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, then, a research agency organized to ascertain facts of value to agriculture. It devotes its attention solely to the solution of problems related to the farm and the farm home.

Farms, livestock, laboratories, and general equipment of the College are all directly available for the use of the station.

More than 175 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, Kan. Special inquiries should be directed, as far as possible, to the head of the department having charge of the matter concerning which information is desired.

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 north-western 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 WHITEMORE BABCOCK, *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 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.

Curriculum in Arts and Sciences

The purpose of this curriculum is to provide for the needs of two groups of students. The freshman year is prescribed for both groups. Option A offers opportunity for major work in English, languages, speech (including dramatics and radio), and art. Option B includes major work in economics, sociology, psychology, personnel management and guidance, history and government. In both options there is opportunity for those who wish a diversified major in the natural sciences. 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 Biological Science

This curriculum provides for those who wish major work in bacteriology, botany, entomology, and zoölogy. 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 Business Administration

The Curriculum in Business Administration is designed to prepare men and women for citizenship and business. The option in accounting provides a sequence of courses which includes all the academic work necessary for the examinations for a Certified Public Accountant.

Curriculum in Citizenship Education

The purpose of the Curriculum in Citizenship Education is to develop active, responsible citizens who have a sound understanding of the basic issues in our free society. To promote this understanding, the curriculum offers a liberal education program.

The courses are designed both for students planning to teach social studies in high schools and for those wishing a sound, liberal education. Citizenship courses study the important books and documents which have influenced and shaped our thinking about freedom and responsibility, democracy in America, law, justice, political economy, and education. Work in all the major arts and science fields is included, and all four of the comprehensive courses are required. The first two years introduce the student to all fields of knowledge and provide the basis for selecting a vocational or special field for later study, if the student is undecided when he enters College. The student must take at least a specified minimum of advanced courses in history, government and economics in the last two years. Those planning to teach must select courses in education necessary to qualify for the state teachers' certificates. Other work in the field of the student's choice is substituted for those not planning to teach.

Curriculum in Industrial Chemistry

Demand of students for a curriculum planned especially to give chemical training is such that a formulation has been made to meet the needs of those 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 Industrial 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 industrial activity, and to write acceptably. It offers fundamental studies of literary, social, and scientific character. The student must select subjects in agriculture, mechanic arts, applied science, or home economics, depending on the portion of the field of industrial journalism which he desires to enter. 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 Industrial 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.

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 subject 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 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 Arts and Sciences

After the freshman year, the curriculum follows two optional plans, Students must decide, on entering the curriculum, which of the two plans is to be followed.

Option A is for students who intend to major in English, speech, dramatics, modern languages, or art. Students who follow this option are required to attain proficiency equivalent to twelve hours in a modern language, and should start their work in this field in the freshman year.

Option B is for students who intend to major in economics, psychology, history and government, or sociology.

Students who wish to major in science (general) may follow either option.

All students are required to take a laboratory course in physical or biological science subsequently and in addition to the required comprehensives.

Option A

FRESHMAN

FIRST SEMESTER

	Course	Sem. Hrs.
Engl.	111 Writ. Comm. I.....	3
Sp.	103 Oral Communication.....	2
Comp.	101 Man's Physical World I..	4
Hist.	106 Surv. of Civilization I....	3
	Modern Language.....	3
Mil. Sc.	105 Military I	1
	Physical Education.....	R

Total..... 15 or 16

SECOND SEMESTER

	Course	Sem. Hrs.
Engl.	112 Writ. Comm. II.....	2
Comp.	102 Man's Physical World II..	4
Hist.	107 Surv. of Civilization II...	3
Psych.	184 General Psychology	3
	Modern Language	3
Mil. Sc.	106 Military II	1
	Physical Education.....	R

Total..... 15 or 16

SOPHOMORE

FIRST SEMESTER

Comp.	111 Biol. in Rel. to Man I....	4
Engl.	170 Engl. Literature I.....	3
	Modern Language	3
	Elective and major.....	5
Mil. Sc.	107 Military III	1
	Physical Education.....	R

Total..... 15 or 16

SECOND SEMESTER

Comp.	112 Biol. in Rel. to Man II...	4
Engl.	171 Engl. Literature II.....	3
	Modern Language	3
Math.	103 Math. of Human Affairs...	3
	Elective and major.....	2
Mil. Sc.	108 Military IV	1
	Physical Education.....	R

Total..... 15 or 16

JUNIOR

FIRST SEMESTER

Comp.	121 Man and Social World I..	4
Engl.	173 American Literature I....	3
	Elective and Major*.....	8
Engl.	169 Engl. Proficiency.....	R

Total..... 15

SECOND SEMESTER

Comp.	122 Man and Social World II,	4
Engl.	174 American Literature II....	3
Mus.	131 Hist. and App. of Mus. II,	2
	Elective and Major.....	6

Total..... 15

SENIOR

FIRST SEMESTER

Arch.	125 App. of Architecture....	3 or
Arch.	179 Hist. of Pntng. and Sculpt.,	3
	Elective and Major.....	12

Total..... 15

SECOND SEMESTER

Elective and Major..... 15

Total..... 15

Majors, including curricular requirements:

English: 30 hours subsequent to Engl. 111 and 112.

Speech (radio, dramatics): 27 hours subsequent to Sp. 103.

Language: 30 hours.

Art: 30 hours.

Science (biological and physical): 30 hours.

Music: 30 hours.

* To include required science elective.

Curriculum in Arts and Sciences

Option B

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Engl.	111 Writ. Comm. I.....	3	Engl.	112 Writ. Comm. II.....	2
Sp.	103 Oral Communication.....	2	Comp.	102 Man's Physical World II..	4
Comp.	101 Man's Physical World I..	4	Hist.	107 Surv. of Civilization II..	3
Hist.	106 Surv. of Civilization I....	3	Psych.	184 General Psychology.....	3
	Option	3		Option	3
Mil. Sc.	105 Military I	1	Mil. Sc.	106 Military II	1
	Physical Education.....	R		Physical Education.....	R
Total..... 15 or 16			Total..... 15 or 16		

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
Comp.	111 Biol. in Rel. to Man I....	4	Comp.	112 Biol. in Rel. to Man	4
Econ.	101 Economics I	3	Econ.	104 Economics II	3
Engl.	170 English Literature I.....	3	Soc.	151 Sociology	3
	American History Elect....	3		History Elective	3
	Option or elective.....	2		Option	2
Mil. Sc.	107 Military III	1	Mil. Sc.	108 Military IV	1
	Physical Education.....	R		Physical Education.....	R
Total..... 15 or 16			Total..... 15 or 16		

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
Hist.	151 American Government....	3	Engl.	173 American Literature I....	3
	Economics Elective	3		Sociology Elective	3
Math.	103 Math. of Human Affairs..	3		Elective and Major*.....	9
	Elective and Major.....	6			
Engl.	169 English Proficiency.....	R			
Total..... 15			Total 15		

SENIOR

FIRST SEMESTER	SECOND SEMESTER
Elective and Major..... 15	Elective and Major..... 15

Option: 8 to 10 hours in a modern language, psychology, philosophy, speech, geography, or history.

Majors:

Economics: Math. 126; Hist. 105; Sp. 108, and 15 hours of economics in addition to curricular requirements.

Psychology: Econ. 258; Hist. 105 and 125; Educ. 223, 254, 260, and 270, and 12 additional hours in psychology in addition to curricular requirements.

History and Government: 12 hours in addition to curricular requirements.

Sociology: 12 hours in addition to curricular requirements.

Science (biological and physical): 30 hours including curricular requirements.

* To include required science elective.

Curriculum in Biological Science

FRESHMAN

FIRST SEMESTER

	<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	111 Written Comm. I.....	3
Comp.	131 Man and Cul. World I... 4	
Chem.	101 Chemistry I 5 or	
Chem.	110 General Chemistry 5	
	Elective and Option..... 3	
Mil. Sc.	105 Military I 1	
	Physical Education R	
Total	.....	15 or 16

SECOND SEMESTER

	<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	112 Written Comm. II.....	2
Sp.	103 Oral Communication.....	2
Comp.	132 Man and Cul. World II.. 4	
Chem.	122 Gen. Organic Chemistry... 5	
	Elective and Option..... 2	
Mil. Sc.	106 Military II 1	
	Physical Education R	
Total	.....	15 or 16

SOPHOMORE

FIRST SEMESTER

Comp.	121 Man and Social World I..	4
Bot.	102 General Botany	5
Zoöl.	105 General Zoölogy	5
	Elective and option..... 1	
Mil. Sc.	107 Military III	1
	Physical Education R	
Total	.....	15 or 16

SECOND SEMESTER

Comp.	122 Man and Social World II.	4
Bact.	102 Bacteriology	5
Ent.	203 Gen. Econ. Entomology...	3
Geol.	140 Principles of Geography..	3
Mil. Sc.	108 Military IV	1
	Physical Education R	
Total	.....	15 or 16

JUNIOR

FIRST SEMESTER

An. Husb.	221 Genetics	3
	Elective, option, major... 12	
Engl.	169 English Proficiency.....	R
Total	.....	15

SECOND SEMESTER

Elective, option, major...	15
Total	 15

SENIOR

FIRST SEMESTER

Elective, option, major...	15
Total	 15

SECOND SEMESTER

Elective, option, major...	15
Total	 15

Option and Majors:

Bacteriology: Math. 101, 104; Chem. 103, 104, 215, 227, and 240; Phys. 102, 103; Bact. 206, 222 or 240, 229, and 13 additional hours of bacteriology.

Botany: 19 hours in 200 group.

Entomology: Math. 101, 104, and 20 hours in the 200 group in entomology.

Medical Technician: See Adaptation of Curriculum.

Physiological Botany: Math. 101, 104, and 19 hours in the 200 group in botany.

Physiology: Math. 101, 104, and 19 hours in the 200 group in physiology and zoölogy.

Premedical: See Adaptation of Curriculum.

Zoölogy: 19 hours in 200 group.

Adaptation of Curriculum

in Biological Science for Medical Technicians

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Engl.	111 Written Comm. I.....	3	Engl.	112 Written Comm. II.....	2
Comp.	131 Man and Cul. World I... 4		Comp.	132 Man and Cul. World II... 4	
Chem.	101 Chemistry I.....	5	Chem.	103 Chemistry II Rec.....	3
Math.	104 College Algebra.....	3	Chem.	104 Chemistry II Lab.....	2
Mil. Sc.	105 Military I.....	1	Math.	101 Plane Trig.....	3
	Physical Education	R	Sp.	103 Oral Communication.....	2
			Mil. Sc.	106 Military II	1
				Physical Education	R
Total		15 or 16	Total.....		16 or 17

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Chem.	227 Organic Chemistry.....	5	Chem.	215 Quant. Analysis	4
Phys.	102 General Physics I.....	4	Phys.	103 General Physics.....	4
Zoöl.	105 General Zoölogy.....	5	Bact.	102 Bacteriology	5
	Elective	1	Geol.	140 Prin. of Geography.....	3
Mil. Sc.	107 Military III.....	1	Mil. Sc.	108 Military IV	1
	Physical Education	R		Physical Education	R
Total		15 or 16	Total.....		16 or 17

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Comp.	121 Man and Social World I.. 4		Comp.	122 Man and Social World II, 4	
Bact.	206 Bact. of Human Diseases.. 5		Bact.	229 Immunology	5
Chem.	240 Biochemistry	5	Zoöl.	221 Human Physiology	4
Bact.	225 Bact. Technic.....	3	Zoöl.	228 Human Parasit. Rec.....	3
Engl.	169 English Proficiency.....	R	Zoöl.	229 Human Parasit. Lab.....	1
Total		17	Total.....		17

SENIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Phys.	151 Photography	2	Bot.	272 Bot. for Med. Tech.....	2
Zoöl	206 Zoöl. Technic.....	2	Phys.	205 Applied X-Ray.....	3
	Elective	11	Zoöl.	123 Human Anatomy.....	5
				Elective	5
Total		15	Total.....		15

Adaptation of Curriculum in Biological Science for Premedicine

FRESHMAN

FIRST SEMESTER

	<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	111 Written Comm. I.....	3
Comp.	131 Man and Cul. World I....	4
Chem.	101 Chemistry I.....	5
Math.	104 College Algebra.....	3
Mil. Sc.	105 Military I.....	1
	Physical Education.....	R

Total..... 15 or 16

SECOND SEMESTER

	<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	112 Written Comm. II.....	2
Sp.	103 Oral Communication.....	2
Comp.	132 Man and Cul. World II....	4
Chem.	103 Chemistry II Rec.....	3
Chem.	104 Chemistry II Lab.....	2
Math.	101 Plane Trigonometry.....	3
Mil. Sc.	106 Military II.....	1
	Physical Education.....	R

Total..... 16 or 17

SOPHOMORE

FIRST SEMESTER

Comp.	121 Man and Social World I..	4
Zoöl.	105 General Zoölogy	5
Phys.	102 General Physics I.....	4
Mod. Lang.	101 German I.....	3
Mil. Sc.	107 Military III.....	1
	Physical Education.....	R

Total..... 16 or 17

SECOND SEMESTER

Comp.	122 Man and Social World II,	4
Zoöl.	246 Comp. Anatomy.....	4
Phys.	103 General Physics II.....	4
Mod. Lang.	102 German II	3
Mil. Sc.	108 Military IV	1
	Physical Education.....	R

Total..... 15 or 16

JUNIOR

FIRST SEMESTER

Mod. Lang.	137 Sci. German.....	4
Chem.	227 Organic Chemistry.....	5
An. Husb.	221 Genetics	3
Engl.	173 Amer. Literature I.....	3
Engl.	169 English Proficiency.....	R

Total..... 15

SECOND SEMESTER

Chem.	215 Quant. Anal.	4
Zoöl.	219 Embryology	4
Ent.	203 Gen. Econ. Ent.....	3
Psych.	184 Gen. Psychology.....	3
	Elective	1

Total..... 15

SENIOR

FIRST SEMESTER

Bot.	102 General Botany.....	5
	Elective	9

Total..... 14

SECOND SEMESTER

Bact.	102 Bacteriology	5
Geol.	140 Prin. of Geog.....	3
	Elective	6

Total..... 14

Curriculum in Business Administration

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Engl.	111 Written Comm. I.....	3	Engl.	112 Written Comm II.....	2
Comp.	101 Man's Phys. World I....	4	Comp.	102 Man's Phys. World II....	4
Acctg.	133 Accounting I.....	3	Acctg.	134 Accounting II.....	3
Math.	108 General Algebra	5	Hist.	105 American Ind. History....	3
Mil. Sc.	105 Military I.....	1		Option*	3
	Physical Education.....	R	Mil. Sc.	106 Military II.....	1
				Physical Education.....	R
Total.....			15 or 16	Total.....	
				15 or 16	

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Sp.	103 Oral Communication.....	2	Psych.	184 General Psychology	3
Comp.	111 Biol. in Rel. to Man I....	4	Comp.	112 Biol. in Rel. to Man II...	4
Econ.	101 Economics I.....	3	Econ.	104 Economics II	3
Engl.	122 Coml. Correspondence....	3		Option*	3
Acctg.	280 Valuation Accounting... 3 or			Elective†	2
Acctg.	287 Cost Accounting.....	3	Mil. Sc.	108 Military IV	1
Mil. Sc.	107 Military III	1		Physical Education.....	R
	Physical Education.....	R			
Total.....			15 or 16	Total.....	
				15 or 16	

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Comp.	131 Man and Cult. World I... 4		Comp.	132 Man and Cult. World II.. 4	
Econ.	116 Money and Banking..... 3		Econ.	215 Bus. Org. and Finance.... 3	
Math.	126 Elements of Statistics.... 3		Hist.	151 American Government.... 3	
	Option*	3		Elective†	5
	Elective†	2			
Engl.	169 English Proficiency..... R				
Total.....			15	Total.....	
				15	

SENIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Econ.	214 Public Finance.....	3	Econ.	236 Bus. Adm. Summ.....	2
Hist.	163 Business Law I.....	3	Hist.	164 Business Law II.....	3
	Elective†	9		Elective†	10
Total.....			15	Total.....	
				15	

* Option 1. Accounting sequence: Math. 150, Mathematics of Finance; Acctg. 287, Cost Accounting or Acctg. 280, Valuation Accounting; Acctg. 281, Advanced Accounting. Option 2. Business sequence: Geol. 140, Principles of Geography; Soc. 151, Sociology; Econ. 246, Marketing.

† Elective 1. Accounting majors: Acctg. 294, Specialized Accounting; Acctg. 288, Advanced Cost Accounting; Acctg. 289, Government Accounting; Acctg. 286, Tax Accounting; nine hours of minor courses; nine hours of general elective. Elective 2. Business majors: Ten hours of business courses; nine hours of minor courses; nine hours of general elective.

Curriculum in Citizenship Education

FRESHMAN

FIRST SEMESTER

	Course	Sem. Hrs.
Engl.	111 Writ. Comm. I.....	3
Comp.	121 Man and Soc. World I....	4
Comp.	101 Man's Phys. World I....	4
Cit.	110 Freedom and Responsibility I	3
Mil. Sc.	105 Military I	1
	Physical Education.....	R

Total..... 15

SECOND SEMESTER

	Course	Sem. Hrs.
Engl.	112 Writ. Comm. II.....	2
Sp.	103 Oral Comm.	2
Comp.	122 Man and Soc. World II...	4
Comp.	102 Man's Phys. World II....	4
Cit.	111 Freedom and Responsibility II	3
Mil. Sc.	106 Military II	1
	Physical Education.....	R

Total..... 16

SOPHOMORE

FIRST SEMESTER

Comp.	131 Man and Cult. World I...	4
Comp.	111 Biol. in Rel. to Man I....	4
Cit.	101 Constitutional Democracy in America I.....	3
Econ.	101 Economics I	3
Mil. Sc.	107 Military III	1
	Physical Education.....	R

Total..... 15

SECOND SEMESTER

Comp.	132 Man and Cult. World II..	4
Comp.	112 Biol. in Rel. to Man II...	4
Cit.	102 Constitutional Democracy in America II.....	3
Psych.	184 Gen. Psychology	3
Mil. Sc.	108 Military IV	1
	Physical Education.....	R

Total..... 15

JUNIOR

FIRST SEMESTER

Educ.*	109 Educ. Psych.	3
Cit.	205 Democ. and Education....	3
	Am. Hist. elective.....	3
Hist.	140 Elementary Logic	3
Hist.**	265 State and Local Politics and Administration....	2
	Elective	2
Engl.	169 English Proficiency	R

Total..... 16

SECOND SEMESTER

*	Education elective	3
Cit.	215 Democ., Justice, and the Law	3
Soc.	151 Sociology	3
	Am. History elective.....	3
Hist.**	263 Federal Politics and Administration	2
	Elective	2

Total..... 16

SENIOR

FIRST SEMESTER

*	Education elective	3
Cit.	220 Pol. Economy and the Democratic State	3
Cit.	235 Effective Citizenship	2
Educ.	225 Methods in Citizenship Education	3
	Elective	5

Total..... 16

SECOND SEMESTER

Educ.*	166 Teaching Participation in High School	3
**	History option.....	3
Cit.	225 War, Peace, and the World Community	3
Govt.	206 Am. Political Parties....	2
	Elective	5

Total..... 16

* Those planning to teach will be required to take Education 109 and the additional courses in education, totaling 18 hours, necessary to meet the state requirements for the teaching certificate. Students not planning to teach will select one of the following alternatives:

(a) Substitute electives from one of the social sciences (history, government, economics, sociology, psychology) for the education courses and the education electives in the last two years. These courses will be selected under the guidance of the head of the department involved.

(b) Substitute electives from three fields in the social sciences, electing at least six hours in each of the three fields in addition to curricular requirements.

** History 208, 213, 226, 228, 236, or 256.

Curriculum in Geology, Applied

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Engl.	111 Written Comm. I.....	3	Engl.	112 Written Comm. II.....	2
Chem.	101 Chemistry I	5	Chem.	103 Chemistry II Rec.....	3
Geol.	103 General Geology	3	Chem.	104 Chemistry II Lab.....	2
Math.	104 College Algebra	3	Geol.	203 Historical Geology	4
Mach. Des.	101 Engg. Drawing	2	Mach. Des.	106 Desc. Geometry	2
Mil. Sc.	105 Military I (men).....	1	Math.	101 Plane Trigonometry	3
	Physical Education.....	R	Mil. Sc.	106 Military II (men).....	1
				Physical Education.....	R
Total.....			16 or 17	Total.....	
				16 or 17	

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Civ. Engg.	102 Surveying I	2	Math.	110 Plane Anal. Geom.....	4
Phys.	102 General Physics I.....	4	Phys.	103 General Physics II.....	4
Sp.	103 Oral Communication	2	Comp.	112 Biol. Rel. Man II.....	4
Comp.	111 Biol. Rel. Man I.....	4	Geol.	220 Invert. Paleontology	4
Geol.	209 Cryst. and Min.....	4	Mil. Sc.	108 Military IV (men).....	1
Mil. Sc.	107 Military III (men).....	1		Physical Education.....	R
	Physical Education.....	R			
Total.....			16 or 17	Total.....	
				16 or 17	

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Civ. Engg.	125 C. E. Drawing.....	2	Phys.	217 Geophysics	3
Geol.	230 Field Methods in Geol....	3	Geol.	215 Structural Geology	4
Comp.	121 Man and Soc. World I....	4	Comp.	122 Man and Soc. World II..	4
Geol.	110 Physiographic Geology ...	3	Geol.	224 Strat. Geology	4
Engl.	169 English Proficiency	R		Elective	2
	Elective	5			
Total.....			17	Total.....	
				17	

SENIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Comp.	131 Man and Cult. World I... 4		Comp.	132 Man and Cult. World II.. 4	
Geol.	204 Aerial Phototopography... 3		Geol.	245 Applied Geology	3
Civ. Engg.	135 Highway Plans	5	Civ. Engg.	274 Highway Design	3
Ap. Mech.	135 Found. Materials	3		Elective	7
	Elective	2			
Total.....			17	Total.....	
				17	

Curriculum in Industrial Chemistry

FRESHMAN

FIRST SEMESTER

	<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	111 Written Comm. I.....	3
Chem.	101 Chemistry I.....	5
Math.	101 Plane Trigonometry.....	3
Math.	104 College Algebra.....	3
Mach. Des.	101 Engineering Drawing.....	2
Mil. Sc.	105 Military I.....	1
Chem.	133 Ind. Chem. Seminar.....	R
	Physical Education.....	R

Total..... 16 or 17

SECOND SEMESTER

	<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	112 Written Comm. II.....	2
Sp.	103 Oral Communication.....	2
Chem.	103 Chemistry II Rec.....	3
Chem.	104 Chemistry II Lab.....	2
Math.	110 Plane Anal. Geometry....	4
Mod. Lang.	115 Tech. German I.....	3
Mil. Sc.	106 Military II.....	1
Chem.	133 Ind. Chem. Seminar.....	R
	Physical Education.....	R

Total..... 16 or 17

SOPHOMORE

FIRST SEMESTER

Chem.	211 Quant. Analysis A.....	3
Math.	114 Calculus I.....	4
Phys.	105 Engineering Physics I....	5
Mod. Lang.	117 Tech. German II.....	3
	Elective.....	1
Mil. Sc.	107 Military III.....	1
Chem.	133 Ind. Chem. Seminar.....	R
	Physical Education.....	R

Total..... 16 or 17

SECOND SEMESTER

Chem.	212 Quant. Analysis B.....	3
Math.	115 Calculus II.....	4
Mod. Lang.	119 Tech. German III.....	4
Phys.	106 Engineering Physics II....	5
Mil. Sc.	105 Military IV.....	1
Chem.	133 Ind. Chem. Seminar.....	R
	Physical Education.....	R

Total..... 16 or 17

JUNIOR

FIRST SEMESTER

Chem.	223 Organic Chemistry I.....	5
Chem.	260 Physical Chemistry I.....	5
Comp.	121 Man and Social World I..	4
	Elective.....	3
Chem.	133 Ind. Chem. Seminar.....	R
Engl.	169 English Proficiency.....	R

Total..... 17

SECOND SEMESTER

Chem.	224 Organic Chemistry II.....	5
Chem.	261 Phys. Chemistry II Rec..	3
Chem.	262 Phys. Chemistry II Lab..	2
Comp.	122 Man and Social World II,	4
	Elective.....	3
Chem.	133 Ind. Chem. Seminar.....	R

Total..... 17

SENIOR

FIRST SEMESTER

Chem.	202 Inorganic Prep.	2
Chem.	207 Adv. Inorganic Chem.....	3
Chem.	216 Ind. Chemical Analysis... 3	
Comp.	111 Biol. in Rel. to Man I..	4 or
Comp.	131 Man and Cult. World I..	4
	Elective.....	5
Chem.	132 Inspection Trip.....	R
Chem.	133 Ind. Chem. Seminar.....	R

Total..... 17

SECOND SEMESTER

Chem.	297 History of Chemistry....	1
Chem.	299 Problems in Chemistry....	3
Chem. Engg.	237 Chemical Technology	2
Comp.	112 Biol. in Rel. to Man II,	4 or
Comp.	132 Man and Cult. World II..	4
	Elective.....	7
Chem.	133 Ind. Chem. Seminar.....	R

Total..... 17

Curriculum in Industrial Journalism

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Engl.	111 Written Comm. I.....	3	Engl.	112 Written Comm. II.....	2
Sp.	103 Oral Communication	2	Comp.	102 Man's Phys. World II....	4
Comp.	101 Man's Phys. World I.....	4	Psych.	184 General Psychology	3
	Modern Language	6		Modern Language	3
Mil. Sc.	105 Military I	1		Option	3
Ind. Jour.	199 Ind. Jour. Lecture.....	R	Mil. Sc.	106 Military II	1
	Physical Education	R	Ind. Jour.	199 Ind. Jour. Lecture.....	R
				Physical Education	R
Total.....			15 or 16	Total.....	
				15 or 16	

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Comp.	111 Biol. in Rel. to Man. I... 4		Comp.	112 Biol. in Rel. to Man II... 4	
Comp.	121 Man and Social World I... 4		Comp.	122 Man and Social World II, 4	
Prtg.	103 Graphic Arts Survey..... 2		Ind. Jour.	157 Industrial Writing	3
Prtg.	104 Typography Lab. 1			Option	4
Ind. Jour.	150 Elementary Journalism ... 2		Mil. Sc.	108 Military IV	1
	Option	2	Ind. Jour.	199 Ind. Jour. Lecture.....	R
Mil. Sc.	107 Military III	1		Physical Education	R
Ind. Jour.	199 Ind. Jour. Lecture.....	R			
	Physical Education	R			
Total.....			15 or 16	Total.....	
				15 or 16	

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Comp.	131 Man and Cult. World I... 4		Comp.	132 Man and Cult. World II.. 4	
Engl.	173 American Literature I... 3		Ind. Jour.	162 Radio News	2 or
Ind. Jour.	167 News and Mag. Writing.. 2		Ind. Jour.	181 Rural Press	2 or
Ind. Jour.	177 Prin. of Advertising..... 3		Ind. Jour.	183 Pub. Inf. Methods..... 2	
	Option	3	Ind. Jour.	166 Editing	2
Ind. Jour.	199 Ind. Jour. Lecture.....	R	Ind. Jour.	273 Hist. and Ethics of Jour.. 3	
Engl.	169 English Proficiency	R		Elective and option.....	4
			Ind. Jour.	199 Ind. Jour. Lecture.....	R
Total.....			15	Total.....	
				15	

SENIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Ind. Jour.	170 Journalism for Women.. 3 or		Ind. Jour.	255 Contemp. Affairs II..... 3	
Ind. Jour.	228 Advanced Reporting	3		Elective and option.....	12
Ind. Jour.	253 Contemp. Affairs I..... 3		Ind. Jour.	199 Ind. Jour. Lecture.....	R
	English elective	3			
	Elective and option.....	6			
Ind. Jour.	199 Ind. Jour. Lecture.....	R			
Total.....			15	Total.....	
				15	

Industrial option: 12 hours from one of groups 1 to 7 of elective lists.

Social Science option: 15 hours from groups 8, 9 and 10.

Curriculum in Industrial Physics

FRESHMAN

FIRST SEMESTER

	Course	Sem. Hrs.
Engl.	111 Written Comm. I.....	3
Chem.	101 Chemistry I	5
Math.	101 Plane Trigonometry	3
Math.	104 College Algebra	3
Mil. Sc.	105 Military I	1
Phys.	299 Physics Colloquium	R
	Physical Education	R

Total..... 14 or 15

SECOND SEMESTER

	Course	Sem. Hrs.
Engl.	112 Written Comm. II.....	2
Sp.	103 Oral Comm.	2
Chem.	103 Chemistry II Rec.....	3
Chem.	104 Chemistry II Lab.....	2
Hist.	105 American Ind. History....	3
Math.	110 Plane Anal. Geometry....	4
Mil. Sc.	106 Military II	1
Phys.	299 Physics Colloquium	R
	Physical Education	R

Total..... 16 or 17

SOPHOMORE

FIRST SEMESTER

Comp.	111 Biol. in Rel. to Man I....	4
Econ.	101 Economics I	3
Math.	114 Calculus I	4
Phys.	105 Engg. Physics I.....	5
Mil. Sc.	107 Military III	1
Phys.	299 Physics Colloquium	R
	Physical Education	R

Total..... 16 or 17

SECOND SEMESTER

Comp.	112	Biol. in Rel. to Man II...	4
Govt.	151	American Government...	3 or
Psych.	184	General Psychology	3
Math.	115	Calculus II	4
Phys.	106	Engg. Physics II.....	5
Mil. Sc.	108	Military IV	1
Phys.	299	Physics Colloquium	R
		Physical Education	R

Total..... 16 or 17

JUNIOR

FIRST SEMESTER

Comp.	131	Man and Cult. World I...	4
Math.	201	Differential Equations	3
Phys.	243	Light	3
Phys.	244	Light Laboratory	1
Phys.	233	Intro. to Math. Physics...	3
		Elective	3
Phys.	299	Physics Colloquium	R
Engl.	169	English Proficiency	R

Total..... 17

SECOND SEMESTER

Comp.	132	Man and Cult. World II..	4
Phys.	227	Mechanics	3
Phys.	251	Elec. and Magnetism.....	3
Phys.	255	Elec. and Magnetism Lab.,	1
		Elective	6
Phys.	299	Physics Colloquium	R

Total..... 17

SENIOR

FIRST SEMESTER

Math.	210 Adv. Calculus I.....	3
Phys.	270 Atomic Physics	3
Phys.	288 Electronic Physics	4
	Elective	7
Phys.	299 Physics Colloquium	R

Total..... 17

SECOND SEMESTER

Math.	213 Adv. Calculus II.....	3
Phys.	238 Heat	3
Phys.	239 Heat Laboratory	1
	Elective ..	10
Phys.	299 Physics Colloquium	R

Total..... 17

Students who plan to enter graduate work should elect Mod. Lang. 115, 117, and 119.

Curriculum in Music, Applied

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	<i>Course</i>	<i>Sem. Hrs.</i>		<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	111 Written Comm. I.....	3	Engl.	112 Written Comm. II.....	2
Sp.	103 Oral Comm.	2	Comp.	102 Man's Phys. World II..	4 or
Comp.	101 Man's Phys. World I... 4	or	Comp.	112 Biol. in Rel. to Man II..	4
Comp.	111 Biol. in Rel. to Man I....	4	Psych.	184 General Psychology	3
Mus.	125 Theory of Music I.....	3	Mus.	126 Theory of Music II.....	3
	Music Major	2		Music Major	2
	Music Minor	1		Music Minor	1
Mus.	176 Piano Ensemble	R	Mus.	176 Piano Ensemble	R
Mus.	186 Ensemble	R	Mus.	186 Ensemble	R
Mus.	181 Recital Attendance	R	Mus.	181 Recital Attendance	R
Mil. Sc.	105 Military I	1	Mil. Sc.	106 Military II	1
	Physical Education	R		Physical Education	R
Total..... 15 or 16			Total..... 15 or 16		

SOPHOMORE

FIRST SEMESTER				SECOND SEMESTER			
Comp.	131	Man. and Cult. World I..	4	Comp.	132	Man and Cult. World II..	4
Mus.	130	Hist. and App. of Mus. I,	2	Mus.	131	Hist. and App. of Mus. II,	2
Mus.	127	Theory of Music III.....	3	Mus.	128	Theory of Music IV.....	3
		Music Major	2			Music Major	2
		Music Minor	1			Music Minor	1
Mus.	176	Piano Eusemble	R	Mus.	176	Piano Ensemble	R
Mus.	186	Ensemble	R	Mus.	186	Ensemble	R
Mus.	181	Recital Attendance	R			Elective	3
		Elective	3	Mus.	181	Recital Attendance	R
Mil. Sc.	107	Military III	1	Mil. Sc.	108	Military IV	1
		Physical Education	R			Physical Education	R
Total.....			15 or 16	Total.....			15 or 16

JUNIOR

FIRST SEMESTER				SECOND SEMESTER			
Comp.	121	Man and Soc. World I....	4	Comp.	122	Man and Soc. World II... 4	4
		Music Major	2			Music Major	2
Mus.	133	Choral Conducting	1	Mus.	187	Pract. Tchg. App. Mus... R	
Mus.	149	Meth. and Materials for		Mus.	111	Mus. Form and Analysis.. 2	
		the Studio	1	Mus.	186	Ensemble	R
Mus.	109	Counterpoint	2	Mus.	176	Piano Ensemble	R
Mus.	186	Ensemble	R	Mus.	182	Junior Recital	1
Mus.	176	Piano Ensemble	R			Elective	6
Engl.	169	English Proficiency	R	Mus.	181	Recital Attendance	R
		Elective	5				
Mus.	181	Recital Attendance	R				
Total.....			15	Total.....			15

SENIOR

FIRST SEMESTER				SECOND SEMESTER			
		Music Major	2			Music Major	2
Mus.	176	Piano Ensemble	R	Mus.	176	Piano Ensemble	R
Mus.	186	Ensemble	R	Mus.	186	Ensemble	R
		Elective	13			Elective	11
Mus.	181	Recital Attendance	R	Mus.	184	Senior Recital	2
				Mus.	181	Recital Attendance	R
Total.....			15	Total.....			15

Curriculum in Music Education

FRESHMAN

FIRST SEMESTER

	Course	Sem. Hrs.
Engl.	111 Written Comm. I.....	3
Sp.	103 Oral Comm.	2
Comp.	101 Man's Phys. World I..	4 or
Comp.	111 Biol. in Rel. to Man I...	4
Mus.	125 Theory of Music I.....	3
	Music Major	2
	Music Minor	1
Mus.	176 Piano Ensemble	R
Mus.	186 Ensemble	R
Mus.	181 Recital Attendance	R
Mil. Sc.	105 Military I	1
	Physical Education	R
Total.....		15 or 16

SECOND SEMESTER

	Course	Sem. Hrs.
Engl.	112 Written Comm. II.....	2
Comp.	102 Man's Phys. World II..	4 or
Comp.	112 Biol. in Rel. to Man II...	4
Psych.	184 General Psychology	3
Mus.	126 Theory of Music II.....	3
	Music Major	2
	Music Minor	1
Mus.	176 Piano Ensemble	R
Mus.	186 Ensemble	R
Mus.	181 Recital Attendance	R
Mil. Sc.	106 Military II	1
	Physical Education	R
Total.....		15 or 16

SOPHOMORE

FIRST SEMESTER

Comp.	131 Man and Cul. World I...	4
Mus.	130 Hist. and App. of Mus. I,	2
Mus.	127 Theory of Music III.....	3
Mus.	146 Orch. Instruments I.....	1
	Music Major	1
	Music Minor	1
Mus.	176 Piano Ensemble	R
Mus.	186 Ensemble	R
	Elective	3
Mus.	181 Recital Attendance	R
Mil. Sc.	107 Military III	1
	Physical Education	R
Total.....		15 or 16

SECOND SEMESTER

Comp.	132 Man and Cul. World II...	4
Mus.	131 Hist. and App. of Mus. II,	2
Mus.	128 Theory of Music IV.....	3
Mus.	147 Orch. Instruments II.....	1
	Music Major	1
	Music Minor	1
Mus.	176 Piano Ensemble	R
Mus.	186 Ensemble	R
	Elective	3
Mus.	181 Recital Attendance	R
Mil. Sc.	108 Military IV	1
	Physical Education	R
Total.....		15 or 16

JUNIOR

FIRST SEMESTER

Comp.	121 Man and Soc. World I...	4
Mus.	123 Inst. Methods I.....	2 or
Mus.	142 School Music I.....	2
Mus.	133 Choral Conducting	1
Mus.	148 Orch. Instruments III...	1
	Music Major	1
Mus.	176 Piano Ensemble	R
Mus.	186 Ensemble	R
Ed.	109 Educ. Psych.	3
	Education Elective	3
Mus.	181 Recital Attendance	R
Engl.	169 English Proficiency	R
Total.....		15

SECOND SEMESTER

Comp.	122 Man and Soc. World II...	4
Mus.	124 Inst. Methods II.....	2 or
Mus.	145 School Music II.....	2
Mus.	134 Instr. Conducting	1
Mus.	149 Orch. Instruments IV.....	1
	Music Major	1
Mus.	176 Piano Ensemble	R
Mus.	186 Ensemble	R
	Education Elective	6
Mus.	181 Recital Attendance	R
Total.....		15

SENIOR

FIRST SEMESTER

Mus.	140 Counterpoint	2
Educ.	129 Teach. Part. in Mus.....	3
Mus.	152 School Music III.....	2
Mus.	176 Piano Ensemble	R
	Music Major	2
Mus.	186 Ensemble	R
	Elective	6
Mus.	181 Recital Attendance	R
Total.....		15

SECOND SEMESTER

Mus.	141 Mus. Form and Analysis..	2
Mus.	136 Instr. and Orch.....	3
Mus.	176 Piano Ensemble	R
Mus.	186 Ensemble	R
	Music Major	2
	Elective	8
Mus.	181 Recital Attendance	R
Total.....		15

Curriculum in Physical Education (Men)

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	<i>Course</i>	<i>Sem. Hrs.</i>		<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	111 Written Comm. I.....	3	Engl.	112 Written Comm. II.....	2
Sp.	103 Oral Comm.	2	Comp.	102 Man's Phys. World II....	4
Comp.	101 Man's Phys. World I....	4	Phys. Ed.	143 History of Phys. Ed.....	2
Psych.	184 Gen. Psychology	3	Phys. Ed.	138 Phys. Ed. Act. II.....	2
Phys. Ed.	107 Intro. to Phys. Ed.....	1	Zoöl.	105 General Zoölogy	5
Phys. Ed.	135 Phys. Ed. Activities I....	2	Mil. Sc.	106 Military II	1
Mil. Sc.	105 Military I	1		Physical Education	R
	Physical Education	R			
Total.....		16	Total.....		16

SOPHOMORE

FIRST SEMESTER				SECOND SEMESTER			
Comp.	121	Man and Soc. World I....	4	Comp.	122	Man and Soc. World II... 4	4
Phys. Ed.	119	Personal Hygiene	2	Phys. Ed.	147	Community Hygiene	2
Phys. Ed.	145	Nat. and Fun. of Play....	2	Phys. Ed.	132	Kinesiology	2
Phys. Ed.	139	Phys. Ed. Activities III...	2	Zoöl.	221	Human Physiology	4
Zoöl.	123	Human Anatomy	5			Elective	3
Mil. Sc.	107	Military III	1	Mil. Sc.	108	Military IV	1
		Physical Education	R			Physical Education	R
Total.....			16	Total.....			16

JUNIOR

FIRST SEMESTER				SECOND SEMESTER			
Comp.	131	Man and Cul. World I...	4	Comp.	132	Man and Cul. World II...	4
Phys. Ed.	146	Admin. of Health and		Phys. Ed.	113	Athletic Injuries and	
		Phys. Educ.	3			First Aid	3
Phys. Ed.	115	Major Sports II.....	3	Phys. Ed.	149	Teaching Health	2
		Education Electives	3	Phys. Ed.	120	Swimming	1
		Elective	3	Phys. Ed.	114	Major Sports I.....	3
Engl.	169	English Proficiency	R			Education elective	3
Total.....			16	Total.....			16

SENIOR

FIRST SEMESTER				SECOND SEMESTER			
Educ.	109	Educ. Psychology	3	Educ.	166	Tch. Part. in H. S.	3
Phys. Ed.	124	Health Examinations	3	Phys. Ed.	142	Pub. Sch. Prog. in Phys. Ed.	2
Phys. Ed.	134	Pract. Tchg. in Phys. Ed., Elective	7	Phys. Ed.	203	Community Recreation	2
						Education elective	3
						Elective	5
Total			15	Total			15

Curriculum in Physical Education (Women)

FRESHMAN

FIRST SEMESTER

	Course	Sem. Hrs.
Engl.	111 Written Comm. I.....	3
Sp.	103 Oral Comm.	2
Comp.	101 Man's Phys. World I.....	4
Phys. Ed.	161 Personal Hygiene W.....	2
Phys. Ed.	154 Fund. Rhythms	2
Phys. Ed.	157A Gen. Technic I.....	2
	Physical Education	R

Total..... 15

SECOND SEMESTER

	Course	Sem. Hrs.
Engl.	112 Written Comm. II.....	2
Comp.	102 Man's Phys. World II....	4
Phys. Ed.	191 Rec. Leadership	2
Phys. Ed.	157B Gen. Technic II.....	2
Zoöl.	105 General Zoölogy	5
	Physical Education	R

Total..... 15

SOPHOMORE

FIRST SEMESTER

Phys. Ed.	162 Prin. and Phil. of Phys. Ed.	3
Phys. Ed.	177 Plgnd. Mgmt. and Games,	3
Phys. Ed.	157C General Technic III.....	2
Zoöl.	123 Human Anatomy	5
Foods and Nutr.	121 Applied Nutrition	2
	Physical Education	R

Total..... 15

SECOND SEMESTER

Bot.	110 Nat. and Dev. of Plants..	3
Psych.	184 General Psychology	3
Phys. Ed.	184 Kinesiology	2
Phys. Ed.	157D Gen. Technic IV.....	2
Zoöl.	221 Human Physiology	4
	Elective	1
	Physical Education	R

Total..... 15

JUNIOR

FIRST SEMESTER

Comp.	121 Man and Soc. World I....	4
Educ.	109 Educ. Psychology	3
Phys. Ed.	179 Health Tchg. in H. S....	3
Phys. Ed.	174 Health Examinations	3
Phys. Ed.	157E Gen. Technic V.....	2
Engl.	169 English Proficiency	R
	Physical Education	R

Total..... 15

SECOND SEMESTER

Comp.	122	Man and Soc. World II...	4
Phys. Ed.	175	Therap. and Massage.....	3
Phys. Ed.	157F	Gen. Technic VI.....	2
		Education elective	3
		Elective	3
		Physical Education	R

Total..... 15

SENIOR

FIRST SEMESTER

Comp.	131	Man and Cult. World I...	4
Phys. Ed.	188	Teach. and Adapt. of P. E.,	3
Phys. Ed.	157G	General Technic VII.....	2
		Education elective	3
		Elective	3
		Physical Education	R

Total..... 15

SECOND SEMESTER

Comp.	132	Man and Cult. World II..	4
Phys. Ed.	176	Org. and Adm. of P. E....	2
Phys. Ed.	157H	General Technic VIII....	2
		Education elective	3
		Elective	1
Educ.	166	Tch. Part. in H. S.....	3
		Physical Education	R

Total..... 15

Curriculum in Physical Science

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	<i>Course</i>	<i>Sem. Hrs.</i>		<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	111 Written Comm. I.....	3	Engl.	112 Written Comm. II.....	2
Chem.	101 Chemistry I	5	Sp.	103 Oral Comm.	2
Geol.	103 General Geology	3	Chem.	103 Chemistry II Rec.....	3
Math.	104 College Algebra	3	Math.	101 Plane Trigonometry	3
	Elective	1		Elective	5
Mil. Sc.	105 Military I	1	Mil. Sc.	106 Military II	1
	Physical Education	R		Physical Education	R
Total..... 15 or 16			Total..... 15 or 16		

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
Comp.	111 Biol. in Rel. to Man I....	4	Comp.	112 Biol. in Rel. to Man II...	4
Psych.*	184 General Psychology	3	Econ.*	101 Economics I	3
Math.*	110 Plane Anal. Geometry....	4	Math.*	114 Calculus I	4
Phys.	102 General Phys. I.....	4	Phys.	103 General Physics II.....	4
Mil. Sc.	107 Military III	1	Mil. Sc.	108 Military IV	1
	Physical Education	R		Physical Education	R
Total..... 15 or 16			Total..... 15 or 16		

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
Comp.	131 Man and Cult. World I...	4	Comp.	132 Man and Cult. World II..	4
	Elective and major.....	11	Hist.	151 American Government ...	3
Engl.	169 English Proficiency	R		Elective and major.....	8
Total..... 15			Total..... 15		

SENIOR

FIRST SEMESTER	SECOND SEMESTER
Elective and major..... 15	Elective and major..... 15

Majors:

Geology: Geol. 110, 215, 220, 230, and 7 selected hours.

Mathematics: Math. 115, 201, and 9 hours selected from 210, 240 or 241 or 242, and 253 or 254 or 255 or 256.

Physics: Phys. 220, 227, 238, 240, 243, 244, 251, and 255. Seniors enroll for Phys. 299 for two semesters.

Statistics: Math. 201, 210, 268, 269 and six hours selected from Math. 128, 213, 241, 261, 262 and 267.

Chemistry: Chem. 104, 211, 212, 223, 224, 260, and 261.

A nine-hour proficiency in German is urged, but not required.

* Statistics majors replace Psych. 184 by Math. 126. Geology majors replace Math. 110, 114 by Geol. 203, 209.

Curriculum in Physical Science

Geophysics Option

FRESHMAN

FIRST SEMESTER

	Course	Sem. Hrs.
Engl.	111 Written Comm. I.....	3
Chem.	101 Chemistry I.....	5
Math.	101 Plane Trigonometry.....	3
Math.	104 College Algebra.....	3
	Elective.....	1
Mil. Sc.	105 Military I.....	1
Mil. Sc.	113 Artillery I (Men).....	1
	Physical Education.....	R

Total..... 16

SECOND SEMESTER

	Course	Sem. Hrs.
Engl.	112 Written Comm. II.....	2
Sp.	103 Oral Comm.	2
Chem.	103 Chem. II Rec.....	3
Chem.	104 Chem. II Lab.....	2
Mach. Des.	101 Engg. Draw.	2
Math.	110 Plane Anal. Geometry....	4
Mil. Sc.	106 Military II.....	1
Mil. Sc.	114 Artillery II (Men).....	1
	Physical Education.....	R

Total..... 16

SOPHOMORE

FIRST SEMESTER

Comp.	111 Biol. in Rel. to Man I....	4
Geol.	103 Gen. Geology.....	3
Math.	114 Calculus I.....	4
Phys.	105 Engg. Physics I.....	5
Mil. Sc.	107 Military III.....	1
	Physical Education.....	R

Total..... 17

SECOND SEMESTER

Comp.	112 Biol in Rel. to Man II....	4
Mod. Lang.	176 Spanish I.....	3
Math.	115 Calculus II.....	4
Phys.	106 Engg. Physics II.....	5
Mil. Sc.	108 Military IV.....	1
	Physical Education.....	R

Total..... 17

JUNIOR

FIRST SEMESTER

Geol.	203 Historical Geology.....	4
Math.	201 Differential Equations....	3
Comp.	121 Man and Soc. World I....	4
Elec. Engg.	102 Elec. Engg. C Rec.....	2
Elec. Engg.	106 Elec. Engg. C Lab.....	1
Mod. Lang.	177 Spanish II.....	3
Engl.	169 English Proficiency.....	R

Total..... 17

SECOND SEMESTER

Geol.	215 Structural Geology.....	4
Mod. Lang.	180 Spanish III.....	3
Comp.	122 Man and Soc. World II....	4
Phys.	251 Elec. and Mag.....	3
Phys.	255 Elec. and Mag. Lab.....	1
Civ. Engg.	102 Surveying I.....	2

Total..... 17

SENIOR

FIRST SEMESTER

Comp.	131 Man and Cult. World I... 4
Phys.	217 Geophysics..... 3
Geol.	223 Petroleum Geology..... 4
Hist.	167 Law for Engineers..... 2
	Elective..... 4

Total..... 17

SECOND SEMESTER

Comp.	132 Man and Cult. World II.. 4
Phys.	256 Electronic Physics..... 3
Geol.	204 Aerial Phototopography... 3
Geol.	230 Field Methods..... 3
	Elective..... 4

Total..... 17

Preveterinary Curriculum

In the preveterinary curriculum the student must select at least eight elective hours from the following courses: Elementary Logic, 3 semester hours; Philosophy of Science I, 3 hours; American Industrial History, 3 hours; Freedom and Responsibility I and II, 3 hours each; Contemporary World History, 2 hours; and Economics I and II, 3 hours each.

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>
Comp.	131 Man and Cult. World I...	4	Comp.	132 Man. and Cult. World II,	4
Chem.	101 Chemistry I	5	Zoöl.	105 General Zoölogy	5
Engl.	111 Written Comm. I.....	3	Chem.	103 Chemistry II Rec.....	3
Sp.	103 Oral Communication	2	Chem.	104 Chemistry II Lab.....	2
Mil. Sc.	105 Military I (men).....	1	Engl.	112 Written Comm. II.....	2
	Physical Education	R	Mil. Sc.	106 Military II (men).....	1
	Elective	2 or 3		Physical Education	R
Total.....		17 or 18	Total.....		17

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
Comp.	121 Man and Soc. World I...	4	Comp.	122 Man and Soc. World II..	4
Chem.	227 Organic Chemistry	5	Poul. Husb.	104 Fm. Poult. Prod. Rec....	2
Zoöl.	219 Embryology	4 or	Poul. Husb.	105 Fm. Poult. Prod. Lab....	1
	Elective	3 or 4	Zoöl.	219 Embryology	4 or
Phys.	124 Descrip. Physics	3 or		Elective	4
An. Husb.	221 Genetics	3	Phys.	124 Descrip. Physics	3 or
Mil. Sc.	107 Military III (men).....	1	An. Husb.	221 Genetics	3
	Physical Education	R		Elective	2 or 3
			Mil. Sc.	108 Military IV	1
				Physical Education	R
Total.....		16 or 17	Total.....		17 or 18

Groups of Electives for Students in the School of Arts and Sciences

1. Applied Science

For industrial option in the Curriculum in Industrial Journalism.

Soils, Agron. 130.....	4	Historical Geology, Geol. 203.....	4
General Microbiology, Bact. 101.....	3	Economic Geology, Geol. 207.....	4
Bact. of Hum. Dis., Bact. 206.....	5	Cryst. and Min., Geol. 209.....	4
General Botany, Bot. 102.....	5	Sedimentary Petrology, Geol. 236.....	5
Nature and Dev. of Plants, Bot. 110.....	3	Vert. Paleontology, Geol. 255.....	3
Fruit Crop Diseases, Bot. 202.....	2	Micropaleontology, Geol. 256.....	3
Plant Pathology I, Bot. 205.....	3	El. of Horticulture Rec., Hort. 104.....	2
Plant Ecology, Bot. 229.....	3	El. of Horticulture Lab., Hort. 105.....	1
Field Crop Diseases, Bot. 241.....	3	Small Fruits, Hort. 108.....	2
Gen. Org. Chemistry, Chem. 122.....	5	Farm Forestry, Hort. 114.....	3
Dairy Chemistry, Chem. 275.....	2	Landscape Gardening, Hort. 125.....	3
Gen. Entomology, Ent. 102.....	3	Household Physics, Phys. 109.....	4
Hort. Entomology, Ent. 201.....	2	Des. Astronomy, Phys. 141.....	3
Gen. Economic Ent., Ent. 203.....	3	Intro. Meteorology, Phys. 146.....	3
Staple Crop Ent., Ent. 206.....	3	Photography, Phys. 151.....	2
General Apiculture, Ent. 208.....	3	General Zoology, Zoöl. 105.....	5
Ap. Nutr., Foods and Nutr. 121.....	2	Animal Parasitology, Zoöl. 208.....	3
Physiographic Geol., Geol. 110.....	3	Embryology, Zoöl. 219.....	4
Prin. of Geography, Geol. 140.....	3	Endocrinology, Zoöl. 247.....	3

2. Home Economics

For industrial option in the Curriculum in Industrial Journalism.

Elementary Design I, Art 101A.....	2	Adv. Dress Design, Clo. and Text. 211...	3
Costume Design I, Art. 130.....	2	Foods I, Foods and Nutr. 102.....	5
Principles of Art I, Art 201.....	3	App. Nutrition, Foods and Nutr. 121...	2
Principles of Art II, Art 202.....	3	The House, Household Econ. 107.....	3
Child Guidance I, Child Welf. 201.....	3	Family Finance, Household Econ. 263...	2
The Family, Child Welf. 216.....	2	Econ. Probs. of the Family, Household Econ. 265.....	2
Fund. of Clothing, Clo. and Text. 113...	2	Consumer Buying, Household Econ. 272..	3
App. Dress Des., Clo. and Text. 114.....	3		

3. Agriculture

For industrial option in the Curriculum in Industrial Journalism.

Farm Crops, Agron. 110.....	3	Gen. Org. Chemistry, Chem. 122.....	5
Soils, Agron. 130.....	4	El. of Dairy., Dairy Husb. 101.....	3
El. of An. Husb., An. Husb. 126.....	2	Dairy Cattle Judging, Dairy Husb. 105...	2
Prin. of Feeding, An. Husb. 152.....	3	El. of Horticulture Rec., Hort. 104.....	2
Genetics, An. Husb. 221.....	3	El. of Horticulture Lab., Hort. 105.....	1
General Botany, Bot. 102.....	5	Farm Poultry Prod., Poul. Husb. 104...	2
Plant Pathology I, Bot. 205.....	3	Fm. Poul. Prod. Lab., Poul. Husb. 105...	1
Field Crop Diseases, Bot. 241.....	3		

4. Drawing and Art

For industrial option in the Curriculum in Industrial Journalism.

Freehand Drawing I, Arch. 112.....	2	Intermediate Design, Art 103.....	2
Freehand Drawing II, Arch. 113.....	2	Advanced Design, Art 105.....	2
Pen. Sketch., Arch. 116.....	2	Weaving I, Art 106.....	2
Still-life Drawing, Arch. 117.....	2	Pottery Design, Art 109.....	2
Water Color I, Arch. 118.....	2	Interior Decoration I, Art 113.....	2
Water Color II, Arch. 119.....	2	Interior Decoration II, Art 115.....	2
Life Drawing I, Arch. 121.....	2	Interior Decoration III, Art 117.....	2
Life Drawing II, Arch. 123.....	2	Drawing I, Art 120.....	2
Domestic Architecture, Arch. 124.....	2	Drawing II, Art 121.....	2
Apprec. of Arch., Arch. 125.....	3	Lettering, Art 127.....	2
Clay Modeling, Arch. 133.....	2	Costume Design I, Art 130.....	2
Pen and Ink Drawing, Arch. 134.....	2	Costume Design II, Art 134.....	2
Block Prints, Arch. 137.....	2	Costume Design III, Art 138.....	2
Commercial Illus. I, Arch. 165.....	2	Principles of Art I, Art 201.....	3
Commercial Illus. II, Arch. 170.....	2	Principles of Art II, Art 202.....	3
Hist. Paint. and Sculp., Arch. 179.....	3	Costume Illustration, Art 212.....	2
Adv. Freehand Drawing, Arch. 201.. Cr. Ar.		Problems in Design, Art 217..... Cr. Ar.	
Etching, Arch. 217.....	2	Probs. in Interior Decoration, Art 232, Cr. Ar.	
Oil Painting, Arch. 230..... Cr. Ar.		Historic Textiles Design, Art 233.....	2
Elementary Design I, Art 101A.....	2	Probs. in Costume Design, Art 235.. Cr. Ar.	
Elementary Design II, Art 101B.....	2	Arts of Mexico, Art 244.....	2
Design in Crafts I, Art 102.....	2	Art of Prim. People, Art 246.....	2

5. Manual and Industrial Arts

For industrial option in the Curriculum in Industrial Journalism.

Farm Building, Agric. Engg. 101.....	3	Carpentry, Shop 147.....	3
Farm Machinery, Agric. Engg. 108.....	3	Forging and Heat Treating, Shop 150....	1
Gas Eng. and Tract., Agric. Engg. 130....	3	Blacksmithing, Shop 157.....	1
Surveying I, Civ. Engg. 102.....	2	Foundry I, Shop 161.....	1
Engg. Drawing, Mach. Des. 101.....	2	Metals and Alloys, Shop 165.....	2
Des. Geom., Mach. Des. 106.....	2	Welding, Shop 166.....	1
Mach. Drawing I, Mach. Des. 111.....	2	Electric Welding, Shop 167.....	1
Shop A, Shop 102.....	2	Gas Welding, Shop 168.....	1
Elem. Crafts for Teachers, Shop 118.....	2	Machine Tool I, Shop 170.....	2
Woodwork I, Shop 121.....	2	Sheet Metal I, Shop 173.....	2
Finishing I, Shop 122.....	2	Machine Tool II, Shop 192.....	2
Woodwork II, Shop 126.....	2	Machine Tool III, Shop 193.....	1
Woodwork III, Shop 131.....	2	Adv. Shop Practice, Shop 261.....	Cr. Ar.
Woodturning, Shop 135.....	2	Metallography I, Shop 262.....	1
Woodwork IV, Shop 139.....	2		

6. Printing

For industrial option in the Curriculum in Industrial Journalism.

Ad Typog. I, Prtg. 108.....	2	Job Comp. II, Prtg. 118.....	2
Ad Typog. II, Prtg. 111.....	2	Job Comp. III, Prtg. 120.....	2
Ad Typog. III, Prtg. 112.....	2	Press Work I, Prtg. 122.....	2
Job Comp. I, Prtg. 114.....	2	Press Work II, Prtg. 126.....	2

7. Radio Broadcasting

For industrial option in the Curriculum in Industrial Journalism.

Radio News, Ind. Jour. 162.....	2	Radio Program Participation, Sp. 168....	1
Radio Advertising, Ind. Jour. 179.....	3	Radio Production I, Sp. 231.....	2
Broadcast. Musical Programs, Mus. 119..	2	Radio Production II, Sp. 233.....	2
Hist. and Apprec. of Music I, Mus. 130..	2	Radio Speech II, Sp. 234.....	2
Hist. and Apprec. of Music II, Mus. 131,	2	Radio Programming, Sp. 240.....	2
Survey of Broadcasting, Sp. 163.....	2	Radio Writing I, Sp. 243.....	3
Radio Speech I, Sp. 165.....	2	Radio Writing II, Sp. 244.....	3
Radio Continuity, Sp. 167.....	3		

8. Social Science

For social science option in the Curriculum in Industrial Journalism.

Money and Banking, Econ. 116.....	3	Business Law II, Govt. 164.....	3
Business Management, Econ. 126.....	2	Farm Law, Govt. 175.....	2
Economic Systems, Econ. 210.....	2	Fdns. American Rep., Hist. 201.....	3
Public Finance, Econ. 214.....	3	American Exp. and Sect., Hist. 202.....	3
Bus. Org. and Finance, Econ. 215.....	3	New American Nation, Hist. 203.....	3
Investments, Econ. 222.....	3	American Agr. History, Hist. 205.....	2
Credits and Coll., Econ. 223.....	2	American Pol. Parties, Hist. 206.....	2
International Trade, Econ. 224.....	2	Latin-America, Hist. 208.....	3
Prin. of Trans., Econ. 230.....	3	World Cultures I, Hist. 209.....	3
Labor Economics, Econ. 234.....	3	World Cultures II, Hist. 210.....	3
Property Insurance, Econ. 242.....	2	Modern England, Hist. 211.....	3
Life Insurance, Econ. 244.....	2	Europe Since 1870, Hist. 212.....	3
Marketing, Econ. 246.....	3	Russia and Soviet Union, Hist. 213.....	3
Market Adm., Econ. 247.....	3	History of the Home, Hist. 225.....	3
Problems in Economics, Econ. 248... Cr. Ar.		British Empire, Hist. 226.....	2
Social Pathology, Soc. 258.....	3	American Dip. History, Hist. 228.....	2
Com. Org. and Lead., Soc. 267.....	3	History of Religions, Hist. 231.....	2
Adv. Sociology, Soc. 273.....	3	Far East, Hist. 236.....	3
Hist. Soc. Thought, Soc. 277.....	3	Hist. American Pol. Thgt., Hist. 249....	3
Problems in Sociology, Soc. 279..... Cr. Ar.		Comp. Govt., Govt. 252.....	2
Cont. World History, Hist. 125.....	2	City Govt., Govt. 253.....	3
Current History, Hist. 126.....	1	International Law, Govt. 256.....	2
Surv. Amer. Hist. I, Hist. 127.....	3	Govt. and Business, Govt. 260.....	2
Surv. Amer. Hist. II, Hist. 128.....	3	Probs. in Hist. and Govt., Hist. 270, Cr. Ar.	
Cont. Govts., Govt. 154.....	3	Land Law, Govt. 276.....	2
Business Law I, Govt. 163.....	3		

9. Public Relations

For Social Science Option in the Curriculum in Industrial Journalism. Students electing the group should take Mathematics in Human Affairs or Elements of Statistics, Public Information Methods, Formation of Public Opinion and 10 additional hours.

Freedom and Respons. I, Cit. 110.....	3	News Pictures, Ind. Jour. 144.....	2
Amer. Democ. Ideas, Cit. 210.....	3	Radio Advertis., Ind. Jour. 179.....	3
Labor Econ. I, Econ. 237.....	3	Public Inform. Meth., Ind. Jour. 183....	2
Statistic. Meth. in Educ., Educ. 223.....	3	Form. of Pub. Opinion, Ind. Jour. 230...	3
Oral English, Engl. 232.....	3	Trade and Tech. Writ., Ind. Jour. 288...	2
Amer. Govt., Govt. 151.....	3	Math. in Human Affs., Math. 103.....	3
Amer. Pol. Parties, Govt. 206.....	2	Elem. of Statistics, Math. 126.....	3
Amer. Ind. Hist., Hist. 105.....	3	Psych. of Advertis. and Sell., Psych. 265,	3
Surv. of Amer. Hist. I, Hist. 127.....	3	Social Psych., Psych. 270.....	3
Surv. of Amer. Hist. II, Hist. 128.....	3	Psych. of Personnel Mgt., Psych. 273....	3
Elementary Logic, Hist. 140.....	3	Social Pathology, Soc. 258.....	3
Amer. Agri. Hist., Hist. 205.....	2	Community Organ. and Ldrship., Soc. 267,	3
Recent Pol. Philosophies, Hist. 222.....	2	Hist. of Social Thought, Soc. 277.....	3
American Diplomatic Hist., Hist. 228....	2	Public Discussion, Sp. 226.....	2

10. Political Writing

For Social Science Option in Industrial Journalism. Citizenship 110 and 111, Freedom and Responsibility, should be taken before any other course is elected. The student should elect 9 hours in addition to Citizenship 110 and 111.

Const. Dem. in Amer. I, Cit. 101.....	3	Polit. Econ. and Democ. State, Cit. 220..	3
Const. Dem. in Amer. II, Cit. 102.....	3	War, Peace, and Wld. Comm., Cit. 225..	3
Freedom and Respons. I, Cit. 110.....	3	Effective Citizenship, Cit. 235.....	2
Freedom and Respons. II, Cit. 111.....	3	Amer. Pol. Parties, Govt. 206.....	2
Democracy and Educ., Cit. 205.....	3	Federal Pol. and Admin., Govt. 263.....	2
Demo. Justice and Law, Cit. 215.....	3	State, Local Pol. and Admn., Govt. 265..	2

11. Personnel Management

Economics II, Econ. 104.....	3	Prin. of Guidance, Educ. 230.....	3
Business Management, Econ. 126.....	2	Vocational Education, Educ. 241.....	3
Prin. of Accounting, Acct. 136.....	3	Mental Tests, Psych. 260.....	3
Business Org. and Finance, Econ. 215....	3	Technic of Mental Tests, Psych. 261....	3
Labor Economics, Econ. 234.....	3	Psych. of Adv. and Selling, Psych. 265... 3	
Social Pathology, Soc. 258.....	3	Social Psychology, Psych. 270.....	3
Com. Org. and Lead., Soc. 267.....	3	Psych. of Personnel Mgmt., Psych. 273..	3
Advanced Sociology, Soc. 273.....	3	Prin. and Tech. of Counseling, Psych. 271,	3
Stat. Meth. App. to Educ., Educ. 223....	3	Pers. Mgt. Practicum, Psych. 280... Cr. Ar.	

12. Social Welfare Work

Personal Health, Child Welf. 101.....	2	Com. Org. and Lead., Soc. 267.....	3
Child Guid. I, Child Welf. 201.....	3	Advanced Sociology, Soc. 273.....	3
Child Guid. II, Child Welf. 206.....	3	General Psychology, Psych. 184.....	3
Family Health, Child Welf. 211.....	3	Psychology of Childhood and Adoles.,	
The Family, Child Welf. 216.....	2	Psych. 250.....	3
Fund. of Clothing, Clo. and Text. 110...	2	Abnormal Psychology, Psych. 254.....	3
Economics I, Econ. 101.....	3	Social Psychology, Psych. 270.....	3
Economics II, Econ. 104.....	3	Psych. and Pers. Mgmt., Psych. 273....	3
Sociology, Soc. 151.....	3	Foods I, Foods and Nutr. 102.....	5
Rural Sociology, Soc. 156.....	3	The House, Hsld, Econ. 107.....	3
Labor Economics, Econ. 234.....	3	Home Mgmt., Hsld. Econ. 240.....	3
Social Pathology, Soc. 258.....	3	Heredity and Eugenics, Zoöl. 216.....	2

13. Special Business Electives

Investments, Econ. 222.....	3	Tax Accounting, Acctg. 286.....	3
Credits and Coll., Econ. 223.....	2	Cost Accounting, Acctg. 287.....	3
International Trade, Econ. 224.....	2	Adv. Cost Accounting, Acctg. 288.....	2
Prin. of Trans., Econ. 230.....	3	Govt. Accounting, Acctg. 289.....	2
Labor Economics, Econ. 234.....	3	Auditing, Acctg. 291.....	3
Property Insurance, Econ. 242.....	2	C. P. A. Problems, Acctg. 292.....	3
Life Insurance, Econ. 244.....	2	Spec. Accounting, Acctg. 294.....	3
Problems in Econ., Econ. 248..... Cr. Ar.		Psych. of Adv. and Selling, Psych. 265... 3	
Social Pathology, Soc. 258.....	3	Writ. and Oral Sales, Engl. 123.....	3
Pop. and Human Ecology, Soc. 259.....	2	Adv. Prob. in Coml. Corr., Engl. 223....	3
Family and Society, Soc. 260.....	2	International Law, Govt. 256.....	2
Com. Org. and Lead., Soc. 267.....	3	Govt. and Business, Govt. 260.....	2
Adv. Sociology, Soc. 273.....	3	Land Law, Govt. 276.....	2
Hist. Soc. Thought, Soc. 277.....	3	Prin. of Ind. Jour. 177.....	3
Advanced Accounting, Acctg. 281.....	3	Math. of Finance, Math. 150.....	3

Comprehensive Courses

- 101. Man's Physical World I.** 4 semester hours. Each semester.

Prerequisite: One unit each of high school algebra and plane geometry.

- 102. Man's Physical World II.** 4 semester hours. Each semester.

Prerequisite: Comp. 101. 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. The contributions of physical science and mathematics to the development of western civilizations are frequently ignored in the thinking of educated people. Probably the greatest intellectual achievement of the race has been the invention and perfection of the scientific method. To enable students to appreciate what the scientific method is, and what it has done for us philosophically as well as practically, is the chief objective of these courses. Man's application of the scientific method to the study of the physical factors of his environment has released some of the peoples of the earth from the world of superstition, dogmatism, and drudgery of the past. Americans have been leaders in the machine age, in part because they have understood, controlled, and worked with machines rather than being controlled by them. This skill is one of the by-products of the application of the scientific method to daily living. The ultimate goal of these courses is to give a picture of not only the practical and utilitarian achievements of physical science but also its impact on the life of the mind and its repercussion on the social structure. Staff.

- 111. Biology in Relation to Man I.** 4 semester hours. Each semester.

- 112. Biology in Relation to Man II.** 4 semester hours. Each semester.

Prerequisite: Comp. 111. 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. Staff.

- 121. Man and the Social World I.** 4 semester hours. Each semester.

- 122. Man and the Social World II.** 4 semester hours. Each semester.

Prerequisite: Comp. 121. Fundamental characteristics of the society in which man lives. The courses are intended to give an understanding of the part man plays in his relations with his neighbors and the broad relations among the peoples of his nation and the peoples of the world. Attention is called to the constantly changing relations among individuals and the many ways in which these changes affect individuals. The social, economic, and political institutions and practices of America are presented, and the student has an opportunity to compare them with the institutions and practices found in other parts of the world. The courses are intended to develop a keen sense of the responsibilities and duties of a citizen, and a desire to participate actively in the affairs of the community. Staff.

131. Man and the Cultural World I. 4 semester hours. Each semester.

132. Man and the Cultural World II. 4 semester hours. Each semester.

Prerequisite: Comp. 131. 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. Four hours of lecture and two of recitation a week each semester. Staff.

Bacteriology

Professor GAINEX

Professor BUSHNELL

Professor FOLTZ

Assistant Professor HARRIS

Assistant Professor LORD

Assistant Professor ERWIN

Assistant Professor MILLER

Instructor GREEN

Instructor BRASS

Graduate Assistant R. E. PATTY

Graduate Assistant KEITH

Graduate Assistant H. M. PATTY

For a minor, the following courses or their equivalent: 101, 206, 229, and 222 or 240.

For a major, at least 13 semester hours in bacteriology in addition to the minor.

FOR UNDERGRADUATE CREDIT

101. 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. Prerequisite: Chem. 103 or 110. Staff.

102. Bacteriology. 5 semester hours. Second semester and summer.

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. Prerequisite: Chem. 103 or 110. Staff.

103. 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. Prerequisite: Chem. 243. Foltz.

105. Agricultural Microbiology. 3 semester hours. Each semester.

For students in the School of Agriculture. Students who expect to take Bact. 202 or 212 should take Bact. 101 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. 103. Staff.

112. Pathogenic Bacteriology and Virology. 4 semester hours. Second semester.

Continuation of Bact. 103. Microorganisms and viruses which cause infectious diseases of domesticated animals. Two hours of recitation and six hours of laboratory a week. Prerequisite: Bact. 103. Erwin.

- 117. 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. 112. Bushnell, Foltz.
- 126. Water and Sewage Bacteriology.** 3 semester hours. First semester.
Water purification, analyses of water supplies, role of microorganisms in sewage disposal. One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 108. Lord.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 202. Soil Microbiology.** 3 semester hours. Second semester.
Microbial population of the soil and its role in soil fertility. Prerequisite: Bact. 101 or 102. Gainey.
- 204. Soil Microbiology Laboratory.** 2 semester hours. Second semester.
Laboratory experiments illustrative of theories developed in Bact. 202. Six hours of laboratory a week. Prerequisite: Bact. 202 or concurrent registration. Gainey.
- 206. 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. 101 or 102. Foltz.
- 212. Dairy Bacteriology.** 3 semester hours. Second semester.
Bacteriology of milk and milk products. Prerequisite: Bact. 101, 102, or 103. Foltz.
- 213. Dairy Bacteriology Laboratory.** 2 semester hours. Second semester.
Laboratory experiments illustrative of theories developed in Bacteriology 212. Six hours of laboratory a week. Prerequisite: Bact. 212 or concurrent registration. Foltz.
- 217. Poultry Diseases.** 2 semester hours. Second semester.
Anatomy of domestic fowls; poultry sanitation and hygiene; infectious and noninfectious diseases of fowls; parasites; minor surgery. Prerequisite: Bact. 112. Bushnell.
- 218. Poultry Sanitation.** 3 semester hours. Second semester.
Methods of control of poultry diseases. Two hours of recitation and three hours of laboratory a week. Prerequisite: Bact. 101, 102, or 105. Erwin.
- 222. Physiology of Microorganisms.** 3 semester hours. First semester.
Chemistry and physics of microbial processes. Prerequisite: Bact. 101 or 102 and Chem. 122. Harris.
- 225. Bacteriological Technic.** 3 semester hours. First 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: Bact. 101 or 102. Gainey.
- 229. 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. 206. Foltz.
- 240. Determinative Bacteriology.** 3 semester hours. First semester.
Isolation and identification of unknown bacteria. One hour of recitation and six hours of laboratory a week. Prerequisite: Bact. 101 or 102. Bushnell.
- 244. Microbial Fermentations.** 2 semester hours. Second semester.
Microbiology and chemistry of fermentation processes. Prerequisite: Bact. 101 or 102. Harris.

- 245. Food and Sanitary Bacteriology.** 3 semester hours. First semester.
Bacteriology of foods and food processing. Prerequisite: Bact. 101 or 102. Lord.
- 246. Food and Sanitary Bacteriology Laboratory.** 2 semester hours. First semester.
Bacteriological analysis of foods; microorganisms in food spoilage and fermentation. Six hours of laboratory a week. Prerequisite: Bact. 245 or concurrent registration. Lord.
- 270. Problems in Bacteriology.** Credit to be arranged. Each semester and summer.
Prerequisite: Bact. 101 or equivalent. Work is offered in:
Dairy. Foltz.
Foods. Foltz, Lord.
Poultry diseases. Bushnell.
Soils. Gainey.
Physiology. Harris.
- 275. Bacteriology Seminar.** 1 semester hour. Each semester.
Prerequisite: Consult instructor in charge. Gainey.

FOR GRADUATE CREDIT

- 301. Research in Bacteriology.** Credit to be arranged. Each semester and summer.
Prerequisite: A minor or equivalent in this department.
Work is offered in:
Dairy. Foltz.
Foods. Foltz, Lord.
Poultry diseases. Bushnell.
Soils. Gainey.
Physiology. Harris.

Botany and Plant Pathology

Professor MELCHERS
Professor MILLER
Professor HAYMAKER
Professor GATES
Professor FRAZIER
Professor HANSING
Associate Professor ELMER

Associate Professor NEWCOMB
Assistant Professor MCCracken
Assistant Professor BROOKS
Assistant Professor SLAGG
Assistant Professor THOMAS
Instructor SCHAFER
Graduate Assistant PASLAY

For a minor, the following courses should be completed: Nine credit hours of courses in the 200 group, in addition to 102.

For a major, in addition to the minor, the following courses should be completed: Ten or more credit hours in the 200 group, subsequent to the minor courses.

FOR UNDERGRADUATE CREDIT

- 102. 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. Staff.
- 110. Nature and Development of Plants.** 3 semester hours. Second 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. 102. Haymaker.

126. Medical Botany. 2 semester hours. First semester.

Stock-poisoning plants of the range; habitat, poisonous properties, and methods of control and elimination of native poisonous plants. One hour of recitation and three hours of laboratory a week. Prerequisite: High school botany or equivalent. Gates.

127. 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 the Two-year Curriculum in Agriculture.

FOR GRADUATE AND UNDERGRADUATE CREDIT

203. Fruit Crop Diseases. 3 semester hours. First semester.

Diseases of major and minor fruit crops; cause, effect on host, control. Nine hours of laboratory a week. Prerequisite: Bot. 205. Haymaker.

205. 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. 102. Staff.

206. 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. 102. Brooks.

208. 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. 102 and Chem. 125 or concurrent registration. Frazier.

210. 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. 208. Frazier.

211. Plant Physiology III. 3 semester hours. Second semester.

Continuation of Bot. 208, including photosynthesis, nitrogen metabolism, fat metabolism, digestion, translocation, respiration, and growth. Prerequisite: Bot. 208. Frazier.

217. 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. 102. Bates.

219. 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. 102. Haymaker.

220. Botany 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.

225. 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. 102. Gates.

229. Plant Ecology. 3 semester hours. Second semester.

Structure and dynamics of vegetation. Field trips. Prerequisite: Bot. 102. Gates.

232. Problems in Botany. Credit to be arranged. Each semester and summer.

Prerequisite: Bot. 102 and consent of instructor.

Work is offered in:

Anatomy. Newcomb.

Cytogenetics. McCracken.

Cytology. Newcomb.

Ecology. Gates.

Microtechnic. Bates.

Morphology. Brooks.

Mycology. Brooks.

Pathology. Melchers, Haymaker, Elmer, Hansing.

Physiology. Frazier.

Taxonomy. Gates.

235. Field Crop Diseases. 3 semester hours. Second semester.

Diseases of cereal and forage crops; cause, effect on host, control. Breeding for disease resistance. Two hours of recitation and three hours of laboratory a week. Prerequisite: Bot. 205. Melchers.

238. 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. 205. Melchers.

251. 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. 102. Newcomb.

266. 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. 205. Staff.

268. 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. 102 or Zoöl. 105. Newcomb.

270. 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. 208 or Bot. 268 or Zoöl. 214. McCracken.

272. 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. Gates.

FOR GRADUATE CREDIT

310. Research in Botany. Credit to be arranged. Each semester and summer.

Prerequisite: At least two courses in this department and approval of major adviser or head of department. Staff.

Work is offered in:

Anatomy. Newcomb.

Cytogenetics. McCracken.

Cytology. Newcomb.

Ecology. Gates.

Microtechnic. Bates.

Morphology. Brooks.

Mycology. Brooks.

Pathology. Melchers, Haymaker, Elmer, Hansing.

Physiology. Frazier.

Taxonomy. Gates.

Chemistry

Professor KING	Instructor D. SMITH
Professor HUGHES	Instructor BROSIUS
Professor BRUBAKER	Instructor YELLEY
Professor COLVER	Instructor HALL
Professor PERKINS	Instructor BEERS
Professor BARHAM	Instructor ENGLE
Professor LASH	Instructor SAWHILL
Associate Professor VAN WINKLE	Instructor CRAWFORD
Associate Professor ANDREWS	Instructor PTACEK
Associate Professor KUMMEROW	Instructor LINDENMAYER
Assistant Professor HALL	Instructor HOMMAN
Assistant Professor HARRISS	Instructor GLENDENING
Assistant Professor SMITS	Instructor H. ROBERTS
Assistant Professor McDOWELL	Instructor F. M. SMITH
Assistant Professor DEVRIES	Instructor BUNGER
Assistant Professor LANNING	Instructor HARTLEY
Assistant Professor GUERRANT	Graduate Assistant RELIHAN
Assistant Professor SHARP	Graduate Assistant FIELDS
Instructor DORF	Graduate Assistant HAWLEY
Instructor W. B. ROBERTS	Graduate Assistant NEFF
Instructor HOWELL	

For a minor, the following courses should be completed: 101, 103, 104, 227, and 211 or 212.

For a major, the student should enroll in the Curriculum in Industrial Chemistry.

FOR UNDERGRADUATE CREDIT

101. **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. 107, 108, or 110. Staff.
103. **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. 108 or 110. Prerequisite: Chem. 101. Staff.
104. **Chemistry II Laboratory.** 2 semester hours. Each semester and summer.
General principles of qualitative analysis. Six hours of laboratory a week. Not open to students who have credit in Chem. 108. Prerequisite: Chem. 103 or concurrent registration. Staff.
107. **Chemistry E-I.** 4 semester hours. Each semester and summer.
Similar content to Chem. 101, with special emphasis on applications to engineering. Three hours of recitation and three hours of laboratory a week. Not open to students who have credit in Chem. 101. Staff.
108. **Chemistry E-II.** 4 semester hours. Each semester and summer.
Continuation of Chem. 107. Three hours of recitation and three hours of laboratory a week. Prerequisite: Chem. 101 or 107. Not open to students who have credit in Chem. 103 and 104. Staff.
110. **General Chemistry.** 5 semester hours. Each semester.
Principal laws and theories of chemistry; important metallic and non-metallic substances. Three hours of recitation and six hours of laboratory a week. Not open to students who have credit in any college courses in inorganic chemistry. Staff.
122. **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. Staff.

- 125. Organic Chemistry (Agr.).** 3 semester hours. Each semester and summer.

Fundamentals of organic chemistry, particularly fats, proteins, and carbohydrates. Prerequisite: Chem. 103. Staff.

- 132. Inspection Trip.** R credit. First semester.

Such manufacturing centers as Kansas City, St. Louis, and Chicago are visited. Cost varies from \$30 to \$50. Staff.

- 133. Industrial Chemistry Seminar.** R credit. Each semester.

Special topics for undergraduates in the Curriculum in Industrial Chemistry. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 201. 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. 122. Kummerow.

- 202. 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 those of more complex composition, and compounds of the rarer elements. Prerequisites: Chem. 211 and 212. Brubaker, DeVries.

- 207. Advanced Inorganic Chemistry.** 3 semester hours. First 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. 202. Prerequisite: Chem. 104. Lash.

- 211. Quantitative Analysis A.** 3 semester hours. First semester and summer.

General procedure of gravimetric analysis. One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 104. Brubaker, DeVries.

- 212. Quantitative Analysis B.** 3 semester hours. Second semester and summer.

General procedure of volumetric analysis. One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 104. Brubaker, DeVries.

- 214. Advanced Quantitative Analysis.** 1 to 5 hours. Each semester.

Prerequisite: Chem. 211 and 212. Brubaker, DeVries.

- 215. Quantitative Analysis.** Credit to be arranged. Each semester and summer.

One hour of recitation and variable laboratory a week. Prerequisite: Chem. 104. Brubaker.

- 216. Industrial Chemical Analysis.** 3 semester hours. First semester.

One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 211 and 212. Brubaker, DeVries.

- 218. Gas Analysis.** 1 semester hour. First semester.

Analysis of air, flue and furnace gases and illuminating gas. Three hours of laboratory a week. Prerequisite: Chem. 215 or 211 and 212.

- 220. Advanced Qualitative Analysis.** 3 semester hours. Each semester.

One hour of recitation and six of laboratory a week. Prerequisite: Chem. 104. Van Winkle.

- 221. Food Analysis.** 3 semester hours. Second semester.

Quantitative methods employed in the analysis of foodstuffs, practice in testing for adulterants, preservatives, and coloring materials. Nine hours of laboratory a week. Prerequisite: Chem. 227, and 215 or 212. Brubaker, DeVries.

- 222. Instrumental Methods in Chemical Analysis.** 3 semester hours. Second semester.
Application of the spectograph, 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. 260.
- 223. Organic Chemistry I.** 5 semester hours. First semester.
Three hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 104. Colver, Dorf.
- 224. Organic Chemistry II.** 5 semester hours. Second semester.
Three hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 223. Colver, Dorf.
- 227. Organic Chemistry.** 5 semester hours. Each semester and summer.
Topics selected from the content of Chem. 223 and 224. Three hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 104. Colver.
- 228. Qualitative Organic Analysis.** 3 semester hours. First semester.
One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 224. Colver.
- 229. Quantitative Organic Analysis.** 2 semester hours. Each semester and summer.
Combustion analysis of organic compounds for carbon, hydrogen, and nitrogen; halogen and sulfur determination by the Carius method. Six hours of laboratory a week. Prerequisite: Chem. 211 and 212 and 224.
- 230. Organic Preparations.** 1 to 5 hours. First semester.
Prerequisite: Chem. 224. Colver.
- 232. Stereoisomeric and Tautomeric Compounds.** 2 semester hours. Second semester.
Prerequisite: Chem. 224. Colver.
- 233. Heterocyclic Compounds.** 2 semester hours. Second semester.
Prerequisite: Chem. 224. Colver.
- 234. Topics in Organic Chemistry.** Credit to be arranged. Each semester and summer.
Lectures with assigned readings which deal with free radicals, chemistry of starch, the organic nitrogen compounds, glycosides and alkaloids, the relationship of constitution and properties and other phases of organic chemistry. Prerequisite: Chem. 224. Colver, Barham, Sharp.
- 235. Chemistry of Sugars.** 2 semester hours. First or second semester.
Prerequisite: Chem. 224. Barham.
- 237. Special Reactions of Organic Compounds.** 2 semester hours. First semester.
Prerequisite: Chem. 224. Colver.
- 238. Catalysis in Organic Chemistry.** 3 semester hours. Second semester.
Prerequisite: Chem. 260 and 224. Barham.
- 240. Biochemistry.** 5 semester hours. Each semester and summer.
Three hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 122. Hughes.
- 241. Principles of Animal Nutrition.** 3 semester hours. Second semester.
Prerequisite: Chem. 122. Hughes.
- 242. Laboratory Technic in Animal Nutrition.** 2 semester hours. Each semester.
Preparation of diet and the 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. 240. Hughes.

- 244. Vitamins.** 2 semester hours. First or second semester.
Chemistry and functions of vitamins and related compounds. Prerequisite: Chem. 240. Hughes.
- 245. Vitamin Analysis.** 2 semester hours. Each semester and summer.
Chemical and biological determination of vitamins. Six hours of laboratory a week. Prerequisite: Chem. 240 and 212.
- 246. 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. Prerequisite: Chem. 227. Hughes.
- 247. Biochemical Preparations.** 2 to 5 hours. Second semester.
Prerequisite: Chem. 240 and 224.
- 248. Biochemical Analysis.** 2 semester hours. Each semester.
Six hours of laboratory a week. Prerequisite: Chem. 240 and 212.
- 249. 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. 122 or 125.
- 250. Pathological Chemistry.** 2 semester hours.
Prerequisite: Chem. 240. Hughes.
- 252. Chemistry of Proteins.** 3 semester hours. First semester.
Prerequisite: Chem. 122 and 260.
- 254. Intermediary Metabolism of Proteins.** 2 semester hours. First semester.
Prerequisite: Chem. 240. Hughes.
- 255. Intermediary Metabolism of Carbohydrates and Lipins.** 2 semester hours. Second semester.
Prerequisite: Chem. 240.
- 257. Biochemistry of Internal Secretions.** 2 semester hours. First or second semester.
Chemistry of the glands of internal secretions. Prerequisite: Chem. 240.
- 259. Food Technology.** 3 semester hours. First semester.
Chemical composition, production, consumption, statistics, and treatment of food material. Prerequisite: Chem. 122 or 125 or 227 or 223. Smits.
- 260. Physical Chemistry I.** 5 semester hours. First semester.
Relations with matter in the gaseous, liquid, and solid states; elementary principles of thermodynamics, solution phenomena, colloids, surface chemistry, and thermochemistry. Three hours of recitation and six hours of laboratory a week. Students from other schools may enroll without Math 115. Prerequisite: Chem. 211 and 212 or 215, and Math. 115. Hall, McDowell.
- 261. 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. 260. King, McDowell.
- 262. Physical Chemistry II Laboratory.** 2 semester hours. Second semester.
Six hours of laboratory a week. Prerequisite: Chem. 261 or concurrent registration.
- 264. Advanced Physical Chemistry I.** 3 semester hours. First semester.
Extension of certain topics of physical chemistry such as thermodynamics, chemical kinetics, photochemistry, atomic and molecular structure. Prerequisite: Chem. 261 or consent of instructor. Andrews.

265. **Advanced Physical Chemistry II.** 3 semester hours. Second semester. Continuation of Chem. 264. Prerequisite: Chem. 261 or consent of instructor. Andrews.
266. **Advanced Physical Chemistry III.** 3 semester hours. First or second semester. Continuation of Chem. 264. Prerequisite: Chem. 261 or consent of instructor. Andrews.
268. **Colloid Chemistry.** 2 semester hours. Second semester. Suspensoids and emulsoids, optical and electrical properties of colloids, Brownian movement, action of electrolytes on colloids, adsorption and surface phenomena, and short review of the methods for the preparation of colloids. Prerequisite: Chem. 260. King.
269. **Electrochemistry.** 3 semester hours. Each semester and summer. Fundamentals of electrolysis, phenomena of electrolytic dissociation, conductance, transference, electrokinetics, electromotive force of concentration and oxidation-reduction cells, polarization, and depolarization. Practical applications of electrolytic reduction and oxidation. Two hours of recitation and three hours of laboratory a week. Prerequisite: Chem. 261 and 262.
270. **Chemical Thermodynamics I.** 3 semester hours. Second semester. Thermodynamics particularly applicable to chemistry; the first and second laws of thermodynamics and their application. Prerequisite: Chem. 260 and Math. 115. Andrews.
271. **Chemical Thermodynamics II.** 3 semester hours. Second semester. Prerequisite: Chem. 270. Andrews.
272. **Topics in Inorganic Chemistry.** Credit to be arranged. Each semester.
273. **Surface Tension and Related Phenomena.** 2 semester hours. Each semester. Methods of measuring surface tension; surface energetics, relation of surface tension to adsorption; and colloidal formation. Prerequisite: Chem. 260. King, Andrews.
275. **Dairy Chemistry.** 2 semester hours. First semester. Prerequisite: Chem. 125 and 212. Whitnah.
277. **Chemistry of Soils and Fertilizers.** 2 semester hours. First semester. Six hours of laboratory a week. Prerequisite: Chem. 211. Perkins.
279. **Advanced Soil Chemistry.** 3 semester hours. Each semester. Chemical phenomena of soils, ionic exchange, electrodialysis, solutions, and colloid phenomena. One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 260 and an acceptable course in soils. Perkins.
281. **Chemistry of Crops.** 2 semester hours. Second semester. Six hours of laboratory a week. Prerequisite: Chem. 125 and 211. Perkins.
283. **Insecticides and Fungicides.** 2 semester hours. Prerequisite: Chem. 125 and 211. Smits.
285. **Chemical Microscopy.** 1 semester hour. Each semester and summer. Use of the microscope in chemical analysis, both qualitative and quantitative, applied both to inorganic substances and to vegetable and animal products. Three hours of laboratory a week. Prerequisite: Chem. 122 and 211. McDowell.

- 287. Paint Oils and Pigments.** 2 semester hours. First semester.
Extraction, purification, and properties of the oils commonly used in paints; manufacture and properties of paint pigments; products employed as protective coverings for both wood and metal. Prerequisite: Chem. 104 and 122. Olsen.
- 290. Corrosion.** 3 semester hours. Each semester.
Theories and various factors involved in the corrosion of iron, steel, and nonferrous metals; methods of testing for and preventing corrosion. Prerequisite: Chem. 223 and 260 or concurrent registration. Van Winkle.
- 292. 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. 122, 227, or 224. Smits.
- 296. Chemistry Seminar.** R credit. Each semester. Staff.
- 297. History of Chemistry.** 1 semester hour. Second semester.
Development of the principal laws and theories of chemistry; failures and triumphs of the founders of chemical science. Prerequisite: Chem. 260. Lash.
- 298. Chemical Literature.** 2 semester hours. Each semester.
Prerequisite: Chem. 224. Kummerow.
- 299. Problems in Chemistry.** Credit to be arranged. Each semester and summer. Staff.
Work is offered in:
Agricultural Chemistry.
Analytical Chemistry.
Biochemistry.
Chemical Utilization of Farm Products.
Food Chemistry.
General and Physical Chemistry.
Industrial Chemistry.
Organic Chemistry.

FOR GRADUATE CREDIT

- 301. Research in Chemistry.** Credit to be arranged. Each semester and summer.
Prerequisite: At least two courses in this department. Staff.
Work is offered in:
Agricultural Chemistry.
Analytical Chemistry.
Biochemistry.
Chemical Utilization of Farm Products.
Food Chemistry.
General and Physical Chemistry.
Industrial Chemistry.
Organic Chemistry.
- 309. Hormone Preparation and Assay.** 2 semester hours. Each semester.
Six hours of laboratory a week. Prerequisite: Chem. 257 or Zoöl. 247 or concurrent registration.
- 311. Chemistry of Enzymes.** 3 semester hours. Second semester.
Extraction, purification, and action of enzymes. One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 224 or 227. Hall.

Citizenship

Professor WALKER
Associate Professor TJERANDSEN

Associate Professor EDGAR
Associate Professor TEBOW

FOR UNDERGRADUATE CREDIT

- 101. 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. Staff.

- 102. Constitutional Democracy in America II.** 3 semester hours. Second semester.

Continuation of Cit. 101. Staff.

- 110. Freedom and Responsibility I.** 3 semester hours. First semester.

A study of the ebb and flow in man's fight for freedom and the relation of freedom to responsibility in a democratic society. The basic ideas of freedom, equality, liberty, tolerance, and justice upon which democratic institutions stand will be examined in the writings of those who have contributed most to their development. Attention will be given to the ethical and moral basis of political responsibility, and its application in the present day. Staff.

- 111. Freedom and Responsibility II.** 3 semester hours. Second semester. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 205. Democracy and Education.** 3 semester hours. Each semester and summer.

A study of the major contributions to the problem of education for citizenship in a democratic society. The effect of contemporary educational trends on preparation for citizenship will be examined in the light of the ideas advanced by outstanding educational thinkers. Prerequisite: Junior standing or consent of instructor. Staff.

- 210. 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. Staff.

- 215. 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. Staff.

- 220. Democracy and the Economic System.** 3 semester hours. Each semester and summer.

An examination of the inter-relationships of the individual, the state, and economic institutions. The effect of the changing pattern of these inter-relationships upon democracy will be examined. Prerequisite: Junior standing or consent of instructor. Staff.

- 225. 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. Staff.

- 231. Workshop in Citizenship Education.** Credit to be arranged. Summer. Prerequisite: Graduate standing or consent of the instructor. Staff.
- 235. 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. Staff.
- 284. The Journalist in Free Society.** 3 semester hours. Each semester and summer. (See Ind. Jour. 284.)
Concept of freedom of the press, from the standpoint of the journalist and the citizen in a free society. Meaning of freedom of the press, its importance in a democracy, and responsibilities which it imposes upon the journalist. Prerequisite: Junior standing or consent of instructor. Walker, Peterson.
- 295. Problems in Citizenship.** Credit to be arranged. Each semester and summer.
Prerequisite: Junior standing or consent of instructor.

FOR GRADUATE CREDIT

- 300. Research in Citizenship.** Credit to be arranged. Each semester and summer.
Prerequisite: Consent of instructor.

Economics and Sociology

Professor MONTGOMERY	Assistant Professor KELLEY
Professor FARRELL	Assistant Professor PETERS
Professor CALL	Instructor GUDGELL
Professor HOWE	Instructor MANUEL
Professor HILL	Instructor KOPPER
Professor HODGES	Instructor DODGE
Professor HOLTZ	Instructor MOUNT
Professor STEWART	Instructor LANGWORTHY
Professor JONES	Instructor HOOVER
Professor ANDERSON	Instructor GOUGH
Professor BREWSTER	Instructor GUGLER
Associate Professor COOK	Instructor KOUDELE
Associate Professor BAGLEY	Instructor MULANAX
Associate Professor DOLL	Instructor PRICHARD
Associate Professor OTTO	Instructor TESTERMAN
Associate Professor WILSON	Instructor VAN MEIR
Associate Professor BING	Research Assistant MCCOY
Associate Professor DECOUR	Graduate Assistant RILEY
Assistant Professor ERICKSEN	Graduate Assistant BAKER
Associate Professor LETBETTER	Graduate Assistant HASEGAWA
Assistant Professor PINE	Graduate Assistant HOATH
Assistant Professor LONG	Graduate Assistant REED
Assistant Professor CLARK	Graduate Assistant THOMAS

Work in economics and sociology is offered in the schools of Arts and Sciences and Agriculture. The general courses are listed here. Those which have a direct bearing on agriculture are listed in the agricultural section of the catalogue.

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 have completed 60

semester hours of college work, or in lieu thereof submit evidence of the completion of five 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 auditing, accounting, and business law, 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 must furnish evidence of having had three years of public accounting experience satisfactory to the Board of Examiners before the certificate is granted.

COURSES IN ECONOMICS

FOR UNDERGRADUATE CREDIT

(For Econ. 106, see agricultural section.)

- 101. **Economics I.** 3 semester hours. Each semester and summer.
Introductory study of the principles of economics. Staff.
- 104. **Economics II.** 3 semester hours. Each semester and summer.
Application of economic principles to the solution of economic problems. Study of problems such as labor conflict, depressions, monopoly, international economic relations, taxation, public debt, inflation and deflation. Prerequisite: Econ. 101. Bagley, Mulanax.
- 116. **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. 101. Ericksen, DeCou.
- 126. **Business Management.** 2 semester hours. Each semester and summer.
Analysis of management factors such as personnel, finance, accounting, production, and marketing. Not open to students in curriculum in Business Administration. Prerequisite: Econ. 101. Gudgell.

FOR GRADUATE AND UNDERGRADUATE CREDIT

(For Econ. 202, 203, 206A, 211, 212, 213, 215, 218, 225, 226, 227, 231, 235, 240, 251, 270, and 271, see agricultural section.)

- 210. **Economic Systems.** 2 semester hours. First semester and summer.
Prerequisite: Econ. 101. Holtz.
- 214. **Public Finance.** 3 semester hours. First semester.
Public expenditures and revenues; administration of public funds. Prerequisite: Econ. 101. Howe, DeCou.
- 215. **Business Organization and Finance.** 3 semester hours. Each semester.
Organization and classification of business enterprises, their financial structure and internal management. Prerequisite: Econ. 116 and Acctg. 134 or 136. Ericksen, DeCou.
- 222. **Investments.** 3 semester hours. First semester and summer.
Types of investment securities; investment risks and values; investment banks; investment policies. Prerequisite: Econ. 215 and Acctg. 134 or 136. Cook.
- 223. **Credits and Collections.** 2 semester hours. Second semester.
Prerequisite: Econ. 101. Ericksen.
- 224. **International Trade.** 2 semester hours. Second semester.
Economic principles underlying international trade and finance, international trade policies, technique and mechanics of exports and imports. Prerequisite: Econ. 101. Bagley.
- 230. **Principles of Transportation.** 3 semester hours. Second semester.
Development of transportation; principles involved; public regulations. Prerequisite: Econ. 101. Cook.

- 236. Business Administration Summary.** 2 semester hours. Each semester and summer.

Summarization and correlation of business and economics courses pursued in college; problems requiring application of principles and broad understanding of the field; contemporary economic developments. Prerequisite: Senior standing. Staff.

- 237. Labor Economics I.** 3 semester hours. Each semester.

Status and trends in industrial relations. Prerequisite: Econ. 101 or Soc. 151. Holtz.

- 238. Labor Economics II.** 3 semester hours. Second semester and summer.

Economic problems of labor and labor legislation. Prerequisite: Econ. 237. Holtz.

- 240. Labor Management.** 2 semester hours. Second semester.

Problems of management of foremen or supervisors. Procedures in settling grievances and disputes, handling of employees, and survey of employees' protective legislation. Prerequisite: Junior standing. Holtz.

- 242. Property Insurance.** 2 semester hours. First semester and summer.

Fire, marine, automobile, title, credit insurance, and corporate bonding; also other forms of property insurance. Prerequisite: Econ. 101. Cook.

- 244. Life Insurance.** 2 semester hours. Second semester and summer.

Nature and uses of life insurance, kinds of policies, determination of premiums, reserves, surrender values, and dividends. Prerequisite: Econ. 101. Cook.

- 246. Marketing.** 3 semester hours. First semester and summer.

Marketing functions, services, and agencies. Prerequisite: Econ. 101. Cook.

- 247. Sales Management.** 3 semester hours. Second semester.

A study of methods of hiring, training, and supervising a sales organization. Prerequisite: Econ. 246. Cook.

- 248. Problems in Economics.** Credit to be arranged. Each semester and summer.

Work is offered in banking, finance, business organization and management, general economics, international trade, insurance, investments, accounting, marketing, and public finance. Prerequisite: Senior standing. Staff.

FOR GRADUATE CREDIT

(For Econ. 301, see agricultural section.)

- 302. Research in Economics.** Credit to be arranged. Each semester and summer.

Work is offered in banking, finance, business organization and management, general economics, international trade, insurance, investments, accounting, marketing, and public finance. Prerequisite: At least two courses in this department. Staff.

- 305. Advanced Economics.** 3 semester hours. First semester and summer.

Advanced study of economic theory. Prerequisite: Econ. 101. Bagley.

- 310. History of Economic Thought.** 3 semester hours. Second semester.

Development of economics and relation of economic doctrines to conditions existing when they were formulated. Prerequisite: Econ. 101. Howe.

COURSES IN SOCIOLOGY

FOR UNDERGRADUATE CREDIT

(For Soc. 156, see agricultural section.)

- 151. Sociology.** 3 semester hours. Each semester and summer.

Fundamental principles of social life as related to other scientific principles. Prerequisite: Sophomore standing. Hill, Long, Testerman.

FOR GRADUATE AND UNDERGRADUATE CREDIT

(For Soc. 256, see agricultural section.)

- 258. Social Pathology.** 3 semester hours. Each semester and summer.
Problems of society, poverty, crime, delinquency, immigration, family discord, group conflict, and population. Prerequisite: Soc. 151. Long.
- 259. 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. Hill.
- 260. Family and Society.** 2 semester hours. Second semester.
Origin and development of marriage customs and systems of family organizations; the family under present conditions. Prerequisite: Soc. 151. Hill.
- 267. Community Organization and Leadership.** 3 semester hours. Second semester and summer.
Organizations working in urban and rural fields; principles involved and technic of organization. Prerequisite: Soc. 151. Hill, Testerman.
- 273. Advanced Sociology.** 3 semester hours. Second semester.
Continuation of Soc. 151. Prerequisite: Soc. 151. Hill.
- 277. History of Social Thought.** 3 semester hours. First semester.
Development of social thought from ancient civilization to the present. Prerequisite: Soc. 151. Holtz.
- 279. Problems in Sociology.** Credit to be arranged. Each semester and summer.
Prerequisite: Soc. 151. Hill.

FOR GRADUATE CREDIT

(For Soc. 256, see agricultural section.)

- 351. Research in Sociology.** Credit to be arranged. Each semester and summer.
Prerequisite: At least two courses in sociology. Hill.

COURSES IN ACCOUNTING

FOR UNDERGRADUATE CREDIT

(For Acctg. 112, see agricultural section.)

- 133. 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 and practice sets used as an application of principles to practice. Six hours of recitation and laboratory a week. Staff.
- 134. Accounting II.** 3 semester hours. Each semester and summer.
Partnership and corporation accounting and problems; valuation of balance-sheet items, with special reference to depreciation, inventories, and intangibles. Six hours of recitation and laboratory a week. Prerequisite: Acctg. 133. Staff.
- 136. Principles of Accounting.** 3 semester hours. Each semester.
Principles of accounting; use of accounting records and statements for individual and corporate business organizations. Not open to students in Curriculum in Business Administration. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 280. Valuation Accounting.** 3 semester hours. Each semester and summer. Advanced course in accounting theory; content and analysis of accounting statements. Prerequisite: Acctg. 134. Letbetter.
- 281. Advanced Accounting.** 3 semester hours. First semester and summer. Application of accounting principles to partnerships, corporations with subsidiaries and branches, companies in financial difficulties. Prerequisite: Acctg. 280 or concurrent registration. Letbetter, Clark.
- 286. Tax Accounting.** 3 semester hours. Second semester. Accounting problems in income, sales, social security, and other taxes. Prerequisite: Acctg. 280 or 287 or concurrent registration. Stewart.
- 287. 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. 134 or 136. Dodge, Gugler.
- 288. Advanced Cost Accounting.** 2 semester hours. Second semester. Standard distribution, and estimated costs and miscellaneous items. Prerequisite: Acctg. 287. Dodge, Gugler.
- 289. Governmental Accounting.** 2 semester hours. First semester. State and municipal accounts, and accounts for public institutions. Prerequisite: Acctg. 280 or 287. Stewart.
- 291. Auditing.** 3 semester hours. First semester. Audits of accounts of commercial enterprises; attention to balance sheets and detail audits. Prerequisite: Acctg. 280 and consent of instructor. Stewart.
- 292. C. P. A. Problems.** 3 semester hours. Second semester. Problems given in various C. P. A. examinations. Prerequisite: Consent of instructor. Letbetter, Dodge.
- 293. 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. 109. Stewart.
- 294. Specialized Accounting.** 3 semester hours. Second semester. Specialized statements, foreign exchange, estates and trusts, bank accounting, and stock brokerage. Prerequisite: Acctg. 280. Letbetter, Clark.

COURSES IN TYPEWRITING AND SHORTHAND

FOR UNDERGRADUATE CREDIT

- 140. 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.
- 141. Typewriting II.** 2 semester hours. Summer. Continuation of Typewriting I. Eight hours of class and laboratory a week, with additional practice. Prerequisite: Econ. 140 or equivalent.
- 145. Shorthand I.** 3 semester hours. Summer. Introduction to Gregg shorthand. Twelve hours of class and laboratory a week, with additional practice.
- 146. Shorthand II.** 2 semester hours. Summer. Continuation of Shorthand I. Eight hours of class and laboratory a week, with additional practice. Prerequisite: Econ. 145 or equivalent.

Education and Psychology

Professor BAKER
 Professor HOLTON
 Professor PETERSON
 Professor STRICKLAND
 Professor RUST
 Professor DAVIDSON
 Professor ALM
 Professor LANGFORD
 Professor MOGGIE
 Professor WOOLF

Associate Professor HALL
 Associate Professor BAXTER
 Assistant Professor DEMAND
 Assistant Professor LOFINK
 Assistant Professor EUSTACE
 Assistant Professor SHOWALTER
 Instructor WHIPPS
 Instructor BELL
 Graduate Assistant HOLSAN

TEACHING CERTIFICATES

The Kansas State Board of Education holds colleges responsible for recommending their students who prepare for teaching. Such recommendation will be based on the following factors: Health, both physical and mental; speech habits; general education; preparation in teaching fields; and preparation in professional education courses.

Preparation should begin not later than the sophomore year and should take into account all the above factors. In order to assist students in planning their preparation to teach, special advisers are available according to subject fields, as follows:

Agriculture. Davidson.

Art. Geiger.

Biological Science. Ameal.

English. Ansdell.

Home Economics. Rust.

Industrial Arts. Darby.

Mathematics. Greer.

Music. Leavengood.

Physical Education. Washburn, Lyman.

Physical Science. Homman.

Social Science. Crawford.

Special curriculums preparing for teaching are provided in Agriculture, Home Economics, Industrial Arts, Music, and Physical Education for Men and Women. They are printed in the catalogue under the respective School sections. In the other teaching fields the student should plan a personal curriculum which will give him adequate preparation in a major and two minor teaching fields. In a major teaching field such as social science, it is desirable to have twenty to thirty semester hours in well chosen courses. For the minor teaching fields at least the legal minimum requirement of fifteen semester hours must be met. The advisers can be very helpful in choosing courses which will best meet the needs of high school teaching.

Professional preparation in education and psychology courses must total eighteen semester hours. Both the type and sequence of these courses are important. The following should be included and as nearly as possible in the sequence given:

General Psychology

Educational Psychology

Principles of Secondary Education

Methods of Teaching in High School

Student Participation in Teaching

Elective course in education

Through the Bureau of Teaching Appointments, Kansas State students and graduates are assisted in finding suitable teaching and administrative positions. A leaflet explaining the nature and requirements of this service is available from the Bureau in Room 102, Education Hall.

COURSES IN EDUCATION**FOR UNDERGRADUATE CREDIT**

- 109. Educational Psychology.** 3 semester hours. Each semester and summer. Growth and development through the school years; the psychology of the learning process with special emphasis on school learning. Should be taken prior to other education courses by students qualifying for degree certificate. Prerequisite: Psych. 184 and sophomore standing. Moggie.
- 110. Methods of Teaching in High School.** 3 semester hours. Each semester and summer. General principles of teaching applied to high school instruction; selection and organization of teaching materials, individual adaptation, organization, and management of classroom. Prerequisite: Educ. 109 and junior standing. Strickland.
- 113. General Methods for Elementary Teachers.** 3 semester hours. Summer. A course dealing with the fundamentals of teaching and classroom management in elementary schools to meet requirements for emergency and regular elementary certificates. Prerequisite: Psych. 184. Staff.
- 118. Essentials of Reading.** 3 semester hours. Summer. For persons preparing to teach in the elementary schools of Kansas under the sixty-hour certificate. Prerequisite: Educ. 109 and sophomore standing. Staff.
- 120. Teaching Participation in Elementary Schools.** Credit to be arranged. Each semester and summer. 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. 184. Strickland.
- 129. Teaching Participation in Music.** 1 to 4 semester hours. Each semester and summer. Observation and teaching under direction in the Manhattan schools. Appointment must be made at the time of registration for the semester and general arrangements made previous to the semester. Prerequisite: Educ. 109 and Mus. 145. Staff.
- 132. 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. and Text. 114; Foods and Nutr. 102 and 107; prerequisite or concurrent registration: Educ. 109. Rust, Baxter.
- 133. Methods of Teaching for Dietetic Students.** 3 semester hours. Each semester. Principles of teaching applied to selection, organization, and development of subject matter for individuals and courses taught by dietitians. Prerequisite: Inst. Mgt. 101 or Foods and Nutr. 206, or concurrent registration. Rust.
- 134. Methods of Teaching Industrial Arts.** 3 semester hours. Each semester and summer. 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. 139 and consent of instructor. Darby.
- 136. 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 are studied, as well as the coördination of farm mechanics work. The administration, organization, and coördination of the Future Farmers of America organization with the program of instruction in vocational agriculture. Prerequisite: Educ. 109. Davidson.

139. Principles of Secondary Education. 3 semester hours. Each semester and summer.

A study of 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. 109. Strickland.

159. 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. 132. Baxter.

161. 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. 109 and 136. Davidson.

166. Teaching Participation in High 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. 109, 111, and 139, or consent of instructor. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. 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 and senior standing. Moggie.

206. Philosophy of Education. 3 semester hours. Each semester.

Controlling and unifying philosophy of the American public school system and its European background. Prerequisite: Educ. 109. Holton.

208. Audio-Visual Aids in Instruction. 2 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: Teaching participation. Staff.

212. Educational Measurement. 3 semester hours. First semester and summer.

Scientific measurement and evaluation of educational outcomes and their use as teaching tools. Prerequisite: Educ. 109 and 223. Showalter.

214. Extension Organization and Policies. 3 semester hours.

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. Neff.

216. Extension Methods for Home Economists. 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. Smurthwaite.

219. 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 and senior standing. Staff.

223. 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. 126, 261. Moggie.

225. 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. Staff.

230. 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: Teaching participation or concurrent registration. Baker.

233. 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. 132 or concurrent registration. Rust.

234. 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. 132 or equivalent. Rust.

239. Educational Sociology. 3 semester hours. Each semester.

Development of the meaning of American democracy; a study of the social and classroom activities of the public schools as a means of building socialized personality traits; development of a workable plan for practicing democracy in the public schools. Prerequisite: Educ. 109 and junior standing. Holton.

241. 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. 109. Davidson.

244. History of Education. 3 semester hours. Each semester and summer.

History of education in the United States, with a consideration of the more important present-day problems in the organization, administration, and adjustment of public education in the light of historical development. Staff.

248. Problems in Education. Credit to be arranged. Each semester and summer.

Prerequisite: Educ. 139 and approval of instructor. Staff.

Work is offered in:

Agricultural Education. Davidson.

Educational Administration. Strickland.

Educational Measurement. Strickland.
Educational Psychology. Moggie.
Educational Sociology. Holton.
Extension Education. Gemmell.
Guidance. Baker.
Home Economics Education. Rust.
Teaching Methods. Strickland.
Statistical Methods. Moggie.
Vocational Education. Davidson.

255. Technics in Agricultural Education. 3 semester hours. Each semester and summer.

Emphasis given to 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. 241. Staff.

256. Teaching Part-time and Adult Classes in Agriculture. 3 semester hours. Second semester.

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 the purpose of evaluating programs and results. Prerequisite: Educ. 241. Staff.

FOR GRADUATE CREDIT

306. Advanced Educational Administration. 3 semester hours. Second semester and summer.

The 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. Strickland.

307. Supervision and Improvement of Instruction. 3 semester hours. Summer.

A professional course primarily for public school superintendents and persons planning to enter that work. Prerequisite: At least one year of teaching experience. Staff.

308. School Business and Finance Administration. 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. Tebow.

309. The School Plant. 3 semester hours.

Determination and provision of building and other plant needs by the local public school district, including planning, financing, construction and utilization. Prerequisite: Graduate standing and one year of teaching experience. Staff.

310. County, State, and Federal School Administration and Support. 3 semester hours.

Problems of school population and relations of county, state, and federal government to school organization, administration and support. Prerequisite: Graduate standing and one year of teaching experience. Staff.

311. Secondary School Administration. 3 semester hours.

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: graduate standing, and one year of teaching experience. Staff.

313. 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. Rust.

314. Organization and Presentation of Home Economics. Credit to be arranged. Each semester and summer. Rust.

315. 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. 159 and experience in teaching home economics. Rust.

318. Seminar in Home Economics Education. 2 or 3 semester hours. Second semester and summer.

Recent trends in home economics education. Prerequisite: Educ. 159 and experience in teaching home economics. Rust and visiting instructors.

325. Research in Education. Credit to be arranged. Each semester and summer.

Prerequisite: At least two courses in this department and approval of instructor. Staff.

Work is offered in:

Agricultural Education. Davidson.
Educational Administration. Strickland.
Educational Measurement. Strickland.
Educational Psychology. Moggie.
Educational Sociology. Holton.
Guidance. Baker.
Home Economics Education. Rust.
Teaching Methods. Strickland.
Statistical Methods. Moggie.
Vocational Education. Davidson.

COURSES IN PSYCHOLOGY

FOR UNDERGRADUATE CREDIT

151. Psychology of Effective Study. 2 semester hours. Each semester.

Diagnosis of individual difficulties and application of remedial measures. Designed to meet the problems of the individual members of the class. One hour of recitation and three hours of laboratory a week. Prerequisite: Consent of the Dean of the School of Home Economics. Moggie.

184. General Psychology. 3 semester hours. Each semester and summer. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

250. 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. 184 and sophomore standing. Alm.

254. Abnormal Psychology. 3 semester hours. Each semester and summer.

Behavioral and mental disorders; psychoses, psychoneuroses, and psychopathies; and causes and methods of prevention and correction or therapy. Prerequisite: Psych. 184 and sophomore standing. Alm.

257. Advanced General Psychology. 3 semester hours. Second semester.

Primarily for the student who is working toward a master's degree in psychology, but may be taken by the undergraduate major in psychology. Aims to assist the student to achieve a critical evaluation of the principles and

facts of general psychology. Includes pertinent information from the history of psychology and important contemporary points of view. Prerequisite: Psych. 184, 254, 260, 270, 259, and Statistical Methods (Educ. 223 or Math. 126). Langford.

259. 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. 184 and Educ. 223. Peterson.

260. Group Psychological Testing. 3 semester hours. First semester and summer.

Selection of group tests for particular purposes at various age and school levels; administration, scoring, interpretation of test results, and their preparation for use in guidance and counseling and in evaluation of educational procedures. Prerequisite: Psych. 184 and Educ. 223. Peterson.

261. Individual Psychological Testing. 3 semester hours. Second semester.

Origin and development of basic concepts and technics in individual testing with intensive practice in the administration and use of the 1937 Revised Stanford Binet Test and of suitable tests of visual and auditory efficiency. Prerequisite: Psych. 184 and Educ. 223. Peterson.

265. 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. 184. Peterson.

266. Psychology of Exceptional Children. 3 semester hours. Second semester and summer.

Major forms of exceptionality such as feeble-mindedness, giftedness, subject disabilities, speech disorders, behavior problems, and delinquency. Emphasis on understanding and behavioral adjustment. Prerequisite: Psych. 184 and 250. Alm.

269. Animal Psychology. 3 semester hours. First semester.

Animal behavior from the standpoint of sensory capacities, perception, adaptive behavior, learning, insight, and other functions. A survey of psychological apparatus and contributions to animal psychology. Prerequisite: Psych. 184, Educ. 223, and Zoöl. 105. Alm.

270. Social Psychology. 3 semester hours. Each semester and summer.

A study of the psychology of the interrelations between the individual and groups of people. Prerequisite: Psych. 184 and sophomore standing. Langford.

271. Principles and Technics of Counseling. 3 semester hours. First semester.

The use of clinical data in the analysis, diagnosis, prognosis, and treatment of individual problems. Prerequisite: Psych. 260 and senior standing. Woolf.

272. Mental Hygiene and Personality Adjustment. 3 semester hours. First semester.

Dynamics of personality adjustment; measurement and description of personality; technics of mental hygiene with emphasis on group psychotherapy principles and practices; applications of mental hygiene in the family, education, business and industry, social work, and related fields. Prerequisite: Nine semester hours in psychology. Torrance.

273. Psychology and Personnel Management. 3 semester hours. First semester.

Psychological principles and procedures involved in selection, placement, training, transfer, promotion, and motivation of workers; measurement of achievement and morale. Prerequisite: Psych. 260. Peterson.

276. Psychology of Art. 3 semester hours. Each semester and summer.

Includes a brief introduction to the philosophy of art and a study of the facts and principles of psychology used in the production and appreciation of art. Special emphasis is placed on pictorial art. Prerequisite: Psych. 184 and sophomore standing. Langford.

277. Psychology of Music. 3 semester hours. Second semester and 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. 184. Staff.

278. Problems in Psychology. Credit to be arranged. Each semester and summer.

Prerequisite: Consult instructor. Staff.

279. Guidance Practicum. 3 semester hours. Each semester and summer.

Field practice in the collection of pertinent, objective data; the preparation of such data for use in guidance and counseling; and participation in student guidance and counseling. Prerequisite: Educ. 212, 230, Psych. 260, and senior standing. Staff.

280. Personnel Management Practicum. Credit to be arranged. Each semester and summer.

Directed experience in the application of principles and procedures of personnel management. Prerequisite: Senior standing and fifteen hours in courses related to personnel management. Staff.

FOR GRADUATE CREDIT

373. Psychology of Learning. 3 semester hours. Second semester and summer.

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: Eighteen hours' credit in psychology. Peterson.

376. Research in Psychology. Credit to be arranged. Each semester and summer. Staff.

COURSES IN AGRICULTURAL EDUCATION

SUMMER SESSION

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 283. Administration and Supervision of Secondary Schools.** 2 semester hours. Summer.

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. 139. Strickland.

- 285. Project Method in Agricultural Education.** 2 semester hours. Summer.

Intensive treatment of values, analysis, accounting, supervision, types, results, records, and reports of projects. Conducted on the problem basis. Prerequisite: Educ. 161. Staff.

- 287. Organization and Conduct of Group Activities.** 2 semester hours. Summer.

Fundamentals and principles on which productive class projects should be organized; research and field work in class project study. Prerequisite: Educ. 241. Staff.

- 289. Administration and Supervision of Vocational Education.** 2 semester hours. Summer.

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. 139 or 306. Davidson.

- 291. Community Problems in Vocational Agriculture.** 2 semester hours. Summer.

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. Staff.

- 293. Problems in Evening School Classes.** 2 semester hours. Summer.

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's experience teaching vocational agriculture. Staff.

- 295. Organization Problems in Teaching Farm Mechanics.** 2 semester hours. Summer.

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. 161. Staff.

FOR GRADUATE CREDIT

- 339. Problems in Part-time Classes.** 2 semester hours. Summer.

Organization, curriculum, and method of teaching part-time classes sponsored by the national Vocational Education Act. Designed for teachers in service. Prerequisite: One year's experience teaching vocational agriculture. Staff.

- 340. Statistical Methods in Agricultural Education.** 2 semester hours. Summer.

Less comprehensive treatment of topics covered in Education 223, with emphasis on the special needs of vocational agriculture teachers. Not open to students who have credit in Math. 126, 260, or 261. Moggie.

English

Professor DAVIS	Instructor KOCH
Professor CONOVER	Instructor KIRKPATRICK
Professor ROCKEY	Instructor ANSBELL
Professor MATTHEWS	Instructor WHITE
Professor RICE	Temporary Instructor CARLSON
Professor FAULKNER	Temporary Instructor DAUM
Professor CALLAHAN	Instructor FICKEL
Professor ELCOCK	Instructor IRISH
Associate Professor STURMER	Instructor FENTON
Associate Professor BREEDEN	Instructor PATTEN
Associate Professor ABERLE	Instructor GODFREY
Associate Professor GROSSHANS	Instructor MAAS
Assistant Professor GARVEY	Instructor CURRIN
Assistant Professor PARKER	Instructor ADDISON
Assistant Professor SCOTT	Instructor BACON
Assistant Professor LAMAN	Instructor LOYD
Assistant Professor LANGVARDT	Graduate Assistant POWERS
Assistant Professor BACHELDER	Graduate Assistant NOONAN
Instructor BAKER	Graduate Assistant PREDMORE
Instructor McMULLEN	Graduate Assistant SMITH
Instructor JONES	Graduate Assistant QUAKENBUSH
Instructor LILLISTON	Graduate Assistant GOSS

For a minor, the following courses should be completed in addition to 111 and 112: 170 and 171, or 173 and 174, plus three courses selected from 219, 220, 232, and 243.

For a major, the general requirement is 30 semester hours subsequent to Engl. 111 and 112. These courses should be selected in consultation with the head of the department.

FOR UNDERGRADUATE CREDIT

0. **Subfreshman English.** No credit. Each semester.
Staff.
111. **Written Communications I.** 3 semester hours. Each semester and summer.
Prerequisite: Engl. 0 or satisfactory entrance test. Staff.
112. **Written Communications II.** 2 semester hours. Each semester and summer.
Prerequisite: Engl. 111. Staff.
122. **Commercial Correspondence.** 3 semester hours. Each semester and summer.
Writing of adjustment, credit, collection, and sales letters; principles of effective commercial writing. Prerequisite: Engl. 112. Faulkner, Callahan.
123. **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. 112. Faulkner.
125. **Business English and Salesmanship.** 3 semester hours. Second semester.
Principles of business letter writing and salesmanship in the field of engineering; writing of business letters; preparation of oral and written sales material. Prerequisite: Engl. 112. Callahan.
140. **Children's Literature.** 3 semester hours. Summer.
Planned to meet the needs of teachers of rural and grade schools. Staff.

169. 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.

170. English Literature I. 3 semester hours. Each semester and summer. Prerequisite: Engl. 112. Staff.**171. English Literature II.** 3 semester hours. Each semester and summer. Prerequisite: Engl. 112. Staff.**173. American Literature I.** 3 semester hours. Each semester and summer. Prerequisite: Engl. 112. Staff.**174. American Literature II.** 3 semester hours. Each semester and summer. Prerequisite: Engl. 112. Staff.**181. History of English Literature.** 3 semester hours. Each semester and summer. Prerequisite: Engl. 170. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

215. 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. 112. Jones.

219. 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. 112. Davis.

220. 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. 112. Davis.

223. Advanced Problems in Commercial Correspondence. 3 semester hours. Second semester.

Writing adjustment, credit, and collection letters; specialized study and writing sales and business promotion letters; composition of form paragraphs and circular letters; correspondence supervision. Prerequisite: Engl. 122. Faulkner.

228. Short Story I. 3 semester hours. First semester.

The world's best short stories; practice in writing sketches and short stories. Prerequisite: Engl. 170. Rice.

230. Short Story II. 3 semester hours. Second semester.

Preparation of the short story for publication; the short story in America; types, characteristics, and tendencies. Prerequisite: Engl. 170. Rice.

232. 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. 112. Matthews, Faulkner.

234. Scientific Report Writing. 2 semester hours. Each semester.

Organization of research data and report writing on scientific subjects, preparation of material for scientific journals. Not open to students who have credit in Engl. 215. Prerequisite: Engl. 112. Jones.

243. 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. 112. Elcock, Aberle.

- 245. History of the English Language.** 1 semester hour.
Nature of language and its development; English language and its use in the United States. Prerequisite: For undergraduates, consent of the instructor; for graduates, Engl. 173. Nock.
- 247. Problems in English.** Credit to be arranged. Each semester and summer.
Prerequisite: Engl. 112. Staff. Work offered in:
Chaucer and Shakespeare. Elcock, Sturmer.
Classical Epics. Faulkner.
Midwestern Literature. Callahan.
Modern Drama and Fiction. Conover.
Novel and Short Story. Rice, Breeden.
Old and Middle English. Matthews.
Romantic Revival. Rockey.
Sketch and Column Writing. Davis.
Scientific Report Writing. Jones.
- 252. Children's Readings.** 3 semester hours. Second semester.
Literature for children; selection of books for children; training in story telling. For students of child guidance and camp counseling. Prerequisite: Engl. 170. Elcock, Aberle.
- 255. Cultural Reading.** 3 semester hours. Each semester.
Not open to students who have credit in Engl. 170, 171, 173, 174, or 181. Reading course in English and American literature, designed for students in agriculture, engineering, and other technical curriculums. Prerequisite: Engl. 112. Matthews.
- 260. Chaucer.** 3 semester hours. First semester.
Prerequisite: Engl. 170. Elcock.
- 262. Milton and the Puritan Revolt.** 3 semester hours. Second semester.
Prerequisite: Engl. 170. Elcock.
- 268. 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. 170. Callahan.
- 271. English Bible.** 3 semester hours. Each semester and summer.
Prerequisite: Engl. 170. Conover, Rockey.
- 273. 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. 170. Conover, Sturmer.
- 274. 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. 170. Conover, Sturmer.
- 276. English Essayists.** 3 semester hours. Second semester.
Among the authors discussed are Swift, Addison, Steel, Johnson, Burke, Lamb, Hazlitt, DeQuincey, Wilson, Newman, Ruskin, Spencer, Huxley, Pater, and Wilde. Prerequisite: Engl. 170. Davis, Conover.
- 278. Wordsworth, Shelley, and Keats.** 3 semester hours. First semester.
Prerequisite: Engl. 170. Faulkner.
- 280. World Classics I.** 3 semester hours. First semester.
Literary masterpieces (in translation) of early times, particularly Greek and Latin classics. Prerequisite: Engl. 170. Faulkner.
- 281. World Classics II.** 3 semester hours. Second semester.
Literary masterpieces (in translation) of western Europe, particularly Italian, Spanish, French, and German writings. Prerequisite: Engl. 170. Faulkner.

- 283. Contemporary Fiction.** 3 semester hours. First semester and summer. The more important British and American fiction since Hardy. Prerequisite: Engl. 170. Conover, Scott.
- 284. 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. 170. Conover.
- 286. Novel I.** 3 semester hours. First semester. Prerequisite: Engl. 170. Breeden.
- 287. Novel II.** 3 semester hours. Second semester. Prerequisite: Engl. 170.
- 288. 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. 173. Matthews.
- 290. 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. 173. Matthews.
- 293. Browning and Tennyson.** 3 semester hours. Second semester. Prerequisite: Engl. 170. Faulkner.
- 295. 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. 170. Elcock.
- 297. Contemporary Poetry.** 3 semester hours. Second semester and summer. Prerequisite: Engl. 170. Davis, Conover.

FOR GRADUATE CREDIT

- 305. Research in English.** Credit to be arranged. Each semester and summer. Prerequisite: At least two courses in this department. Staff. Work offered in:
- Chaucer and Shakespeare.* Elcock, Sturmer.
Classical Epics. Faulkner.
Midwestern Literature. Callahan.
Modern Drama and Fiction. Conover.
Novel and Short Story. Rice, Breeden.
Old and Middle English. Matthews.
Scientific Report Writing. Jones.
Sketch and Column Writing. Davis.

Entomology

Professor SMITH
 Professor DEAN
 Professor PARKER
 Professor PAINTER
 Associate Professor WILBUR

Associate Professor BRYSON
 Assistant Professor DAHM
 Assistant Professor KUITERT
 Graduate Assistant REDLINGER
 Graduate Assistant RHOADES

Entomology is the study of insects and their near relatives. Economic entomology stresses the relations to plants and animals including man. The courses in this department fall into two groups: (1) Broad, general, cultural courses suitable for any student, such as 102, 104, 108, 203, and 208; (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.

For a minor, the following courses should be completed: 102, 104, or 203, 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

102. General Entomology. 3 semester hours. Each semester and summer.

A basic study of insects and related arthropods as animals and how they affect plants and animals, including man. Staff.

104. General Entomology Laboratory. 1 semester hour. Each semester and summer.

Prerequisite: Ent. 102 or concurrent registration. Three hours of laboratory a week. Staff.

108. Household and Garden Insects. 2 semester hours. Second semester.

A study of the elementary structure and physiology of insects complete enough to give a clear understanding of the life history, habits, and control of the principal insect pests of the household, lawn, vegetable and flower gardens. Dean.

113. Farm Insects. 3 semester hours. Second semester.

Life history, habits, and control in insects of importance to the farm. In the laboratory, stages of insects, types of injuries, materials, and appliances for insect control will be examined. Two hours of recitation and three hours of laboratory a week. For students in the Two-Year Curriculum in Agriculture. Staff.

117. Milling Entomology. 2 semester hours. Each semester.

Insect pests of flour mills, elevators, granaries, warehouses, and bakeries, and standard methods of dealing with them; inspection trips to flour mills and warehouses. Dean.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. 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. 104 or 203. Parker.

203. General Economic Entomology. 3 semester hours. Each semester.

Elementary anatomy and physiology 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. Prerequisite: Zoöl. 105 or Bot. 102; when taken for graduate credit, Zoöl. 105. Staff.

206. 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. 102, 104, or 203, and Zoöl. 105. Dean, Wilbur.

208. 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. 102 and 104, or 203. Parker.

211. 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. 203. Wilbur.

- 212. Internal Insect Morphology.** 3 semester hours. Second semester.
Internal anatomy of representative insects; plan and structure of the internal systems. Nine hours of laboratory a week. Prerequisite: Ent. 211. Painter.
- 216. Principles of Taxonomy.** 1 semester hour. Second semester.
Determination of major orders of insects; taxonomic literature; use of catalogues. Prerequisite: Ent. 203 and 211. Painter.
- 217. 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. 203, 211, and 216 or concurrent registration. Painter.
- 218. Taxonomy of Insects II.** 3 semester hours. Second semester.
Intensive study of a selected group of insects. Nine hours of laboratory a week. Prerequisite: Ent. 217. Painter.
- 221. 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. 102, 104, or 203, and Zoöl. 105. Wilbur.
- 223. Pest Control Technology I.** 4 semester hours. First semester.
Commercial control techniques for household pests. Three hours of recitation and three hours of laboratory a week. Prerequisite: Nine hours of entomology and consent of instructor. Dahm.
- 224. Pest Control Technology II.** 4 semester hours. Second semester.
Commercial control techniques for warehouses and public buildings, public health work, rodent control. Three hours of recitation and three hours of laboratory a week. Prerequisite: Nine hours of entomology and consent of instructor. Dahm.
- 226. 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. Two hours of recitation and three hours of laboratory a week. Prerequisite: Ent. 102 and 104 or 203, and Zoöl 105. Dahm.
- 229. 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. 208. Parker.
- 230. 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. 208. Parker.
- 231. Entomological and Zoölogical Literature.** 2 semester hours. First semester.
This course, which presupposes a general knowledge of library methods, is a study of the current and past literature of all types in the zoölogical sciences, and 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 problem work by undergraduates beginning to specialize in any phase of the animal sciences. Prerequisite: Ent. 102, 104 or 203, and Zoöl 105. Smith.
- 233. 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. 102, 104, or 203, and Zoöl. 105. Bryson.
- 234. Insect Control by Host Plant Resistance.** 2 semester hours. First semester.

Offered in 1946-'47 and alternate years thereafter. 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. 221 and Ent. 102, 104 or 203, or equivalent. Painter.

236. Zoölogy and Entomology Seminar. 1 semester hour. Each semester.

Prerequisite: Consult seminar committee.

238. Problems in Entomology. Credit to be arranged. Each semester and summer.

Prerequisite: Ent. 208 or 217. Work is offered in:

Apiculture. Parker.

Economic Entomology. Staff.

Taxonomy and Morphology. Smith, Painter, Wilbur.

240. 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. 211 and Zoöl. 222. Dahm.

FOR GRADUATE CREDIT

316. Research in Entomology. Credit to be arranged. Each semester and summer.

Prerequisite: At least two courses in this department. Work is offered in:

Apiculture. Parker.

Economic Entomology. Staff.

Insect Physiology. Dahm.

Medical Entomology. Smith.

Pest Control Technology. Dahm.

Taxonomy and Morphology. Smith, Painter, Wilbur.

Geology

Professor SPERRY

Professor BYRNE

Professor CHELIKOWSKY

Assistant Professor STACEY

Assistant Professor TOLLEFSON

Assistant Professor RISEMAN

Assistant Professor BRANSON

Instructor SMITH

Instructor LARSON

Instructor BECK

Instructor SELF

Instructor BROOKS

Graduate Assistant MATHEWS

For a minor, the following courses should be completed: 103, 110, 203, and 209.

For a major, in addition to the minor, the following courses should be completed: 215, 220, and 230, and seven additional hours. The student should enroll in the Curriculum in Physical Science.

FOR UNDERGRADUATE CREDIT

102. 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. Sperry, Chelikowsky.

103. 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. Staff.

- 110. Physiographic Geology.** 3 semester hours. Second semester and summer school.

Topography of the earth and forces that have produced it. Origin of the topographic features of North America. Prerequisite: Geol. 102 or 103. Sperry, Chelikowsky.

- 140. Principles of Geography.** 3 semester hours. Second semester and summer school.

Introductory course in college geography; relationships between human activities and environment. Sperry.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 203. 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. 102 or 103. Chelikowsky.

- 204. Aerial Phototopography.** 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. 102 or 103. Chelikowsky.

- 207. 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: Chem. 110 and Geol. 203. Sperry.

- 209. 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 of laboratory a week. Prerequisite: Chem. 110. Sperry, Chelikowsky.

- 210. Field Geology.** Credit to depend upon the amount of work done. Summer school.

Opportunity is offered students to do field work in the Rocky Mountains. Students interested should consult Mr. Sperry.

- 211. Geography of the Western Hemisphere.** 3 semester hours. Second semester.

The geography of North America and South America and its European background. Prerequisite: Geol. 140. Staff.

- 212. Geography of the Eastern Hemisphere.** 3 semester hours. Second semester.

The geography of Africa, Asia, and Australia. Prerequisite: Geol. 140. Staff.

- 215. 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. 203 and 209. Sperry, Chelikowsky.

- 220. 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. 203. Byrne.

- 223. 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. 203. Chelikowsky.

- 224. 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. 203. Byrne.
- 230. 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. 203. Byrne.
- 235. 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. 209. Sperry, Chelikowsky.
- 236. 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. 203 and 209. Sperry.
- 241. Geologic Literature.** 3 semester hours. First semester.
Current geologic literature and history of geology. Prerequisite: Geol. 203 and 209. Staff.
- 245. Applied Geology.** 3 semester hours. First semester.
Geology applied to the science of engineering, particularly highway engineering. Prerequisite: Geol. 230. Staff.
- 255. Vertebrate Paleontology.** 3 semester hours. Second semester.
Evolution, geologic history, and classification of the vertebrates. Prerequisite: Geol. 203 or ten hours of Zoölogy. Byrne.
- 256. 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. 203 and junior standing. Byrne.
- 257. Political Geography.** 3 semester hours. First semester and summer.
Natural resources and geographic factors related to the state. Prerequisite: Geol. 140. Staff.
- 275. Problems in Geology.** Credit to be arranged. Each semester and summer school.
Prerequisite: Geol. 203 and 209. Staff.
Work is offered in:
Mineralogy. Chelikowsky.
Paleontology. Byrne.
Sedimentary Petrology. Sperry.

FOR GRADUATE CREDIT

- 301. Research in Geology.** Credit to be arranged. Each semester and summer school.
Prerequisite: At least two courses in this department. Staff.
Work is offered in:
Mineralogy. Chelikowsky.
Paleontology. Byrne.
Sedimentary Petrology. Sperry.

History and Government

Professor PARRISH
 Professor PRICE
 Professor ILES
 Professor CORRELL
 Professor WILLIAMS
 Professor SAGESER
 Professor SWEEDLUN

Associate Professor ALSOP
 Associate Professor C. H. MILLER
 Associate Professor WILCOXON
 Associate Professor A. D. MILLER

Assistant Professor RIGGS
 Assistant Professor EASTERLING
 Instructor TURNER
 Instructor CRAWFORD
 Instructor SOCOLOFSKY
 Instructor AIKEN
 Instructor FERGESON
 Graduate Assistant DRAYER
 Graduate Assistant HUMMEL
 Graduate Assistant BAYS
 Graduate Assistant KOHLER

For a minor, those planning to teach should complete the following courses: 106, 107, 127, 128, and 151. Those not planning to teach may substitute certain approved courses for the fulfillment of the minor.

For a major, in addition to the minor, twelve hours from the department's 200-course series should be completed.

Students who plan to major in history and government should enroll in the Curriculum in Arts and Sciences, option B. 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 expecting to teach history and government may work out the educational courses required for a state certificate by making use of some of the free electives provided in the Curriculum in Arts and Sciences.

COURSES IN HISTORY

FOR UNDERGRADUATE CREDIT

- 105. 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. Staff.

- 106. Survey of Civilization I.** 3 semester hours. Each semester and summer.

Civilizations of the world to 1650 A.D., with emphasis on Western civilization. Staff.

- 107. Survey of Civilization II.** 3 semester hours. Each semester and summer.

Civilizations of the world since 1650 A.D., with emphasis on Western civilization. Staff.

- 125. Contemporary World History.** 2 semester hours. Each semester and summer.

World developments since 1930. Concurrent registration with Hist. 126 not permitted. Staff.

- 126. Current History.** 1 semester hour. Each semester and summer.

May not be taken more than four semesters for credit. Staff.

- 127. Survey of American History I.** 3 semester hours. Each semester and summer.

Social, economic, political, and international developments of the American nation from the establishment of European colonies through the Civil War. Staff.

- 128. Survey of American History II.** 3 semester hours. Each semester and summer.

Industrial revolution, immigration, imperialism, and the changed national and international setting since the Civil War. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 201. Foundations of the American Republic.** 3 semester hours. Each semester and summer.
Origins of American democracy and development of the American nation through the War of 1812, including the industrial, social, constitutional, and political growth with the European background. Prerequisite: Three hours of American history or junior standing. Sweedlun.
- 202. American Expansion and Sectionalism.** 3 semester hours. Each semester and summer.
A study of the West; cultural phases; political and constitutional issues; importance of personal leaders; development of sectionalism from 1812 to 1876, including Kansas; causes and effects of the Civil War. Prerequisite: Three hours of American history or junior standing. Sageser, Sweedlun.
- 203. The 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. Sageser.
- 205. American Agricultural History.** 2 semester hours.
European background and Indian beginnings; colonial period; westward expansion into the prairie and great plains areas; distinctive American developments in machinery, livestock, and types of farming. Prerequisite: Junior standing. Sageser.
- 208. Latin-America.** 3 semester hours. Each semester and summer.
Spanish and Portuguese conquest and colonization in America; the colonial system; rise and development of the Latin-American nations. Prerequisite: Three hours of American history or junior standing. Sweedlun.
- 209. World Cultures I.** 3 semester hours. First semester.
Cultures and historical traditions of early and contemporary primitive peoples; the birth, growth, and influence of the classical cultures of the Hebrew, Greek, Iranian, Indian, and Chinese people. Prerequisite: Hist. 106 or Comp. 131, or junior standing. Parrish.
- 210. World Cultures II.** 3 semester hours. Second semester.
History of the major cultural traditions from the time of the maturity of classical cultures to the culture of modern times; the rise and spread of western culture. Prerequisite: Hist. 106 and 107, or Comp. 131 and 132, or junior standing. Parrish.
- 211. Modern England.** 3 semester hours. First semester and summer.
Political, economic, and cultural history of modern and contemporary Britain. Prerequisite: Three hours of European history or junior standing. Correll, Wilcoxon.
- 212. 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. Correll, Wilcoxon.
- 213. 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. Correll.
- 225. History of the Home.** 3 semester hours. Second 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. Alsop.

226. British Empire. 2 semester hours. Second semester.

British maritime expansion movement; founding of colonies overseas; growth of self-governing dominions and the British Commonwealth. Prerequisite: Three hours of European history or junior standing Correll.

228. American Diplomatic History. 2 semester hours. First semester.

Development of American foreign policy and international relations from 1763 to the present. Prerequisite: Three hours of American history or junior standing. Sageser.

232. History of Religions. 3 semester hours. Second semester and summer.

Historical survey of the world's living religions; the relation of each religion to its natural and cultural environment; dominant religious concepts, leaders, and historic developments which characterize each. Prerequisite: Three hours of European or Asiatic history, or junior standing. Parrish.

236. Far East. 3 semester hours. First semester and summer.

Modern and contemporary Chinese, Japanese, and other peoples of Eastern Asia and the western Pacific areas. Internal developments; international relations since the first peace treaties with the Western Powers. Prerequisite: Three hours of European or Asiatic history or junior standing. Parrish.

249. History of American Political Thought. 3 semester hours. First semester.

Theories and conceptions underlying the development of the American system of government; attention is directed to the views of eminent publicists and statesmen. Prerequisite: Six hours of American history or junior standing. Sageser, Sweedlun.

250. Seminar in History and Government. 2 to 5 semester hours. Each semester and summer.

Prerequisite: Consent of instructor and five hours of history basic to the field involved. Staff.

270. Problems in History and Government. Credit to be arranged. Each semester and summer.

Work is offered in:

American History. Sageser, Sweedlun, Riggs.

Asiatic History. Parrish.

European History. Parrish, Correll, Alsop, Wilcoxon.

Government and Law. Iles, Williams, A. D. Miller.

Philosophy. C. H. Miller.

Prerequisite: Consent of instructor and five hours of history basic to the field involved. Staff.

290. Historical Method and Bibliography. 2 semester hours. First 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. 106, 107, 127, and 128. Sageser.

FOR GRADUATE CREDIT

301. Research in History. Credit to be arranged. Each semester and summer.

Work is offered in:

American History. Sageser, Sweedlun, Riggs.

Asiatic History. Parrish.

European History. Parrish, Correll, Alsop, Wilcoxon.

Government and Law. Iles, Williams, A. D. Miller.

Prerequisite: Hist. 290 or concurrent registration, and at least two courses in the department. Staff.

COURSES IN PHILOSOPHY**FOR UNDERGRADUATE CREDIT**

- 140. Elementary Logic.** 3 semester hours. Each semester and summer.
A study of correct thinking, its principles and conditions, in relation to observation, biases, prejudice, scientific induction, systematic deductive inference, sophistry, fallacies, and propaganda. C. H. Miller.
- 142. Philosophy of Science I.** 3 semester hours. First semester and summer.
A survey of methods, attitudes, and institutions identified with science, together with their implications for a working philosophy of life. C. H. Miller.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 214. Contemporary World-Views.** 3 semester hours. Each semester and summer.
Study of representative idealist and naturalist philosophies and examination of their corresponding conflicts in practical affairs. Prerequisite: Junior standing. C. H. Miller.
- 216. Early Western Philosophy.** 3 semester hours. First semester and summer.
History of and readings in western philosophy from Thales to Thomas Aquinas. Prerequisite: Junior standing. C. H. Miller.
- 218. Modern Western Philosophy.** 3 semester hours. Second semester and summer.
History of and readings in western philosophy from Francis Bacon to Hegel. Prerequisite: Junior standing. C. H. Miller.
- 220. 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. C. H. Miller.
- 221. Contemporary Social Philosophies.** 3 semester hours. Each semester and summer.
A comparative study of the principles and practices associated with contemporary economic and social systems. Prerequisite: Junior standing. C. H. Miller.
- 222. Recent Political Philosophies.** 2 semester hours. Each semester and summer.
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. C. H. Miller.

COURSES IN GOVERNMENT**FOR UNDERGRADUATE CREDIT**

- 151. American Government.** 3 semester hours. Each semester and summer.
State and national government, with emphasis on constitutional principles and on functional activity. Iles, Williams, A. D. Miller.
- 154. Contemporary Governments.** 3 semester hours.
Survey of the leading contemporary national governments. Iles.
- 163. Business Law I.** 3 semester hours. Each semester and summer.
Contracts, agency, and sales. Williams.
- 164. Business Law II.** 3 semester hours. Each semester and summer.
Negotiable instruments, partnerships, and corporations. Williams.
- 167. 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. Williams.

175. **Farm Law.** 2 semester hours. Offered in alternate years.

Law, particularly real property, deeds, mortgages, relation of landlord and tenant, developed through study of Kansas cases. Prerequisite: Not open to students who have credit in Govt. 276. Williams.

FOR GRADUATE AND UNDERGRADUATE CREDIT

206. **American Political Parties.** 2 semester hours. Offered in alternate years.

Origin, development, leaders, and functions of political parties in America; issues and results of presidential elections; growth of nationality and development of self-government with special reference to present tendencies. Prerequisite: Govt. 151 or junior standing. Iles, A. D. Miller.

252. **Comparative Government.** 2 semester hours. First semester and summer.

Principal democracies, including comparisons with the government of the United States; principal dictatorships of Europe. Prerequisite: Govt. 151 or junior standing. Iles, A. D. Miller.

253. **City Government.** 3 semester hours. Second semester and summer.

Government and administration of American cities. Prerequisite: Govt. 151 or junior standing. Iles, A. D. Miller.

256. **International Law.** 2 semester hours. Second semester.

Nature and scope of international law; factors which contribute to its growth; tendencies in the development of the law today. Prerequisite: Govt. 151 or junior standing. Sageser.

260. **Government and Business.** 2 semester hours.

Constitutional limitations upon the powers of government; laws which affect economic interests such as trade regulations, taxation, labor legislation, legislation for the benefit of debtors, and emergency legislation. Prerequisite: Junior standing. Williams.

262. **Constitutional Law.** 3 semester hours. Each semester and summer.

Development of the government of the United States through judicial interpretation of the Constitution. Case method used. Prerequisite: Comp. 122 or Govt. 151. A. D. Miller.

263. **Federal Politics and Administration.** 2 semester hours.

A study of 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. A. D. Miller.

265. **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.

276. **Land Law.** 2 semester hours. First semester in alternate years.

Interests and rights in land; methods by which such interests and rights are acquired and protected; relation to landlord and tenant and that of mortgagor and mortgagee, developed by study of Kansas cases. Not open to students who have credit in Govt. 175. Williams.

FOR GRADUATE CREDIT

351. **Research in Government.** Credit to be arranged. Each semester and summer.

Work is offered in:

Government. Iles, A. D. Miller.

Law. Williams.

Prerequisite: At least two courses in government or law. Staff.

Industrial Journalism and Printing

Professor LASHBROOK
 Professor KEITH
 Professor HOSTETTER
 Associate Professor AMOS
 Associate Professor MEDLIN
 Assistant Professor MACY

Assistant Professor PETERSON
 Assistant Professor BRANDNER
 Assistant Professor DAVIS
 Instructor PARRIS
 Instructor MONTGOMERY

For a major, the student should enroll in the Curriculum in Industrial Journalism.

To be classified as "professionals," students in the Curriculum in Industrial Journalism must attain a typing speed of thirty words a minute and meet other requirements established by the department faculty.

COURSES IN INDUSTRIAL JOURNALISM

FOR UNDERGRADUATE CREDIT

145. **News Photography.** 1 semester hour. Each semester and summer.
 Planning and taking news and feature pictures; writing and editing captions for publication. Prerequisite: Phys. 151 or concurrent registration, and consent of instructor.
150. **Elementary Journalism.** 2 semester hours. Each semester and summer.
 Methods of obtaining news, the writing of the lead, and the general forms of the news story. Prerequisite: Sophomore standing. Hostetter, Parris.
153. **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. Medlin.
157. **Industrial Writing.** 3 semester hours. Each semester.
 Principles of journalism in the treatment of industrial subjects. One hour of recitation and six hours of laboratory a week. Prerequisite: Ind. Jour. 150. Hostetter, Parris.
160. **Agricultural Journalism.** 3 semester hours. Each semester.
 Principles of news writing as applied to agriculture. Two hours of recitation and three hours of laboratory a week. Macy, Parris.
162. **Radio News.** 2 semester hours. Each semester and summer.
 Processing and broadcasting of radio news. Prerequisite: Ind. Jour. 150. For nonjournalism students, Sp. 167. Parris.
166. **Editing.** 2 semester hours. Each semester and summer.
 Six hours of laboratory a week. Prerequisite: Ind. Jour. 157. Montgomery.
167. **Newspaper and Magazine Writing.** 2 semester hours. Each semester and summer.
 Feature articles; underlying principles applied to writing on agricultural and other industrial subjects. Prerequisite: Ind. Jour. 157 or consent of instructor. Peterson.
170. **Journalism for Women.** 3 semester hours. First semester and summer.
 News and feature writing for women's pages and women's magazines; consideration of specialized fields for the woman writer. Prerequisite: Ind. Jour. 167 for journalism majors; Ind. Jour. 150 for others. Hostetter.
177. **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. Keith.

- 179. Radio Advertising.** 3 semester hours. Second semester and summer.
Broadcasting station management, principles and practice in radio advertising. Prerequisite: For students in Curriculum in Industrial Journalism, Ind. Jour. 177; for other students, Sp. 167.
- 180. 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: Ind. Jour. 162. Lashbrook, Parris.
- 181. Rural Press.** 2 semester hours. Second semester.
Community newspapers; emphasis on presentation of agriculture and rural life. Prerequisite: Ind. Jour. 150. Lashbrook.
- 183. Public Information Methods.** 2 semester hours. First semester.
Prerequisite: Ind. Jour. 150. Lashbrook.
- 199. Industrial Journalism Lecture.** Required. Each semester.
Addresses by practicing newspaper workers and members of the department. Required of all students in the Curriculum in Industrial Journalism. Lashbrook.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 228. Advanced Reporting.** 3 semester hours. First semester and summer.
Reporting news of local, state, and national governments; industrial and scientific news. Two hours of recitation and three hours of laboratory a week. Prerequisite: Ind. Jour. 157. Lashbrook.
- 229. Supervision of School Publications.** 2 semester hours. Second semester and summer.
Prerequisite: For graduate credit, four hours of journalism. Medlin.
- 230. 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. Peterson.
- 252. Language of Journalism.** 2 semester hours. Second semester.
Nature and development of the English language, uses of language, words and meaning, jargon. Prerequisite: Ind. Jour. 157 or consent of instructor. Nock.
- 253. Contemporary Affairs I.** 3 semester hours. First semester.
Contemporary news events and their background. Prerequisite: Senior standing or consent of instructor.
- 255. Contemporary Affairs II.** 3 semester hours. Second semester.
Correlation and unification of various subjects previously pursued in college; contemporary development and contemporary figures in science, the arts, and philosophy. Prerequisite: For students in Curriculum in Industrial Journalism, senior standing; for others, consent of instructor. Concurrent registration with Hist. 126 not permitted.
- 265. Materials of Journalism.** 2 semester hours. First semester.
Principal newspapers and magazines; accuracy and adequacy of news reports and other published matter; materials handled by the publications; methods of treatment; character of editorial comment. Prerequisite: Ind. Jour. 166. Hostetter.
- 270. 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: Ind. Jour. 167.

273. **History and Ethics of Journalism.** 3 semester hours. First semester.
Prerequisite: Junior standing.
278. **Journalism Surveys.** 2 semester hours. Second semester.
Investigation of the periodical reading matter of communities; tabulation of information obtained; relation of the reading matter to the industrial, economic, social, and moral life of the communities. Six hours of laboratory a week. Prerequisite: Ind. Jour. 166. Staff.
282. **Column Conducting.** 2 semester hours. Second semester.
Prerequisite: Engl. 112. Davis.
284. **The Journalist in Free Society.** 3 semester hours. Each semester and summer. (See Cit. 284.)
Concept of freedom of the press, from the standpoint of the journalist and the citizen in a free society. Meaning of freedom of the press, its importance in a democracy, and responsibilities which it imposes upon the journalist. Prerequisite: Junior standing or consent of instructor. Walker, Peterson.
287. **Current Periodicals.** 3 semester hours. Second semester.
Prerequisite: Engl. 112. Staff.
288. **Trade and Technical Writing.** 2 semester hours. Second semester.
Theory and practice of writing which pertains to the special interests of industry, trade, and business. Prerequisite: Ind. Jour. 177. Staff.
289. **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: Ind. Jour. 177. Medlin.
295. **Problems in Industrial Journalism.** Credit to be arranged. Each semester and summer.
Prerequisite: Consent of instructor. Staff.
Work is offered in:
 Advertising. Keith.
 Agriculture. Lashbrook, Macy.
 Current Newspapers and Periodicals. Hostetter, Parris.
 High School Journalism. Medlin.
 History and Ethics. Medlin.
 Home Economics. Hostetter.
 News Photography. Lashbrook.
 Radio. Parris.
 Science. Hostetter.

FOR GRADUATE CREDIT

351. **Research in Industrial Journalism.** Credit to be arranged. Each semester and summer.
Prerequisite: At least two courses in this department. Staff.
Work is offered in:
 Advertising. Keith.
 Agriculture. Lashbrook, Macy.
 Current Newspapers and Periodicals. Hostetter, Parris.
 High School Journalism. Medlin.
 History and Ethics. Medlin.
 Home Economics. Hostetter.
 News Photography. Lashbrook.
 Radio. Parris.

COURSES IN PRINTING

103. **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 registration in Prtg. 104. Amos.
104. **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 registration in Prtg. 103. Amos.
108. **Ad Typography I.** 2 semester hours. Each semester.
Principles of display and design as applied to advertisements. Six hours of laboratory a week. Prerequisite: Prtg. 104. Amos.
111. **Ad Typography II.** 2 semester hours. Each semester.
Continuation of Prtg. 108. Six hours of laboratory a week. Prerequisite: Prtg. 108. Amos.
112. **Ad Typography III.** 2 semester hours. Each semester.
Continuation of Prtg. 111. Six hours of laboratory a week. Prerequisite: Prtg. 111. Amos.
114. **Job Composition I.** 2 semester hours. Each semester.
Differences in requirements for job composition and ad composition. Six hours of laboratory a week. Prerequisite: Prtg. 104. Amos.
118. **Job Composition II.** 2 semester hours. Each semester.
Color work, tabular forms, and other job work. Six hours of laboratory a week. Prerequisite: Prtg. 114. Amos.
120. **Job Composition III.** 2 semester hours. Each semester.
Continuation of Prtg. 118. Six hours of laboratory a week. Prerequisite: Prtg. 118. Amos.
122. **Presswork I.** 2 semester hours. Each semester.
Practical platen presswork under printing-office conditions. Six hours of laboratory a week. Prerequisite: Prtg. 108 or 114. Amos.
126. **Presswork II.** 2 semester hours. Each semester.
Continuation of Prtg. 122; mixing inks; color work. Six hours of laboratory a week. Prerequisite: Prtg. 122. Amos.

Library Economics

Professor BAEHR
Professor DERBY
Instructor RIDGEWAY

FOR UNDERGRADUATE CREDIT

104. **Introduction to Bibliography.** 1 semester hour. First semester.
Principles and content of general and special bibliography. Prerequisite: Junior standing.

Mathematics

Professor SANGER	Instructor CARLSON
Professor STRATTON	Instructor WOLDT
Professor WHITE	Instructor BLOUGH
Professor FRYER	Instructor LUNDHOLM
Associate Professor HYDE	Instructor KNOUSE
Associate Professor LEWIS	Instructor CHATELAIN
Associate Professor JAMES	Instructor SPANGLET
Associate Professor MOSSMAN	Instructor SITZ
Associate Professor GREER	Instructor CLAY
Associate Professor YOUNG	Graduate Assistant NYSTROM
Assistant Professor HOLROYD	Graduate Assistant GRAHAM
Assistant Professor DAUGHERTY	Graduate Assistant PUTT
Assistant Professor SLOAT	Graduate Assistant STEWARD
Assistant Professor PARKER	Graduate Assistant DIRKS
Assistant Professor FURMAN	Graduate Assistant SLAWSON
Assistant Professor NORTHAM	Graduate Assistant DUESER
Instructor BENEDICT	Graduate Assistant NYHOFF
Instructor MORLAN	Graduate Assistant DAVIS

The regulations concerning proficiency tests in mathematics are as follows:

I. 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.

II. In all other curriculums which contain a required course in mathematics, students take a proficiency test in mathematics. Results of this test determine whether a student may be required to take remedial work in mathematics. The test is given during the first two weeks of each semester and taken at the first opportunity after the student has satisfied entrance requirements in mathematics and is in residence.

For a minor in mathematics, the following courses should be completed: 101, 104, 110, 114, 115, and preferably 201.

For a major in mathematics, in addition to the minor, the following courses should be completed: 102 and 201, and three additional courses (not statistics) chosen from the 200 group, which normally include 210, one of 240, 241, 242, and one of 253, 254, 255, 256. For a major in statistics, the following courses should be completed: 201, 210, 268, 269, and six semester hours from among Mathematics 128, 213, 241, 261, 262, and 264.

FOR UNDERGRADUATE CREDIT

1. **Elementary Algebra.** 1 entrance unit credit. Each semester. Four hours of recitation a week. Staff.
3. **Plane Geometry.** 1 entrance unit credit. Each semester. Four hours of recitation a week. Staff.
20. **Intermediate Algebra.** No credit. Each semester and summer.
Review of elementary algebra; topics preparatory to Math. 104, 107, or 108. Three hours of recitation a week. Staff.
101. **Plane Trigonometry.** 3 semester hours. Each semester and summer.
Prerequisite: Plane geometry and one and one-half units of high school algebra. Staff.
102. **Solid Geometry.** 2 semester hours. Each semester and summer.
Prerequisite: Plane geometry and one unit of high-school algebra. Staff.
103. **Mathematics in Human Affairs.** 3 semester hours. Each semester and summer.
A general cultural course for students who do not take formal mathematics. Staff.

- 104. 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.
- 107. College Algebra A.** 5 semester hours. Each semester and summer.
The third semester of high-school algebra and the chief content of Math. 104. Prerequisite: Plane geometry and one unit of high-school algebra. Staff.
- 108. General Algebra.** 5 semester hours. Each semester and summer.
Prerequisite: Plane geometry and one unit of high-school algebra. Not open to students with credit in Math. 104 or 107. For students in the curriculums in Business Administration. Staff.
- 109. Spherical Trigonometry and Navigation.** 3 semester hours. Each semester and summer.
Methods used in piloting, dead-reckoning, and radio navigation. Fundamentals of spherical trigonometry and application to celestial navigation. Prerequisite: Math. 101. Staff.
- 110. Plane Analytic Geometry.** 4 semester hours. Each semester and summer.
Prerequisite: Math. 101 and 104 or 107. Staff.
- 114. Calculus I.** 4 semester hours. Each semester and summer.
Prerequisite: Math. 110. Staff.
- 115. Calculus II.** 4 semester hours. Each semester and summer.
Prerequisite: Math. 114. Staff.
- 121. Differential Equations for Engineers.** 2 semester hours. Each semester and summer.
Prerequisite: Math. 115. Staff.
- 126. Elements of Statistics.** 3 semester hours. Each semester.
A basic course in probability and statistics for students of economics, biology, and science. Not open to students who have credit in Educ. 223. Staff.
- 128. Statistical Quality Control.** 2 semester hours.
Elementary treatment of practical methods of analysis of data to estimate uniformity or nonuniformity of the quality of a manufactured product. Prerequisite: A course in statistics.
- 150. Mathematics of Finance.** 3 semester hours. Second semester.
Prerequisite: Acct. 133 and Math. 108. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 201. Differential Equations.** 3 semester hours. First semester.
Prerequisite: Math. 115. Staff.
- 210. Advanced Calculus I.** 3 semester hours. First 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. 115.
- 213. Advanced Calculus II.** 3 semester hours. Second semester.
Improper integrals, beta and gamma functions; integrals dependent on a parameter, elliptic integrals, uniform convergence of series and integrals. Prerequisite: Math. 115 and preferably 121 or 201.
- 231. Higher Mathematics for Engineers I.** 3 semester hours. First semester.
Determinants and matrices; infinite series; Fourier's series; multiple line, and improper integrals; elliptic integrals. Prerequisite: Math. 115.

- 232. Higher Mathematics for Engineers II.** 3 semester hours. Second semester.
Continuation of Math. 231, including ordinary and partial differential equations; vector analysis; probability; curve fitting. Prerequisite: Math. 115.
- 233. Fourier's Series.** 3 semester hours. Second semester.
Prerequisite: Math. 201.
- 234. Vector Analysis.** 3 semester hours. Each semester.
Methods of vector algebra and geometry, with applications, and the elements of tensors. Prerequisite: Math. 115.
- 238. Elementary Partial Differential Equations.** 3 semester hours. First semester.
Solution of partial differential equations; applications to problems of physics and engineering. Prerequisite: Math. 201.
- 240. Higher Algebra.** 3 semester hours. Each semester and summer.
Prerequisite: Math. 115.
- 241. Theory of Equations.** 3 semester hours. First semester.
Prerequisite: Math. 115. Staff.
- 242. Introduction to Theory of Matrices.** 3 semester hours.
Matrices and applications to geometry and differential equations. Prerequisite: Math. 201.
- 243. Theory of Numbers.** 3 semester hours.
Prerequisite: Math. 115.
- 253. Solid Analytic Geometry.** 3 semester hours. Second semester.
Prerequisite: Math. 115.
- 254. Modern Plane Geometry.** 3 semester hours. Second semester.
Properties of a triangle and its circles, harmonic ranges and pencils, inversion, poles and polars. Prerequisite: Math. 110.
- 255. Analytic Projective Geometry.** 3 semester hours. Second semester.
Linear dependence, homogeneous coordinates, cross ratio, properties of conics, elements of projective geometry. Prerequisite: Math. 115.
- 256. Synthetic Projective Geometry.** 3 semester hours.
Prerequisite: Math. 115.
- 258. Probability.** 3 semester hours.
Basic laws and concepts; mathematical expectation; distribution functions for normal, binomial, and Poisson populations; and applications. Prerequisite: Math. 115.
- 261. 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.
- 262. Statistical Methods II.** 3 semester hours. Second semester.
Further study of analysis of variance; technic and applications of covariance, multiple and curvilinear regression and introduction to designing of experiments. Prerequisite: Math. 261 or consent of the instructor.
- 264. Sampling Methods.** 3 semester hours. Second semester.
Design, mechanics, and analysis of sampling investigations in the fields of economics and biology; stratification; estimation of population values; accuracy of sampling estimates. Prerequisite: Math 261.

- 268. Mathematical Statistics I.** 3 semester hours.
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. 115.
- 269. Mathematical Statistics II.** 3 semester hours.
Curvilinear and multiple correlation; small sample theory; chi-squared, t , and F distributions; testing statistical hypotheses. Prerequisite: Math. 268.
- 271. Theory of Functions of a Complex Variable I.** 3 semester hours.
Prerequisite: Math. 201. Staff.
- 272. Theory of Functions of a Complex Variable II.** 3 semester hours. Second semester.
Prerequisite: Math. 271. Staff.
- 275. Advanced Differential Equations I.** 3 semester hours. First semester.
Special topics, such as the equations of Legendre, Bessel, and Ricatti, with applications. Prerequisite: Math. 201.
- 276. Advanced Differential Equations II.** 3 semester hours.
Boundary value problems associated with differential equations; their relations to integral equations. Prerequisite: Math. 275.
- 278. Calculus of Variations.** 3 semester hours. Second semester and summer.
Necessary and sufficient conditions for an extreme value; applications to geometry and mechanics. Prerequisite: Math. 201, 213.
- 280. Theoretical Mechanics.** 3 semester hours. First semester.
Prerequisite: Math. 115.
- 281. Integral Equations and Green's Functions.** 3 semester hours. Second semester.
Solutions of boundary problems, particularly in elasticity and aerodynamics, by means of integral equations, Green's functions, and partial differential equations. Prerequisite: Math. 201.
- 282. Tensor Analysis.** 3 semester hours.
Introduction to theory of tensors with applications to geometry, relativity, and applied mathematics. Prerequisite: Math. 201, 210, and 234.
- 290. Foundations of Mathematics.** 3 semester hours.
Postulates used in development of geometry and algebra. Prerequisite: Math. 115.
- 298. History of Mathematics.** 3 semester hours. Each semester and summer.
Prerequisite: Math. 110. Staff.
- 299. Topics in Mathematics.** Credit to be arranged. Each semester and summer.
Prerequisite: Math. 115. Staff.

FOR GRADUATE CREDIT

- 331. Research in Mathematics.** Credit to be arranged. Each semester and summer.
Prerequisite: At least two courses in this department subsequent to Math. 115. Staff.

Military Science and Tactics

Professor HUTCHINSON,
Inf., U. S. A.

Associate Professor CONE,
CAC, U. S. A.

Associate Professor RICHARDS,
FA, U. S. A.

Assistant Professor COPELAND,
AC, U. S. A. F.

Assistant Professor GALLUP,
AC, U. S. A. F.

Assistant Professor ————,
Sig. C, U. S. A.

Assistant Professor MURPHY,
CAC, U. S. A.

All regularly enrolled male students who are citizens of the United States and not physically disqualified are required to take military training three hours a week during their freshman and sophomore years or the equivalent. Students who enter with 25 hours of advanced credit are excused from the second year of military training; those who enter with 59 hours of advanced credit are excused from all military requirements.

The president of the College acts on all requests for excuse from military training or its postponement. Students excused from military training are assigned an equivalent amount of other college work.

Students who have had military training in a school or college offering military training under an officer of the Army of the United States detailed as professor of military science and tactics may be granted advanced standing in basic R. O. T. C. courses in Kansas State College. No credit will be given for military training taken by a student under fourteen years of age. All transfers of credit for military training are subject to the approval of the professor of military science and tactics.

Infantry, Artillery, Air, and Signal units of the Reserve Officers Training Corps have been established at Kansas State College.

PERTINENT REGULATIONS OF THE R. O. T. C.

1. Returning Servicemen. The granting of appropriate credit for military or naval service, to be applied in lieu of military training required by the institution as a result of the Act of July 2, 1862 (Morrill or Land-Grant Act), is a matter to be decided entirely by the school or state authorities concerned.

Credit toward fulfillment of prerequisite for the Advanced Course R. O. T. C. is prescribed by the War Department and will be adjusted by the Professor of Military Science and Tactics. Credit for previous R. O. T. C. training in the Junior Division (High Schools and Preparatory Schools) toward fulfillment of College and War Department requirements will be determined by the President of the College and the Professor of Military Science and Tactics. To be eligible to enroll in Advanced Course, students are required to complete the Military I to IV course at this college or establish credit for previous R. O. T. C. training, or service in the armed forces during World War II.

2. Basic Course. (Freshmen, sophomores.) Each student in these classes will be furnished complete equipment for his use in the course. The articles remain the property of the United States and must be turned in by each student at the close of each College year or upon withdrawal from the R. O. T. C. Shoes are not furnished. Brown or tan shoes of solid color must be worn with the uniform. If low shoes are worn, brown or tan socks must be worn with them.

3. Advanced Course. A. All students formally enrolled in the advanced course R. O. T. C. must:

- (1) Not have reached 27 years of age at the time of initial enrollment.
- (2) Successfully complete such survey and general screening tests as may be prescribed.
- (3) Be selected by the Professor of Military Science and Tactics and the head of the institution.
- (4) Execute a written agreement with the government to complete the Advanced Course, contingent upon remaining in school; and to attend the

Advanced Camp of not less than six weeks at the time specified during which period clothing and subsistence will be furnished and the student will be paid at the rate of \$75 per month.

- (5) Have completed the elementary course of the Senior Division R. O. T. C. or receive credit in lieu thereof.

B. A formally enrolled advanced course student will receive: Commutation of subsistence at the rate designated annually by the President of the United States. Upon completion of the Advanced Course and upon graduation from the institution he will be eligible for a commission in the Organized Reserve Corps or United States Air Force or may be commissioned in Regular Army of the United States or the Regular United States Air Force. If upon completion of the Advanced Course he has not received a degree from College or has not reached the age of 21, he will be given a certificate of eligibility and will be commissioned when he receives his degree and/or becomes 21 years of age.

C. Because of limitations in electives, the maximum number of hours in advanced R. O. T. C. available toward an undergraduate degree in the several schools is: Agriculture, 6; Engineering and Architecture, 8; Arts and Sciences, 12; Veterinary Medicine, none.

The corps of cadets at present is organized as one regiment with a military band.

FOR UNDERGRADUATE CREDIT

SENIOR DIVISION, R. O. T. C.

BASIC COURSE

105. **Military I.** 1 semester hour. First semester.

Military organization; individual weapons and marksmanship, leadership, drill, and exercise of command. Two hours of recitation and one hour of drill a week. Staff.

106. **Military II.** 1 semester hour. Second semester.

Hygiene and first aid; National Defense Act and R. O. T. C.; leadership, drill, and exercise of command. Two hours of recitation and one hour of drill a week. Prerequisite: Mil. Sc. 105. Staff.

107. **Military III.** 1 semester hour. First semester.

Military administration; evolution of warfare; leadership, drill, and exercise of command. Two hours of recitation and one hour of drill a week. Prerequisite: Mil. Sc. 106. Staff.

108. **Military IV.** 1 semester hour. Second semester.

Military law and boards; physical developments methods; map and aerial photograph reading; leadership, drill, and exercise of command. Two hours of recitation and one hour of drill a week. Prerequisite: Mil. Sc. 107. Staff.

ADVANCED COURSES

109. **Infantry V.** 3 semester hours. First semester.

Military leadership, psychology, and personnel management; leadership, drill, and exercise of command; tactics and technique. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 108. Staff.

110. **Infantry VI.** 3 semester hours. Second semester.

Geographical foundations of national powers; military law and boards of officers; tactics and technique. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 109. Staff.

111. **Infantry VII.** 3 semester hours. First semester.

Command and staff; leadership, drill, and exercise of command; military problems of United States; military teaching methods; tactics and technique. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 110. Staff.

112. Infantry VIII. 3 semester hours. Second semester.

Tactics and technique; military mobilization and demobilization; psychological warfare; combat intelligence. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 111. Staff.

117. Artillery V. 3 semester hours. First semester.

Military leadership, psychology, and personnel management; leadership, drill, and exercise of command; tactics and technique. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 108. Staff.

118. Artillery VI. 3 semester hours. Second semester.

Geographical foundations of national powers; military law and boards of officers; tactics and technique. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 117. Staff.

119. Artillery VII. 3 semester hours. First semester.

Command and staff; leadership, drill, and exercise of command; military problems of United States; military teaching methods; tactics and technique. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 118. Staff.

120. Artillery VIII. 3 semester hours. Second semester.

Tactics and technique; military mobilization and demobilization; psychological warfare; combat intelligence. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 119. Staff.

125. Air V. 3 semester hours. First semester.

Military leadership, psychology, and personnel management; geographical foundations of national power; leadership, drill, and exercise of command; tactics and technique. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 108. Staff.

126. Air VI. 3 semester hours. Second semester.

Occupied territories; military law and boards; tactics and technique. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 125. Staff.

127. Air VII. 3 semester hours. First semester.

Military problems of United States; command and staff; military teaching methods; tactics and technique; leadership, drill, and exercise of command. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 126. Staff.

128. Air VIII. 3 semester hours. Second semester.

Psychological warfare; military mobilization and demobilization; combat intelligence; tactics and technique. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 127. Staff.

[Students eligible for the Signal Corps must be enrolled in a curriculum leading to a degree in electrical, electronic, or mechanical engineering; or a major in physics. Students in engineering curriculums other than those mentioned in the preceding sentence, and veterans of World War II regardless of the curriculum in which enrolled with a minimum of twelve months' service with a technical assignment (i. e., SSN 648, 952, etc.), who desire admission to a Senior Division Signal Corps R. O. T. C. unit may be admitted by selecting and successfully completing one or more courses in electrical engineering or communications as electives during the junior and senior year.]

133. Signal V. 3 semester hours. First semester.

Military leadership, psychology, and personnel management; leadership, drill, and exercise of command; tactics and technique. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 108. Staff.

134. Signal VI. 3 semester hours. Second semester.

Geographical foundations of national powers; military law and boards of officers; tactics and technique. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 133. Staff.

135. Signal VII. 3 semester hours. First semester.

Command and staff; leadership, drill, and exercise of command; military problems of United States; military teaching methods; tactics and technique. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 134. Staff.

136. Signal VIII. 3 semester hours. Second semester.

Tactics and technique; military mobilization and demobilization, psychological warfare; combat intelligence. Three hours of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 135. Staff.

Modern Languages

Professor MOORE

Professor LEMPER

Associate Professor PETTIS

Associate Professor MUNRO

Assistant Professor RAMIREZ

Assistant Professor PYLE

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

- 101. German I. 3 semester hours. Each semester and summer.**
Moore, Munro.
- 102. German II. 3 semester hours. Each semester and summer.**
Prerequisite: Mod. Lang. 101 or equivalent. Moore, Munro.
- 111. German III. 3 semester hours. Each semester and summer.**
Prerequisite: Mod. Lang. 102 or equivalent. Moore, Munro.
- 112. German IV. 3 semester hours. Each semester and summer.**
Prerequisite: Mod. Lang. 111 or equivalent. Moore, Munro.
- 115. Technical German I. 3 semester hours. Each semester.**
Staff.
- 117. Technical German II. 3 semester hours. Each semester.**
Prerequisite: Mod. Lang. 115 or equivalent. Staff.
- 119. Technical German III. 4 semester hours. Each semester.**
Prerequisite: Mod. Lang. 102 or 117 or equivalent. Staff.
- 121. Technical German IV. 2 semester hours. First or second semester.**
Prerequisite: Mod. Lang. 119 or equivalent. Staff.
- 140. Russian I. 3 semester hours. First semester.**
Prerequisite: Six hours of some other foreign language. Munro.
- 141. Russian II. 3 semester hours. Second semester.**
Prerequisite: Mod. Lang. 140. Munro.
- 151. French I. 3 semester hours. Each semester and summer.**
Staff.
- 152. French II. 3 semester hours. Each semester and summer.**
Prerequisite: Mod. Lang. 151 or equivalent. Staff.
- 161. French III. 3 semester hours. Each semester and summer.**
Prerequisite: Mod. Lang. 152 or equivalent. Staff.
- 162. French IV. 3 semester hours. Each semester.**
Prerequisite: Mod. Lang. 161 or equivalent. Staff.

- 163. French Composition and Conversation.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 162. Pyle.
- 176. Spanish I.** 3 semester hours. Each semester and summer.
Staff.
- 177. Spanish II.** 3 semester hours. Each semester and summer.
Prerequisite: Mod. Lang. 176 or equivalent. Staff.
- 180. Spanish III.** 3 semester hours. Each semester and summer.
Prerequisite: Mod. Lang. 177 or equivalent. Staff.
- 181. Spanish IV.** 3 semester hours. Each semester and summer.
Prerequisite: Mod. Lang. 180 or equivalent. Staff.
- 194. Spanish Composition and Conversation.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 181 or equivalent. Pettis, Ramirez.
- 197. Portuguese I.** 3 semester hours. First semester.
Prerequisite: Fifteen hours of Spanish or senior standing.
- 198. Portuguese II.** 3 semester hours. Second semester.
Prerequisite: Mod. Lang. 197.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 207. German Prose.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 112 or equivalent. Moore, Munro.
- 209. Schiller.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 112 or equivalent. Moore.
- 213. Goethe.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 112 or equivalent. Moore.
- 215. German Drama.** 3 semester hours. First or second semester.
Prerequisite: Eighteen hours of college German or equivalent. Moore, Munro.
- 252. French Prose.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 162 or equivalent. Pettis, Pyle.
- 257. Seventeenth Century French Drama.** 3 semester hours. First or second semester.
Prerequisite: Fifteen hours of college French or equivalent. Pettis.
- 258. Modern French Drama.** 3 semester hours. First or second semester.
Prerequisite: Fifteen hours of college French or equivalent. Pyle.
- 275. Spanish Prose.** 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 181 or equivalent. Staff.
- 277. Spanish Novel.** 3 semester hours. First or second semester.
Prerequisite: Fifteen hours of college Spanish or equivalent. Pettis.
- 280. Spanish Drama I.** 3 semester hours. First or second semester.
Prerequisite: Fifteen hours of college Spanish or equivalent. Ramirez.
- 281. Spanish Drama II.** 3 semester hours. First or second semester.
Prerequisite: Fifteen hours of college Spanish or equivalent. Ramirez.
- 282. Spanish-American Literature.** 3 semester hours. First or second semester.
Prerequisite: Eighteen hours of college Spanish or equivalent. Ramirez.
- 299. Problems in Modern Languages.** Credit to be arranged. Each semester and summer.
Staff.

Music

Professor LEAVENGOOD

Professor LINDQUIST

Professor STRATTON

Professor STEUNENBERG

Associate Professor WEST

Assistant Professor HARTMAN

Assistant Professor PAINTER

Assistant Professor MARTIN

Assistant Professor PELTON

Assistant Professor GROSSMANN

Assistant Professor HAYS

Assistant Professor SULINSKI

Instructor GEPPERT

Instructor HEDLUND

Instructor DAVIDSON

Graduate Assistant SMITH

Graduate Assistant YOUNG

Graduate Assistant COY

For a minor, the following courses are required: Mus. 118, 125, 126, 133, 134, 145, 146, 147, 153, or 156 (2 hours), 161 (2 hours), and 176 (2 semesters).

For the thirty-hour major in the Curriculum in Arts and Sciences, Option A, the student is required to take the following courses: Instrument or Voice, six hours; Mus. 125, 126, 127, 128, twelve hours; 130, 131, four hours; electives, eight hours.

Students intending to be certified to teach music in the public schools of Kansas must take the following courses: For grade supervisors and choral directors, Mus. 142, 145, and two years in a choral organization; for band and orchestra directors, Mus. 123, 124, and two years in band or orchestra.

Prerequisites for students taking a thirty-hour major in music in the Curriculum in Arts and Sciences, Option A, are the same as for candidates for the Bachelor of Science 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, can not 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. Only students who are regularly enrolled in the College and paying the special fees for private lessons will be assigned practice rooms.

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 pass 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

118. Music Fundamentals. 2 semester hours. Each semester and summer.

Elementary instruction in the theory of music. Three hours of recitation a week. Not open to students in music curriculums. Hartman.

119. 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. 163 or equivalent. Stratton.

123. Instrumental Methods I. 2 semester hours. Each semester and summer.

Organization and maintenance of the band; relationship and responsibilities of the school music program to the community; literature for junior and senior high school bands. Staff.

124. Instrumental Methods II. 2 semester hours. Each semester and summer.

Organization of beginning string classes in the grades; relationship of the ensemble program to junior and senior high school orchestra. Staff.

- 125. Theory of Music I.** 3 semester hours. Each semester and summer.
Harmony, ear training, and sight singing. Six hours of recitation a week.
Geppert.
- 126. Theory of Music II.** 3 semester hours. Each semester and summer.
Continuation of Mus. 125. Six hours of recitation a week. Prerequisite:
Mus. 125. Geppert.
- 127. Theory of Music III.** 3 semester hours. First semester and summer.
Continuation of Mus. 126. Six hours of recitation a week. Prerequisite:
Mus. 126. Geppert.
- 128. Theory of Music IV.** 3 semester hours. Second semester and summer.
Continuation of Mus. 127. Six hours of recitation a week. Prerequisite:
Mus. 127. Geppert.
- 130. History and Appreciation of Music I.** 2 semester hours. First semester and summer.
The three periods in the history of music, the style of music peculiar to each, and musical contact with the great composers. Three hours of recitation a week. Sulinski.
- 131. History and Appreciation of Music II.** 2 semester hours. Second semester and summer.
Continuation of Mus. 130. Three hours of recitation a week. Prerequisite: Mus. 130 or equivalent. Sulinski.
- 133. Choral Conducting.** 1 semester hour. Each semester and summer. Two hours of recitation a week.
Prerequisite: Mus. 118 or equivalent. Lindquist.
- 134. Instrumental Conducting.** 1 semester hour. Each semester and summer. Two hours of recitation a week.
Prerequisite: Mus. 128 and 133. Steunenberg.
- 136. Instrumentation and Orchestration.** 3 semester hours. Each semester and summer.
Instruments of the band and orchestra studied with relation to tone, color, range, and function; simple and familiar compositions scored for ensemble, including full orchestra. Prerequisite: Mus. 128. Steunenberg.
- 140. Counterpoint.** 2 semester hours. Each semester and summer.
Melody writing; association and melodies in simple counterpoint, leading to the writing of original two-part and three-part inventions. Prerequisite: Mus. 128. Steunenberg.
- 141. 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. 140. Steunenberg.
- 142. School Music I.** 2 semester hours. First semester and summer.
Methods and materials for teaching music in kindergarten. Adaptation is made in summer school to meet the needs of rural and small-city schools. Prerequisite: Mus. 126 or consent of instructor. Hartman.
- 145. School Music II.** 2 semester hours. Second semester and summer.
Methods and materials for primary grades. Prerequisite: Mus. 142. Hartman.
- 146. Orchestral Instruments I.** 1 semester hour. Each semester and summer.
Methods of tone production of instruments of the orchestra. Two hours of recitation and one hour of laboratory a week. Steunenberg, Martin.
- 147. Orchestral Instruments II.** 1 semester hour. Each semester and summer.
Continuation of Mus. 146. Two hours of recitation and one hour of laboratory a week. Steunenberg, Martin.

148. Orchestral Instruments III. 1 semester hour. Each semester and summer.

Continuation of Mus. 147. Two hours of recitation and one hour of laboratory a week. Steunenbergh, Hedlund.

149. 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. Staff.

150. Orchestral Instruments IV. 1 semester hour. Each semester and summer.

Continuation of Mus. 148. Two hours of recitation and one hour of laboratory a week. Steunenbergh, Davidson.

152. School Music III. 2 semester hours. Each semester and summer.

Methods and teaching materials suitable for junior and senior high school. Prerequisite: Mus. 145 or consent of instructor. Hartman.

COURSES IN APPLIED MUSIC

153. Instrument. 0 to 2 semester hours; maximum of 16 hours allowed. Each semester and summer.

For fees, see table following Mus. 301. Hedlund, Davidson.

156. Voice. 0 to 2 semester hours; maximum of 16 hours allowed. Each semester and summer.

For fees, see table following Mus. 301. Lindquist, West, Grossmann.

158. Violin. 0 to 2 semester hours; maximum of 16 hours allowed. Each semester and summer.

For fees, see table following Mus. 301. Leavengood, Martin.

161. Piano. 0 to 2 semester hours; maximum of 16 hours allowed. Each semester and summer.

For fees, see table following Mus. 301. Staff.

163. Violoncello. 0 to 2 semester hours; maximum of 16 hours allowed. Each semester and summer.

For fees, see table following Mus. 301. Sulinski.

167. Double Bass. 0 to 2 semester hours; maximum of 16 hours allowed. Each semester and summer.

For fees, see table following Mus. 301. Sulinski.

172. Organ. 0 to 2 semester hours; maximum of 16 hours allowed. Each semester and summer.

For fees, see table following Mus. 301. Hays.

174. Vocal Ensemble. R credit. Each semester and summer. Two hours of laboratory a week.

Elective for students of superior vocal talent. Lindquist, West, Grossmann.

176. Piano Ensemble. R credit. Each semester. One hour of recitation a week.

Required of students enrolled in the music curriculums. Pelton.

178. Instrumental Ensemble. 1 semester hour. Each semester and summer. Three hours of laboratory a week.

Elective for selected students. Staff.

181. Recital Attendance. R credit. Each semester. Staff.

182. Junior Recital. 1 semester hour. Second semester.

A joint solo recital appearance. For students in the Curriculum in Applied Music. Staff.

- 184. Senior Recital.** 2 semester hours. Second semester.
An individual solo recital appearance. For students in the Curriculum in Applied Music. Staff.
- 187. Practice Teaching in Applied Music.** R credit. First semester.
Practice teaching in private classes for students in the Curriculum in Applied Music. One hour of recitation a week. Staff.
- 188. A Cappella Choir.** R in curriculums in music; 1 semester hour in other curriculums. Each semester.
Membership by tryouts open to all students. Leavengood.
- 189. Men's Glee Club.** R in curriculums in music; 1 semester hour in other curriculums. Each semester.
Membership by tryouts open to all students. West.
- 190. Women's Glee Club.** R in curriculums in music; 1 semester hour in other curriculums. Each semester.
Memberships by tryouts open to all students. Grossmann.
- 193. College Chorus.** R in curriculums in music; 1 semester hour in other curriculums. Each semester and summer.
Preparation and performance of oratorio and octavo music. Prerequisite: Voice of good quality, ability to read musical notation.
- 196. Orchestra.** R in curriculums in music; 1 semester hour in other curriculums. Each semester.
Membership by tryouts open to all students. Leavengood.
- 197. Band.** R in curriculums in music; 1 semester hour in other curriculums. Each semester.
Membership by tryouts open to all students. Hedlund, Davidson.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 203. 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. Hays.
- 204. 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. Hays.
- 208. 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 Comp. 132 or equivalent. Stratton.
- 209. 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. 131 or Comp. 132 or equivalent. Stratton.
- 215. Introduction to Musicology.** 3 semester hours. Second semester.
A survey of the various musical fields in which scientific investigations have been carried on, designed to assist the student in broadening his horizons and developing a well-rounded philosophy of music. Prerequisite: Junior standing, Mus. 130, 131, Comp. 131, 132 or Hist. 106, 107. Stratton.
- 225. Applied Music.** Credit to be arranged. Each semester and summer.
Prerequisite: Junior standing and consent of instructor. Staff.
- 230. Music Supervision.** 3 semester hours. Second semester and summer.
Organization, administration, and supervision of music in public schools; materials, methods, organizations, public performances, and festivals. Prerequisite: Mus. 152. Steunenbergh.

233. Advanced Instrumental Methods. 2 semester hours. Second semester and summer.

Methods, repertoire, conducting, contest, interpretation, individual instruction, and ensembles. Prerequisite: Mus. 123, 124, and 134. Steunenberg.

240. Music in America. 2 semester hours. Each semester and summer.

Music of the colonist, singing school, folk song, ballad, spiritual, revival song, heart song, minstrel, ragtime, jazz, swing, concert and theater music. Prerequisite: Senior standing. Stratton.

243. Eighteenth and Nineteenth Century Music. 2 semester hours. Summer.

Music which serves as a background and culminates in contemporary musical art; madrigal, art song, cantata, orations, opera, symphony, concerts, and the symphonic poem. Prerequisite: Senior standing. Stratton.

246. Music in History. 3 semester hours. First semester and summer.

Historical development of music; its relationship to architecture, painting, sculpture, fine arts; its relationship to political, economic, social, and religious life. Prerequisite: Senior standing. Stratton.

260. Marching Band. 1 or 2 semester hours. First semester.

Band instrumentation; problems of the band on the field, the drum major. Prerequisite: Mus. 123, 124. Hedlund.

263. Studies in Music Education. 3 semester hours. First semester.

Special phases of music education adapted to needs of the student enrolled. Prerequisite: Mus. 152. Steunenberg.

275. Advanced Theory I. 3 semester hours. First semester.

Combination of harmony, counterpoint, and form as used in compositions in their historical setting. Prerequisite: Mus. 140, 141. Steunenberg.

276. Advanced Theory II. 3 semester hours. Second semester.

Modern chord structures, atonality, polytonality, form used in contemporary compositions. Prerequisite: Mus. 140, 141. Steunenberg.

277. Psychology of Music. 3 semester hours. (See Psych. 277.)

299. Problems in Music. Credit to be arranged. Each semester and summer.

Prerequisite: Senior standing and consent of instructor. Staff.

FOR GRADUATE CREDIT

301. Research in Music. Credit to be arranged. Each semester and summer.

Prerequisite: Graduate standing and consent of instructor. Staff.

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 and Athletics

Professor McCrady

Professor Ahearn

Professor Washburn

Professor Geyer

Professor Francis

Associate Professor Haylett

Associate Professor Moll

Associate Professor Gardner

Associate Professor Lyman

Assistant Professor Fiser

Assistant Professor McKinney

Instructor Carrasas

Assistant Professor Pitts

Assistant Professor Carrasas

Instructor Thompson

Instructor Lawhead

Instructor Knorr

Instructor Neve

Instructor Owens

Instructor Reynard

Instructor Winter

Assistant Stover

Each student receives a physical examination before enrollment in courses in the Department of Physical Education and Athletics. Students should take courses 103 for men and 151 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. 103 or 151.

For a major, a student should enroll in one of the curriculums in Physical Education.

COURSES IN PHYSICAL EDUCATION FOR MEN

FOR UNDERGRADUATE CREDIT

- 103. Physical Education M.** No credit. Each semester and summer.

Activities offered: Athletic sports, apparatus work, boxing, calisthenics, individual physical education, swimming, tumbling, and wrestling. Staff.

- 107. Introduction to Physical Education.** 1 semester hour. First semester.

Introductory survey of the field and study of the principles of health and physical education. Washburn.

- 113. 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: Zoöl. 123. Moll, Washburn.

- 114. Major Sports I.** 3 semester hours. First semester.

Rules, theory and practice, officiating and methods of coaching baseball and basketball. One hour of recitation and six hours of laboratory a week. Gardner, Fiser.

- 115. Major Sports II.** 3 semester hours. Second semester.

Rules, theory and practice, officiating and methods of coaching football and track and field sports. One hour of recitation and six hours of laboratory a week. Francis, Haylett.

- 118. 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. Washburn.

- 119. Personal Hygiene.** 2 semester hours. First semester and summer.
Moll, Evans, Washburn.
- 120. 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. Moll.
- 124. Health Examinations.** 3 semester hours. First semester.
Methods of giving health examinations; postural deviations; corrective exercise. Prerequisite: Phys. Ed. 132. Washburn.
- 132. Kinesiology M.** 2 semester hours. Second semester.
Body movements analyzed; principles involved applied to teaching of physical education. Prerequisite: Zoöl. 123. Thompson.
- 134. 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. Staff.
- 135. 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. Thompson, Patterson.
- 138. 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. Thompson.
- 139. Physical Education Activities III.** 2 semester hours. First semester.
Graded exercises on gymnasium apparatus, rhythms, and pyramids. Six hours of laboratory a week. Thompson.
- 142. 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. Washburn.
- 143. History of Physical Education.** 2 semester hours. First semester.
Prerequisite: Phys. Ed. 107.
- 145. 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. 184. Washburn.
- 146. Administration of Health and Physical Education.** 3 semester hours.
First semester.
Prerequisite: Junior standing. Washburn.
- 147. Community Hygiene.** 2 semester hours. Second semester.
Production, improvement, maintenance, and defense of public health. Prerequisite: Phys. Ed. 119. Moll.
- 149. Teaching Health.** 2 semester hours. Second semester.
Materials and methods of teaching health at the junior and senior high school level. Prerequisites: Phys. Ed. 147, Zoöl. 123 and 221. Moll.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 203. 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. 145, Psych. 184. Washburn.

- 205. 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. 223. Washburn.
- 207. Physiology of Exercise.** 2 semester hours. First semester and summer.
Effects of exercise on the tissues, systems, and organs of the body. Prerequisite: Zoöl. 221. Moll.
- 211. Advanced Methods of Teaching Physical Education.** 2 semester hours.
Second semester and summer.
Prerequisite: Phys. Ed. 142 or equivalent. Thompson.
- 213. Administration of Physical Education in Colleges and Universities.** 2 semester hours. First semester and summer. Washburn.
- 217. 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. 142 or equivalent. Moll.
- 240. Seminar in Physical Education.** Credit to be arranged.
Recent trends and problems in Physical Education. Prerequisite: Senior standing and consent of instructor.
- 245. Seminar in Health Education.** Credit to be arranged.
Recent trends and problems in Health Education. Prerequisite: Phys. Ed. 146 and consent of instructor.

FOR GRADUATE CREDIT

- 302. Research in Physical Education.** Credit to be arranged.
Prerequisite: Variable, depending on problem chosen. Staff.
- 305. 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: Phys. Ed. 146, Educ. 153. Washburn.
- 307. 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. 149. Moll.

COURSES IN PHYSICAL EDUCATION FOR WOMEN

Recreational swimming is offered on Tuesdays and Thursdays at 5 o'clock for those who are registered in the college.

FOR UNDERGRADUATE CREDIT

- 151. 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. Staff.
- 154. 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. Carrasas.
- 157A. General Technic I.** 2 semester hours. First semester.
Theory and practice of self-testing activities. One hour of recitation and three hours of laboratory a week. Lyman.

157B. General Technic II. 2 semester hours. Second semester.

Theory and practice of tumbling and recreational sports. One hour of recitation and three hours of laboratory a week. Lyman.

157C. General Technic III. 2 semester hours. First semester.

Methods of teaching hockey, soccer, speedball, and fieldball. One hour of recitation and three hours of laboratory a week. Prerequisite: Ability to play hockey and soccer. Geyer.

157D. General Technic IV. 2 semester hours. Second semester.

Methods of teaching basketball, softball, and volleyball. One hour of recitation and three of laboratory a week. Prerequisite: Ability to play basketball, softball, and volleyball. Geyer.

157E. General Technic V. 2 semester hours. First semester.

Methods of teaching tennis, golf, and Danish gymnastics. One hour of recitation and three of laboratory a week. Prerequisite: Knowledge of tennis, golf, and Danish gymnastics. Geyer.

157F. General Technic VI. 2 semester hours. Second semester.

Methods of teaching child rhythms and folk dancing. Six hours of laboratory a week. Prerequisite: Phys. Ed. 154 and one-half semester each of folk dancing and tap dancing. Carrasas.

157G. General Technic VII. 2 semester hours. First semester.

One hour of recitation and three of laboratory a week. Prerequisite: A semester each of beginning and intermediate modern dance. Carrasas.

157H. General Technic VIII. 2 semester hours. Second semester.

Methods of teaching swimming and archery. One hour of recitation and three of laboratory a week. Prerequisite: A semester each of beginning and intermediate swimming; one-half semester of archery. Lyman, Geyer.

159. 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 curriculums in Physical Education.

160. 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. 151, one semester of modern dance or consent of instructor. May not be taken more than four semesters for credit.

161. Personal Hygiene W. 2 semester hours. First semester.

Not open to students who have credit in Ch. Welf. 101.

162. 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. Lyman.

164. Clog and Character Dancing W. 1 semester hour. Summer.

Six hours of laboratory a week.

165. Tumbling, Pyramids, and Stunts W. 1 semester hour. Summer.

Six hours of laboratory a week.

166. Intramural Athletics for Women W. 1 semester hour. Summer.

This course is offered for teachers who direct intramural activities. Types and methods of conducting intramural athletics in high schools will be considered.

167. Camp Craft W. 1 semester hour. Summer.

Fire building, outdoor cooking, day and overnight trips, and handcraft. Lectures, reports, and practical work.

168. Games for Grades and High School. 2 semester hours. Summer.

Methods of teaching games in public schools suitable for recess, noon and after-school periods. Two hours of recitation and six hours of laboratory a week.

169. Physical Education in Small Schools. 2 semester hours. Summer.

Not open to students in physical education curriculums. Practical work for women not professionally trained in physical education. Two hours of recitation and six hours of laboratory a week.

174. 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. 184 and Zoöl. 123, 221. Lyman.

175. 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 of laboratory a week. Prerequisite: Phys. Ed. 174, 184, and Zoöl. 123. Lyman.

176. Organization and Administration of Physical Education W. 2 semester hours. Second semester.

Administrative policies of departments of physical education; the staff, activities, basic principles; construction, equipment and care of plant. Prerequisite: Phys. Ed. 157A to 157G, 179, and 188. Geyer.

177. Playground Management and Games. 3 semester hours. First semester.

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. Carrasas.

178. Folk Dancing W. 1 semester hour. Summer.

Singing games, rhythms, and folk dancing for elementary and secondary schools. Six hours of laboratory a week.

179. Health Teaching in High School. 3 semester hours. First semester.

Subject matter and methods of presentation of health education; integration with general courses. Prerequisite: Child Welf. 101. Geyer.

181. 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.

184. Kinesiology W. 2 semester hours. Second semester.

Mechanics of movement; body movements analyzed and principles involved applied to the teaching of physical education. Prerequisite: Zoöl. 123. Geyer.

187. Technic of Basketball, Softball and Volleyball. 1 semester hour. Summer.

Rules, duties of officials, organization of squads and teams, equipment, methods of coaching and conducting tournaments. Six hours of laboratory a week.

188. 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. 157A to 157F and 177. Lyman.

191. Recreational Leadership W. 2 semester hours. Second semester.

Principles and methods of organizing communities for leisure activities. Lyman.

198. Group Recreation. 2 semester hours. Summer.

Selection and organization of recreation for men and women, for class, noon hour, or extracurricular activities.

COURSES FOR MEN AND WOMEN**FOR GRADUATE AND UNDERGRADUATE CREDIT****298. Problems in Physical Education.** Credit to be arranged.

Prerequisite: Variable, depending on problem chosen. Staff.

Physics

Professor CARDWELL

Professor RABURN

Professor FLOYD

Professor WHITCOMB

Associate Professor CHAPIN

Associate Professor AVERY

Associate Professor BRACKETT

Associate Professor LYON

Associate Professor ELLSWORTH

Associate Professor LEAF

Associate Professor MCFARLAND

Assistant Professor MAXWELL

Assistant Professor FROSLIE

Instructor PETERSON

Instructor LUPFER

Instructor ALSOP

Graduate Assistant CLAY

Graduate Assistant REINKING

Graduate Assistant DILDINE

Graduate Assistant NEWKIRK

Graduate Assistant PHILLIPS

Graduate Assistant WICHERS

Graduate Assistant COLLINS

Graduate Assistant DALE

For a minor, the following courses should be completed: 102, 103 (or 105, 106), 243, 244, 251, and 255.

For a major, the student should enroll in the Curriculum in Industrial Physics, and prospective teachers should enroll in the Curriculum in Physical Science.

FOR UNDERGRADUATE CREDIT**102. 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. 101. Staff.

103. 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: Physics 102. Staff.

105. 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. 101. Staff.

106. 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: Physics 105. Staff.

109. 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. Avery.

120. Physics for Musicians. 3 semester hours. Each semester.

Selected topics applied to the physics of music and musical instruments. Floyd, Chapin.

124. Descriptive Physics. 3 semester hours. Each semester.

Two hours of recitation and three hours of laboratory a week. For students in the School of Veterinary Medicine.

134. 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. Brackett.

- 141. Descriptive Astronomy.** 3 semester hours. Each semester.
- 146. 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.
- 151. 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. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 201. Laboratory Technic and Apparatus Design.** 1 or 2 semester hours.
Glass blowing and shopwork designed to meet the needs of the individual student. Prerequisite: Physics 103 and 106.
- 206. Synoptic Meteorology.** 3 semester hours. Each semester and summer.
Prerequisite: Math. 115, Physics 103 or 106, and 146.
- 208. Applied X Ray.** 3 or 4 semester hours. Second semester and alternate summers.
Theory and industrial applications. On demand a special three-semester hour class for medical technicians may be arranged. Two or three hours of recitation and three hours of laboratory a week. Prerequisite: Phys. 103 or 106.
- 217. Geophysics.** 3 semester hours.
Theory of the field work in gravitational, magnetic, electrical, seismic, radioactive, and temperature surveys. Prerequisite: Physics 103 or 106. Cardwell, Lyon.
- 220. Applied Spectroscopy.** 3 semester hours.
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. Prerequisite: Chem. 104 or 110 and Physics 103 or 106.
- 227. Mechanics.** 3 semester hours.
Theoretical mechanics by methods of the calculus with an introduction to generalized coördinates. Prerequisite: Phys. 233.
- 228. Mechanics Laboratory.** 1 or 2 semester hours.
Prerequisite: Physics 227 or concurrent registration. Cardwell.
- 233. Introduction to Mathematical Physics.** 3 semester hours. First semester and alternate summers.
Prerequisite: Math. 115 and Phys. 103 or 106.
- 238. Heat and Thermodynamics.** 3 semester hours. Second semester and alternate summers.
Prerequisite: Math. 115 and Phys. 103 or 106.
- 239. Heat Laboratory.** 1 semester hour.
Prerequisite: Physics 238 or concurrent registration. Whitcomb.
- 240. Sound.** 3 semester hours.
Prerequisite: Math. 115 and Physics 103 or 106.
- 243. Light.** 3 semester hours.
Prerequisite: Math. 115 and Physics 103 or 106. Cardwell, Chapin.
- 244. Light Laboratory.** 1 semester hour.
Prerequisite: Physics 243 or concurrent registration. Cardwell, Chapin.
- 251. Electricity and Magnetism.** 3 semester hours.
Electricity and magnetism by methods of calculus. Prerequisite: Phys. 233 or consent of instructor.
- 255. Electricity and Magnetism Laboratory.** 1 semester hour.
Prerequisite: Physics 251 or concurrent registration. Lyon.

- 270. Atomic Physics.** 3 semester hours.
Contemporary theories and problems. Prerequisite: Math. 115 and Physics 103 or 106.
- 273. Nuclear Physics.** 3 semester hours.
Modern theories of nuclear physics. Prerequisite: Math. 115 and Physics 103 or 106. Cardwell.
- 288. Electronic Physics.** 4 semester hours.
Three hours of recitation and three hours of laboratory a week. Prerequisite: Math. 115 and Phys. 251 and 255.
- 289. Advanced Electronic Physics.** 4 semester hours.
Three hours of recitation and three hours of laboratory a week. Prerequisite: Physics 288.
- 291. Advanced Electricity and Magnetism.** 3 semester hours.
Prerequisite: Phys. 251 and Math. 201.
- 292. Advanced Electricity and Magnetism Laboratory.** 1 semester hour.
Prerequisite: Phys. 291 or concurrent registration and Phys. 288.
- 297. Problems in Physics.** Credit to be arranged.
Prerequisite: Physics 103 or 106. Staff.
Work is offered in:
- | | | |
|--------------------|--------------------|-----------------------------|
| <i>Electricity</i> | <i>Light</i> | <i>Sound and Vibrations</i> |
| <i>Electronics</i> | <i>Mechanics</i> | <i>Spectroscopy</i> |
| <i>Heat</i> | <i>Photography</i> | <i>X Rays</i> |
- 299. Colloquium in Physics.** R.
Required of graduate majors and undergraduate majors. Staff.

FOR GRADUATE CREDIT

- 302. Introduction to Theoretical Physics I.** 3 semester hours.
Prerequisite: Math. 201 and 210 or concurrent registration.
- 303. Introduction to Theoretical Physics II.** 3 semester hours.
Prerequisite: Physics 302, Math. 213, or concurrent registration.
- 305. Quantum and Wave Mechanics I.** 3 semester hours. First semester.
Prerequisite: Phys. 302 or concurrent registration.
- 306. Quantum and Wave Mechanics II.** 3 semester hours. Second semester.
Prerequisite: Phys. 305.
- 313. Kinetic Theory and Statistical Physics.** 3 semester hours.
Prerequisite: Math. 201, Math. 213, and Phys. 238.
- 317. X Ray.** 3 semester hours.
Prerequisite: Math. 201 and Phys. 208.
- 319. Atomic Spectra.** 3 semester hours. First semester.
Prerequisite: Math. 201 and Phys. 270 or consent of instructor.
- 321. Molecular Spectra.** 3 semester hours. Second semester.
Prerequisite: Phys. 319 or consent of instructor.
- 324. Advanced Nuclear Physics.** 3 semester hours.
Prerequisite: Math. 213 and Phys. 273 and 305.
- 390. Research in Physics.** Credit to be arranged.
Prerequisite: At least two courses in this department. Staff.
Work is offered in :
- | | | |
|------------------------|---------------------|----------------------------|
| <i>Electricity</i> | <i>Photography</i> | <i>Thermodynamics</i> |
| <i>Electronics</i> | <i>Sound</i> | <i>Theoretical Physics</i> |
| <i>Light</i> | <i>Spectroscopy</i> | <i>X Ray</i> |
| <i>Nuclear Physics</i> | | |

Speech

Professor HILL
Associate Professor HOOVER
Associate Professor MALL
Assistant Professor MCGUIRE
Assistant Professor BYRNE
Assistant Professor HOWE
Instructor GOUGH
Instructor ROGERS

Instructor ALLISON
Instructor RICHEY
Instructor OWENS
Instructor REYNOLDS
Instructor ARNOLD
Instructor WADE
Instructor HARDIN
Instructor PARKER

For a major in general speech, the following courses should be completed: Sp. 103, 108, 110, 114, 117, 121, 126, 137, 145, 165, 222, 225, 226, 207 or 209 and Educ. 202.

For a major in radio, the following courses should be completed: 163, 165, 167, 231, 240, 243; five hours from 233, 244, and 290; Ind. Jour. 162, and 179. Option for radio majors, for women: Gen. Home Econ. 145 or 146, and five hours from Group 8; for men: Nine hours from Group 8. Radio majors substitute Music 119 for Music 131.

For a major in dramatics the following courses should be completed: Sp. 114, 145, 147, 207, 208, 209, 210, 213, 215, 231, 290, and six additional hours.

COURSES IN SPEECH

FOR UNDERGRADUATE CREDIT

103. **Oral Communication.** 2 semester hours. Each semester and summer. Selection and outlining of material with special emphasis on logic and with oral presentation practice. Coördinated with Written Comm. I and II. Staff.
108. **Oral Communication II.** 2 semester hours. Each semester and summer. Sp. 103 continued, with special attention to illustrative material. Prerequisite: Sp. 103. Staff.
110. **Elements of Phonetics.** 2 semester hours. First semester. Hoover.
117. **Oral Interpretation.** 2 semester hours. Each semester and summer. Attainment of some proficiency in the art of reading aloud. Hill.
119. **Dramatic Reading.** 2 semester hours. Second semester. Advanced study and application of the principles of oral interpretation to platform reading. Prerequisite: Sp. 117. Hoover.
121. **Argumentation and Debate.** 2 semester hours. Second semester. Prerequisite: Sp. 103. Hill.
123. **Intercollegiate Debate I.** 2 semester hours. Each semester. Open only to members of the intercollegiate debate squads. Prerequisite: Sp. 121. Hill.
124. **Intercollegiate Debate II.** 2 semester hours. Each semester. Open only to members of the intercollegiate debate squads. Prerequisite: Sp. 123. Hill.
126. **Parliamentary Procedure.** 1 semester hour. Second semester. Hill.
137. **Speech for Teachers.** 1 to 3 semester hours. Second semester and summer. Hill.
142. **Oratorical Contest.** 2 semester hours. Each semester. Hill.

- 144. Dramatic Participation.** 1 or 2 semester hours. Each semester and summer.

Prerequisite: Junior standing. Hoover.

- 145. 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 of laboratory a week. Hoover.

- 147. Elementary Stagecraft and Lighting.** 2 semester hours. First semester and summer.

Function and operation of scenery; study and applications of stage lighting. Hoover.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 207. 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. 114. Hoover.

- 208. Dramatic Production II.** 2 semester hours. Each semester and summer. Projects in direction and stagecraft. Six hours of laboratory a week. Prerequisite: Sp. 207. Hoover.

- 209. 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. 145. Hoover.

- 210. Advanced Lighting and Scene Design.** 2 semester hours. Each semester and summer.

Problems in technical production, design in scenery and lighting. Prerequisite: Sp. 147. Hoover.

- 213. Development of the Theater I.** 2 semester hours. First semester. The theater to the end of the nineteenth century. Hoover.

- 215. Development of the Theater II.** 2 semester hours. Second semester. The modern and the contemporary theater. Hoover.

- 222. Advanced Debate.** 2 semester hours. Second semester. Advanced study of and participation in the methods of persuasion in public discussion. Prerequisite: Sp. 121. Hill.

- 225. Public Program.** 2 semester hours. Second semester and summer. Planning, building, and presenting nonradio public programs. Prerequisite: Sp. 103. Hill.

- 226. Public Discussion.** 2 semester hours. Each semester. Symposiums, forums, roundtables, panel discussions of political, social, and economic trends. Hill.

- 228. Speech Recital.** Credit to be arranged. Each semester. Special work for qualified students. Prerequisite: Sp. 103 and 117.

- 290. Problems in Speech.** Credit to be arranged. Each semester and summer.

Prerequisite: Sp. 108 or 167. Staff.

Work is offered in:

Debate. Hill.

Oratory. Hill.

Phonetics. Hoover.

Radio. Mall, McGuire, Howe.

Theater. Hoover.

FOR GRADUATE CREDIT

- 303. Research in Speech.** Credit to be arranged. Each semester and summer.

Prerequisite: Graduate standing and consent of instructor.

Work is offered in:

Debate. Hill.

Oratory. Hill.

Phonetics. Hoover.

Radio. Mall, McGuire, Howe.

Theater. Hoover.

COURSES IN RADIO

FOR UNDERGRADUATE CREDIT

- 163. Survey of Broadcasting.** 2 semester hours. Each semester and summer. Survey of radio industry; social importance of broadcasting.
- 165. Radio Speech I.** 2 semester hours. Each semester and summer. Training in voice and diction for broadcasting. One hour of recitation and three hours of laboratory a week. Prerequisite: Sp. 103.
- 167. Radio Continuity.** 3 semester hours. Each semester. Preparation of introductions to musical shows, talks, programs, and news rewriting. Prerequisite: Sp. 163.
- 168. Radio Program Participation.** 1 semester hour. Each semester and summer. Three hours of laboratory a week. Prerequisite: Sp. 165 or consent of the instructor. May not be taken for more than four semesters for credit.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 231. Radio Production I.** 2 semester hours. Each semester and summer. Basic program production. One hour of recitation and three hours of laboratory. Prerequisite: Mus. 130, Sp. 163 and Sp. 167.
- 233. Radio Production II.** 2 semester hours. Each semester. Continuation of Sp. 231. Prerequisite: Sp. 231 and consent of instructor.
- 234. Radio Speech II.** 2 semester hours. Each semester and summer. Advanced commercial announcing including sports, news, and commercials. Prerequisite: Sp. 165 and consent of instructor.
- 240. Radio Programming.** 2 semester hours. First semester. Planning and development of radio programs and schedules. Prerequisite: Sp. 163.
- 243. Radio Writing I.** 3 semester hours. First semester. Preparation of dramatized programs. Prerequisite: Sp. 167.
- 244. Radio Writing II.** 3 semester hours. Second semester and summer. Continuation of Sp. 243. Prerequisite: Sp. 243 and consent of instructor.
- 290. Problems in Speech (Radio).** Credit to be arranged. Each semester and summer. Prerequisite: Sp. 108 or 167.

Student Health

Professor SNOOK

FOR UNDERGRADUATE CREDIT

- 101. Preventive Medicine and Public Health.** 2 semester hours. Each semester. Communicable diseases and their control; factors involved in healthful living. Prerequisite: Sophomore standing. Snook.

Zoölogy

Professor AMEEL
 Professor NABOURS
 Professor ACKERT
 Professor HARMAN
 Professor HERRICK
 Professor WIMMER
 Professor HARBAUGH
 Professor GOODRICH
 Associate Professor GUHL

Associate Professor GIER
 Assistant Professor LOCKHART
 Instructor PETRI
 Instructor TIEMEIER
 Instructor HARTMAN
 Instructor ELLIOTT
 Instructor SKINNER
 Graduate Assistant MARTIN
 Graduate Assistant TUGWELL

The courses in Zoölogy, 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 200 group.

For a minor, the student should take course 105 and nine credit hours chosen from the 200 group.

FOR UNDERGRADUATE CREDIT

103. Human Anatomy and Physiology. 4 semester hours. Summer.

A specialized course for students in certain work in nursing. Two hours of recitation and six hours of laboratory.

105. General Zoölogy. 5 semester hours. Each semester and summer.

Three hours of recitation and six hours of laboratory a week. Staff.

123. Human Anatomy. 5 semester hours. First semester.

General anatomy studied by means of dissectable models, skeletons, and charts. Three hours of recitation and six hours of laboratory a week. Pre-requisite: Zoöl. 105. Wimmer.

FOR GRADUATE AND UNDERGRADUATE CREDIT

203. Problems in Zoölogy. Credit to be arranged. Each semester and summer school.

Work is offered in:

Bird Study. Goodrich.
Cytology and Embryology. Harman, Gier.
Ecology. Harbaugh.
Endocrinology. Herrick.
Heredity. Nabours.
Histology. Lockhart, Goodrich.
Parasitology. Ackert.
Physiology. Wimmer.
Protozoölogy. Ameel.
Wild Life Conservation. Tiemeier.
Zoölogical Technic. Petri.

205. Field Zoölogy. 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: Zoöl. 105. Harbaugh.

206. Zoölogical Technic. 1 or 2 semester hours. Each semester and summer school.

Methods and processes in preparation of microscopical slides; principles of photomicrography. Prerequisite: Zoöl. 105. Petri.

208. 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: Zoöl. 105. Ackert, Ameel.

- 209. Principles of Parasitology.** 2 semester hours. First semester.
Principles, origin, history, and theories of animal parasitism. Prerequisite: Zoöl. 105. Ackert.
- 210. Invertebrate Zoölogy.** 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: Zoöl. 105. Goodrich.
- 214. Cytology.** 4 semester hours. First semester.
Cells, chromosomes, and heredity. Two hours of recitation and six hours of laboratory a week. Prerequisite: Zoöl. 105. Harman.
- 216. Heredity and Eugenics.** 2 semester hours. Each semester.
Human inheritance and the interactions of nature and heredity. Prerequisite: Zoöl. 105. Nabours.
- 219. 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: Zoöl. 105. Gier.
- 220. Advanced Embryology.** 4 semester hours. Second semester and summer.
Two hours of recitation and six hours of laboratory a week. Prerequisite: Zoöl. 219. Harman.
- 221. 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. 101 or 110 and Zoöl. 105. Wimmer, Lockhart, Ameel.
- 222. 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 work. Prerequisite: Chem. 122 and Zoöl. 105. Wimmer.
- 223. Protozoölogy.** 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: Zoöl. 105. Ameel.
- 225. Zoölogy and Entomology Seminar.** 1 semester hour. Each semester.
Prerequisite: Zoöl. 105. Staff.
- 227. Genetics Seminar.** 1 semester hour. Each semester.
Prerequisite: Zoöl. 105. Nabours, Warren, Ibsen.
- 228. Human Parasitology Recitation.** 3 semester hours. Second semester.
Prerequisite: Zoöl. 105. Ackert.
- 229. Human Parasitology Laboratory.** 1 semester hour. Second semester.
Three hours of laboratory a week. Prerequisite: Zoöl. 228. Ameel.
- 240. Taxonomy of Parasites.** 2 semester hours. Second semester and summer.
One hour of recitation and three hours of laboratory a week. Prerequisite: Zoöl. 208 or 218. Ackert.
- 244. 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: Zoöl. 105. Goodrich.

246. **Comparative Anatomy of Vertebrates.** 4 semester hours. Second semester.
Two hours of recitation and six hours of laboratory a week. Prerequisite: Zoöl. 105. Herrick, Tiemeier.
247. **Endocrinology.** 3 semester hours. First semester and summer.
Prerequisite: Zoöl. 105 and consent of instructor. Herrick.
249. **Wild-life Conservation.** 3 semester hours. First semester and summer.
Methods and techniques in the management and propagation of wild life. Prerequisite: Zoöl. 105 or equivalent. Tiemeier.

FOR GRADUATE CREDIT

301. **Research in Zoölogy.** Credit to be arranged. Each semester and summer.
Prerequisite: At least two courses in this department. Staff.
Work is offered in:
 Bird Study. Goodrich.
 Cytology and Embryology. Harman, Gier.
 Ecology. Harbaugh.
 Endocrinology. Herrick.
 Heredity. Nabours.
 Histology. Lockhart, Goodrich.
 Parasitology. Ackert.
 Physiology. Wimmer.
 Protozoölogy. Ameel.
 Wild-Life Conservation. Tiemeier.

The School of Engineering and Architecture

ROY ANDREW SEATON, *Dean*

The School of Engineering and Architecture offers four-year curriculums in Agricultural Engineering, Architectural Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering, Industrial Arts, and Mechanical 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 preparation 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 such 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.

Advanced elective courses in railway, highway, and irrigation and drainage engineering are offered in the second semester of the senior year.

Curriculum in Electrical Engineering

The 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 some 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 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.

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

	Course	Sem. Hrs.
Chem.	107 Chemistry E-1	4
Math.	104 College Algebra*	3
Math.	101 Plane Trigonometry	3
Engl.	111 Written Comm. I	3
Mach. Des.	101 Engg. Drawing	2
Shop	102 Shop A	2
Mil. Sc.	105 Military I	1
Gen. Engg.	101 Engg. Lectures	R
Phys. Ed.	103 Phys. Educ. M	R

Total 18

SECOND SEMESTER

	Course	Sem. Hrs.
Chem.	108 Chemistry E-II	4
Math.	110 Plane Analytic Geom.	4
Engl.	112 Written Comm. II	2
Mach. Des.	106 Descr. Geometry	2
Civ. Engg.	102 Surveying I	2
Sp.	111 Oral Communications	2
Shop	166 Welding	1
Mil. Sc.	106 Military II	1
Gen. Engg.	101 Engg. Lectures	R
Phys. Ed.	103 Phys. Educ. M	R

Total 18

SOPHOMORE

FIRST SEMESTER

Math.	114 Calculus I	4
Phys.	105 Engg. Physics I	5
Agr. Engg.	102 El. of Agr. Engg.	3
Comp.	121 Man and Social World I..	4
Mil. Sc.	107 Military III	1
Gen. Engg.	105 Engg. Assembly	R
Phys. Ed.	103 Phys. Educ. M	R

Total 17

SECOND SEMESTER

Math.	115 Calculus II	4
Phys.	106 Engg. Physics II	5
Mach. Des.	111 Mach. Drawing I	2
Shop	165 Metals and Alloys	2
Comp.	122 Man and Social World II,	4
Mil. Sc.	108 Military IV	1
Gen. Engg.	105 Engg. Assembly	R
Phys. Ed.	103 Phys. Educ. M	R

Total 18

JUNIOR

FIRST SEMESTER

Ap. Mech.	202 Applied Mechanics	4
Mech. Engg.	208 Engg. Thermodynamics...	4
Agr. Engg.	111 Field and Power Mach...	4
Agr. Engg.	204 Agricultural Hydrology ...	3
Geol.	103 General Geology	3
Gen. Engg.	105 Engg. Assembly	R
Engl.	169 English Proficiency	R

Total 18

SECOND SEMESTER

Ap. Mech.	212 Mech. of Matls. I Rec..	4
Ap. Mech.	220 Mech. of Matls. Lab....	1
Ap. Mech.	228 Fluid Mechanics A	4
Agr. Engg.	225 Farm Motors	4
Agron.	110 Farm Crops Rec	3
Agron.	111 Farm Crops Lab	1
Engl.	215 Technical Reports	1
Gen. Engg.	105 Engg. Assembly	R

Total 18

SENIOR

FIRST SEMESTER

Agr. Engg.	203 Farm Structures	4
Agron.	130 Soils	4
Bact.	126 Water and Sewage Bact..	3
Mach. Des.	230 Patents and Inventions...	2
Comp.	131 Man and Cult. World I... 4	
Agr. Engg.	140 Inspection Trip	R
Gen. Engg.	105 Engg. Assembly	R

Total 17

SECOND SEMESTER

Agr. Engg.	211 Mod. Fm. & Hm. Equip.,	4
Agr. Engg.	245 Soil and Water Conserv...	4
Elec. Engg.	102 Elec. Engg. C Rec	2
Elec. Engg.	106 Elec. Engg. C Lab	1
Agr. Econ.	106 Farm Organization	3
Comp.	132 Man and Cult. World II..	4
Gen. Engg.	105 Engg. Assembly	R

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. 0, postponing both college algebra and plane trigonometry to the second semester.

Curriculum in Architectural Engineering

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Chem.	107 Chemistry E-I	4	Chem.	108 Chemistry E-II	4
Math.	104 College Algebra*	3	Math.	110 Plane Analytic Geom.	4
Math.	101 Plane Trigonometry	3	Engl.	112 Written Comm. II	2
Engl.	111 Written Comm. I	3	Sp.	111 Oral Comm.	2
Mach. Des.	101 Engg. Drawing	2	Mach. Des.	106 Deser. Geometry	2
Civ. Engg.	102 Surveying I	2	Arch.	112 Freehand Drawing I	2
Mil. Sc.	105 Military I (Men)	1	Mil. Sc.	106 Military II (Men)	1
Gen. Engg.	101 Engg. Lectures	R	Gen. Engg.	101 Engg. Lectures	R
Phys. Ed.	103 Phys. Educ. M.	R	Phys. Ed.	103 Phys. Educ. M.	R
Total	.....	18	Total	.....	17

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Phys.	105 Engg. Physics I	5	Phys.	106 Engg. Physics II	5
Math.	114 Calculus I	4	Math.	115 Calculus II	4
Arch.	116 Pencil Sketching	2	Arch.	129 El. of Arch. II	4
Arch.	127 El. of Arch. I	4	Arch.	103 Shades and Shadows	1
Arch.	154A Hist. of Arch. I	2	Arch.	104 Perspective Drwg.	1
Mil. Sc.	107 Military III (Men)	1	Arch.	157A Hist. of Arch. II	2
Gen. Engg.	105 Engg. Assembly	R	Mil. Sc.	108 Military IV (Men)	1
Phys. Ed.	103 Phys. Educ. M.	R	Gen. Engg.	105 Engg. Assembly	R
Total	.....	18	Phys. Ed.	103 Phys. Educ. M.	R
			Total	.....	18

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Ap. Mech.	202 Applied Mechanics	4	Ap. Mech.	212 Mech. of Mtls. I Rec.	4
Arch.	187A Bldg. Mtls. and Constr. ...	3	Arch.	191 Working Drawings	3
Arch.	139 Arch. Design I	5	Arch.	160A Hist. of Arch. IV	2
Arch.	158A Hist. of Arch. III	2	Arch.	188 Building Equipment	2
Comp.	111 Man and Biol. World I	4	Comp.	112 Man and Biol. World II ..	4
Gen. Engg.	105 Engg. Assembly	R	Gen. Engg.	Elective†	3
Engl.	169 English Proficiency	R	Gen. Engg.	105 Engg. Assembly	R
Total	.....	18	Total	.....	18

SENIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Civ. Engg.	202 Stress Anal. I Rec.	4	Civ. Engg.	208 Stress Analysis II	3
Civ. Engg.	205 Stress Anal. I Lab.	2	Civ. Engg.	257 Reinf. Conc. Des. Rec.	2
Civ. Engg.	249 Foundations	2	Civ. Engg.	258 Reinf. Conc. Des. Lab.	2
Ap. Mech.	290 Soil Mechanics	2	Civ. Engg.	246 Des. of Framed Struct.	3
Ap. Mech.	220 Mech. of Mtls. Lab.	1	Mech. Engg.	135 Air Conditioning A	3
Elec. Engg.	116 Illumination A	2	Comp.	122 Man and Social World II ..	4
Comp.	121 Man and Social World I ..	4	Gen. Engg.	105 Engg. Assembly	R
	Elective†	1			
Gen. Engg.	105 Engg. Assembly	R			
Arch.	199 Inspection Trip	R			
Total	.....	18	Total	.....	17

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. 0, 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

	Course	Sem. Hrs.
Comp.	121 Man and Social World I..	4
Engl.	111 Written Comm. I.....	3
Mach. Des.	101 Engg. Drawing	2
Math.	104 College Algebra*	3
Arch.	112 Freehand Drawing I.....	2
Mil. Sc.	105 Military I (men).....	1
Phys. Ed.	103 Phys. Ed. M or	
Phys. Ed.	151 Phys. Ed. W.....	R
Gen. Engg.	101 Engg. Lectures	R

Total..... 15

SECOND SEMESTER

	Course	Sem. Hrs.
Comp.	122 Man and Social World II,	4
Engl.	112 Written Comm. II.....	2
Sp.	111 Oral Communications ...	2
Mach. Des.	106 Descr. Geometry	2
Math.	101 Pl. Trigonometry	3
Arch.	113 Freehand Drawing II.....	2
Mil. Sc.	106 Military II (men).....	1
Phys. Ed.	103 Phys. Ed. M or	
Phys. Ed.	151 Phys. Ed. W.....	R
Gen. Engg.	101 Engg. Lectures	R

Total..... 16

SECOND YEAR

FIRST SEMESTER

Phys.	102 Gen. Physics I.....	4
Arch.	116 Pencil Sketching	2
Arch.	187A Bldg. Matls. and Const... 3	
Arch.	103 Shades and Shadows.....	1
Arch.	127 Elements of Arch. I.....	4
Arch.	154A Hist. of Arch. I.....	2
Mil. Sc.	107 Military III (men).....	1
Phys. Ed.	103 Phys. Ed. M or	
Phys. Ed.	151 Phys. Ed. W.....	R
Gen. Engg.	105 Engg. Assembly	R

Total..... 17

SECOND SEMESTER

Phys.	103 Gen. Physics II.....	4
Arch.	118 Water Color I.....	2
Arch.	104 Perspective Drawing	1
Arch.	129 Elements of Arch. II.....	4
Arch.	188 Bldg. Equipment	2
Arch.	157A Hist. of Arch. II.....	2
Mil. Sc.	108 Military IV (men).....	1
Phys. Ed.	103 Phys. Ed. M or	
Phys. Ed.	151 Phys. Ed. W.....	R
Gen. Engg.	105 Engg. Assembly	R

Total..... 16

THIRD YEAR

FIRST SEMESTER

Ap. Mech.	102 Applied Mechanics A....	3
Arch.	158A Hist. of Arch. III.....	2
Arch.	139 Arch. Design I.....	5
Arch.	191 Working Drawings	3
Arch.	121 Life Drawing I.....	2
	Elective†	1
Gen. Engg.	105 Engg. Assembly	R
Engl.	169 English Proficiency	R

Total..... 16

SECOND SEMESTER

Ap. Mech.	116 Str. of Matls. A Rec.....	3
Ap. Mech.	121 Str. of Matls. A Lab.....	1
Arch.	160A Hist. of Arch. IV.....	2
Arch.	141 Arch. Design II.....	5
Arch.	123 Life Drawing II.....	2
	Elective†	3
Gen. Engg.	105 Engg. Assembly	R

Total..... 16

FOURTH YEAR

FIRST SEMESTER

Comp.	111 Biol. Rel. to Man I.....	4
Elec. Engg.	116 Illumination A	2
Arch.	145 Arch. Design III.....	5
Arch.	192 Theory of Struct. I.....	4
Arch.	199 Inspection Trip	R
Gen. Engg.	105 Engg. Assembly	R

Total..... 15

SECOND SEMESTER

Comp.	112 Biol. Rel. to Man II.....	4
Arch.	147 Arch. Design IV.....	5
Arch.	194A Theory of Struct. II.....	5
	Elective†	3
Gen. Engg.	105 Engg. Assembly	R

Total..... 17

FIFTH YEAR

FIRST SEMESTER

Arch.	179 Hist. Paint. and Sculp....	3
Arch.	254 Arch. Design V.....	7
Arch.	196 Theory of Struct. III.....	4
	Elective†	3

Total..... 17

SECOND SEMESTER

Arch.	257 Arch. Design VI.....	7
Arch.	195 Professional Practice	2
Mech. Engg.	135 Air Conditioning A.....	3
	Elective†	3

Total..... 15

Number of hours required for graduation, 160.

* Students who offer but one unit of algebra for admission take a three-hour course in intermediate algebra, Math. 0, 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.	101 Chemistry I	5	Chem.	103 Chemistry II Rec.....	3
Math.	104 College Algebra*	3	Chem.	104 Chemistry II Lab.....	2
Math.	101 Plane Trigonometry	3	Math.	110 Plane Analytic Geom.....	4
Engl.	111 Written Comm. I.....	3	Mach. Des.	106 Descr. Geometry	2
Mach. Des.	101 Engg. Drawing	2	Engl.	112 Written Comm. II.....	2
Mil. Sc.	105 Military I	1	Sp.	111 Oral Comm.	2
Gen. Engg.	101 Engg. Lectures	R	Chem. Engg.	201 Chem. Engg. Materials...	2
Phys. Ed.	103 Phys. Educ. M.....	R	Mil. Sc.	106 Military II	1
			Gen. Engg.	101 Engg. Lectures	R
			Phys. Ed.	103 Phys. Educ. M.....	R
Total.....		17	Total.....		18

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Phys.	105 Engg. Physics I.....	5	Phys.	106 Engg. Physics II.....	5
Math.	114 Calculus I	4	Math.	115 Calculus II	4
Chem.	215 Quan. Analysis	3	Chem. Engg.	206 Ind. Stoichiometry	3
	Social Sc. Elective†.....	4		Social Sc. Elective†.....	4
Mil. Sc.	107 Military III	1	Mach. Des.	111 Mach. Drawing I.....	2
Phys. Ed.	103 Phys. Educ. M.....	R	Mil. Sc.	108 Military IV	1
Gen. Engg.	105 Engg. Assembly	R	Phys. Ed.	103 Phys. Educ. M.....	R
			Gen. Engg.	105 Engg. Assembly	R
Total.....		17	Total.....		19

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Chem.	260 Phys. Chemistry I.....	5	Chem.	261 Phys. Chem. II Rec.....	3
Chem.	223 Org. Chemistry I.....	5	Chem.	262 Phys. Chem. II Lab.....	2
Chem. Engg.	221 Unit Operations I Rec....	3	Chem.	224 Org. Chemistry II.....	5
	Humanities Elective†.....	4	Chem. Engg.	226 Unit Operations II Rec....	3
Gen. Engg.	105 Engg. Assembly	R	Chem. Engg.	224 Unit Operations I Lab....	2
Engl.	169 English Proficiency	R		Humanities Elective†	4
			Gen. Engg.	105 Engg. Assembly	R
Total.....		17	Total.....		19

SENIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Chem. Engg.	234 Unit Operations II Lab...	2	Chem. Engg.	246 Chem. Engg. Plt. Design..	4
Chem. Engg.	240 Unit-Process Lab.	2	Mech. Engg.	204 Heat Power Engg. A.....	3
Chem. Engg.	237 Chem. Technology	2	Mech. Engg.	206 Heat Power Lab.....	1
Chem. Engg.	229 Chem. Engg. Thermodyn.,	4	Elec. Engg.	110 Elec. Engg. A-II.....	2
Ap. Mech.	202 Applied Mechanics	4	Elec. Engg.	106 Elec. Engg. C Lab.....	1
Elec. Engg.	108 Elec. Engg. A-I.....	3	Ap. Mech.	212 Mech. of Mtls. I Rec....	4
Chem. Engg.	150 Inspection Trip	R		Elective†	3
Gen. Engg.	105 Engg. Assembly	R	Gen. Engg.	105 Engg. Assembly	R
Total.....		17	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. 0, 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

	<i>Course</i>	<i>Sem. Hrs.</i>
Chem.	107 Chemistry E-I	4
Engl.	111 Written Comm. I.....	3
Math.	104 College Algebra*	3
Math.	101 Plane Trigonometry	3
Mach. Des.	101 Engg. Drawing	2
Mil. Sc.	105 Military I	1
Phys. Ed.	103 Phys. Ed. M.....	R
Gen. Engg.	101 Engg. Lectures	R
Total.....		16

SECOND SEMESTER

	<i>Course</i>	<i>Sem. Hrs.</i>
Chem.	108 Chemistry E-II	4
Engl.	112 Written Comm. II.....	2
Sp.	111 Oral Communications	2
Math.	110 Plane Analytic Geom.....	4
Mach. Des.	106 Descr. Geometry	2
Civ. Engg.	102 Surveying I	2
Mil. Sc.	106 Military II	1
Phys. Ed.	103 Phys. Ed. M.....	R
Gen. Engg.	101 Engg. Lectures	R
Total.....		17

SOPHOMORE

FIRST SEMESTER

Phys.	105 Engg. Phys. I.....	5
Math.	114 Calculus I	4
Comp.	121 Man and Soc. World I... 4	
Civ. Engg.	114 Surveying II	5
Mil. Sc.	107 Military III	1
Phys. Ed.	103 Phys. Ed. M.....	R
Gen. Engg.	105 Engg. Assembly	R
Total.....		19

SECOND SEMESTER

Phys.	106 Engg. Phys. II.....	5
Math.	115 Calculus II	4
Comp.	122 Man and Soc. World II.. 4	
Civ. Engg.	125 C. E. Drawing.....	2
Mach. Des.	111 Machine Drawing I.....	2
Mil. Sc.	108 Military IV	1
Phys. Ed.	103 Phys. Ed. M.....	R
Gen. Engg.	105 Engg. Assembly	R
Total.....		18

JUNIOR

FIRST SEMESTER

Ap. Mech.	202 Applied Mechanics	4
Shop	165 Metals and Alloys.....	2
Mech. Engg.	120 Steam and Gas Engg. C.. 2	
Ent.	101 Gen. Entomology	3
Bact.	126 Water and Sewage Bact... 3	
Civ. Engg.	219 Photogrammetry	4
Gen. Engg.	105 Engg. Assembly	R
Engl.	169 English Proficiency	R
Total.....		18

SECOND SEMESTER

Ap. Mech.	212 Mechs. of Matls. I Rec... 4	
Ap. Mech.	220 Mechs. of Matls. Lab.... 1	
Ap. Mech.	250 Hwy. & Airt. Mtls. Lab., 1	
Ap. Mech.	290 Soil Mechanics	2
Ap. Mech.	228 Fluid Mechanics A.....	4
Ap. Mech.	235 Hydraulics Lab.	1
Geol.	103 General Geology	3
Mech. Engg.	206 Heat Power Lab.....	1
Engl.	215 Technical Reports	1
Gen. Engg.	105 Engg. Assembly	R
Total.....		18

SENIOR

FIRST SEMESTER

Civ. Engg.	202 Stress Analysis I Rec.... 4	
Civ. Engg.	205 Stress Analysis I Lab.... 2	
Civ. Engg.	222 Sanitary Engg.	4
Civ. Engg.	233 Transportation Engg. 5	
Elec. Engg.	102 Elec. Engg. C Rec.....	2
Elec. Engg.	106 Elec. Engg. C Lab.....	1
Civ. Engg.	180 Inspection Trip	R
Gen. Engg.	105 Engg. Assembly	R
Total.....		18

SECOND SEMESTER

Civ. Engg.	208 Stress Analysis II.....	3
Civ. Engg.	257 Reinf. Conc. Des. Rec.... 2	
Civ. Engg.	258 Reinf. Conc. Des. Lab.... 2	
Civ. Engg.	246 Des. of Framed Struct.... 3	
Civ. Engg.	217 Astronomy and Geodesy.. 3	
Civ. Engg.	236 Applied Hydrology	3
Civ. Engg.	249 Foundations	2
Gen. Engg.	105 Engg. Assembly	R
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. 0, postponing both college algebra and plane trigonometry to the second semester.

Curriculum in Electrical Engineering

FRESHMAN

(For all options)

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Chem.	107 Chemistry E-I	4	Chem.	108 Chemistry E-II	4
Math.	104 College Algebra*	3	Math.	110 Plane Analytic Geom....	4
Math.	101 Plane Trigonometry	3	Mach. Des.	106 Descriptive Geometry	2
Engl.	111 Written Comm. I.....	3	Engl.	112 Written Comm. II.....	2
Mach. Des.	101 Engg. Drawing	2	Shop	102 Shop A	2
Shop	166 Welding	1	Sp.	111 Oral Communications	2
Mil. Sc.	105 Military I	1	Mil. Sc.	106 Military II	1
Gen. Engg.	101 Engg. Lectures	R	Gen. Engg.	101 Engg. Lectures	R
Phys. Ed.	103 Phys. Educ. M.....	R	Phys. Ed.	103 Phys. Educ. M.....	R
Total..... 17			Total..... 17		

SOPHOMORE

(For all options)

(For all options)							
FIRST SEMESTER			SECOND SEMESTER				
Phys.	105	Engg. Physics I.....	5	Phys.	106	Engg. Physics II.....	5
Math.	114	Calculus I	4	Math.	115	Calculus II	4
Comp.	121	Man and Soc. World I... 4		Comp.	122	Man and Soc. World II... 4	
Civ. Engg.	102	Surveying I	2	Elec. Engg.	201	Prin. of Elec. Engg.....	2
Shop	165	Metals and Alloys.....	2	Mach. Des.	111	Mach. Drawing I.....	2
Mil. Sc.	107	Military III	1	Mil. Sc.	108	Military IV	1
Gen. Engg.	105	Engg. Assembly	R	Gen. Engg.	105	Engg. Assembly	R
Phys. Ed.	103	Phys. Educ. M.....	R	Phys. Ed.	103	Phys. Educ. M.....	R
Total.....			18	Total.....			18

JUNIOR

(For all options)

FIRST SEMESTER				SECOND SEMESTER			
Elec. Engg.	209	A. C. Circuits.....	4	Ap. Mech.	202	Applied Mechanics	4
Elec. Engg.	203	D. C. Machinery Rec....	4	Elec. Engg.	227	Elec. Meas. Rec.....	2
Elec. Engg.	204	D. C. Machinery Lab. I..	1	Elec. Engg.	230	Elec. Meas. Lab.....	1
Elec. Engg.	220	Electronics I	2	Elec. Engg.	222	Electronics II Rec.....	4
Comp.	131	Man and Cult. World I..	4	Elec. Engg.	223	Electronics II Lab.....	2
Math.	121	Diff. Equa. for Engrs....	2	Elec. Engg.	205	D. C. Machinery Lab. II,	1
Engl.	215	Technical Reports	1	Comp.	132	Man and Cult. World II..	4
Gen. Engg.	105	Engg. Assembly	R	Gen. Engg.	105	Engg. Assembly	R
Engl.	169	English Proficiency	R				
Total.....			18	Total.....			18

SENIOR

Communication or Electronics Option

FIRST SEMESTER				SECOND SEMESTER			
Elec. Engg.	242	Elec. Engg. M-II Rec....	3	Ap. Mech.	212	Mech. of Matl. I Rec....	4
Mech. Engg.	208	Engg. Thermodynamics ..	4	Mech. Engg.	206	Heat Power Lab.....	1
Elec. Engg.	244	Wire Communication	3	Elec. Engg.	257	Ultra-High Freq. Rec....	3
Elec. Engg.	254	Radio Commun. Rec.....	3	Elec. Engg.	258	Ultra-High Freq. Lab....	1
Elec. Engg.	256	Radio Commun. Lab.....	1	Elec. Engg.	216	A. C. Mach. E Lab.....	2
Elec. Engg.	263	Commun. Networks Rec..	3			Technical elective†	4
Elec. Engg.	264	Commun. Networks Lab..	1			Elective†	3
Gen. Engg.	105	Engg. Assembly	R	Gen. Engg.	105	Engg. Assembly	R
Elec. Engg.	190	Inspection Trip	R				
Total.....			18	Total.....			18

* Students who offer but one unit of algebra for admission take a three-hour course in intermediate algebra, Math. 0, 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.

SENIOR

Electric Power and Commercial Options

FIRST SEMESTER				SECOND SEMESTER			
Elec. Engg.	210	A. C. Mach. I Rec.....	3	Elec. Engg.	212	A. C. Mach. II Rec.....	3
Elec. Engg.	211	A. C. Mach. I Lab.....	2	Elec. Engg.	213	A. C. Mach. II Lab.....	2
Elec. Engg.	244	Wire Commun.	3 or	Mech. Engg.	204	Heat Power Engg. A.....	3
Elec. Engg.	290	Econ. of El. Engg.....	3	Mech. Engg.	206	Heat Power Lab.....	1
Ap. Mech.	212	Mech. of Matls. I Rec...	4			Biological Sc. Elective†...	3
Mech. Engg.	208	Engg. Thermodynamics...	4			Technical Elective††...	6
		Elective††	2	Gen. Engg.	105	Engg. Assembly	R
Gen. Engg.	105	Engg. Assembly	R				
Elec. Engg.	190	Inspection Trip	R				
Total.....			18	Total.....			18
Number of hours required for graduation, 142.							

NOTE.—Students may secure the two degrees, B.S. in Electrical Engineering and B.S. in Business Administration, by taking the electrical engineering curriculum with the commercial option and the following additional courses:

Econ.	101	Economics I	3	Econ.	104	Economics II	3		
Econ.	116	Money and Banking.....	3	Econ.	134	Accounting II	3		
Econ.	214	Public Finance	3	Econ.	215	Bus. Org. and Finance....	3		
Econ.	246	Marketing	3	Hist.	164	Business Law II.....	3		
Educ.	184	General Psychology	3	Econ.	236	Bus. Admin. Survey.....	2		
		Business Elective	2			Business Elective	2		
Total.....				17	Total.....				16

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

‡ In the Electric Power Option, the electives may be selected from the following courses:

Illuminating Engineering Recitation, Elec.		Industrial Electronics and Control Rec.,	
Engg. 272	3	Elec. Engg. 226.....	2
Transmission and Distribution of Electrical		Industrial Electronics Laboratory, Elec.	
Energy, Elec. Engg. 280.....	3	Engg. 225	1
Transient Electrical Phenomena, Elec.			
Engg. 284	3		

‡ For the Commercial option the following courses should be selected from the electives:

Accounting I, Econ. 133.....	3	Commercial Corres., Engl. 122.....	3
Business Law I, Hist. 163.....	3		

Curriculum in Industrial Arts

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER				
	Course	Sem. Hrs.		Course	Sem. Hrs.		
Chem.	107 Chemistry E-I	4	Chem.	108 Chemistry E-II	4		
Math.	104 College Algebra*	3	Math.	101 Plane Trig.	3		
Engl.	111 Written Comm. I.	3	Engl.	112 Written Comm. II.	2		
Mach. Des.	101 Engg. Drawing	2	Mach. Des.	106 Descr. Geometry	2		
Shop	173 Sheet Metal I.	2	Shop	121 Woodwork I.	2		
Shop	135 Wood Turning	2	Shop	102 Shop A	2		
Mil. Sc.	105 Military I (Men).....	1	Shop	166 Welding	1		
Phys. Ed.	103 Phys. Ed. M.	R	Mil. Sc.	106 Military II (Men).....	1		
Gen. Engg.	101 Engg. Lectures	R	Phys. Ed.	103 Phys. Ed. M.	R		
			Gen. Engg.	101 Engg. Lectures	R		
Total.....			17	Total.....			17

SOPHOMORE

FIRST SEMESTER				SECOND SEMESTER			
Phys.	102	General Physics I.....	4	Phys.	103	General Physics II.....	4
Educ.	184	General Psychology	3	Mach. Des.	118	Machine Drawing II.....	2
Mach. Des.	111	Machine Drawing I.....	2	Engl.	125	Bus. Engl. and Sales.....	3
Sp.	111	Oral Communications	2	Shop	147	Carpentry	3
Civ. Engg.	102	Surveying I	2	Shop	157	Blacksmithing	1
Comp.	111	Man and Biol. World I, 4	or	Comp.	112	Man and Biol. World II, 4	or
Comp.	131	Man and Cult. World I..	4	Comp.	132	Man and Cult. World II..	4
Mil. Sc.	107	Military III (Men).....	1	Mil. Sc.	108	Military IV (Men).....	1
Phys. Ed.	103	Phys. Ed. M.....	R	Phys. Ed.	103	Phys. Ed. M.....	R
Gen. Engg.	105	Engg. Assembly	R	Gen. Engg.	105	Engg. Assembly	R
Total.....			18	Total.....			18

JUNIOR

FIRST SEMESTER				SECOND SEMESTER			
Econ.	136	Prin. of Account.....	3	Econ.	101	Economics I	3
Mach. Des.	121	Mechanism	3	Ap. Mech.	102	Applied Mech. A.....	3
Shop	167	Elec. Welding	1	Hist.	163	Business Law I.	3 or
Shop	168	Gas Welding	1	Educ.	109	Educ. Psychology	3
Shop	122	Finishing I	2	Agr. Engg.	130	Gas Eng. and Tractors...	3
Shop	170	Machine Tool I.	2	Shop	126	Woodwork II	2
Shop	250	Time and Motion.....	2	Shop	161	Foundry I	1
Shop	165	Metals and Alloys.....	2	Shop	262	Metallography I	1
Shop	180	Gaging	1	Sp.	108	Extempore Speech II....	2
Engl.	215	Technical Reports	1	Gen. Engg.	105	Engg. Assembly	R
Gen. Engg.	105	Engg. Assembly	R				
Engl.	169	English Proficiency	R				
Total.....			18	Total.....			18

SENIOR

FIRST SEMESTER				SECOND SEMESTER			
Ap. Mech.	116	Str. of Mtls. A Rec.....	3	Elec. Engg.	102	Elec. Engg. C Rec.....	2
Ap. Mech.	121	Str. of Mtls. A Lab.....	1	Elec. Engg.	106	Elec. Engg. C Lab.....	1
Mech. Engg.	120	Steam and Gas Engg. C..	2	Shop	111	Refrig. Servicing	4
Shop	192	Machine Tool II.....	2	Shop	174	Safety	2
Shop	104	Auto Mechanics I.....	4	Gen. Engg.	105	Engg. Assembly	R
Shop	194	Inspection Trip	R				
Gen. Engg.	105	Engg. Assembly	R				
<i>Factory Option</i>				<i>Factory Option</i>			
Shop	246	Indus. Management	3	Hist.	105	Am. Ind. History.....	3
		Elective†	3	Shop	255	Factory Design	2
						Elective†	4
<i>Teaching Option†</i>				<i>Teaching Option†</i>			
Educ.	236	Prin. of Secondary Educ..	3	Educ.	163	Teach. Part. in H. S.....	3
Educ.	134	Meth. of Teach'g Ind. Arts,	3	Educ.	239	Educ. Sociology	3
						Elective†	3
Total.....			18	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. 0, postponing college algebra to the second semester.

† 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 meets the Kansas requirements for teaching science, woodwork, machine shop, metal shop, auto mechanics, aero mechanics and mechanical drawing. Those desiring to teach mathematics may elect 3 hours in this field.

Curriculum in Mechanical Engineering

FRESHMAN

(For all options)

FIRST SEMESTER				SECOND SEMESTER			
		Course	Sem. Hrs.			Course	Sem. Hrs.
Chem.	107	Chemistry E-I	4	Chem.	108	Chemistry E-II	4
Math.	104	College Algebra*	3	Math.	110	Plane Analytic Geom.....	4
Math.	101	Plane Trigonometry	3	Engl.	112	Written Comm. II.....	2
Engl.	111	Written Comm. I.....	3	Sp.	111	Oral Communications.....	2
Mach. Des.	101	Engg. Drawing	2	Mach. Des.	106	Descr. Geometry	2
Shop	166	Welding	1	Shop	102	Shop A	2
Mil. Sc.	105	Military I	1	Mil. Sc.	106	Military II	1
Gen. Engg.	101	Engg. Lectures	R	Gen. Engg.	101	Engg. Lectures	R
Phys. Ed.	103	Phys. Educ. M.....	R	Phys. Ed.	103	Phys. Educ. M.....	R
Total.....			17	Total.....			17

SOPHOMORE

(For all options)

FIRST SEMESTER				SECOND SEMESTER			
Phys.	105	Engg. Physics I.....	5	Phys.	106	Engg. Physics II.....	5
Math.	114	Calculus I.....	4	Math.	115	Calculus II	4
Mach. Des.	121	Mechanism	3	Shop	165	Metals and Alloys.....	2
Mach. Des.	111	Mach. Drawing I.....	2	Shop	262	Metallography I	1
		Humanities Elective†	3	Mach. Des.	118	Mach. Drawing II.....	2
Mil. Sc.	107	Military III	1			Humanities Elective†	3
Gen. Engg.	105	Engg. Assembly	R	Mil. Sc.	108	Military IV	1
Phys. Ed.	103	Phys. Educ. M.....	R	Gen. Engg.	105	Engg. Assembly	R
				Phys. Ed.	103	Phys. Educ. M.....	R
Total.....			18	Total.....			18

JUNIOR

(For all options except Aeronautical-B)

FIRST SEMESTER				SECOND SEMESTER					
Ap. Mech.	202	Applied Mechanics	4	Ap. Mech.	212	Mech. of Mtls. I Rec.....	4		
Mech. Engg.	208	Engg. Thermodynamics...	4	Elec. Engg.	242	Elec. Engg. M-II Rec....	3		
Elec. Engg.	237	Elec. Engg. M-I Rec.....	4	Elec. Engg.	243	Elec. Engg. M-II Lab....	1		
Elec. Engg.	238	Elec. Engg. M-I Lab.....	1			Soc. Science Elective†....	2		
Econ.	101	Economics I	3			Option	7 or 8		
		Option	2 or 3	Gen. Engg.	105	Engg. Assembly	R		
Gen. Engg.	105	Engg. Assembly	R						
Engl.	169	English Proficiency	R						
Total.....				18 or 19	Total.....				17 or 18

SENIOR

(For all options except Aeronautical-B)

FIRST SEMESTER				SECOND SEMESTER			
Ap. Mech.	220	Mech. of Mtls. Lab.....	1	Mach. Des.	204	Mach. Des. I Rec.....	3
Shop	246	Industrial Management ...	3			Restricted Elective‡.....	3
Mech. Engg.	242	Mech. Engg. Lab. I.....	2			Option	11 or 12
Mech. Engg.	204	Heat Power Engg. A....	3	Gen. Engg.	105	Engg. Assembly	R
Mech. Engg.	196	Prof. Development	1				
		Restricted Elective‡	3				
		Option	5 or 6				
Gen. Engg.	105	Engg. Assembly	R				
Mech. Engg.	180	Inspection Trip	R				
Total.....			18 or 19	Total.....			17 or 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. 0, 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.

‡ To be chosen from the fields of Social Science, Humanities, or Biology with the approval of the head of the department and the dean.

Options: Curriculum in Mechanical Engineering

Aeronautical Option—A

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
Math.	121 Diff. Equa. for Engrs.....	2	Ap. Mech.	231 Fluid Mechanics [†] B.....	3
			Mach. Des.	206 Aerodynamics I Rec.....	3
			Mach. Des.	207 Aerodynamics I Lab.....	1
Total.....		2	Total		7

SENIOR

FIRST SEMESTER			SECOND SEMESTER		
Ap. Mech.	286 Airpl. Stress Anal. I.....	4	Mech. Engg.	251 Heat Transf. and Fl. Flow,	4
	Tech. Elective [†]	2	Mech. Engg.	246 Aero. Engg. Lab.....	2
			Mech. Engg.	231 Int. Comb. Engines.....	3
			Mach. Des.	260 Airpl. Des. and Const....	3
Total.....		6	Total		12

Students majoring in Mechanical Engineering 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		
Ap. Mech.	202 Applied Mechanics	4	Ap. Mech.	212 Mech. of Mtls. I Rec....	4
Mech. Engg.	208 Engg. Thermodynamics...	4	Ap. Mech.	220 Mech. of Mtls. I Lab....	1
Elec. Engg.	102 Elec. Engg. C Rec.....	2	Ap. Mech.	231 Fluid Mechanics B.....	3
Elec. Engg.	106 Elec. Engg. C Lab.....	1	Mech. Engg.	231 Int. Comb. Engines.....	3
Math.	121 Diff. Equa. for Engrs.....	2	Shop	246 Industrial Management...	3
Shop	264 Airer. Mtls. and Fabric... Elective [†]	3 2	Mach. Des.	206 Aerodynamics I Rec.....	3
Gen. Engg.	105 Engg. Assembly	R	Mach. Des.	207 Aerodynamics I Lab.....	1
Engl.	169 English Proficiency	R	Gen. Engg.	105 Engg. Assembly	R
Total		18	Total		18

SENIOR

FIRST SEMESTER			SECOND SEMESTER		
Mach. Des.	218 Prop. Theory and Des....	2	Mech. Engg.	245 Airplane Instruments	2
Mach. Des.	216 Aerodynamics II Rec.....	3	Mech. Engg.	248 Aircraft Power Plants....	2
Mach. Des.	217 Aerodynamics II Lab.....	1	Mech. Engg.	246 Aero. Engg. Lab.....	2
Mach. Des.	221 Airplane Design I.....	3	Mach. Des.	222 Airplane Design II.....	3
Ap. Mech.	286 Airpl. Stress Anal. I.....	4	Ap. Mech.	287 Airpl. Stress Anal. II....	2
Comp.	121 Man and Soc. World I... 4		Comp.	122 Man and Soc. World II.. 4	
Mech. Engg.	206 Heat Power Lab.....	1	Elec. Engg.	269 Airp. Elec. Equip. Lab... 1	
Mech. Engg.	180 Inspection Trip	R		and	
Gen. Engg.	105 Engg. Assembly	R	Elec. Engg.	271 Airp. Elec. Equip. Rec.... 2	
				or	
			Mech. Engg.	196 Prof. Development	1
				and	
			Gen. Engg.	Elective [†]	2
			Gen. Engg.	105 Engg. Assembly	R
Total		18	Total		18

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

Industrial Option

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Shop	170 Machine Tool I..... 2	Ap. Mech.	228 Fluid Mechanics A..... 4
		Shop	250 Time and Motion..... 2
		Shop	192 Machine Tool II..... 2
Total	2	Total	8

SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Mech. Engg.	288 Air Conditioning 3	Mech. Engg.	243 Mech. Engg. Lab. II..... 2
	Tech. Elective† 3	Mach. Des.	205 Machine Design I Lab.... 2
		Shop	174 Safety 2
		Shop	255 Factory Design 2
			Tech. Elective† 3
Total	6	Total	11

Petroleum Production Option

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Geol.	103 General Geology 3	Ap. Mech.	228 Fluid Mechanics A..... 4
		Geol.	203 Historical Geology 4
Total	3	Total	8

SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Mech. Engg.	270 Petroleum Prod. I..... 3	Mech. Engg.	271 Petroleum Prod. II..... 3
Civ. Engg.	102 Surveying I 2	Mech. Engg.	243 Mech. Engg. Lab. II..... 2
		Mach. Des.	205 Machine Design I Lab.... 2
		Geol.	223 Petroleum Geology 4
Total	5	Total	11

Technical Option

JUNIOR

FIRST SEMESTER		SECOND SEMESTER	
Math.	121 Diff. Equa. for Engrs.... 2	Ap. Mech.	231 Fluid Mechanics B..... 3
		Mech. Engg.	251 Heat Transf. and Fl. Flow, 4
Total	2	Total	7

SENIOR

FIRST SEMESTER		SECOND SEMESTER	
Mech. Engg.	228 Air Conditioning 3	Ap. Mech.	213 Mech. of Materials II.... 2
	Tech. Elective† 3	Mech. Engg.	243 Mech. Engg. Lab. II..... 2
		Mech. Engg.	220 Power Plant Design..... 3
		Mach. Des.	205 Machine Design I Lab... 2
			Tech. Elective† 3
Total	6	Total	12

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

Agricultural Engineering

Professor FENTON
Associate Professor KUGLER
Associate Professor LARSON
Assistant Professor DUBOIS
Assistant Professor FAIRBANKS

Assistant Professor LIPPER
Instructor RIGGS
Instructor STAFF
Graduate Research Assistant FUNK
Graduate Research Assistant WESTBERG

FOR UNDERGRADUATE CREDIT

- 101. 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. Fenton.

- 102. 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. Larson.

- 103. 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 157 and 167. Kugler, Riggs.

- 104. Farm Machinery Repair.** 2 semester hours. Second semester.

Construction, repair, operation, adjustment, calibration, and maintenance of farm machinery and equipment. Six hours of laboratory a week. For students in the Curriculum in Agricultural Education. Prerequisite: Agr. Engg. 103. Kugler, Riggs.

- 106. 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. Kugler, Riggs.

- 108. 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. Fairbanks.

- 111. 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: Mach. Des. 121 and Phys. 106. Fairbanks.

- 130. 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. Larson.

140. 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, \$25 to \$50. Prerequisite: Senior classification. Fenton and assistants.

FOR GRADUATE AND UNDERGRADUATE CREDIT**201. 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 mechanization of agriculture. Open to all students who have not taken Agr. Engg. 108 or 130. Two hours of recitation a week. Prerequisite: Junior or senior classification. Fenton.

202. 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. Larson.

203. 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. 212. Fenton.

204. Agricultural Hydrology. 3 semester hours. First semester.

The hydraulic 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. Dubois.

205. Agricultural Engineering Problems. Credit to be arranged. Each semester and summer.

Problems in the design, construction, or application of machinery or power in agriculture, structures, modern conveniences, rural electrification. Prerequisite: Permission of instructors. Staff.

206. 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. 103 and 106. Kugler.

207. 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. 103. Kugler.

208. 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. Kugler.

211. Modern Farm and Home Equipment. 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. 228 and 235. Fenton.

- 215. Tractor Research.** Credit to be arranged. First semester.
Research studies relating to tractor construction and operation. Prerequisite: Agr. Engg. 225 or equivalent. Larson.
- 225. 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. 106 and Mech. Engg. 208. Larson.
- 240. 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. 130. Dubois.
- 245. Soil and Water Conservation.** 4 semester hours. Second semester.
Principles and methods of land drainage, soil and water conservation, and irrigation. Two hours of recitation and six hours of laboratory a week. Prerequisite: Ap. Mech. 228, Agr. Engg. 204, and Agron. 130. Dubois.

FOR GRADUATE CREDIT

- 301. 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. 130 and Phys. 106 or equivalent. Staff.

Applied Mechanics

Professor SCHOLER	Instructor CARVER
Professor ROBERT	Instructor MILLER
Professor PICKETT	Instructor RAVILLE
Associate Professor McCORMICK	Instructor BURRELL
Associate Professor TAYLOR	Instructor McVEY
Assistant Professor MUNGER	Instructor CRARY
Instructor WHERRY	

FOR UNDERGRADUATE CREDIT

- 102. Applied Mechanics A.** 3 semester hours. Second 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. 101 and Phys. 102. Staff.
- 116. Strength of Materials A Recitation.** 3 semester hours. First 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. 102. Staff.
- 121. Strength of Materials A Laboratory.** 1 semester hour. First 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. 116. Staff.
- 135. 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. 215. Munger.

150. Thesis. Credit to be arranged. Each semester and summer.

Subject of investigation to be selected in consultation with the head of the department at the beginning of the senior year. Scholer, Pickett.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. Applied Mechanics. 4 semester hours. Each semester and summer.

Composition, resolution, and conditions of equilibrium of concurrent and noncurrent 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: Math. 115 and Phys. 105. Staff.

212. 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. 202. Staff.

213. Mechanics of Materials II Recitation. 2 semester hours. Second semester.

An extension of Ap. Mech. 212 with special reference to the needs of students in Mechanical Engineering. Two hours of recitation a week. Prerequisite: Ap. Mech. 212. Staff.

220. 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. 212. Staff.

221. 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. 220; prerequisite or concurrent: Ap. Mech. 213. McCormick, Wherry.

228. 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 Reynold's 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. 202. Staff.

231. 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. 228. Prerequisite: Ap. Mech. 202 and Mech. Engg. 208. Robert.

235. Hydraulics Laboratory. 1 semester hour. Each semester and summer.

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. 228 or 231. Staff.

250. 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. 220. Munger.

- 268. 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. 212. Pickett, McCormick.
- 270. 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. 228. Robert.
- 275. 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. 250. Scholer.
- 276. Design of Concrete Mixtures.** 3 semester hours. First 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. 220. Munger.
- 280. 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. 212. Pickett.
- 286. Airplane Stress Analysis I.** 4 semester hours. First semester.
Analysis of stress and stability problems in the structural elements of airplanes. Three hours of recitation and three hours of laboratory a week. Prerequisite: Math. 121 and Ap. Mech. 212. McCormick.
- 287. 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. 286. McCormick.
- 290. Soil Mechanics.** 2 semester hours. Each semester.
The physical properties of soil which govern its behavior as a material for highway surfaces or foundations; the behavior of soil when used as a material of construction in fills and dams. Six hours of laboratory a week. Prerequisite or concurrent: Ap. Mech. 202. Pickett, Munger, Taylor.
- 295. 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 agencies. Prerequisite: Ap. Mech. 220. Pickett.

FOR GRADUATE CREDIT

- 301. Research in Materials of Construction.** Credit to be arranged. Each semester and summer.
Many problems related to materials used in engineering construction offer attractive fields of research. A number of special pieces of apparatus in addition to the usual equipment of strength-of-materials laboratory are available for this work. The results of such investigations, if suitable, may be incorporated in bulletins of the Engineering Experiment Station, or furnish materials for the master's thesis. Prerequisite: Consult instructors. Scholer, Pickett.
- 302. Problems in Elasticity.** Credit to be arranged. Each semester and summer.
Pickett.

308. 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 coördinates; torsion of shafts of non-circular section. Prerequisite: Ap. Mech. 213 and Math. 231 or equivalent. Pickett.

309. Theory of Elasticity II. 2 semester hours. First semester.

Bending of prismatic bars and circular plates; stresses around cavities; stresses within soils; thermal stresses. Prerequisite: Ap. Mech. 308. Pickett.

311. Theory of Plates and Slabs. 3 semester hours. Second semester.

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. 213 and Math. 231 or equivalent. Pickett.

312. 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. 308 and Mach. Design 215. Pickett.

315. Rheology I. 2 semester hours. First semester.

Torsion, bending and buckling of metal bars beyond the elastic limit; creep; plastic flow in two dimensions; elastic and viscous elements in series and in parallel. Prerequisite: Ap. Mech. 213 and Math. 231 or equivalent. Pickett.

316. Rheology II. 3 semester hours. Second semester.

Cohesion; adhesion; flocculation; dispersion; structural viscosity; use and theory of capillary, efflux, immersion, Couette and Pochettino viscometers for non-newtonian fluids; rheological properties of two-phase systems. Prerequisite: Ap. Mech. 315. Pickett.

Architecture

Professor WEIGEL

Professor HELM

Professor CHADWICK

Associate Professor HEINTZELMAN

Assistant Professor —————

Assistant Professor WHITELEY

Assistant Professor ARKIN

Assistant Professor COBB

Assistant Professor WASHBURN

Instructor LAYMAN

Instructor MARTSOLF

Instructor TOMASCH

Instructor KEITH

Instructor SMULL

Instructor GREIF

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

103. Shades and Shadows. 1 semester hour. Each semester and summer.

A fundamental course in shades and shadows. Three hours of laboratory a week. Prerequisite: Mach. Des. 103 or equivalent. Staff.

104. Perspective Drawing. 1 semester hour. Each semester and summer.

The principles of perspective drawing. Three hours of laboratory a week. Prerequisite: Mach. Des. 103 or equivalent. Staff.

112. 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. Helm, Martsolf, Tomasch.

- 113. Freehand Drawing II.** 2 semester hours. Each semester and summer.
A continuation of Arch. 112. Six hours of laboratory a week. Prerequisite: Arch. 112. Helm, Martsolf, Tomasch.
- 116. Pencil Sketching.** 2 semester hours. Each semester and summer.
Six hours of laboratory a week. Prerequisite: Arch. 112. Helm, Martsolf, Tomasch.
- 117. 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. 112. Helm, Martsolf, Tomasch.
- 118. 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. 116 or approval of instructor. Helm, Martsolf, Tomasch.
- 119. 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. 118. Helm, Martsolf, Tomasch.
- 120. Interior Design.** 2 semester hours. First semester and summer.
A study of the principles of interior architecture. Six hours of laboratory a week. Prerequisite: Arch. 118, 125, and 145. Helm.
- 121. Life Drawing I.** 2 semester hours. Each semester and summer.
Six hours of laboratory a week. Prerequisite: Arch. 118. Helm, Martsolf, Tomasch.
- 123. Life Drawing II.** 2 semester hours. Each semester and summer.
A continuation of Arch. 121. Six hours of laboratory a week. Prerequisite: Arch. 121. Helm.
- 124. Domestic Architecture.** 2 semester hours. Second 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. Washburn.
- 125. 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. Whiteley.
- 127. Elements of Architecture I.** 4 semester hours. Each semester and summer.
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. Staff.
- 129. Elements of Architecture II.** 4 semester hours. Each semester and summer.
A continuation of Arch. 127. Twelve hours of laboratory a week. Prerequisite: Arch. 127. Staff.
- 133. Clay Modeling.** 2 semester hours. First semester and summer.
The making of clay models, plaster casts of simple decorative fragments and anatomical forms; and construction of relief maps. Six hours of laboratory a week. Prerequisite: Arch. 117. Helm, Martsolf, Tomasch.
- 134. Pen and Ink Drawing.** 2 semester hours. Each semester and summer.
Six hours of laboratory a week. Prerequisite: Approval of instructor. Helm, Martsolf, Tomasch.
- 137. 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. 113 or approval of instructor. Helm.

139. Architectural Design I. 5 semester hours. Each semester.

A continuation of Arch. 129. Fifteen hours of laboratory a week. Prerequisite: Arch. 129. (Effective September 1, 1949, for the five-year Curriculum in Architecture.)

141. Architectural Design II. 5 semester hours. Each semester.

A continuation of Arch. 139. Fifteen hours of laboratory a week. Prerequisite: Arch. 139. (Effective September 1, 1949, for the five-year Curriculum in Architecture.)

145. Architectural Design III. 5 semester hours. Each semester.

Continuation of Arch. 144; time problems and rapid design sketches required at frequent intervals. Fifteen hours of laboratory a week. Prerequisite: Arch. 144. Weigel, Chadwick, Heintzelman.

147. Architectural Design IV. 5 semester hours. Each semester.

Continuation of Arch. 145. Fifteen hours of laboratory a week. Prerequisite: Arch. 145. Weigel, Chadwick, Heintzelman.

154A. History of Architecture I. 2 semester hours. First semester.

Preclassical and classical architecture. Two hours of recitation a week. Whiteley.

157A. History of Architecture II. 2 semester hours. Second semester.

Medieval architecture. Two hours of recitation a week. Prerequisite: Arch. 154A. Whiteley.

158A. History of Architecture III. 2 semester hours. First semester.

Italian and French Renaissance architecture. Two hours of recitation a week. Prerequisite: Arch 157A. Layman.

160A. History of Architecture IV. 2 semester hours. Second semester.

Continuation of Arch. 158A through modern architecture. Two hours of recitation a week. Prerequisite: Arch. 158A. Layman.

165. Commercial Illustration I. 2 semester hours. Each semester and summer.

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. Helm.

170. Commercial Illustration II. 2 semester hours. Each semester and summer.

Continuation of Arch. 165. Six hours of laboratory a week. Prerequisite: Arch. 165. Helm.

172. Commercial Illustration III. 3 semester hours. Each semester and summer.

Continuation of Arch. 170 with particular emphasis upon the perfecting of professional techniques employed in advertising work. Nine hours of laboratory a week. Prerequisite: Arch. 170. Helm.

174. Commercial Illustration IV. 3 semester hours. Each semester and summer.

Continuation of Arch. 172. Nine hours of laboratory a week. Prerequisite: Arch. 172. Helm.

179. History of Painting and Sculpture. 3 semester hours. First semester.

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. Helm.

187A. Building Materials and Construction. 3 semester hours. First 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. Arkin, Washburn.

188. Building Equipment. 2 semester hours. Second semester.

A study of plumbing, sanitation systems, and mechanical equipment of buildings. Two hours of recitation a week. Prerequisite: Arch. 187A. Arkin, Cobb.

191. Working Drawings. 3 semester hours. Second semester.

Preparing working drawings for a residence. Nine hours of laboratory a week. Prerequisite: Arch. 142 and 187A. Staff.

192. 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. 116 and 121.

194A. Theory of Structures II. 5 semester hours. First semester.

A continuation of Arch. 192. Three hours of recitation and six hours of laboratory a week. Prerequisite: Arch. 192.

195. Professional Practice. 2 semester hours. Second 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. 144 and 191. Weigel.

196. Theory of Structures III. 4 semester hours. Second semester.

A continuation of Arch. 194A, 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. 194A.

199. 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, \$50. Weigel.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Advanced Freehand Drawing. Credit to be arranged. Each semester and summer.

Prerequisite: Arch. 117 and 118 and approval of instructor. Helm, Martsof, Tomasch.

217. Etching. 2 semester hours. Each semester and summer.

Technical principles and practice of etching on copper and zinc plate. Six hours of laboratory a week. Prerequisite: Arch. 117 and 134. Helm.

221. Problems in Architectural Development. Credit to be arranged. Each semester and summer.

Under direct supervision of some member of the departmental staff, study of specific architectural problems. Prerequisite: Approval of instructor. Weigel, Chadwick, Heintzelman.

230. Oil Painting. Credit to be arranged. Each semester and summer.

Prerequisite: Arch. 118 or approval of instructor. Helm, Martsof.

249. City Planning. 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. 144. Weigel, Heintzelman.

254. Architectural Design V. 7 semester hours. Each semester.

A continuation of Arch. 147. Twenty-one hours of laboratory a week.

Prerequisite: Arch. 147. Weigel, Chadwick, Heintzelman.

257. Architectural Design VI. 7 semester hours. Each semester.

A continuation of Arch. 254. Twenty-one hours of laboratory a week.

Prerequisite: Arch. 254. Weigel, Chadwick, Heintzelman.

FOR GRADUATE CREDIT

301. 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. 257. Weigel, Chadwick, Heintzelman.

304. Advanced Architectural Design II. Credit to be arranged. Each semester and summer.

A continuation of Arch. 301; may furnish material for the master's thesis.

Prerequisite: Arch. 301. Weigel, Chadwick, Heintzelman.

Chemical Engineering

Professor _____

Associate Professor HONSTEAD

Associate Professor TAECKER

Assistant Professor BRADEN

Instructor BRICE

Instructor OLSON

Graduate Assistant DANIELSON

Graduate Assistant STEWART

Graduate Research Assistant FRENCH

The instruction in the Department of Chemical Engineering deals primarily with those unit physical operations and unit chemical processes which, when coördinated 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.

FOR UNDERGRADUATE CREDIT

150. Inspection Trip. Required; no credit. First semester.

Such manufacturing centers as Kansas City, St. Louis, and Chicago are visited. Approximate cost to student, \$50. Honstead.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. 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. 103 and 104. Staff.

206. Industrial Stoichiometry. 3 semester hours. Second semester.

Problems, involving heat, material, and economic balances. Three hours of recitation a week. Prerequisite: Chem. 215. Staff.

221. Unit Operations I Recitation. 3 semester hours. First semester.

Fundamentals of chemical engineering unit operations with emphasis on flow of fluids and flow of heat; application of these principles to equipment design. Three hours of recitation a week. Prerequisite: Math. 115, Chem. 260 or concurrent, and Chem. Engg. 206. Staff.

224. Unit Operations I Laboratory. 2 semester hours. Second semester.

Study of flow fluids, flow of heat, drying and evaporation. Six hours of laboratory a week. Prerequisite or concurrent: Chem. Engg. 221. Staff.

- 226. Unit Operations II Recitation.** 3 semester hours. Second semester.
A study of unit operations including filtration, humidification, absorption, distillation, and crystalization. Three hours of recitation a week. Prerequisite: Chem. Engg. 221. Brice.
- 229. Chemical Engineering Thermodynamics.** 4 semester hours. Each semester and summer.
Thermodynamics applied to chemical engineering processes. Four hours of recitation a week. Prerequisite: Chem. Engg. 221. Taecker.
- 232. Advanced Chemical Engineering Thermodynamics.** 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: Chem. Engg. 229. Taecker.
- 234. Unit Operations II Laboratory.** 2 semester hours. First semester.
Study of filtration, distillation, absorption. Six hours of laboratory a week. Prerequisite or concurrent: Chem. Engg. 226. Staff.
- 237. Chemical Technology.** 2 semester hours. Each semester and summer.
Applications of physical chemistry, unit operations, and economics to the chemical process industries. Two hours of recitation a week. Prerequisite: Chem. 224 and 260. Staff.
- 240. Unit-process Laboratory.** 2 semester hours. Second semester.
Investigation of the important unit processes. Six hours of laboratory a week. Prerequisite or concurrent: Chem. Engg. 237. Staff.
- 246. Chemical Engineering Plant Design.** 4 semester hours. Second semester.
Unit operations, thermodynamics, reaction kinetics and economic balance, solution of the annual A. I. Ch. E. contest problem. Two hours of recitation and six hours of laboratory a week. Prerequisite: Chem. Engg. 226.
- 250. Problems in Chemical Engineering.** Credit to be arranged. Each semester.
An introduction to chemical engineering research. Staff.
- 255. 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: Chem. 261. Staff.
- 265. Distillation.** 3 semester hours. First or second semester.
Advanced study of distillation. Three hours of recitation a week. Prerequisite: Chem. Engg. 226. Taecker.
- 270. Absorption and Extraction.** 3 semester hours. First or second semester.
Advanced study of absorption and extraction. Three hours of recitation a week. Prerequisite: Chem. Engg. 226. Staff.
- 275. 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. 221. Staff.
- 280. Petroleum Refining Engineering I.** 3 semester hours. First semester.
Properties of hydrocarbon mixtures, cracking polymerization, hydrogenation, separation by distillation. Three hours of recitation a week. Prerequisite or concurrent: Chem. Engg. 226. Braden.
- 285. Petroleum Refining Engineering II.** 3 semester hours. Second semester.
Design and operation of plants, refinery economics, natural gasoline plants. Three hours of recitation a week. Prerequisite: Chem. Engg. 280. Taecker.

290. Process Development. 2 semester hours. First or second semester.

Principles involved in the development of a chemical process from laboratory to completed plant. Two hours of recitation a week. Prerequisite: Chem. Engg. 221. Honstead.

FOR GRADUATE CREDIT

301. 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 instructor. Staff.

305. Unit-process Design. 3 semester hours. First semester.

Design of reaction equipment. Three hours of recitation a week. Prerequisite: Chem. Engg. 246 or equivalent. Honstead.

Civil Engineering

Professor MORSE

Professor CONRAD

Professor FRAZIER

Professor WHITE

Associate Professor CRAWFORD

Instructor MCENTYRE

Instructor SHEDD

Instructor JOHNSON

Instructor BENJAMIN

Graduate Assistant BUCKLEY

Graduate Assistant ROBOHM

FOR UNDERGRADUATE CREDIT

102. Surveying I. 2 semester hours. Each semester and summer.

Care and use of engineer's surveying instruments. Six hours of laboratory a week. Prerequisite or concurrent: Math. 101. Staff.

103. Topographic Surveying. 3 semester hours. Second semester every other year.

Topographic surveying with transit and plane table; grading plans for walks, roads, and areas; staking out buildings. Prerequisite: Civ. Engg. 102. (For students taking the Curriculum in Landscape Design.)

114. Surveying II. 5 semester hours. First semester and summer.

Land and topographic surveying, curves and earthwork; mine, city and hydrographic surveying. Two hours of recitation and nine hours of laboratory a week. Prerequisite: Civ. Engg. 102. Staff.

125. Civil Engineering Drawing. 2 semester hours. Second semester.

Stereotomy, shades and shadows, isometric and perspective and the conventional methods of making drawings of structures. Six hours of laboratory a week. Prerequisite or concurrent: Mach. Des. 111. White.

135. Highway Plans. 5 semester hours. First semester.

Preparation of highway plans based on field surveys to be made by the class. Three hours of recitation and six hours of laboratory a week. Prerequisite: Civ. Engg. 102, and Civ. Engg. 114 or Geol. 230. (For students enrolled in Geology.)

170. Thesis. Credit to be arranged. Each semester.
Staff.**180. 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. Morse.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 202. 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. 212. Staff.
- 205. 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. 202. Staff.
- 208. Stress Analysis II.** 3 semester hours. Second 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. 202. Conrad, Morse.
- 217. Astronomy and Geodesy.** 3 semester hours. Second 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. 219. Frazier, Morse.
- 219. Photogrammetry.** 4 semester hours. First semester and summer.
Construction of mosaics and contour maps from aerial photographs. Two hours of recitation and six hours of laboratory a week. Prerequisite: Civ. Engg. 214. White, Morse.
- 222. Sanitary Engineering.** 4 semester hours. First 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. 228 and Bact. 126. Frazier, Crawford.
- 228. Sanitary Engineering Design.** 2 semester hours. Second semester and summer.
A continuation of Civ. Engg. 222 with emphasis on cost, estimates and methods of financing. Six hours of laboratory a week. Prerequisite: Civ. Engg. 222. Frazier.
- 233. 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. 114. Conrad, Frazier.
- 236. 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. 228. Conrad, White.
- 246. 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. 202. Staff.
- 248. 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. Conrad.
- 249. 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. 290. Frazier, Crawford.

- 256. 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. 202. Conrad.

- 257. 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. 202. Staff.

- 258. 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. 257. Staff.

- 267. Airport Design.** 3 semester hours. First semester.

An advanced study of the problems encountered in the design, construction and maintenance of large airports. Two hours of recitation and three hour of laboratory a week. Prerequisite: Civ. Engg. 233. Conrad, Frazier.

- 274. 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. 233. Staff.

- 275. 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. 208, 257 and 258.

- 276. 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. 208 and 246.

FOR GRADUATE CREDIT

- 304. 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. Staff.

Electrical Engineering

Professor KLOEFFLER

Professor KERCHNER

Professor HUNT

Professor MARTIN

Associate Professor JORGENSEN

Associate Professor SITZ

Associate Professor WARD

Associate Professor WOLFE

Assistant Professor RILEY

Instructor HEWSON

Instructor FINDLEY

Instructor WIRTZ

Assistant Instructor COWLES

Graduate Assistant HILL

Graduate Assistant MOSS

Graduate Assistant FORD

Graduate Assistant DENNISON

Graduate Assistant HADLEY

FOR UNDERGRADUATE CREDIT

- 102. 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. 106. Jorgenson.

- 106. 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. 102. Jorgenson.

- 108. Electrical Engineering A-I.** 3 semester hours. First semester.

The fundamental principles of direct-current and alternating-current circuits and machines. For nonelectrical students. Three hours of recitation a week. Prerequisite: Phys. 106 and Math. 114. Staff.

- 110. Electrical Engineering A-II.** 2 semester hours. Second semester.

Industrial wiring, heating, and lighting. Two hours of recitation a week. Prerequisite: Elec. Engg. 108. Staff.

- 116. 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. 103 or 106. Hunt.

- 190. Inspection Trip.** Required; no credit. First semester.

A trip of four 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, \$50. Prerequisite: Senior classification. Kloeffer.

- 195. Thesis.** Credit to be arranged. Each semester.

A subject for thesis work is selected in consultation with the department head at the beginning of the senior year. Every opportunity is given to work out original ideas as to design and operation of electrical apparatus and machinery. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 201. Principles of Electrical Engineering.** 2 semester hours. Each semester and summer.

Principles of magnetic, electric, and electrostatic circuits. Two hours of recitation a week. Prerequisite or concurrent: Phys. 106 and Math. 115. Staff.

- 203. Direct-current Machinery Recitation.** 4 semester hours. Each semester and summer.

Principles of operation and the characteristics of direct-current generators and motors. Four hours of recitation a week. Prerequisite or concurrent: Elec. Engg. 201 and Math. 115; prerequisite: Phys. 106. Staff.

- 204. 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. 203. Staff.

- 205. 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. 204.

- 209. Alternating-current Circuits.** 4 semester hours. Each semester and summer.

A mathematical treatment of alternating-current phenomena in single and polyphase circuits. Four hours of recitation a week. Prerequisite: Elec. Engg. 201; prerequisite or concurrent: Math. 121. Staff.

- 210. 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. 209. Staff.

- 211. Alternating-current Machinery I Laboratory.** 2 semester hours. Each semester and summer.

Experiments illustrating the characteristics of alternating-current circuits and transformers. Six hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 210. Staff.

- 212. Alternating-current Machinery II. Recitation.** 3 semester hours. Each semester and summer.

Continuation of Elec. Engg. 210, 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. 210 and 211. Staff.

- 213. Alternating-current Machinery II Laboratory.** 2 semester hours. Each semester and summer.

Continuation of Elec. Engg. 211 with experiments on machines listed in Elec. Engg. 212. Six hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 212. Staff.

- 216. Alternating-current Machinery E Laboratory.** 2 semester hours. Second semester.

Experiments illustrating the characteristics of alternating-current circuits and machines. For electrical engineering students in the communication or electronics option. Six hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 242. Staff.

- 220. Electronics I.** 2 semester hours. Each semester.

The fundamental principles of electron tubes. Two hours of recitation a week. Prerequisite: Phys. 106. Kloeffer.

- 222. Electronics II Recitation.** 4 semester hours. Each semester.

A study of basic electronic circuits, amplifiers, oscillators, and rectifiers. Four hours of recitation a week. Prerequisite: Elec. Engg. 209 and 220. Wolfe.

- 223. Electronics II Laboratory.** 2 semester hours. Each semester.

Basic electronic circuits and characteristics. Six hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 222. Wolfe.

- 224. 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. 102, 209, or 242. Kloeffer.

- 225. Industrial Electronics Laboratory.** 1 semester hour. Second semester.

Industrial electronic equipment. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 224 or 226. Findley.

- 226. 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. 222. Kloeffer.

- 227. 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: Elec. Engg. 201; prerequisite or concurrent: Elec. Eng. 209. Ward.

- 230. 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. 227. Staff.

- 237. 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. 106; prerequisite or concurrent: Math. 115. Staff.
- 238. Electrical Engineering M-I Laboratory.** 1 semester hour. Each semester and summer.
Experiments on measurement of resistance and study of direct-current machine characteristics. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 237. Staff.
- 242. Electrical Engineering M-II Recitation.** 3 semester hours. Each semester.
Theory of alternating-current machinery. Three hours of recitation a week. Prerequisite: Elec. Engg. 237. Hunt.
- 243. 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. 242. Staff.
- 244. Wire Communication.** 3 semester hours. Each semester.
Principles of wire communication; telephone and telegraph switching systems, line loading, repeaters, and carrier currents. Three hours of recitation a week. Prerequisite: Elec. Engg. 209. Kloeffer.
- 254. 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. 223. Wolfe.
- 256. 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. 254. Staff.
- 257. Ultra-high Frequency Recitation.** 3 semester hours. Second semester.
Principles of microwave communication with emphasis on generation, propagation, and reception. Three hours of recitation a week. Prerequisite: Elec. Engg. 222 and 263. Martin.
- 258. Ultra-high Frequency Laboratory.** 1 semester hour. Second semester.
Experiments on the generation and application of microwaves outlined in Elec. Engg. 257. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 257. Martin.
- 263. 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. 222. Martin.
- 264. Communication Networks Laboratory.** 1 semester hour. First semester.
Communication circuits and equipment. Three hours of laboratory a week. Concurrent: Elec. Engg. 263. Martin.
- 266. 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. 257 and 263. Martin.
- 267. Television Laboratory.** 1 semester hour. Second semester.
Television circuits and equipment. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 266. Martin.

- 269. 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. 268. Staff.
- 271. Airplane Electrical Equipment Recitation.** 2 semester hours. Second semester.
Electric control equipment and instruments for airplanes. Two hours of recitation a week. Prerequisite: Either Elec. Engg. 102, 209, or 242. Staff.
- 272. 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. 115 and Phys. 106. Hunt.
- 280. 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. 210. Staff.
- 284. 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. 209 and Math. 121. Staff.
- 290. Economics of Electrical Engineering.** 3 semester hours. Second semester.
The problems of depreciation, finance, rates, and public regulation in gas, electric, and telephone properties. Three hours of recitation a week. Prerequisite: Econ. 101 and Elec. Engg. 209. Kloeffer.

FOR GRADUATE CREDIT

- 301. 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. 212. Kerchner.
- 304. 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. 301. Kerchner.
- 313. 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. 209 and 257. Martin.
- 314. High-frequency Measurements Laboratory.** 1 semester hour. Second semester.
Applications of high-frequency measurements. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 313. Martin.
- 316. Advanced Electrical Theory.** Credit to be arranged. Each semester.
Prerequisite: Elec. Engg. 222. Staff.
- 336. 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. 222. Staff.

General Engineering

Dean SEATON

Assistant Dean DURLAND

101. 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 Seaton, other members of the engineering faculty, and visiting practicing engineers.

105. 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

Professor PEARCE

Professor SMUTZ

Professor WOOD

Assistant Professor A. E. MESSENHEIMER

Assistant Professor KIMEL

Instructor SIEH

Instructor REINECKE

Instructor PAULI

Instructor MARSH

Instructor BYERS

Instructor A. D. MESSENHEIMER

Instructor KOLSKY

Instructor MELLARD

Instructor HECKELTHORN

Graduate Assistant BLEVINS

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

101. 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. Staff.

106. 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: Math. 102 or equivalent and Mach. Des. 101. Staff.

111. 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: Mach. Des. 101. Staff.

118. 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. 111. Staff.

121. 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. 101 and Mach. Des. 106. Staff.

122. 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. 101 or approval of head of department. Staff.

124. 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. 122 or private pilot certificate. Staff.

127. 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. Staff.

The College furnishes the medical examination without extra charge but a special charge is made to cover student insurance and flight instruction.

FOR GRADUATE AND UNDERGRADUATE CREDIT

204. 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. 212 and Mach. Des. 111. Staff.

205. Machine Design I Laboratory. 2 semester hours. Each semester.

Riveted joints designed in conformity to the A. S. M. E. Boiler Code; 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. 204. Staff.

206. Aerodynamics I Recitation. 3 semester hours. Second semester.

A general introduction to aerodynamics. Three hours of recitation a week. Prerequisite: Ap. Mech. 202. Staff.

207. Aerodynamics I Laboratory. 1 semester hour. Second semester.

Operation of wind tunnel. Three hours of laboratory a week. Prerequisite or concurrent: Mach. Des. 206. Staff.

210. 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. 204 and 205. Pearce.

215. Machine Vibration. 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. 202 and Math. 121. Pearce.

216. Aerodynamics II Recitation. 3 semester hours. First semester.

A continuation of Aerodynamics I. Three hours of recitation a week. Prerequisite: Mach. Des. 206 and Ap. Mech. 231. Pearce.

- 217. Aerodynamics II Laboratory.** 1 semester hour. First semester.
Determination of performance curves and stability of an airplane. Prerequisite or concurrent: Mach. Des. 216. Pearce.
- 218. 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. 231 and Mach. Des. 206. Pearce.
- 220. 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. 121 and Ap. Mech. 202. Pearce, Kimel.
- 221. 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. 212 and Mach. Des. 206 and 207. Staff.
- 222. 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. 221. Mellard.
- 225. Graphics of Engineering Formulas.** 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. 110. Pearce.
- 230. Patents and Inventions.** 2 semester hours. First 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. Pearce, A. E. Messenheimer.
- 260. 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. 206 and Ap. Mech. 212. Staff.

FOR GRADUATE CREDIT

- 301. 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. Pearce, Wood.
- 310. Research in 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. Pearce, Wood.

Mechanical Engineering

Professor **HELANDER**

Professor **MACK**

Professor **BRAINARD**

Professor **TRIPP**

Associate Professor **FLINNER**

Assistant Professor **DUNCAN**

Instructor **JAKOWATZ**

Instructor **CRANK**

Instructor **SCHINDLER**

Instructor **MYERS**

Instructor **SHIDLER**

Assistant Instructor **ROSE**

Graduate Assistant **SIMPSON**

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

- 120. 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. 102 or 105. Staff.
- 135. 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. 102 or 105. Staff.
- 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. Helander.
- 195. Thesis.** Credit to be arranged. Each semester.
Subject for investigation to be selected in consultation with the department head at the beginning of the senior year. Helander, Tripp.
- 196. Professional Development.** 1 semester hour. First semester.
The social and professional aspects of engineering. One hour of recitation a week. Prerequisite: Senior standing. Helander.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 204. Heat Power Engineering A.** 3 semester hours. Each semester.
Power-plant equipment, fuels, and combustion. Three hours of recitation a week. Prerequisite: Mech. Engg. 208. Staff.
- 206. 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. 120; prerequisite or concurrent: Mech. Engg. 120 or 208. Staff.
- 208. Engineering Thermodynamics.** 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 nonflow processes; power generating cycles; air compression; refrigeration. Four hours of recitation a week. Prerequisite: Math. 115 and Phys. 105. Staff.
- 220. 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. 204. Helander.
- 221. 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. 208. Flinner.
- 228. 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. 208. Flinner.
- 231. Internal Combustion Engines.** 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: Mech. Engg. 208. Brainard.

- 232. Advanced Thermodynamics.** 3 semester hours. First semester.
Three hours of recitation a week. Prerequisite: Mech. Engg. 208. Helander.
- 242. 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. 204. Staff.
- 243. 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. 242. Staff.
- 245. Airplane Instruments.** 2 semester hours. Second semester.
Instruments and controls for the airplane. Two hours of recitation a week. Prerequisite: Elec. Engg. 102 and Mach. Des. 206. Duncan.
- 246. Aeronautical Engineering Laboratory.** 2 semester hours. Second semester.
Aircraft engines, propellers, engine accessories, and instruments. Six hours of laboratory a week. Prerequisite: Mech. Engg. 242. Staff.
- 248. 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. 231. Brainard.
- 251. Heat Transfer and Fluid Flow.** 4 semester hours. Second semester.
Particular reference to heat exchanges, air preheaters, economizers, boilers, condensers, evaporators, and similar equipment. Three hours of recitation and three hours of laboratory a week. Prerequisite: Mech. Engg. 208. Tripp.
- 260. 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. Eng. 220. Helander.
- 270. 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 Department of Mechanical Engineering or permission of head of department. Brainard.
- 271. Petroleum Production II.** 3 semester hours. Second semester.
Prime movers and fuels; production methods; methods of flowing and pumping wells; refining; storage; transportation. Two hours of recitation and three hours of laboratory a week. Prerequisite: Mech. Engg. 270. Brainard.

FOR GRADUATE CREDIT

- 305. 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. Helander, Tripp.

Shop Practice

Professor SELLERS
 Professor CARLSON
 Associate Professor HOSTETTER
 Assistant Professor LYNCH
 Assistant Professor JONES
 Assistant Professor SMALTZ
 Assistant Professor DARBY
 Assistant Professor SHAW
 Assistant Professor WIKLE
 Assistant Professor CLIFTON
 Instructor ZABEL
 Instructor CALLAHAN
 Instructor HOOPER

Instructor BALLARD
 Instructor TIMMONS
 Instructor MCCLURE
 Instructor DODGE
 Instructor BYERS
 Instructor NELSON
 Instructor WARREN
 Instructor HEALD
 Instructor SMETHERS
 Instructor YOWELL
 Instructor SCOTT
 Instructor CODER

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

- 102. 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. Staff.
- 104. 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. Byers.
- 110. 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.
- 111. Refrigeration Servicing.** 4 semester hours. Second semester.
 A study of the basic principles of servicing, operation, and repair of household and small commercial refrigeration units, with supplemental laboratory exercises to illustrate these principles. Two hours of recitation and six hours of laboratory a week. Byers.
- 118. Elementary Crafts for Teachers.** 2 semester hours. Summer.
 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. Darby.
- 121. Woodwork I.** 2 semester hours. First semester and summer.
 Elementary woodwork. Six hours of laboratory a week. Darby, Smethers.
- 122. 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: Shop 121. Darby, Smethers.
- 126. Woodwork II.** 2 semester hours. Second semester and summer.
 Continuation of Shop 121. Six hours of laboratory a week. Prerequisite: Shop 121. Darby, Smethers.

- 131. Woodwork III.** 2 semester hours. First semester and summer.
Advanced woodwork and cabinetmaking. Six hours of laboratory a week.
Prerequisite: Shop 126. Darby, Smethers.
- 134. Methods of Teaching Industrial Arts.** 3 semester hours. Each semester and summer.
See Department of Education, School of Arts and Sciences. One hour of recitation and six hours of laboratory a week. Prerequisite or concurrent: Educ. 139. Darby.
- 135. Wood Turning.** 2 semester hours. Each semester and summer.
Practice in handling the lathe and turning tools. Six hours of laboratory a week. Darby, Smethers.
- 139. 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 131. Darby.
- 147. 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. Darby.
- 150. 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 102.
- 152. 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 102.
- 157. Blacksmithing.** 1 semester hour. Each semester and summer.
Exercises closely related to work on the farm; designed to train teachers for work in rural communities. Three hours of laboratory a week. Dodge, Yowell.
- 161. 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 102. Shaw, Callahan.
- 165. 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. 108. Hostetter, Zabel, Wikle.
- 166. 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. Staff.
- 167. 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 166. Staff.
- 168. 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 166. Staff.

* If demand exists and facilities are available.

- 170. Machine Tool I.** 2 semester hours. Each semester and summer.
A continuation of the machine shop phase of Shop 102. Six hours of laboratory a week. Prerequisite: Shop 102. Staff.
- 173. 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. 101 or equivalent. Byers.
- 174. Safety.** 2 semester hours. Second semester.
Fundamentals of accident analysis and prevention. One hour of recitation and three hours of laboratory a week. Smaltz, Scott.
- 176. Sheet Metal II.** 2 semester hours. Second semester.*
A continuation of Shop 173, with welding of sheet metal. Six hours of laboratory a week. Prerequisite: Shop 167 and 168. Byers.
- 180. Gaging.** 1 semester hour. First semester.
Systems of measurements and the use of various types of gages and devices for checking industrial products. Three hours of laboratory a week. Smaltz.
- 181. 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.
- 182. Industrial Control.** 2 semester hours. First semester.*
Supervisory and administrative problems essential in the control of industrial production. Two hours of recitation a week.
- 183. Shop Management.** 3 semester hours. First semester.*
Problems of the supervisory staff of an industrial enterprise, such as selection, installation, and arrangement of equipment. Consideration is given to standardization, routing and dispatching, wage and cost systems and many other factors closely allied to production as well as job shop. Three hours of recitation a week.
- 191. 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. Shaw.
- 192. 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, gear cutting; study of cutting edges and tool adjustments best suited to the different metals, cutting speeds and feeds. Six hours of laboratory a week. Prerequisite: Shop 170. Staff.
- 193. 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 192. Staff.
- 194. 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 arts students. Prerequisite: Senior classification. Staff.
- 195. Thesis.** Each semester.
Credit to be arranged. Carlson, Sellers.

* If demand exists and facilities are available.

FOR GRADUATE AND UNDERGRADUATE CREDIT

246. 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 102 and junior standing. Carlson, Sellers, Clifton.

250. 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: Junior standing in engineering and Shop 170. Clifton.

255. Factory Design. 2 semester hours. Second semester.

Knowledge gained in shops and laboratories and in Shop 246 is used in the design of a factory. Six hours of laboratory a week. Prerequisite: Shop 246. Staff.

261. 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. Staff.

262. 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 165. Hostetter, Zabel, Wikle.

263. 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 262. Hostetter, Zabel.

264. 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. 202, Shop 165 and 262. Staff.

265. Metallography II. 2 semester hours. Each semester and summer.

A continuation of Shop 262, nonferrous metals, with special attention to photomicrographic analysis. Six hours of laboratory a week. Prerequisite: Shop 262. Hostetter, Zabel, Wikle.

274. 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 102, 147, 157, 166, 173, and Elec. Engg. 113. Darby.

286. 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 considerations. 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. Staff.

FOR GRADUATE CREDIT

301. 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. Staff.

The Engineering Experiment Station

ROY ANDREW SEATON, *Director*

LELAND S. HOBSON, *Assistant Director and Industrial Engineer*

JOHN D. BENDER, *Assistant 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, preparing, and presenting technical information in a form readily available for the use of the industries and the people of the state. All the work of the Experiment Station is intended to be of direct importance to Kansas.

All the equipment of the engineering and scientific laboratories, the shops, and the College power plant are available for the work, while the personnel of the station consists of members of the teaching staff from the departments of the School of Engineering and Architecture and from other scientific departments whose work is directly related to the work of this school, and others employed especially for the work of the station.

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 subdivisions of the federal or state government. Companies interested in utilizing the services of the Engineering Experiment Station are invited to communicate with the director.

Among the investigations now being carried on are: Road materials resources of Kansas; durability of concrete; Portland cements; minerology and petrography of concrete aggregates; methods of stabilization of soil particles in asphalts; Kansas airport problems; deterioration of concrete silos; farm refrigeration; agricultural machinery design; soil and water conservation; irrigation; wind-electric plants; kitchen and bathroom design; school shops for vocational agriculture and industrial arts instruction; starch production from sorghum grains; mixing and extraction as chemical engineering unit operations; cutting-tool performance; electrolytic polishing and etching of metals; ductility of welded joints; television; electronic equipment analysis; scattering of ultra-short radio waves; electromagnet design for removing metal tire hazards from highways; radiant heating and cooling; projection of heated and cooled air streams; flexible storage cabinets; spray-wheel atomization of soap; condition of highway concrete pavements as affected by component materials; high-head culverts; a study of causes of surface tension and swelling pressure as a means of improvement of concrete; processing of magnesium base alloys; production of mashed potato powder; and study of factors affecting the stability of highly unsaturated acids directed toward improvement of paint.

As an additional service to Kansas industries, two consultants in the field of industrial management have been 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 the 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 of the Engineering Experiment Station, which are sent free to any citizen of the state upon request. Fifty-four such bulletins have been published. Besides issuing these bulletins, the station answers yearly many hundreds of requests for information upon matters coming within its field.

Requests for bulletins and general correspondence should be addressed to Engineering Experiment Station, Manhattan, Kan. Requests for information in specific matters should be addressed, as far as possible, to the heads of departments in whose fields the particular matters lie.

The School of Home Economics

MARGARET M. JUSTIN, *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 home, 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. The four-year curriculums in this School lead to the degree Bachelor of Science in Home Economics 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 so 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 zoölogy and physiology.

Curriculum in Home Economics

This curriculum is recommended to those who wish to follow a broad, well-grounded program in home economics, those who plan to teach, 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, for the home demonstration service, 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 the student who wishes to become a dietitian or a director of food services in a college residence hall, cafeteria, tearoom, or hotel. It meets the requirements set by the American Dietetic Association for entrance to accredited hospitals and at the same time provides practical experience for the management of the food unit of various types of institutions. Usually after graduation the student serves an apprenticeship in a recommended establishment.

Curriculum in Home Economics and Journalism

This curriculum is much like that with Provision for Specialization, but includes courses in the Department of 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 hospitals. The first two and one-half years are spent in the College. The last two and one-half years are spent in the school of nursing of the hospitals, where theoretical instruction and practical experience in nursing are given. Upon completion of the work at the hospitals, the student presents her application for graduation to the registrar of 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 number of the *Kansas State College Bulletin*, which may be obtained upon application to the Director of Admissions of the College.

All new students at the freshman level in the School of Home Economics are required at the time of entrance to take a proficiency test in mathematics. Those enrolled in the Curriculum in Home Economics or the Curriculum in Dietetics and Institutional Management who fail the test, will be required to take the three-hour course, *Mathematics in Human Affairs*, in freshman year. Advanced credit in college mathematics exempts students from the course, *Mathematics in Human Affairs*.

Curriculum in Home Economics

FRESHMAN

FIRST SEMESTER

	Course	Sem. Hrs.
Comp.	101 Man's Phys. World I....	4 or
Chem.	110 Gen. Chem.	5
Fds. & Nutr.	102 Foods I	5
Engl.	111 Writ. Comm. I.....	3
Art	110 El. Des. I.....	2
Gen. H. E.	122 H. E. Lect.....	R
Phys. Educ.	151 Phys. Educ. W.....	R

Total..... 14 or 15

SECOND SEMESTER

	Course	Sem. Hrs.
Comp.	102 Man's Phys. World II..	4 or
Chem.	122 Gen. Org. Chem.....	5
Engl.	112 Writ. Comm. II.....	2
Art	131 Cost. Des. I.....	2
Ch. Welf.	101 Personal Health	2
Sp.	103 Oral Comm.	2
Clo. & Text.	113 Fund. of Clothing.....	2
Gen. H. E.	122 H. E. Lect.....	R
Phys. Educ.	151 Phys. Educ. W.....	R

Total..... 14 or 15

SOPHOMORE

FIRST SEMESTER

Comp.	131 Man and Cult. World I...	4
Comp.	111 Biol. in Rel. to Man I....	4
Phys.	109 Hshld. Physics	4
Fds. & Nutr.	107 Foods II	3
Gen. H. E.	122 H. E. Lect.....	R
Phys. Educ.	151 Phys. Educ. W.....	R

Total..... 15

SECOND SEMESTER

Comp.	132 Man and Cult. World II..	4
Comp.	112 Biol. in Rel. to Man II...	4
Art	113 Int. Dec. I.....	2
Clo. & Text.	117 Textiles	2
Hshld. Ec.	115 The House	3
Gen. H. E.	122 H. E. Lect.....	R
Phys. Educ.	151 Phys. Educ. W.....	R

Total..... 15

JUNIOR

FIRST SEMESTER

Comp.	121 Man and Soc. World I....	4
Clo. & Text.	114 Applied Dress Des.....	3
Hshld. Ec.	223 Family Finance	2
	Elective	6 or 8
Gen. H. E.	122 H. E. Lect.....	R
Engl.	169 English Proficiency	R

Total..... 15 or 17

SECOND SEMESTER

Comp.	122 Man and Soc. World II...	4
Ch. Welf.	211 Family Health	3
	Elective	8
Gen. H. E.	122 H. E. Lect.....	R

Total..... 15

SENIOR

FIRST SEMESTER

Fds. & Nutr.	206 Nutrition and Dietetics ...	5
Fds. & Nutr.	207 Nutrition and Diet. Lab...	1
Ch. Welf.	218 Family Relationships	2
	Elective	7
Gen. H. E.	122 H. E. Lect.....	R

Total..... 15

SECOND SEMESTER

	Elective	15
Gen. H. E.	122 H. E. Lect.....	R

Total..... 15

Number of hours required for graduation, 120.

Curriculum in Home Economics

With Provision for Specialization

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Comp.	101 Man's Phys. World I...	4 or	Comp.	102 Man's Phys. World II...	4 or
Chem.	110 Gen. Chem.	5	Chem.	122 Gen. Org. Chem.....	5
Fds. & Nutr.	102 Foods I	5	Engl.	112 Writ. Comm. II.....	2
Engl.	111 Writ. Comm. I.....	3	Art	131 Cost. Des. I.....	2
Art	110 El. Des. I.....	2	Ch. Welf.	101 Personal Health	2
Gen. H. E.	122 H. E. Lect.....	R	Sp.	103 Oral Comm.	2
Phys. Educ.	151 Phys. Educ. W.....	R	Clo. & Text.	113 Fund. of Clothing.....	2
			Gen. H. E.	122 H. E. Lect.....	R
			Phys. Educ.	151 Phys. Educ. W.....	R
Total.....			14 or 15	Total.....	
				14 or 15	

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Comp.	121 Man and Soc. World I...	4	Comp.	122 Man and Soc. World II...	4
Comp.	*111 Biol. in Rel. to Man I...	4	Comp.	*112 Biol. in Rel. to Man II...	4
Fds. & Nutr.	121 Applied Nutrition	2 or	Clo. & Text.	117 Textiles	2 or
Fds. & Nutr.	107 Foods II	3	Clo. & Text.	114 Applied Dress Des.....	3
	Elective	5		Elective	5
Gen. H. E.	122 H. E. Lect.....	R	Gen. H. E.	122 H. E. Lect.....	R
Phys. Educ.	151 Phys. Educ. W.....	R	Phys. Educ.	151 Phys. Educ. W.....	R
Total.....			15 or 16	Total.....	
				15 or 16	

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Hshld. Ec.	223 Family Finance	2 or	Hshld. Ec.	115 The House	3
Hshld. Ec.	272 Cons. and the Mkt.....	3	Ch. Welf.	211 Family Health	3 or
Art	113 Int. Dec. I.....	2	Ch. Welf.	218 Family Relationships	2
	Elective	10 or 11		Elective	9 or 10
Engl.	169 English Proficiency	R	Gen. H. E.	122 H. E. Lect.....	R
Gen. H. E.	122 H. E. Lect.....	R			
Total.....			15	Total.....	
				15	

SENIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Comp.	131 Man and Cult. World I...	4	Comp.	132 Man and Cult. World II...	4
	Elective	11		Elective	11
Gen. H. E.	122 H. E. Lect.....	R	Gen. H. E.	122 H. E. Lect.....	R
Total.....			15	Total.....	
				15	

Number of hours required for graduation, 120.

* Or substitute, such as Zoölogy, Physiology.

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 an application of the Curriculum in Home Economics with Provision for Specialization in a given field is shown by this presentation of the courses to be taken for specialization in Interior Decoration.

FRESHMAN

FIRST SEMESTER

	Course	Sem. Hrs.
Comp.	101 Man's Phys. World I...	4 or
Chem.	110 Gen. Chem.	5
Fds. & Nutr.	102 Foods I	5
Engl.	111 Writ. Comm. I	3
Art	110 El. Des. I	2
Gen. H. E.	122 H. E. Lect.	R
Phys. Educ.	151 Phys. Educ. W.	R

SECOND SEMESTER

	Course	Sem. Hrs.
Comp.	102 Man's Phys. World II..	4 or
Chem.	122 Gen. Org. Chem.	5
Engl.	112 Writ. Comm. II	2
Art	131 Cost. Des. I	2
Ch. Welf.	101 Personal Health	2
Sp.	103 Oral Comm.	2
Clo. & Text.	113 Fund. of Clothing	2
Gen. H. E.	122 H. E. Lect.	R
Phys. Educ.	151 Phys. Educ. W.	R

Total..... 14 or 15

Total..... 14 or 15

SOPHOMORE

FIRST SEMESTER

Comp.	121 Man and Soc. World I...	4
Comp.	*111 Biol. in Rel. to Man I...	4
Fds. & Nutr.	121 Applied Nutrition	2 or
Fds. & Nutr.	107 Foods II	3
Gen. H. E.	122 H. E. Lect.	R
Phys. Educ.	151 Phys. Educ. W.	R
Art	120 Drawing I	2
Art	119 El. Des. II	2

Total..... 14 or 15

SECOND SEMESTER

Comp.	122 Man and Soc. World II...	4
Comp.	*112 Biol. in Rel. to Man II...	4
Clo. & Text.	117 Textiles	2 or
Clo. & Text.	114 Applied Dress Design	3
Art	113 Inter. Dec. I	2
Gen. H. E.	122 H. E. Lect.	R
Phys. Educ.	151 Phys. Educ. W.	R
Art	121 Drawing II	2

Total..... 14 or 15

JUNIOR

FIRST SEMESTER

Hshld. Ec.	263 Family Finance	2 or
Hshld. Ec.	272 Cons. and the Mkt.	3
Gen. H. E.	122 H. E. Lect.	R
Engl.	169 English Proficiency	R
Art	115 Inter. Dec. II	2
Art	127 Lettering	2
Art	234 Hist. Text. Des.	2
Art	103 Intermediate Des.	2
Art	243 Historic Furn. Des.	3
	Other Elective	2

Total..... 15 or 16

SECOND SEMESTER

Hshld. Ec.	115 The House	3
Ch. Welf.	211 Family Health	3 or
Ch. Welf.	218 Family Relationships	2
Gen. H. E.	122 H. E. Lect.	R
Art	102 Des. in the Crafts I	2
Art	105 Adv. Design	2
Art	117 Inter. Dec. III	2
Art	106 Weaving I	2
	Other Elective	2 or 3

Total..... 16

SENIOR

FIRST SEMESTER

Comp.	131 Man and Cult. World I...	4
Gen. H. E.	122 H. E. Lect.	R
Art	114 Home Furnishing	2
Art	201 Prin. of Art I	3
	Other Elective	6

Total..... 15

SECOND SEMESTER

Comp.	132 Man and Cult. World II..	4
Gen. H. E.	122 H. E. Lect.	R
Art	202 Prin. of Art II	3
Art	232 Prob. in Int. Dec.	2
Art	109 Pottery Design	2
	Other Elective	4 or 5

Total..... 15 or 16

Number of hours required for graduation, 120.

* Or approved Biological Science substitute.

Curriculum in Dietetics and Institutional Management

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Engl.	111 Written Comm. I.....	3	Engl.	112 Written Comm. II.....	2
Chem.	110 Gen. Chem.	5	Chem.	122 Gen. Org. Chem.....	5
Fds. & Nutr.	102 Foods I	5 or	Clo. & Text.	113 Fund. of Clothing.....	2
Art	110 Elem. Design I.....	2 and	Fds. & Nutr.	102 Foods I	5 or
Psych.	184 Gen. Psychology	3	Art	110 Elem. Design I.....	2 and
Ch. Welf.	101 Personal Health	2	Psych.	184 Gen. Psychology	3
Gen. H. E.	122 H. E. Lect.....	R	Gen. H. E.	122 H. E. Lect.....	R
Phys. Educ.	151 Phys. Educ. W.....	R	Phys. Educ.	151 Phys. Educ. W.....	R
Total.....		15	Total.....		14

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Comp.	121 Man and Soc. World I....	4	Comp.	122 Man and Soc. World II... 4	
Zoöl.	105 Gen. Zoölogy	5	Zoöl.	221 Human Physiology	4
Fds. & Nutr.	107 Foods II	3	Art	113 Inter. Dec. I.....	2 or
Phys.	109 Household Physics	4	Art	131 Cost. Design I.....	2
Gen. H. E.	122 H. E. Lect.....	R	Inst. Mgmt.	107 Quan. Food Prep. I.....	2
Phys. Educ.	151 Phys. Educ. W.....	R	Sp.	103 Oral Comm.	2
				Elective	1
			Gen. H. E.	122 H. E. Lect.....	R
Total.....		16	Total.....		15

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Fds. & Nutr.	206 Nutr. and Dietetics.....	5	Chem.	240 Biochem.	5
Fds. & Nutr.	207 Nutr. and Dietetics Lab... 1		Fds. & Nutr.	255 Exp. Cookery	2
Bact.	101 General Micro	3	Inst. Mgmt.	109 Quan. Food Prep. II.....	3
An. Husb.	176 Meats H. E.....	1	Inst. Mgmt.	111 Inst. Purchasing	3
Econ.	298 Inst. Accounting	2		Elective	2
	Elective	3	Gen. H. E.	122 H. E. Lect.....	R
Engl.	169 English Proficiency	R			
Gen. H. E.	122 H. E. Lect.....	R			
Total.....		15	Total.....		15

SENIOR

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Comp.	131 Man and Cult. World I... 4		Comp.	132 Man and Cult. World II.. 4	
Inst. Mgmt.	203 Org. and Mgmt. of Inst... 3		Fds. & Nutr.	205 Diet. for Abn. Cond..... 2	
Inst. Mgmt.	202 Org. and Mgmt. of Inst. Lab.	2	Ch. Welf.	201 Child Guid. I.....	3
Educ.	133 Meth. of Tchg. for Diet. Stud.	3		Elective	6
Gen. H. E.	122 H. E. Lect.....	R	Gen. H. E.	122 H. E. Lect.....	R
	Elective	3			
Total.....		15	Total.....		15

Number of hours required for graduation, 120.

Curriculum in Home Economics and Journalism

FRESHMAN

FIRST SEMESTER			SECOND SEMESTER		
	Course	Sem. Hrs.		Course	Sem. Hrs.
Comp.	101 Man's Phys. World I...	4 or	Comp.	102 Man's Phys. World II...	4 or
Chem.	110 Gen. Chem.	5	Chem.	122 Gen. Org. Chem.....	5
Fds. & Nutr.	102 Foods I	5	Engl.	112 Writ. Comm. II	2
Engl.	111 Written Comm. I.....	3	Art	131 Cost. Des. I.....	2
Art	110 El. Design I.....	2	Ch. Welf.	101 Personal Health	2
Gen. H. E.	122 H. E. Fresh. Lect.....	R	Sp.	103 Oral Comm.	2
Phys. Educ.	151 Phys. Educ. W.....	R	Clo. & Text.	113 Fund. of Clothing.....	2
			Phys. Educ.	151 Phys. Educ. W	R
			Ind. Jour.	199 Ind. Jour. Lect.....	R
Total.....			14 or 15	Total.....	
				14 or 15	

SOPHOMORE

FIRST SEMESTER			SECOND SEMESTER		
Comp.	111 Biol. in Rel. to Man I...	4	Comp.	112 Biol. in Rel. to Man II...	4
Comp.	121 Man and Soc. World I...	4	Comp.	122 Man and Soc. World II...	4
Fds. & Nutr.	121 Applied Nutrition	2 or	Clo. & Text.	117 Textiles	2 or
Fds. & Nutr.	107 Foods II	3	Clo. & Text.	114 Applied Dress Design....	3
Ind. Jour.	150 El. Journalism	2	Ind. Jour.	157 Ind. Writing	3
	Elective	3	Sp.	163 Survey of Broadcasting ...	2
Gen. H. E.	122 H. E. Lect.....	R	Phys. Educ.	151 Phys. Educ. W	R
Phys. Educ.	151 Phys. Educ. W.....	R	Ind. Jour.	199 Ind. Jour. Lect.....	R
Total.....			15 or 16	Total.....	
				15 or 16	

JUNIOR

FIRST SEMESTER			SECOND SEMESTER		
Hshld. Ec.	223 Family Finance	2 or	Hshld. Ec.	115 The House	3
Hshld. Ec.	272 Cons. and the Mkt.....	3	Ch. Welf.	211 Family Health	3 or
Art	113 Int. Dec. I	2	Ch. Welf.	218 Family Relationships	2
Ind. Jour.	167 News and Mag. Writing...	2	Ind. Jour.	166 Editing	2
Ind. Jour.	177 Prin. of Advertising	3	Ind. Jour.	179 Radio Advertising	3
Ind. Jour.	183 Publ. Infm. Methods....	2	Ind. Jour.	153 Kansas Sta. Collegian	
	Elective	3 or 4	Jourl.		1
Engl.	169 English Proficiency	R	Elective		3 or 4
Ind. Jour.	199 Ind. Jour. Lect.....	R	Gen. H. E.	122 H. E. Lect.....	R
Total.....			15	Total.....	
				15	

SENIOR

FIRST SEMESTER			SECOND SEMESTER		
Comp.	131 Man and Cult. World I...	4	Comp.	132 Man and Cult. World II..	4
Ind. Jour.	170 Jour. for Women.....	3	Ind. Jour.	255 Contemp. Affairs II.....	3
Ind. Jour.	253 Contemp. Affairs I.....	3		Elective	8
	Elective	5	Gen. H. E.	122 H. E. Lect.....	R
Ind. Jour.	199 Ind. Jour. Lect.....	R			
Total.....			15	Total.....	
				15	

Number of hours required for graduation, 120.

Curriculum in Home Economics and Nursing

FRESHMAN

FIRST SEMESTER

	<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	111 Written Comm. I.....	3
Chem.	110 Gen. Chem.	5
Fds. & Nutr.	102 Foods I	5
Psych.	184 Gen. Psych.	3
Gen. H. E.	122 H. E. Lect.....	R
Phys. Educ.	151 Phys. Educ. W.....	R
Total.....		16

SECOND SEMESTER

	<i>Course</i>	<i>Sem. Hrs.</i>
Engl.	112 Written Comm. II.....	2
Chem.	122 Gen. Org. Chem.....	5
Zoöl.	105 Gen. Zoöl.	5
Ch. Welf.	101 Personal Health	2
Sp.	103 Oral Comm.	2
Gen. H. E.	122 H. E. Lect.....	R
Phys. Educ.	151 Phys. Educ. W.....	R
Total.....		16

SOPHOMORE

FIRST SEMESTER

Comp.	181 Man and Cult. World I...	4
Fds. & Nutr.	107 Foods II	3
Zoöl.	123 Human Anatomy	5
Soc.	151 Sociology	3 or
Psych.	254 Abnormal Psychology	3
Gen. H. E.	122 H. E. Lect.....	R
Phys. Educ.	151 Phys. Educ. W.....	R
Total.....		15

SECOND SEMESTER

Comp.	182 Man and Cult. World II..	4
Ch. Welf.	201 Child Guid. I.....	3
Zoöl.	221 Human Phys.	4
Bact.	101 Gen. Micro.	3
Ch. Welf.	218 Family Relationships	2
Gen. H. E.	122 H. E. Lect.....	R
Phys. Educ.	151 Phys. Educ. W.....	R
Total.....		16

JUNIOR

FIRST SEMESTER

Chem.	240 Biochem.	5
Fds. & Nutr.	206 Nutr. and Diet.....	5
Fds. & Nutr.	207 Nutr. and Diet. Lab.....	1
Ch. Welf.	110 Introd. to Nursing Arts...	3
Ch. Welf.	105 Hist. of Nursing	2
Engl.	169 English Proficiency	R
Gen. H. E.	122 H. E. Lect.....	R
Total.....		16

SECOND SEMESTER

Second semester of this year and the senior year to be replaced by two and one-half years at the University of Kansas hospitals.

Number of semester hours required for graduation, 79, plus two and one-half years of acceptable work at the University of Kansas Medical Center in the following fields:

Theoretical Work

Professional Adjustments I and II
Nursing Arts II
Materia Medica
Medical Nursing (including specialties)
Surgical Nursing (including specialties)
Dietotherapy
Obstetrical Nursing
Pediatric Nursing
Principles of Public Health Nursing
Principles of Public Hygiene and Sanitation
Social Aspects of Nursing

Practical Work

Medicine
Surgery (including operating room)
Pediatrics
Nursery
Obstetrics
Dispensary
Tuberculosis
Public Health

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 Schools

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 selected with the advice of a professor in Home Economics Education and the approval of the Dean of the School of Home Economics. 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	
General Psychology, Psych. 184.....	3	Design in Crafts I, Art 102.....	2
Educational Psychology, Educ. 109.....	3	Child Guidance I, Ch. Welf. 201.....	3
Principles of Sec. Educ., Educ. 139.....	3	Home Management, Hshld. Ec. 240.....	3
Methods of Teaching Home Econ., Educ. 132	3	Advanced Dress Design, Clo. and Text. 211.....	3 or
*Tchg. Partic. in Home Econ., Educ. 159,	3	Problems in Clo. Design, Clo. and Text. 214.....	3
Vocational Home Econ. Curriculum, Educ. 233	3	School Food Service, Inst. Mgmt. 221....	3

Completion of the requirements of the Curriculum in Home Economics, including courses listed above, entitles the individual to the three-year certificate, renewable for life, 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 Bachelor of Science with a major in art and to qualify for the three-year Kansas state teacher's certificate, renewable for life and valid in any high school in the state, should enroll in the Curriculum in Home Economics with Provision for Specialization, and elect certain courses in the Department of Education and Psychology and certain courses in the Department of Art. These are:

COURSES IN EDUCATION AND PSYCHOLOGY		COURSES IN ART	
Gen. Psychology, Psych. 184.....	3	Costume Design I, Art 131.....	2
Educ. Psych., Educ. 109.....	3	Interior Decoration I, Art 113.....	2
Methods of Teach. Home Econ., Educ. 132	3	Elem. Design II, Art 119.....	2
Vocational Home Economics Curriculum, Educ. 233	3	Intermediate Design, Art 103.....	2
Teach. Partic. in Home Econ., Educ. 159, or Teach. Partic. in High School, Educ. 163	3	Advanced Design, Art 105.....	2
And one other 3-sem. hr. Education course		Lettering, Art 127.....	2
		Drawing I, Art 120.....	2
		Drawing II, Art 121.....	2
		Design in Crafts I, Art 102.....	2
		Design in Crafts II, Art 108.....	2
		Weaving I, Art 106.....	2
		Pottery Design, Art 109.....	2
		Principles of Art I, Art 201.....	3
		Principles of Art II, Art 202.....	3
		Problems in Teaching Art, Art 230.....	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. Child Welfare and Nursery School Teaching

The following courses of specialization are suggested for students interested in vocational and professional opportunities in child welfare. A fifth year of study is usually necessary for adequate preparation.

Child Guid. II, Ch. Welf. 203.....	3	Prob. in Ch. Welf. and Euth.,	
Develop. and Guid. of Youth,		Ch. Welf. 221.....	1 to 3
Ch. Welf. 204	3	Nutr. of Develop., Fds. and Nutr. 210...	2
Family Relationships, Ch. Welf. 218.....	2	Prin. and Technics of Counsel.,	
The Family, Ch. Welf. 220.....	3	Psych. 271	3
Litr. and Music for the Preschool Child,		Home Management, Hshld. Ec. 240.....	3
Ch. Welf. 207	3	Mental Hygiene and Personality Adj.,	
Play Act. and Materials, Ch. Welf. 208..	3	Educ. 272	3
Children's Readings, Engl. 252.....	3	Psych. of Childhood and Adoles.,	
Nurs. School Procedures, Ch. Welf. 205..	2	Psych. 250	3
Nurs. School Admin., Ch. Welf. 305.....	2	Abnormal Psychology, Psych. 254.....	3
Seminar in Child Develop.,		Social Psychology, Psych. 270.....	3
Ch. Welf. 245	2	Psych. of Exceptional Children,	
Seminar in the Family, Ch. Welf. 246....	2	Psych. 266	3
Parent Education, Ch. Welf. 303.....	2	Pupperty, Art 143.....	3

4. Child Welfare in Community Services

Child Guid. I, Ch. Welf. 201.....	3	Mental Hygiene and Personality Adj.,	
Child Guid. II, Ch. Welf. 203.....	3	Educ. 272	3
Family Relationships, Ch. Welf. 218.....	2	Sociology, Soc. 151.....	3
The Family, Ch. Welf. 220.....	3	Social Pathology, Soc. 268.....	3
Family Health, Ch. Welf. 211.....	3	Com. Org. and Leadership, Soc. 267....	3
Seminar in Child Develop., Ch. Welf. 245,	2	Democracy and Educ., Cit. 205.....	3
Seminar in the Family, Ch. Welf. 246....	2	General Psychology, Psych. 184.....	3
Parent Education, Ch. Welf. 303.....	2	Psych. of Childhood and Adoles.,	
Home Management, Hshld. Ec. 240.....	3	Psych. 250	3
Economic Prob. of the Family,		Abnormal Psychology, Psych. 254.....	3
Hshld. Ec. 265.....	2	Social Psychology, Psych. 270.....	3
Prin. and Technics of Counsel.,		Psych. of Exceptional Children,	
Psych. 271	3	Psych. 266	3

5. 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 three months, as an assistant home demonstration agent may precede appointment to a county position. Electives should include courses from the following list:

General Psychology, Psych. 184.....	3	Design in the Crafts I, Art 102.....	2
Extension Organization and Policies,		Home Furnishing, Art 114.....	2
Educ. 214	3	Landscape Gardening, Hort. 125.....	3
Extension Methods for Home Economists,		Vegetable Gardening, Hort. 133.....	3
Educ. 216	3	Household and Garden Insects, Ent. 108..	2
Problems in Clothing Design,		Radio Speech, Sp. 165.....	2
Clo. and Text. 214.....	3	Elementary Journalism, Ind. Jour. 150...	2
Child Guidance I, Ch. Welf. 201.....	3	Recreational Leadership W,	
Home Management, Hshld. Ec. 240.....	3	Phys. Educ. 191.....	2
Consumer and the Market,		Community Organization and Leadership,	
Hshld. Ec. 272.....	3	Soc. 267	3
Household Equipment, Hshld. Ec. 105...	2	Rural Sociology, Ag. Econ. 156.....	3
Meats, H. E., An. Husb. 176.....	1	Freedom and Responsibility I, Cit. 110...	3
Fundamentals of Demonstration,		Children's Readings, Engl. 252.....	3
Fds. and Nutr. 256.....	2	Cultural Reading, Engl. 255.....	3

RESEARCH AND TECHNICAL WORK

Students desiring to major in foods and foods research 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. Foods

Chemistry II, Chem. 103, 104.....	5	Meats, H. E., An. Husb. 176.....	1
Organic Chemistry II, Chem. 224.....	5	Experimental Cookery, Fds. and Nutr. 255,	2
Quant. Analysis A, Chem. 211.....	3	Problems in Foods, Fds. and Nutr. 245..	2
Quant. Analysis B, Chem. 212.....	3	Food Technology, Chem. 259.....	3
Biochemistry, Chem. 240.....	5	Food Analysis, Chem. 221.....	3
Qualitative Organic Anal., Chem. 228....	3	Experimental Baking, Mill. Ind. 207.....	4
College Algebra, Math. 104.....	3	Seminar in Foods, Fds. and Nutr. 253...	2
Elements of Statistics, Math. 126.....	3	Philosophy of Science I, Hist. 142.....	3
Plane Trigonometry, Math. 101.....	3	Nutrition and Dietetics,	
Household Physics, Phys. 109.....	4	Fds. and Nutr. 206, 207.....	6

2. Nutrition

Chemistry II, Chem. 103, 104.....	5	Seminar in Nutrition, Fds. and Nutr. 254,	2
Organic Chemistry II, Chem. 224.....	5	College Algebra, Math. 104.....	3
Biochemistry, Chem. 240.....	5	Plane Trig., Math. 101.....	3
Biochemical Analysis, Chem. 248.....	2	Elements of Statistics, Math. 126.....	3
Quant. Analysis A, Chem. 211.....	3	General Microbiology, Bact. 101.....	3
Quant. Analysis B, Chem. 212.....	3	Bact. of Human Diseases, Bact. 206.....	5
General Zoölogy, Zoöl. 105.....	5	Immunology, Bact. 229.....	5
Human Physiology, Zoöl. 221.....	4	Bacteriological Technic, Bact. 225.....	3
Nutrition and Dietetics,		General Physics I, Phys. 102.....	4
Fds. and Nutr. 206, 207.....	6	General Physics II, Phys. 103.....	4
Problems in Nutrition, Fds. and Nutr. 258,	2	Philosophy of Science I, Hist. 142.....	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. Electives should include the courses listed below which are approved by the Registry of Medical Technologists:

General Zoölogy, Zoöl. 105.....	5	General Physics I, Phys. 102.....	4
Human Physiology, Zoöl. 221.....	4	General Physics II, Phys. 103.....	4
Chemistry II Rec., Chem. 103.....	3	General Microbiology, Bact. 101.....	3
Chemistry II Lab., Chem. 104.....	2	Bact. of Human Diseases, Bact. 206.....	5
Biochemistry, Chem. 240.....	5	Immunology, Bact. 229.....	5
Quantitative Analysis,		College Algebra, Math. 104.....	3
Chem. 212 or 215.....	3 or 5	Plane Trigonometry, Math. 101.....	3
Nutrition and Dietetics,			
Fds. and Nutr. 206, 207.....	6		

Family Economics

Students interested in laying a foundation for graduate work in Family Economics should choose the Curriculum in Home Economics with Provision for Specialization. Economics I, Sociology, and one other course should be substituted for Man and the Social World. Textiles should be selected. Electives should include the courses listed below:

Principles of Accounting, Acctg. 136....	3	†Family Finance, Hshld. Ec. 223.....	2 or
Elements of Statistics, Math. 126.....	3	†Consumers and the Market,	
Freedom and Responsibility I, Cit. 110,	3	Hshld. Ec. 272.....	3
Freedom and Responsibility II, Cit. 111,	3	Economic Problems of the Family,	
†Family Health, Ch. Welf. 211.....	3 or	Hshld. Ec. 265.....	2
†Family Relationships, Ch. Welf. 218....	2	Home Management, Hshld. Ec. 240.....	3
Household Equipment, Hshld. Ec. 105..	2		

† Whichever was not taken in the basic curriculum.

Home Management

Students interested in laying a foundation for graduate work in Home Management should choose the Curriculum in Home Economics. They may substitute combinations of basic courses for the Comprehensives. Electives should include the following courses:

Freedom and Responsibility I, Cit. 110...	3	Economic Problems of the Family,	
Freedom and Responsibility II, Cit. 111...	3	Hshld. Ec. 265.....	2
General Psychology, Psych. 184.....	3	Time and Motion in Household Tasks,	
Social Psychology, Psych. 270.....	3	Hshld. Ec. 257.....	2
Child Guidance I, Ch. Welf. 201.....	3	Home Management, Hshld. Ec. 240.....	3
Household Equipment, Hshld. Ec. 105...	2	Housing Requirements of Families,	
Consumers and the Market,		Hshld. Ec. 273.....	2
Hshld. Ec. 272.....	3		

House and Equipment

Students interested in laying a foundation for graduate work in House and Equipment should choose the Curriculum in Home Economics with Provision for Specialization. They should substitute Chemistry I and Household Physics for Man's Physical World. They should select Textiles. The student who wants to be able to include working drawings in her graduate work should take Solid Geometry, Engineering Drawing, and Descriptive Geometry as an undergraduate, and should plan on two years for graduate work. The student who wishes to include the economic phases of housing in her graduate work should substitute Economics I, Sociology, and Population and Human Ecology for Man and the Social World. Electives should include the following courses:

Freedom and Responsibility I, Cit. 110,	3	†Consumers and the Market,	
Freedom and Responsibility II, Cit. 111,	3	Hshld. Ec. 272.....	3
Building Materials and Construction,		Time and Motion in Household Tasks,	
Arch. 187A	3	Hshld. Ec. 257.....	2
Woodwork I, Shop Prac. 121.....	2	Advanced Household Equipment,	
Finishing I, Shop Prac. 122.....	2	Hshld. Ec. 274.....	3
†Family Health, Ch. Welf. 221.....	3 or	Housing Requirements of Families,	
†Family Relationships, Ch. Welf. 218....	2	Hshld. Ec. 273.....	2
Household Equipment, Hshld. Ec. 105..	2	Home Management, Hshld. Ec. 240.....	3
†Family Finance, Hshld. Ec. 223.....	2 or		

Time and Energy Management

Students interested in laying a foundation for graduate work in Time and Energy Management may choose the Curriculum in Home Economics with Provision for Specialization. General Chemistry and General Organic Chemistry should be substituted for Man and the Physical World. General Zoölogy and Human Physiology should be substituted for Biology in Relation to Man. Foods II should be selected. Electives should include the courses listed below:

Freedom and Responsibility I, Cit. 110,	3	Nutrition and Dietetics Lab.,	
Freedom and Responsibility II, Cit. 111,	3	Fds. and Nutr. 207.....	1
General Psychology, Psych. 184.....	3	Home Management Summary,	
Mental Hygiene, Psych. 137.....	3	Hshld. Ec. 276.....	2
†Family Health, Ch. Welf. 211.....	3 or	Home Management, Hshld. Ec. 240.....	3
†Family Relationships, Ch. Welf. 218....	2	Time and Motion in Household Tasks,	
Household Equipment, Hshld. Ec. 105..	2	Hshld. Ec. 257.....	2
Nutrition and Dietetics,			
Fds. and Nutr. 206.....	5		

Textile Research

Gen. Chemistry, Chem. 110.....	5	Plane Trigonometry, Math. 101.....	3
Gen. Organic Chemistry, Chem. 122.....	5	College Algebra, Math. 104.....	3
Quantitative Analysis, Chem. 215... 3 or	5	Plane Analytic Geometry, Math. 110....	4
Physical Chemistry I, Chem. 260.....	5	Calculus I, Math. 114.....	4
Colloid Chemistry, Chem. 268.....	2	Calculus II, Math. 115.....	4
Chemical Microscopy, Chem. 285.....	1	Statistical Methods I, Math. 261.....	3
Clothing Economics, Clo. and Text. 201..	3	Statistical Methods II, Math. 262.....	3
Adv. Textiles, Clo. and Text. 205.....	3	General Physics I, Phys. 102.....	4
Experimental Textiles, Clo. and Text. 255,	2	General Physics II, Phys. 103.....	4
Marketing, Econ. 246.....	3		

Include six to nine hours of electives outside the major field, chosen from music, English, modern languages, history, citizenship, architecture, or other allied fields.

† Whichever was not taken in the basic curriculum.
† Whichever was not taken in the basic curriculum.

PREPARATION FOR WORK IN THE BUSINESS FIELD

Clothing Retailing

Mathematics in Human Affairs, Math. 103	3	Marketing, Econ. 246.....	3
Interior Decoration II, Art 115.....	2	General Psychology, Psych. 184.....	3
Costume Design II, Art 134.....	2	Psychology of Adver. and Selling, Psych. 265	3
Historic Textile Design, Art 234.....	3	Social Psychology, Psych. 270.....	3
Clothing Economics, Clo. and Text. 201..	3	Commercial Correspondence, Engl. 122...	3
Adv. Textiles, Clo. and Text. 205.....	3	Oral English, Engl. 232.....	3
Adv. Dress Design, Clo. and Text. 211...	3	World Cultures I, Hist. 209.....	3
Prob. in Clothing Design, Clo. and Text. 214.....	3	Elem. Journalism, Ind. Jour. 150.....	2
History of Costume, Clo. and Text. 226..	3	Journalism for Women, Ind. Jour. 170...	3
Economics I, Econ. 101.....	3	Principles of Advertising, Ind. Jour. 177..	3
Accounting I, Acctg. 133.....	3	Oral Communications II, Sp. 108.....	2
Sociology, Soc. 151.....	3	Survey of Broadcasting, Sp. 163.....	2
		Radio Speech, Sp. 165.....	2

Include six to nine hours of electives outside the major field, chosen from music, English, modern languages, history, citizenship, architecture, or other allied fields.

Clothing and Costume Designing

Elementary Design II, Art 119.....	2	Textiles, Clo. and Text. 117.....	2
Interior Decoration II, Art 115.....	2	Clothing Economics, Clo. and Text. 201..	3
Costume Design II, Art 134.....	2	Adv. Dress Design, Clo. and Text. 211...	3
Costume Design III, Art 138.....	2	Prob. in Clothing Design, Clo. and Text. 214.....	3
Principles of Art I, Art 201.....	3	History of Costume, Clo. and Text. 226..	3
Principles of Art II, Art 202.....	3	Clothing and Textiles Summary, Clo. and Text. 250.....	2
Costume Illustration, Art 212.....	2	General Psychology, Psych. 184.....	3
Historic Textile Design, Art 234.....	3	Psychology of Art, Psych. 276.....	3
Problems in Costume Design, Art 235....	2		
Applied Dress Design, Clo. and Text. 114,	3		

Include six to nine hours of electives outside the major field, chosen from music, English, modern languages, history, citizenship, architecture, or other allied fields.

Homemaking

Child Guidance I, Ch. Welf. 201.....	3	Meats, H. E., An. Husb. 176.....	1
Com. Org. and Lead., Soc. 267.....	3	Hist. of Engl. Literature, Engl. 181.....	3
Problems in Foods, Fds. and Nutr. 245..	1	Psych. of Childhood and Adolescence, Psych. 250	3
Home Management, Hshld. Ec. 240.....	3	Econ. Prob. of the Family, Hshld. Ec. 265.....	2
Nutr. of Dev., Fds. and Nutr. 210.....	2	Food and Sanitary Bacteriology, Bact. 245	3
Consumer and the Market, Hshld. Ec. 272.....	3	Food and Sanitary Bacteriology Lab., Bact. 246	2
Child Guidance II, Ch. Welf. 203.....	3		
Principles of Art I, Art 201.....	3		
Advanced Dress Design, Clo. and Text. 211.....	3		

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 civic affairs of their community, and for students who may enter public service. Citizenship 110 and 111, Freedom and Responsibility, should be taken first in all cases and in the freshman year if possible. Both Citizenship 110 and 111 and Citizenship 101 and 102, Constitutional Democracy in America, are required. An additional 9 or 10 hours will be elected from the courses in the following list:

Democracy and Education, Cit. 205.....	3	Effective Citizenship, Cit. 235.....	2
Democracy, Justice, and the Law, Cit. 215	3	Federal Politics and Administration, Govt. 263	2
Political Economy and the Democratic State, Cit. 220.....	3	State and Local Politics and Administra- tion, Govt. 265	2
War, Peace, and the World Community, Cit. 225	3		

Food Demonstration

Students desiring to become food demonstrators in the commercial field should choose the Curriculum in Home Economics with Provision for Specialization. Electives should be selected from the courses listed below:

Mathematics in Human Affairs, Math. 103	3	Quantity Food Preparation I, Inst. Mgmt. 107	2
General Psychology, Psych. 184.....	3	Home Management, Hshld. Ec. 240.....	3
Household Physics, Phys. 109.....	4	Oral Communications II, Sp. 108.....	2
Household Equipment, Hshld. Ec. 105...	2	Elementary Journalism, Ind. Jour. 150...	2
Nutrition and Dietetics, Fds. and Nutr. 206, 207.....	6	Journalism for Women, Ind. Jour. 170...	3
Experimental Cookery, Fds. and Nutr. 255.....	2	Radio Speech, Sp. 165.....	2
Fieldwork in Nutrition, Fds. and Nutr. 215.....	3	Radio Writing, Sp. 167	3
Seminar in Foods, Fds. and Nutr. 253...	2	Radio Program Partic., Sp. 168.....	1
Problems in Foods, Fds. and Nutr. 245...	1	Floral Arrangement I, Hort. 135.....	2
Fundamentals of Demonstration, Fds. and Nutr. 256.....	2	Methods of Teaching Home Econ., Educ. 132	3
		Meats, H. E., An. Husb. 176.....	1

Equipment Demonstration Work

Students interested in equipment demonstration work may choose the Curriculum in Home Economics with Provision for Specialization. Foods II and Textiles should be selected. Electives should include the courses listed below:

Mathematics in Human Affairs, Math. 103	3	Household Equipment, Hshld. Ec. 105...	2
Household Physics, Phys. 109.....	4	†Family Finance, Hshld. Ec. 223.....	2 or
General Psychology, Psych. 184.....	3	†Consumers and the Market, Hshld. Ec. 272.....	3
Methods of Teaching Home Econ., Educ. 132	3	Home Management, Hshld. Ec. 240.....	3
Freedom and Responsibility I, Cit. 110,	3	Housing Requirements of Families, Hshld. Ec. 273.....	2
Freedom and Responsibility II, Cit. 111,	3	Adv. Household Equipment, Hshld. Ec. 274.....	3
Oral English, Engl. 232.....	3		
Nutrition and Dietetics, Fds. and Nutr. 206.....	5		
Nutrition and Dietetics Lab., Fds. and Nutr. 207.....	1		
School Food Service, Inst. Mgmt. 221..	3	or { Clothing Economics, Clo. and Text. 201..	3
Experimental Cookery, Fds. and Nutr. 255.....	2	{ Advanced Textiles, Clo. and Text. 205....	3
Fundamentals of Demonstration, Fds. and Nutr. 256.....	2		

Art: Costume Design

Lettering, Art 127.....	2	Problems in Clothing Design, Clo. and Text. 214.....	3
Drawing I, Art 120.....	2	History of Costume, Clo. and Text. 226.....	3
Drawing II, Art 121.....	2	Principles of Art I, Art 201.....	3
Elementary Design II, Art 119.....	2	Principles of Art II, Art 202.....	3
Intermediate Design, Art 103.....	2	Historic Textile Design, Art 234.....	3
Advanced Design, Art 105.....	2	Design in the Crafts I, Art 102.....	2
Costume Design II, Art 134.....	2	Photography, Phys. 151.....	2
Costume Design III, Art 138.....	2	Principles of Advertising, Ind. Jour. 177	3
Costume Illustration, Art 212.....	2		
Problem in Costume Design, Art 235...	2		
Advanced Dress Design, Clo. and Text. 211.....	3		

Art: Interior Decoration

Elementary Design II, Art 119.....	2	Home Furnishing, Art 114.....	2
Intermediate Design, Art 103.....	2	Problems in Interior Decoration, Art 232	2
Advanced Design, Art 105.....	2	Historic Furniture Design, Art 248.....	3
Problems in Design, Art 217.....	2	Historic Textile Design, Art 234.....	3
Drawing I, Art 120.....	2	Principles of Art I, Art 201.....	3
Drawing II, Art 121.....	2	Principles of Art II, Art 202.....	3
Lettering, Art 127.....	2	Landscape Gardening, Hort. 125	3
Design in the Crafts I, Art 102.....	2	Elementary Journalism, Ind. Jour. 150...	2
Weaving I, Art 106.....	2	Journalism for Women, Ind. Jour. 170...	3
Pottery Design, Art 109	2	Principles of Advertising, Ind. Jour. 177..	3
Interior Decoration II, Art 115.....	2	Photography, Phys. 151.....	2
Interior Decoration III, Art 117.....	2		

† Whichever was not taken in the basic curriculum.

Art

Professor BARFOOT
Associate Professor HARRIS
Associate Professor MORRIS
Associate Professor KEDZIE
Assistant Professor GEIGER

Assistant Professor ALEXANDER
Instructor HILL
Instructor WEIS
Temporary Assistant Instructor WISE

The Curriculum in Art is designed to provide a background for homemaking 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

- 102. 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, cord knotting, glass etching, batik, and tie-dye. Prerequisite: Art 110 or permission of instructor. Barfoot, Geiger, Weis.
- 103. Intermediate Design.** 2 semester hours. First semester.
Theory of color and design. Special emphasis on abstractions and non-subjective motifs and their influence in modern design. Prerequisite: Art 119. Staff.
- 104. Elementary School Art.** 2 semester hours. 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.
- 105. Advanced Design.** 2 semester hours. Second semester or summer.
Special emphasis on art structure. Designs for textiles using modern commercial repeats. Prerequisite: Art 103. Staff.
- 106. 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 110. Kedzie.
- 107. Weaving II.** 2 semester hours. Each semester or summer.
A continuation of Art 106, with emphasis on original woven designs. Prerequisite: Art 106. Kedzie.
- 108. 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 110 and junior standing. Barfoot, Geiger, Weis.
- 109. Pottery Design.** 2 semester hours. Each semester or summer.
Creative design in the production of pottery, its formation, firing, and decoration. Prerequisite: Art 110 or permission of instructor. Weis.
- 110. Elementary Design I.** 2 semester hours. Each semester and summer.
An introduction to the arts and application of their principles to daily living. Four hours of recitation and laboratory a week. Staff.
- 113. Interior Decoration I.** 2 semester hours. Each semester and summer.
The design and furnishing of the modern interior. Prerequisite: Art 110. Staff.
- 114. Home Furnishing.** 2 semester hours. Each semester or summer.
Refinishing and restyling furniture; designing and executing draperies, slip-covers, and lamp shades. Prerequisite: Art 113. Staff.
- 115. Interior Decoration II.** 2 semester hours. First semester.
Interior design in its relation to house types, period furniture and fabrics. Prerequisite: Art 113 and 121 or permission of instructor. Staff.

- 117. Interior Decoration III.** 2 semester hours. Second semester.
Originality, functionalism, and beauty in the styling of interiors is stressed. Prerequisite: Art 115. Harris, Morris.
- 118. Metal Crafts.** 2 semester hours. Second semester or summer.
Basic principles and techniques of metal work and jewelry. Prerequisite: Art. 102. Geiger.
- 119. Elementary Design II.** 2 semester hours. Each semester or summer.
Theory of design and color continued and a practical application of it made to functional items in the home. Prerequisite: Art 110. Staff.
- 120. 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 110. Staff.
- 121. 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 120 and junior standing. Staff.
- 123. 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 coöperation of local stores. Prerequisite: Art 105, 121, and senior standing. Staff.
- 127. Lettering.** 2 semester hours. First semester.
Creative design in the field of lettering in relation to historic and modern forms. Prerequisite: Art 110. Staff.
- 131. 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. Four hours of recitation and laboratory a week. Prerequisite: Art 110. Staff.
- 134. Costume Design II.** 2 semester hours. First semester.
Problems in creative designing for the fashion figure. Prerequisite: Art 131 and Art. 120. Staff.
- 138. Costume Design III.** 2 semester hours. Second semester.
Evaluation of historic styles with relation to modern dress design. Prerequisite: Art 134 and Art 121. Staff.
- 143. Puppetry.** 3 semester hours. Each semester or summer.
Creating both hand puppets and marionettes. Puppet shows are produced at the end of the course. Prerequisite: Art 110. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 201. Principles 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. Prerequisite: Art 110. Barfoot, Morris, Kedzie.
- 202. Principles of Art II.** 3 semester hours. Second semester or summer.
The culture of various peoples as expressed in historic painting. Prerequisite: Art 201. Barfoot, Morris, Kedzie.
- 212. Costume Illustration.** 2 semester hours. Second semester or summer.
Costume figures for fashion illustration rendered in various media suitable for reproduction. Prerequisite: Art 138. Staff.
- 217. 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 permission of instructor and senior standing. Staff.
- 230. 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 119 and Educ. 132 or equivalent; 12 credit hours in art. Barfoot.

232. Problems in Interior Decoration. Credit to be arranged. Each semester or summer.

Problems planned with the student to meet her particular needs. Prerequisite: Art 117 or permission of instructor. Staff.

234. Historic Textile Design. 3 semester hours. Each semester or summer.

Design employed in fabrics in each of the great art periods. Prerequisite: Art 110 and Clo. and Text. 117. Staff.

235. Problems in Costume Design. Credit to be arranged. First semester or summer.

Problems planned with the student to meet her particular needs. Prerequisite: Art 138 or permission of instructor. Staff.

243. 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 110. Harris.

245. 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 110. Harris.

248. Historic Furniture Design. 3 semester hours. Each semester or summer.

Design expressed in furniture in each of the great art periods. Prerequisite: Art 110. Staff.

FOR GRADUATE CREDIT

302. 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 instructors. Staff.

304. Advanced Interior Decoration. Credit to be arranged. Each semester and summer.

Individual research problems which may form the basis for the master's thesis. Prerequisite: Consult instructors. Staff.

306. Problems in Advanced Design. Credit to be arranged. Each semester and summer.

Individual research problems which deal with the various phases of design may be chosen by the student with the aid of the instructor which may form the basis of a master's thesis. Prerequisite: Consult instructors. Staff.

Child Welfare and Euthenics

Professor SCHULZ

Professor KELL

Professor WILLIAMS

Associate Professor ALDOUS

Assistant Professor RAFFINGTON

Instructor TIETZE

Instructor WILSON

Instructor _____

Assistant REITZE

Graduate Assistant _____

Graduate Assistant _____

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 work, college teaching, child development in community agencies, or research, the department offers work toward the degree Master of Science.

The curriculum of 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. Courses in family health are open to all students. Courses in basic nursing skills meet the requirements of the School of Nursing at the University of Kansas Medical Center.

FOR UNDERGRADUATE CREDIT

- 101. Personal Health.** 2 semester hours. Each semester and summer.

Orientation to college living through study of social, mental and physical health. Open to freshmen only. Staff.

- 105. History of Nursing.** 2 semester hours. Second semester.

The origin of nursing and its development from ancient to modern times. Williams.

- 110. Introduction to Nursing Arts.** 3 semester hours. Each semester and summer.

Techniques and skills employed in nursing with consideration of the principles underlying these procedures. One hour of recitation and six hours of laboratory a week. Williams, Wilson.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 201. Child Guidance I.** 3 semester hours. Each semester and summer.

The needs of young children, the principles involved in understanding and guiding young children, and the application of these principles in daily life. Two hours of recitation and three hours of laboratory a week. Prerequisite: Junior standing or consent of head of department. Additional charge for luncheon. Graduate staff.

- 203. Child Guidance II.** 3 semester hours. Second 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. 201, 211, or concurrent; and consent of head of department. Schulz.

- 204. Development and Guidance of Youth.** 3 semester hours. Second semester and summer.

Principles underlying the individual's adjustment from later childhood through adolescence. Field work arranged. Prerequisite: Ch. Welf. 201. Aldous.

- 205. Nursery School Procedures.** 3 semester hours. First semester and summer.

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. 203. Graduate staff.

- 207. Literature and Music for the Preschool Child.** 3 semester hours. Second semester and alternate summers (summer, 1949).

Children's creative experiences with stories, songs, records and dramatized play. Two hours of recitation and three hours of laboratory. Prerequisite: Ch. Welf. 201. Tietze.

- 208. Play Activities and Materials.** 3 semester hours. First semester and alternate summers (summer, 1948).
The young child's use of space and equipment, toys, plastic and graphic materials. Two hours of recitation and three hours of laboratory. Prerequisite: Ch. Welf. 201. Tietze.
- 211. Family Health.** 3 semester hours. Each semester and summer.
Factors conducive to family and community health; physical development and care of the child; simple first-aid and home nursing procedures. Prerequisite: Junior standing. Williams.
- 218. 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. Kell, Aldous.
- 220. The Family.** 3 semester hours. Each semester and summer (not offered summer, 1948).
Contemporary social conditions affecting family functions; the culture and individual development; application of democratic philosophy to family relationships. Prerequisite: Ch. Welf. 218. Kell.
- 221. Problems in Child Welfare and Euthenics.** Credit to be arranged.
Each semester and summer.
Prerequisite: Consult head of department. Graduate staff.
- 245. Seminar in Child Development.** 2 semester hours. First semester and alternate summers (summer, 1948).
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. 203. Graduate staff.
- 246. Seminar in the Family.** 2 semester hours. Second semester and alternate summers (summer, 1949).
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. 220. Graduate staff.

FOR GRADUATE CREDIT

- 301. 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. Graduate staff.
- 303. Parent Education.** 2 semester hours. Second semester and alternate summers (summer, 1949).
Summary of principles in child development and family relationships; application of these principles to group and individual work with parents; organization of materials in a resource unit. Prerequisite: Ch. Welf. 203, 220. Schulz, Kell.
- 305. Nursery School Administration.** 2 semester hours. First semester and alternate summers (summer, 1948).
Survey of development of the nursery school; consideration of administrative problems, such as physical plant, equipment, records, standards and personnel in relation to the objectives of the nursery school. Prerequisite: Ch. Welf. 203 or concurrent. Graduate staff.

Clothing and Textiles

Professor LATZKE
Associate Professor COWLES
Associate Professor HESS
Associate Professor CORMANY
Associate Professor HOWE
Associate Professor GILMORE

Assistant Professor LIENKAEMPER
Instructor POWELL
Instructor GATES
Instructor HARRIS
Instructor JAKOWATZ

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

- 113. Fundamentals of Clothing.** 2 semester hours. Each semester and summer.

Selection of clothing with self-analysis as a basis; wardrobe planning and buying procedures. A study of commercial patterns and principles of garment construction. Six hours of recitation and laboratory a week. Prerequisite or parallel: Art 131. Staff.

- 114. Applied Dress Design.** 3 semester hours. Each semester and summer. Application of design principles to dress. Development of foundation pattern; flat pattern designing; construction of a dress. Nine hours of recitation and laboratory a week. Prerequisite: Clo. and Text. 113 and Art 131. Staff.

- 117. 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. 122 or Comp. 102; Phys. 109 recommended. Hess, Cormany.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 201. Clothing Economics.** 3 semester hours. First or second semester and summer.

The organization of textile industries and markets; consumer problems in relation to market conditions. Prerequisite: Comp. 122 or equivalent. Latzke.

- 205. Advanced Textiles.** 3 semester hours. Each 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. and Text. 117. Hess, Cormany.

- 211. 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. Nine hours of recitation and laboratory a week. Prerequisite: Clo. and Text 114. Staff.

- 214. Problems in Clothing Design.** 3 semester hours. Each semester and summer.

Design as related to the coat or suit; techniques of tailoring; construction of coat or suit. Nine hours of recitation and laboratory a week. Prerequisite: Completion of Clo. and Text. 114 with at least a grade of C; Clo. and Text. 211 recommended. Staff.

- 215. Problems in Clothing and Textiles.** 1 to 5 semester hours. Each semester and summer.

Consult instructor. Prerequisite: Senior or graduate standing. Staff.

Work is offered in: Garment designing; construction techniques, textiles, history of costume, clothing economics.

- 226. History of Costume.** 3 semester hours. Second semester and summer. Aspects of the culture of various countries and periods of history as reflected in costume. Prerequisite: Comp. 131, Hist. 106 or equivalent. Lienkaemper.
- 250. Clothing and Textiles Summary.** 2 semester hours. 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. and Text. 117 and 211 or consult instructor. Staff.
- 255. Experimental Textiles.** 2 to 5 semester hours. Each semester and summer. Prerequisite: Clo. and Text. 205. Hess, Cormany.

FOR GRADUATE CREDIT

- 301. 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. Staff.
- 304. Clothing and Textiles Seminar.** 1 semester hour. Second semester and summer. Discussion of current developments in the field. Prerequisite: Graduate standing. Staff.

Foods and Nutrition

Professor VAIL
 Professor ASCHAM
 Professor WESTERMAN
 Associate Professor McMILLAN
 Associate Professor BROWNING
 Associate Professor MARLATT
 Assistant Professor HARRISON
 Assistant Professor LINN

Assistant Professor MEILLER
 Assistant Professor MULLEN
 Assistant Professor MILLER
 Instructor TINKLIN
 Instructor BUNGER
 Instructor GOERTZ
 Instructor WILLIAMS

The Department of Foods and Nutrition provides specialized instruction for homemakers, teachers of foods, 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

- 102. Foods I.** 5 semester hours. Each semester and summer. Elementary nutrition, 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. Staff.
- 103. Meal Planning, Preparation, and Service.** 3 semester hours. Spring semester. Consideration given to problems involved in the selection of foods and the planning, preparation and serving of meals. Emphasis on organization, management of time, money and energy. Not open to students having credit in Foods and Nutrition 102. Two hours of recitation and three hours of laboratory a week. Prerequisite: Three hours credit in food preparation. Consult instructor. Staff.
- 107. Foods II.** 3 semester hours. Each semester. Chemical and physical properties of food related to preparation and preservation. One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 122 or Comp. 102 and Fds. and Nutr. 102 or 103. Staff.

- 121. Applied Nutrition.** 2 semester hours. Each semester and summer.
Practical nutrition including food requirements, food selection, and food habits. Open to men and women students not majoring in home economics. Staff.
- 140. Principles of Nutrition.** 3 semester hours. Spring and summer.
Digestion, metabolism, and nutritive value of foods. Protein, mineral, vitamin and energy needs of the body. Open to men and women students not majoring in Home Economics. Prerequisites: Chem. 122 or 125; Zoöl. 221 or 222.* Staff.
- 176. Meats H. E.** 1 semester hour. Each semester.
See An. Husb. 176, Department of Animal Husbandry, School of Agriculture.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 205. Dietetics for Abnormal Conditions.** 2 semester hours. Each semester and summer.
Food requirements in pathological conditions. Special diets, preparation of trays, computation of dietaries, consideration of costs. One hour of recitation and three hours of laboratory a week. Prerequisite: Fds. and Nutr. 206. Staff.
- 206. Nutrition and Dietetics.** 5 semester hours. Each semester.
Chemistry of foods and nutrition; emphasizing food nutrients, digestion, and metabolism. Food requirements during normal infancy, childhood, adolescence, adult life, and old age. Adequate diets at different economic levels. Prerequisite: Fds. and Nutr. 107, Zoöl. 219 or 221,* or Comp. 112. Staff.
- 207. Nutrition and Dietetics Laboratory.** 1 semester hour. Each semester.
Energy, protein, mineral, and vitamin computations. Normal diets for infants, children, and adults. Three hours of laboratory a week. Concurrent: Fds. and Nutr. 206. Staff.
- 210. Nutrition of Development.** 2 semester hours. First semester and summer.
Nutrition in pregnancy and lactation. Food requirements of fetus, infant, preschool, and school child through adolescence. Prerequisite: Fds. and Nutr. 206 or consent of head of department. Staff.
- 215. Field Work in Nutrition.** 3 semester hours. Second semester.
Survey of field of child nutrition, field work with school children, special work with individual children. Two hours of recitation and three hours of laboratory a week. Prerequisite: Fds. and Nutr. 206 or consent of head of department. Staff.
- 245. 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: Senior or graduate standing. Consult instructor. Staff.
- 253. Seminar in Foods.** 2 semester hours. First semester and summer.
Individual reports and discussion of topics in fields of foods, food economics, and food research. Prerequisite or concurrent: Fds. and Nutr. 255. Staff.
- 254. Seminar in Nutrition.** 2 semester hours. Second semester and summer.
Individual reports and discussion of topics in field of nutrition. Prerequisite: Fds. and Nutr. 206. Staff.

* Students from other schools may substitute an equivalent number of hours in other science for these prerequisites.

* Students from other schools may substitute an equivalent number of hours in other science for these prerequisites.

- 255. Experimental Cookery.** 2 semester hours. Each semester and summer. Food preparation from the experimental standpoint. Six hours of laboratory a week. Prerequisite: Fds. and Nutr. 107 and at least second semester junior standing. Staff.
- 256. Fundamentals of Demonstrations.** 2 semester hours. Second semester. Objectives and techniques of demonstrations in foods with emphasis upon their use in the business field. Six hours of laboratory a week. Prerequisites: Fds. and Nutr. 255; Hshld. Ec. 105 or Inst. Mgmt. 111 and Educ. 132 or 133. Staff.
- 258. 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: Senior or graduate standing; consult instructor. Staff.
- 261. Advanced Nutrition.** 3 semester hours. First semester and summer. A study of the more complex phases of the metabolism of food within the body. Prerequisites: Senior or graduate standing; Chem. 240, Zoöl. 221,* Fds. and Nutr. 206 or equivalent. Staff.
- 270. Advanced Foods.** 3 semester hours. Second semester. Fundamental principles and practices of food preparation approached through applied organic and colloidal chemistry. Two hours of recitation and 3 hours of laboratory a week. Prerequisite: Senior or graduate standing. Fds. and Nutr. 255, Chem. 240. Staff.

FOR GRADUATE CREDIT

- 305. Research in Foods and Nutrition.** Credit to be arranged. Each semester and summer. Individual research problem which may be the basis for a master's thesis. Three hours a week for each hour of credit. Prerequisite: Consult instructor. Staff.

Courses in Home Economics Education*

Professor RUST

Associate Professor BAXTER

Assistant Professor LOFINK

Graduate Assistant —————

FOR UNDERGRADUATE CREDIT

- 132. Methods of Teaching Home Economics.** 3 semester hours. Each semester and summer. Prerequisite: Clo. and Text. 114; Fds. and Nutr. 102 and 107; prerequisite or concurrent, Educ. 109. Rust, Baxter.
- 133. Methods of Teaching for Dietetic Students.** 3 semester hours. Each semester. Prerequisite: Inst. Mgmt. 101 or Fds. and Nutr. 206 or concurrent registration. Rust.
- 159. Teaching Participation in Home Economics.** 3 to 5 semester hours. Each semester and summer. Prerequisite: Completion of one home project and Educ. 132. Baxter.

* Students majoring in other schools may substitute an equivalent number of hours in other sciences for these prerequisites.

* The eleven courses named here are given by the Department of Education and Psychology for the School of Home Economics. The staff is appointed coöperatively by that department and the School of Home Economics.

FOR GRADUATE AND UNDERGRADUATE CREDIT

- 233. The Vocational Home Economics Curriculum.** 3 semester hours. Each semester and summer.
Prerequisite: Educ. 132 or concurrent registration. Rust.
- 234. Methods in Adult Homemaking Classes.** 1 to 3 semester hours. Summer.
Prerequisite: Educ. 132 or equivalent. Rust.
- 248. Problems in Education.** Credit to be arranged. Each semester and summer.
Prerequisite: Educ. 139 and approval of instructor. Work is offered in Home Economics Education by Professor Rust.

FOR GRADUATE CREDIT

- 313. Research in Organization and Presentation of Home Economics.** Credit to be arranged. Each semester and summer. Rust.
- 314. Organization and Presentation of Home Economics.** Credit to be arranged. Each semester and summer. Rust.
- 315. Supervision in Home Economics.** 2 semester hours. Second semester and summer.
Prerequisite: Educ. 159 and experience in teaching home economics. Rust.
- 318. Seminar in Home Economics Education.** 2 or 3 semester hours. Second semester and summer.
Prerequisite: Educ. 159 and experience in teaching home economics. Rust and visiting instructors.
- 325. Research in Education.** Credit to be arranged. Each semester and summer.
Prerequisite: At least two courses in this department and approval of instructor. Work is offered in Home Economics Education by Professor Rust.

General Home Economics

DEAN JUSTIN
Assistant Dean KRAMER

Assistant Professor RAFFINGTON
Assistant Professor —————

FOR UNDERGRADUATE CREDIT

- 122. 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. Dean Justin and staff.
- 135. Guidance of Freshmen.** 1 semester hour. First semester.
Instruction in counseling techniques employed in freshman orientation in the School of Home Economics. Prerequisite: Junior or senior standing and special permission from the dean. Application for enrollment in this class must be made in the preceding spring semester. Dean's staff, School of Home Economics, and others.
- 138. Introduction to Home Economics.** 4 semester hours.
Consideration of adjustment to college living, including aspects of health, personal appearance, human relationships and management of time and money. Open only to freshmen in School of Home Economics. Credit not available for those who have had Ch. Welf. 101 or Clo. and Text. 113.

143. Home and Family Life I. 4 semester hours. Each semester.

Consideration of certain aspects of family living including personality development, family relationships and the development of a sound philosophy of dress. Three hours of recitation and three hours of laboratory a week. No prerequisite. For nonmajors. Staff.

146. Home and Family Life II. 4 semester hours. Each semester.

Consideration of problems in the selection and management of the home and its decoration; health; nutrition; food preparation including meal planning and service. Two hours of recitation and six hours of laboratory a week. No prerequisite. A general course for nonmajors. Staff.

Household Economics

Professor KREMER

Associate Professor GUNSELMAN

Associate Professor AGAN

Associate Professor MCKINNEY

Assistant Professor BARNES

Graduate Assistant BUCHHOLTZ

Graduate Assistant —————

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

105. Household Equipment. 2 semester hours. Each semester.

Selection, use, and care of certain furniture and equipment used in the home. Four hours of recitation and laboratory a week. Prerequisite: Fds. and Nutr. 102. Staff.

115. The House. 3 semester hours. Each semester and summer.

A consideration of dwellings, their environments, plans, and space requirements, which will promote effective utilization of family resources. Six hours of recitation and laboratory a week. Prerequisite: Sophomore standing. Agan and others.

FOR GRADUATE AND UNDERGRADUATE CREDIT

223. Family Finance. 2 semester hours. Each semester and summer.

Financial problems involved in the effective management of the family's resources. Staff.

240. 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 of a semester. The equivalent of one hour of recitation and six hours of laboratory a week for one semester. Prerequisite: Senior standing, or consult instructor. McKinney, Barnes, and others.

243. 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. Staff.

- 257. Time and Motion in Household Tasks.** 2 semester hours. Second semester and alternate summers.

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. Staff.

- 265. Economic Problems of the Family.** 2 semester hours. First semester and alternate summers.

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: Comp. 122 and Hshld. Ec. 223 or consult instructor. Kremer.

- 272. Consumers and the Market.** 3 semester hours. First semester and summer.

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: Comp. 122 and junior standing. Gunselman.

- 273. Housing Requirements of Families.** 2 semester hours. First semester and alternate summers.

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. 105; Hshld. Ec. 115; and senior or graduate standing. Agan.

- 274. Advanced Household Equipment.** 3 semester hours. Second semester and alternate summers.

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. 105; Phys. 109 and senior or graduate standing. Agan.

- 276. Home Management Summary.** 2 semester hours. Each semester and alternate summers.

Investigations of the use of family resources in phases of home administration. Directed toward integration of acquired knowledge, understandings, and appreciation, and the application of the unified concepts to current management problems. Prerequisite: Senior or graduate standing. Kremer and staff.

- 280. Seminar in Home Management.** 1 to 3 semester hours. Each semester and summer.

A review of research literature and trends in home management; the contribution made by home management to the family and community. Prerequisite: Senior or graduate standing. Kremer and graduate staff.

FOR GRADUATE CREDIT

- 305. Economics of Consumption.** 2 semester hours. Second semester and alternate summers.

A study of consumption from the point of view of human welfare. Prerequisite: Comp. 122; Hshld. Ec. 223 and 265. Kremer.

- 310. 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. Graduate staff.

Institutional Management

Professor WEST

Professor SMULL

Associate Professor MARSH

Associate Professor MILLER

Instructor EDELBLUTE

Instructor BRILES

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

107. Quantity Food Preparation I. 2 semester hours. Each semester and summer.

Introduction into various areas of institutional management. Food problems of institutions including preparation 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. and Nutr. 107. Briles.

109. Quantity Food Preparation II. 3 semester hours. Each semester and summer.

Food problems of institutions including preparation and serving foods in large quantity, menu 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. 107. Briles.

111. Institutional Purchasing. 3 semester hours. Each semester and summer.

Selection, arrangement, installation, and care of various types of equipment for institutional food service departments. Selection and methods of purchasing food in large quantities. Prerequisite or concurrent: Inst. Mgmt. 109. West, Miller.

FOR GRADUATE AND UNDERGRADUATE CREDIT

203. 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. 109. Marsh.

204. 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. 109. Marsh.

210. 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. 202 and 203. Consult instructor. Staff.

221. 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 107 or 109. Prerequisite: Fds. and Nutr. 107. Edelblute.

226. 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. 202 and 203. Miller.

227. 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. 202 and 203. Miller.

FOR GRADUATE CREDIT

301. Research in Institutional Management. Credit to be arranged. Each semester and summer.

Prerequisite: Consult instructor. Staff.

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 cooperation 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:

- **The Effect of Different Frozen Storage Temperatures upon Certain Characteristics of Meat. I. Pork.
- **The Utilization of Dried and Frozen Egg Products in Foods.
- *Meat Investigations. Subproject. Factors Influencing the Vitamin-B-complex Content of Meat.
- *Factors Affecting the Quality and Nutritive Value of Fruits and Vegetables Preserved by Freezing.
- *The Nutritional Status of College Women as Related to their Dietary Habits: Subproject II. A Study of the Basal Metabolism of Women and Girls of Varying Ages in Kansas.
- *Subproject VI. A Study of the Vitamin C Status of College Women.
- **The Effect of Freezing and Refrigerated Storage on the Quality of Precooked Foods. I. Meat.
- *Vitamin Content of Foods in Relation to Human Nutrition.
- *An Investigation of the Effect upon the Animal Body of Varying the Amount of Vitamin in the Diet.
- *The Influence of Electromagnetic Radiation on the Ascorbic Acid Content of Plants.

* Projects supported by funds from the Agricultural Experiment Station.

** Projects supported by either commercial or industrial funds.

- *Nutritional Status and Dietary Needs of Population Groups in North Central Region: Subproject. Nutritional Status of School Children as Influenced by the School Lunch Program.
- *Factors Influencing the Keeping Quality and Nutritional Value of Frozen Meat: Subproject I. Methods of Handling Pork prior to Storage. Subproject II. The Relation of Packaging Material to the Keeping Quality of Frozen Pork.
- **The Utilization of Turkey and Turkey Products as Food.
- **The Performance of Egg and Egg Products and Their Use in Foods.
- **The Nutritional Significance of the Use of Enriched Flour and Cereals.
- *The serviceability of a cotton fabric used for utility garments as affected by laundering with certain detergents.
- *Effect on the service qualities of cloth of insecticides recommended for protection against clothing pests or insects and mites that attack people.
- Expenditures for Clothing by College Women.
- *Service qualities of household fabrics.
- Studies on Group Relationships.
- Parent's Attitudes and Practices in Relation to their Children.
- Case Studies of Children and Adults.
- Principles of Guidance Based on Situational Analysis.
- *Studies of Income and Living Costs of Certain Kansas Families.

The School of Veterinary Medicine

RALPH R. DYKSTRA, *Dean*

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 several weeks in advance of the opening of the college year. 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 August 15. Application blanks may be obtained from the Dean of the School of Veterinary Medicine.

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 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.

Applicants must offer: (1) The high school units required for admission to the preveterinary adaptation of the freshman year of the Curriculum in General Science; (2) thirty-two hours of college work as prescribed in or equivalent to the preveterinary year in the School of Arts and Sciences. This work may be done here or in any approved junior college, college, or university.

FEES

	<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	7.50	7.50
Student Union	5.00	5.00
Student Activities:		
Regular Semester Undergraduates.....	7.50*	7.50*
Summer Session Undergraduates.....	2.00*	2.00*
Graduate Students	Optional	Optional
C. Incidental Fee:		
Veterinary Medicine Students.....	50.00	100.00
2. <i>Refund Policy:</i>		
See General Statement, p. 23.		
3. <i>Other Fees:</i>		
See General Statement, pp. 21-25.		

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, and judging, in milk inspection, and in zoölogy, 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 pre-requisites.

* Subject to certain state and federal taxes.

Curriculum in Veterinary Medicine

Effective for graduation in 1948, 1949, 1950, 1951, and 1952 only

For admission requirements to this curriculum consult the "Preveterinary Curriculum," page 114.

FIRST YEAR

FIRST SEMESTER				SECOND SEMESTER			
	<i>Course</i>		<i>Sem. Hrs.</i>		<i>Course</i>		<i>Sem. Hrs.</i>
Comp.	121	Man and Soc. World I....	4	Comp.	122	Man and Soc. World II... 4	4
P. H.	101	Fm. Poul. Prod.....	2	Anat.	114	Anatomy II	6
Anat.	113	Anatomy I	6	Path.	106	Histology II	3
Path.	104	Histology I	3	Physiol.	222	Comp. Physiol. I.....	4
Chem.	243	Physiol. Chem.	3	Mil. Sc.	104	Infantry IV	1
Mil. Sc.	103	Infantry III	1	Phys. Ed.	103	Physical Education	R
Phys. Ed.	103	Physical Education	R				
Total.....			19	Total.....			18

SECOND YEAR

FIRST SEMESTER			SECOND SEMESTER				
Bact.	103	Vet. Microbiology	3	Bact.	112	Path. Bact. and Virology..	4
Physiol.	227	Comp. Physiol. II.....	4	Path.	208	Pathology II	4
Path.	203	Pathology I	5	Physiol.	230	Pharmacodynamics	3
Zoöl.	208	Animal Parasitology	3	Surg.	158	Mat. Medica	4
A. H.	126	El. of Animal Husb.....	2	A. H.	190	Livestock Feeding	3
A. H.	127	Livestock Judging	1	D. H.	104	Dairy Cat. Judg. for Vet. Stud.	1
Total.....			18	Total.....			19

THIRD YEAR

FIRST SEMESTER				SECOND SEMESTER			
Path.	235	Applied Vet. Paras.	3	Path.	211	Pathology III	3
Bact.	117	Vet. Immunology	3	Surg.	109	Surgery II	4
Bot.	126	Med. Botany	2	Surg.	130	Obst. and Breed. Dis.....	5
Surg.	108	Surgery I	4	Surg.	141	Clinics II	2
Surg.	163	Therapeutics	3	Surg.	111	Dis. of Lrg. Animals I....	4
Surg.	138	Clinics I	2	Anat.	115	Topographic Anatomy	1
Surg.	110	Diagnosis	2	V. M.	102	Jr.-Sr. Conf.	R
V. M.	101	Jr.-Sr. Conf.	R				
Total.....			19	Total.....			19

FOURTH YEAR

FIRST SEMESTER				SECOND SEMESTER			
Surg.	112	Surg. Exercises	1	Surg.	181	Inf. Dis. of Lrg. Animals..	5
Surg.	113	Dis. of Lrg. Animals II...	4	Bact.	217	Poultry Diseases	2
D. H.	119	Dairy Insp. for Vet. Stu...	2	Path.	218	Food Hyg. and Pub. Health	5
Path.	215	Pathology IV	3	Surg.	191	Med. Econ. and Law.....	2
Surg.	114	Sm. Animal Surgery.....	2	Surg.	147	Clinics IV	4
Surg.	144	Clinics III	4	Path.	226	Clinical Path. II.....	R
Surg.	186	Dis. of Sm. Animals.....	2	Surg.	131	Gynecology (½ class).....	1
Path.	225	Clinical Path. I.....	R	V. M.	104	Jr.-Sr. Conf.	R
Surg.	131	Gynecology (½ class).....	1				
V. M.	103	Jr.-Sr. Conf.	R				
Total.....			18 or 19	Total.....			18 or 19

Number of hours required for graduation: Women, 147; men, 149.

Curriculum in Veterinary Medicine

Effective for graduation in 1953 and thereafter.

For admission requirements to this curriculum consult the "Preveterinary Curriculum," page 114.

The two-year Preveterinary Curriculum (page 114) 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.	103 Vet. Microbiology	3	Bact.	112 Path. Bact. & Virology....	4
Anat.	109 Anatomy I	7	Anat.	114 Anatomy II	6
Path.	104 Histology I	3	Path.	106 Histology II	3
A. H.	126 Els. of A. H. Rec.....	2	Phys.	222 Comp. Physiol. I.....	4
A. H.	129 Els. of A. H. Lab.....	1	D. H.	104 Dairy Cattle Judg.....	1
	Electives	2 or 3			
Engl.	169 English Profic.	R			
Total.....			18 or 19	Total.....	
				18	

SECOND YEAR

FIRST SEMESTER			SECOND SEMESTER		
Bact.	117 Vet. Immunology	3	Phys.	201 Special Physiology	2
Phys.	227 Comp. Physiol. II.....	4	Path.	203 Pathology I	5
Zoöl.	208 Ani. Parasitology	3	Phys.	230 Pharmacodynamics	3
Bot.	126 Medical Botany	2	Surg.	158 Materia Medica	4
Chem.	246 Physiological Chem.	5	A. H.	190 Livestock Feeding	3
Total.....			17	Total.....	
				17	

THIRD YEAR

FIRST SEMESTER			SECOND SEMESTER		
Path.	208 Pathology II	4	Path.	211 Pathology III	3
Path.	235 App. Vt. Parasitology	3	Surg.	109 Surgery II	4
Surg.	108 Surgery I	4	Surg.	130 Obst. & Breed. Dis.....	5
Surg.	163 Therapeutics	3	Surg.	141 Clinics II	2
Surg.	138 Clinics I	2	Surg.	111 Dis. of Lrg. Animals I....	4
Surg.	110 Diagnosis	2	Anat.	115 Topographic Anatomy	1
V. M.	101 Jr.-Sr. Conf.	R	V. M.	102 Jr.-Sr. Conf.	R
Total.....			18	Total.....	
				19	

FOURTH YEAR

FIRST SEMESTER			SECOND SEMESTER		
Surg.	112 Surg. Exercises	1	Surg.	181 Inf. Dis. of Lrg. Animals..	5
Surg.	113 Dis. of Lrg. Animals II...	4	Bact.	217 Poultry Diseases	2
D. H.	119 Dairy Inspection for Vet.		Path.	218 Food Hygiene & Pub.	
	Students	2		Health	5
Path.	215 Pathology IV	3	Surg.	191 Med. Econ. & Law.....	2
Surg.	114 Sm. Animal Surgery.....	2	Surg.	147 Clinics IV	4
Surg.	144 Clinics III	4	Path.	228 Clinical Path. II.....	1
Surg.	186 Dis. of Sm. Animal.....	2	V. M.	104 Jr.-Sr. Conf.	R
Path.	227 Clinical Path. I.....	1			
V. M.	103 Jr.-Sr. Conf.	R			
Total.....			19	Total.....	
				19	

Number of hours required for graduation, 145-146.

Extracurricular Electives

FIRST OR SECOND SEMESTER

Anat.	206 Applied Anatomy	1 semester hour
Anat.	202 Special Anatomy	2-4 semester hours
Physiol.	215 Problems in Physiology.....	Credit to be arranged
Physiol.	228 Urine Analysis	1 semester hour
Path.	222 Pathological Technic and Diagnosis I.....	2 to 5 semester hours
Path.	223 Pathological Technic and Diagnosis II.....	2 to 5 semester hours
Path.	302 Research in Pathology.....	Credit to be arranged
Surg.	150 Extra Clinics	1 semester hour
Surg.	301 Research in Surgery.....	Credit to be arranged
Surg.	310 Research in Medicine.....	Credit to be arranged

Anatomy

Professor McLEOD
Professor BURT

Associate Professor COVER
Instructor MOSIER

The classroom instruction consists of lectures, quizzes, and recitations, and special dissection of the part under discussion; also a study of dissected specimens, various models, and the Azoux model of the horse. Mounted skeletons and limbs and loose bones are abundant in the museum. The horse is taken as a type, and the other domestic animals are compared with the horse. As often as necessary, parts of other animals are dissected to show the differences.

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. Staff.

113. Anatomy I. 6 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 nine hours of laboratory a week. Staff.

114. 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. 113. Staff.

115. 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: Junior standing in Veterinary Medicine. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. Special Anatomy. 2 to 4 semester hours. 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. 113, 114, Physiol. 131, or equivalent. Staff. Adapted to the work in which the student is specializing.

206. 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. 114. Staff.

* Course 109 replaces course 113 for 1953 and later graduation.

Physiology

Professor LEASURE

Assistant Professor GOOD

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 digestion, absorption, metabolism, and excretion; sufficient anatomy to give a thorough understanding of the correlation between the two subjects and of the physiologic relations existing among the various organs of the body. Two hours of recitation and three hours of laboratory a week. Adapted to students majoring in Animal Husbandry. Leasure, Good.

FOR GRADUATE AND UNDERGRADUATE CREDIT

*** 201. 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. 227. Leasure, Good.

215. 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 222 or 227. Leasure.

222. 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. 113 and Chem. 122 and 243; for others an approved course in organic chemistry. Leasure, Good.

227. 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. 222. Leasure, Good.

228. Urine Analysis. 1 semester hour. Second semester.

A laboratory course devoted to the comparative study of human urine and the urine of domestic animals, especially the horse, cow, and dog. A microscopic study of urinary deposits will be carried out also. Prerequisite: Physiol. 227. Class limited to ten students. Leasure, Good.

230. 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. 227. Leasure, Good.

* For 1953 and later graduation.

Pathology

Professor RODERICK
Professor KITSELMAN
Assistant Professor BARNER

Assistant Professor SPLITTER
Assistant Professor JEWELL
Instructor KIMBALL

The Department of Pathology presents courses in histology, pathology, and meat inspection. Instruction is by lecture, recitation, laboratory work, and demonstrations with the aid of lantern slides and autopsies.

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. Jewell.

106. 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. Jewell.

FOR GRADUATE AND UNDERGRADUATE CREDIT

252. Special Histology. 3 semester hours. Each semester.

Fundamental histological technics studied by means of problems. Nine hours of laboratory a week. Prerequisite: Path. 106. Roderick, Kimball.

COURSES IN PATHOLOGY

FOR GRADUATE AND UNDERGRADUATE STUDY

203. Pathology I. 5 semester hours. First semester.

General pathology treating of the history of pathology, predisposition, immunity, congenital and inherited disease, etiology, course and termination of disease. Three hours of recitation and six hours of laboratory a week. Prerequisite: Physiol. 222 and Path. 106; Chem. 243. Roderick, Barner.

208. 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. 203. Roderick, Barner.

211. 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. 208. Roderick, Barner.

215. 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. 211. Roderick.

218. 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. 215. Kitseleman.

222, 223. 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. 203; for II, Path. 211 and 222. Staff.

225, 226. 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, seriological, chemical, pathological, and parasitological diagnosis. Prerequisite: Surg. 138, 144. Staff. Open only to senior students in veterinary medicine and graduate students.

*** 227, 228. Clinical Pathology I and II.** 1 semester hour each. 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, seriological, chemical, pathological, and parasitological diagnosis. Prerequisite: Surg. 138, 144. Staff. Open only to senior students in veterinary medicine and graduate students.

235. Applied Veterinary Parasitology. 3 semester hours. First semester.

The identification of parasites and the diagnosis of parasitoses. A consideration of the important parasitic diseases of livestock. Two hours of recitation and three hours of laboratory a week. Prerequisite: Zoöl. 208. Jewell. Limited to veterinary students.

FOR GRADUATE CREDIT

302. Research in Pathology. Credit to be arranged. Each semester.

Individual research in the pathology of an animal diseases problem. Prerequisite: Path. 215 and 222. This work may form the basis for the master's thesis. Roderick.

Surgery and Medicine

Professor FRICK
Professor DYKSTRA
Professor FRANK
Professor MOORE

Assistant Professor WITTER
Instructor BORGMANN
Assistant Professor MOSIER

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 fifty small animals, such as sheep, swine, cats, dogs, etc. Members of the clinical staff, accompanied by students, make trips into the surrounding country to treat patients. In this way the student comes into contact every year with the diseases of animals and their treatment. More than 25,000 clinical cases a year are treated.

COURSES IN SURGERY

FOR UNDERGRADUATE CREDIT

108. Surgery I. 4 semester hours. First semester.

Lectures, recitations, and demonstration on the fundamental principles of surgery, methods of restraint, asepsis, and antiseptics, anesthesia, division of tissues, union of tissues, control of hemorrhage, neoplasms, and animal dentistry. Four hours of recitation a week. Prerequisite: Junior standing in veterinary medicine. Frank.

* For 1953 and later graduation, these courses replace Path. 225 and 226.

109. 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. Frank.

112. Surgical Exercises. 1 semester hour. First semester.

Surgery on anesthetized animals, and on cadavers; fractures, dressings, X-ray technics. Three hours of laboratory a week. Prerequisite: Surg. 109. Staff.

114. 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: Junior or senior standing in veterinary medicine. Frick, Witter.

FOR GRADUATE CREDIT**301. 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. 113, 114, and 115; Surg. 108, 109, and 163. Frank, Dykstra. Offered especially for graduates in veterinary medicine.

COURSES IN OBSTETRICS**FOR UNDERGRADUATE CREDIT****130. Obstetrics and Breeding Diseases.** 5 semester hours. Second semester.

Physiology of reproduction, principles of normal and abnormal parturition, special attention given to handling of reduced fertility. Five hours of recitation a week. Prerequisite: Junior standing in veterinary medicine. Moore.

*** 131. Gynecology.** 1 semester hour. Each semester one-half of class.

Practical exercises in diagnosing and treating sterility, abortion, and dystocia, and the insemination of large animals. Three hours of laboratory a week. Prerequisite: Senior standing in veterinary medicine. Moore.

COURSES IN CLINIC**FOR UNDERGRADUATE CREDIT****138, 141. Clinics I and II.** 2 semester hours 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: Junior or senior standing in veterinary medicine. Staff.

144, 147. 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: Junior or senior standing in veterinary medicine. Staff.

150. 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. 141 or 147. Staff.

* Not required for 1953 and later graduation.

COURSES IN MATERIA MEDICA**FOR UNDERGRADUATE CREDIT**

- 158. 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: Sophomore standing in veterinary medicine. Witter, Mosier.

- 163. 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. 158. Witter.

COURSES IN MEDICINE**FOR UNDERGRADUATE CREDIT**

- 110. Diagnosis.** 2 semester hours. First semester.

Differential diagnostic methods employed for the detection of disease. Two hours of recitation a week. Prerequisite: Junior standing in veterinary medicine. Frick.

- 111, 113. 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. 158 and junior or senior standing in veterinary medicine. Frick, Moore.

- 181. Infectious Diseases of Large Animals.** 5 semester hours. Second semester.

Five hours of recitation a week. Prerequisite: Surg. 113 and senior standing in veterinary medicine. Frick.

- 186. 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. 158 and 163 and senior standing in veterinary medicine. Frick, Witter.

- 191. Medical Economics and Law.** 2 semester hours. Second semester.

The veterinarian's legal responsibilities; national and state livestock laws; quarantine regulations; principles of business law. Two hours of recitation a week. Prerequisite: Senior standing in veterinary medicine. Staff.

FOR GRADUATE CREDIT

- 310. 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. 111, 113, 158, and 181. Frick. Offered especially for graduates in veterinary medicine.

General Veterinary Medicine

- V. M. 101, 102, 103, 104. 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: Junior or senior standing in veterinary medicine. Staff.

The Division of College Extension

L. C. WILLIAMS, *Dean and Director*

H. J. C. UMBERGER, *Dean and Director Emeritus*

Extension Publicity and Information

Professor LONGSDORF, Extension Editor and Program Director, in Charge

Associate Professor WARNER, Assistant Extension Editor

Assistant Professor SHANKLAND, Assistant Extension Editor

Assistant Professor DEXTER, Assistant Extension Editor

Instructor KELLY, Assistant Extension Editor

Instructor SALISBURY, Assistant Extension Editor

Instructor HILGENDORF, Assistant Extension Editor

Instructor BORREGO, Assistant Extension Editor

Instructor ARNOLD, Assistant Extension Editor

The Division of College Extension offers the benefits of the College to Kansas farm and urban people. It is active in every county. By means of demonstrations, institutes, training schools, publications, correspondence courses, and radio programs, information on agriculture, home economics, and engineering extension is made readily available to all. 4-H club work is a major phase of the Extension Service program.

In the beginning, this work was informal. Members of the college staff answered inquiries by mail and occasionally met with small groups at various places in the state. The exchange of information thus made possible proved valuable both to the citizens of the state and to the college investigators. In 1914, with the passage of the Smith-Lever Act, this type of work became a coöperative undertaking of the federal and state governments, through the United States Department of Agriculture and the agricultural colleges.

There now are six major departments in the division, each with its own head and staff. Coöperatively employed extension agents are located in 103 counties. The extension organization, which reaches more than 800,000 Kansas people each year, still serves its original function of a two-way communication system between the College and the general public. Extension workers take to the people of the state information developed by the experiment stations, by the United States Department of Agriculture, and by the experience of the best farmers and homemakers. They bring to the state and federal research workers information concerning problems that are of immediate general interest. Their goal is to assist in making agriculture more prosperous and rural living more satisfying.

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Extension Schools

DEPARTMENT OF AGRICULTURAL SPECIALISTS

PAUL W. GRIFFITH, in Charge

Professor ———, Veterinary Medicine	Asst. Prof. GRIFFITH, Agricultural Economics
Professor KELLY, Entomology	Asst. Prof. HARPER, Agronomy
Professor AMSTEIN, Horticulture	Asst. Prof. MEANS, Agricultural Economics
Professor ELLING, Animal Husbandry	Asst. Prof. HOSS, Agricultural Economics
Professor WILLOUGHBY, Agronomy	Asst. Prof. SHOEMAKER, Agricultural Economics
Professor SEATON, Poultry Husbandry	Asst. Prof. BROWN, Agricultural Economics
Professor CLEAVINGER, Agronomy	Asst. Prof. ———, Forestry
Professor LINN, Dairy Husbandry	Asst. Prof. KING, Plant Pathology
Professor STOVER, Dairy Husbandry	Asst. Prof. TAYLOR, Animal Husbandry
Professor JACCARD, Agricultural Economics	Asst. Prof. ———, Agricultural Economics
Assoc. Prof. LIND, Agronomy	Asst. Prof. ———, Agricultural Economics
Assoc. Prof. COOLIDGE, Agricultural Economics	Asst. Prof. RAWLINS, Agricultural Economics
Asst. Prof. BIEBERLY, Agronomy	Instr. PEARCE, Agricultural Economics
Asst. Prof. ———, Animal Husbandry	Instr. ———, Landscape Architecture
Asst. Prof. JACKSON, Poultry Husbandry	

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 coöperation with the residents of the counties through their designated leaders. The department has charge of the program and arrangements for Farm and Home Week, annual state-wide farmers' meetings, and the scheduling of judges for county and local fairs.

FARM AND HOME INSTITUTES

A farm and home institute is an association of farmers and farm homemakers with regular officers, constitution, and bylaws. Some organizations hold six or more meetings during the year, and no institute can obtain state aid unless, in addition to the annual meeting at which representatives of the College must be present, it also holds at least three local meetings. It is the plan of the College to send two specialists, one in agriculture and one in home economics, to the annual meetings to present certain well-defined lessons and to give the results of demonstration work for the county or locality. The specialists and their subjects are chosen because of known need of interest of a particular community, or because of a plan to start or encourage certain definite lines of work.

EXTENSION SCHOOLS

Extension schools are meetings, of one- or two-day duration, 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 horticulture, animal husbandry, veterinary medicine, entomology, poultry husbandry, dairying, agronomy, engineering, marketing, farm management, plant pathology, and farm forestry. In addition to these specialized meetings, schools of a more general character are held, designed to present the extension program best suited to the communities of the county. Home economics and 4-H Club work have an important place on the program of the schools.

EXTENSION PROJECTS

The specialists of the division work in extension schools and institutes during the winter months only, and a portion of this time is devoted to coöperative demonstration work in agriculture and home economics. During the 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 coöperative demonstration work. In much of the coöperative work, each specialist has from 10 to 100, or more, coöperators in each county. These men and women work under the direction of the specialist and the county agent. They keep records of the work, and demonstration meetings are held at their farms.

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. He seldom makes a trip without coming in contact with agricultural problems requiring the attention of research workers.

COUNTY AND LOCAL FAIRS

The agricultural specialists devote some time each year to judging livestock and agricultural 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 home management that will add to the comfort and enjoyment of farm life, and to encourage farm folks in social organization that will enrich the social life of the rural community.

All meetings, lectures, and demonstrations during Farm and Home Week are free of charge. The United States Department of Agriculture, the Agricultural Experiment Station, the extension service, agricultural 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, community service, beekeeping, and diseases of animals are discussed by some of the leading agricultural authorities in America. In addition to these lectures and demonstrations, there are other interesting features.

County Agent Work

Professor BLECHA, District Agent
Professor TURNER, Field Agent
Associate Professor BAIRD, District Agent
Associate Professor TEAGARDEN, District Agent
Associate Professor GLOVER, District Supervisor
Associate Professor NEFF, District Supervisor
Assistant Professor HAGANS, District Supervisor

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 coöperative 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."

Under the Smith-Lever Act the funds appropriated therein must be matched by the State expecting to obtain any part of the Federal funds. To that end the legislature of the State of Kansas, in 1915, enacted a law authorizing county appropriations to county farm bureaus "having a membership of 25 percent of the bona fide farmers of the county, or as many as 250 farmers, and having for its purpose the giving of instruction in agriculture and home economics to the people of said county through practical demonstrations and otherwise, and the employment of a county agricultural agent or agents to prosecute this work . . ."

On October 1, 1947, 103 out of 105 counties in Kansas employed county agricultural agents and assistant agents.

Home Economics

Professor SMURTHWAITE, State Home Demonstration Leader, in Charge

DISTRICT AGENTS

Assistant Professor MEYER
Assistant Professor HUSTON

Assistant Professor WINTER*
Associate Professor BURTIS

SPECIALISTS IN HOME ECONOMICS

Prof. ALLEN, Foods and Nutrition
Assoc. Prof. WIGGINS, Clothing and Textiles
Assoc. Prof. FLETCHER, Foods and Nutrition
Assoc. Prof. MYERS, Home Management
Asst. Prof. ———, Home Furnishings
Assoc. Prof. ELLITHORPE, Home Management
Asst. Prof. RANDLE, Foods and Nutrition

Asst. Prof. ———, Recreation
Instructor BRILL, Home Health and Sanitation
Asst. Prof. JOHNSON, Clothing and Textiles
Instructor BRIGGS, Family Living
Instructor SELF, Home Management
Asst. Prof. and Asst. in Home
Economics BATCHELOR*

Extension work in home economics is carried on in counties through organized study groups and 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 was deferred until the counties were properly organized for this specific purpose. Since August, 1918, the organization of a county farm bureau, providing membership for women as well as for men, has been required; and since July 1, 1921, a county desiring a home demonstration agent has had to provide a well-equipped office with adequate stenographic help, transportation facilities, and a county appropriation toward the salaries and expenses of the 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 October 1, 1947, 77 counties had appropriations for home demonstration work. Sixty-three home demonstration agents, one assistant home demonstration agent, and four emergency assistants conduct the Home Economics Extension programs in these counties.

* Temporary.

Boys' and Girls' 4-H Club Work

Prof. J. HAROLD JOHNSON, State Club Leader
Assoc. Prof. BORDER, Junior Extension
Assoc. Prof. REGNIER, Junior Extension
Assist. Prof. HANNA, Junior Extension
Instructor BUSSET, Junior Extension
Instructor MCGAUGH, Junior Extension

The 4-H Club work is conducted by the College in coöperation with the counties, the county farm bureaus, 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 voluntary 4-H Club leaders. Local organizations also give valuable assistance. County 4-H councils assist the county agents in the supervision and promotion of the 4-H program. 4-H Club members receive visits from their county agents and from their local leaders; written 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 the 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 the 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 also 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 wholesome citizenship and leadership among rural young people and to provide them with opportunity to participate with their parents and friends in the adoption and spread of better farm and home practices. Coöperation 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 roundups, camps, and conferences are arranged. On January 1, 1948, twenty-three county club agents were employed.

Engineering Extension

Professor FERGUSON, Agricultural Engineering, in Charge
Associate Professor STOVER, Agricultural Engineering
Assistant Professor KNIGHT, Agricultural Engineering
Assistant Professor SELBY, Agricultural Engineering

The function of this department is to assist in the application of engineering principles to various phases of agriculture. In the beginning, in 1910, it dealt chiefly with drainage and irrigation. Other subjects have been added, including the control of soil erosion, farm structures, farm machinery, conveniences for the farm home, and rural electrification.

Much of the work is conducted in coöperation with the county agricultural agent's office. Some work is done in coöperation with various Government agencies, some with commercial machinery companies, some with structural supply companies, some with the REA coöperative companies, and some with public utilities.

All counties in the state are coöperating with the department in demonstration work involving drainage, irrigation, or the control of erosion. Standardized plans for hundreds of farm buildings are furnished each year. Advice and suggestions for remodeling farm buildings is furnished upon request to

several hundred families yearly. Recommendations are made for the selection, installation, and operation of 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 operation of farm machinery is conducted each year for the rural people. A definite program of 4-H Club work is conducted on the engineering phases of agriculture.

Home Study

Professor GEMMELL, in Charge
Professor PATTISON, Mechanical Engineering
Professor BILLINGS, History and Government
Professor SCHALL, English
Instructor MORDY, Education
Instructor MILLER, Agriculture

The Department of Home Study is a member of the National University Extension Association, comprising 48 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 classes on the College campus, but who can use the facilities of the College 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 business men who wish to keep growing along some line of interest, industrial or avocational.
9. Clubs and other organizations that wish to make systematic studies.
10. Men and women who wish effective help in meeting the demands of their vocations for technical and scientific knowledge and training.

HOW THE WORK IS CONDUCTED

In correspondence courses, the 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 lec-

tures 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, or other arrangements may be made by the student to take it locally under the city or county superintendent of schools or the principal of the local high school. In the latter case, the examination questions and instructions for conducting the examination are mailed from the department to the examiner, and the student's paper is sent in by him.

FEES

(Subject to Change)

The following schedule of home study fees shall apply to any one enrolling in home study courses:

	<i>Kansas residents and staff members</i>	<i>Nonresidents</i>
A. College-level Courses:		
Registration (paid only once and not subject to refund, not required of previously matriculated students).....	\$2.50	\$5.00
Enrollment, each semester hour (usually 8 assignments)..<	4.00	6.00
Study Center classes, each semester hour.....	5.00	7.00
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.....	5.00	7.00

Refund Policy

Registration fees shall not be subject to refund. Enrollment 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, the 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 shall be made.
- c. If application for withdrawal and refund is received by the College 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, then no refund is due.
- d. Students enrolled in residence at the College are not required to pay the registration fee; the enrollment fee, however, is collected to cover cost of grading papers and individual instruction. The refund policy as stated above is applicable.

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 such 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.
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 prerequisites the same as if undertaking the work in residence.
6. A student may not be enrolled for correspondence work while in attendance at any institution of learning without special permission from the dean or proper authorities in the institution of which he is a student.
7. No correspondence student 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. Where there is evidence that any correspondence student has copied any part of the lessons from the papers of another student who has previously taken the course, such student will be automatically and permanently dropped from the course, and a failing grade will be sent to the registrar's office with notation of the cause.
9. Credit for correspondence courses is determined by a final examination prepared by the Department of Home Study.

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	$\frac{1}{2}$
PCA 2.	Elementary Agriculture II.....	20	$\frac{1}{2}$
DRAWING			
PCD 3.	Shop Mechanical Drawing I.....	20	$\frac{1}{2}$
PCD 4.	Shop Mechanical Drawing II.....	20	$\frac{1}{2}$
ENGLISH			
PCE 1C.	Grammar and Composition (first year).....	20	$\frac{1}{2}$
PCE 2L.	Literature (first year).....	20	$\frac{1}{2}$
PCE 3C.	Composition (second year).....	20	$\frac{1}{2}$
PCE 4L.	Literature (second year).....	20	$\frac{1}{2}$
PCE 5C.	Composition (third year).....	20	$\frac{1}{2}$
PCE 6L.	Literature (third year).....	20	$\frac{1}{2}$
HISTORY AND CIVICS			
PCH 1.	Ancient History I.....	20	$\frac{1}{2}$
PCH 2.	Ancient History II.....	20	$\frac{1}{2}$
PCH 5.	American History I.....	20	$\frac{1}{2}$
PCH 6.	American History II.....	20	$\frac{1}{2}$
PCH 7.	Community Civics.....	20	$\frac{1}{2}$
PCH 8.	Constitution of United States.....	20	$\frac{1}{2}$
PCH 9.	World History I.....	20	$\frac{1}{2}$
PCH 10.	World History II.....	20	$\frac{1}{2}$
MATHEMATICS			
PCM 1.	Algebra I.....	20	$\frac{1}{2}$
PCM 2.	Algebra II.....	20	$\frac{1}{2}$
PCM 3.	Algebra III.....	20	$\frac{1}{2}$
PCM 4.	Plane Geometry I.....	20	$\frac{1}{2}$
PCM 5.	Plane Geometry II.....	20	$\frac{1}{2}$
PCM 6.	Solid Geometry.....	20	$\frac{1}{2}$
PCM 7.	Bookkeeping.....	20	$\frac{1}{2}$
SCIENCE			
PCS 1.	Physical Geography.....	20	$\frac{1}{2}$
PCS 2.	Botany.....	20	$\frac{1}{2}$
PCS 4.	Physiology.....	20	$\frac{1}{2}$
PCS 5.	General Science.....	20	$\frac{1}{2}$
PCC 1.	Commercial Geography.....	20	$\frac{1}{2}$
PCC 2.	Elementary Economics.....	20	$\frac{1}{2}$
PCC 3.	Elementary Sociology.....	20	$\frac{1}{2}$
PCC 4.	Elementary Psychology.....	20	$\frac{1}{2}$

COLLEGE COURSES

Numerous college courses paralleling resident 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 culture, 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.

Prerequisite: Econ. 151 or CS 3, and Educ. 184 or CP 8. Dr. Gemmell.

Problems in extension met by director, supervisor, county agricultural agent, county home demonstration agent, 4-H club leader, or specialist.

List of College Courses

SCHOOL OF AGRICULTURE

Course No.	AGRONOMY	Assignments	Semester hours of credit
CA 3.	Farm Crops	24	3
ANIMAL HUSBANDRY			
CL 2.	History of Breeds.....	16	2
HORTICULTURE			
CH 1.	Elements of Horticulture.....	16	2
CH 2.	Vegetable Gardening	16	2
CH 3.	Floriculture	16	2
CH 7.	Landscape Gardening	16	2
CH 6.	Small Fruits	16	2
POULTRY HUSBANDRY			
CPP 1.	Farm Poultry Production.....	8	1

SCHOOL OF ENGINEERING

MACHINE DESIGN			
CE 2.	Engineering Drawing	16	2
CE 6.	Machine Drawing I.....	16	2
CE 4.	Mechanism	24	3
CE 11.	Descriptive Geometry	16	2
SHOP PRACTICE			
CE 7.	Metals and Alloys.....	16	2
AGRICULTURAL ENGINEERING			
CE 3.	Gas Engines and Tractors	16	2
MECHANICAL ENGINEERING			
CE 9.	Steam Turbines	16	2

SCHOOL OF ARTS AND SCIENCES

ECONOMICS AND SOCIOLOGY			
CEc 1.	Economics	24	3
CS 2.	Rural Sociology	24	3
CS 3.	Sociology	24	3
CS 4.	Community Leadership	16	2
EDUCATION (PROFESSIONAL)			
CP 2.	Educational Psychology	24	3
CP 3.	Educational Sociology	24	3
CP 4.	History of Education	24	3
CP 5.	School Management	24	3
CP 6G.	General Methods for Elementary Teachers.....	24	3
CP 6H.	Methods of Teaching in the High School.....	24	3
CP 7.	Educational Administration	24	3
CP 8.	Psychology	24	3
CP 14.	Vocational Education	24	3
CP 17.	Introduction to Philosophy	24	3
CP 19.	Essentials of Reading	24	3
CP 21.	Child Psychology	16	2

<i>Course No.</i>		<i>Assignments</i>	<i>Semester hours of credit</i>
ENGLISH			
CCE 1.	Written Communications I.....	24	3
CCE 2.	Written Communications II.....	16	2
CCE 3.	Commercial Correspondence	24	3
CCE 4.	The Short Story.....	24	3
CCE 6.	English Literature	24	3
CCE 7.	American Literature	24	3
CCE 8.	Children's Literature	24	3
JOURNALISM			
CCJ 1.	Agricultural Journalism	24	3
PHYSICAL EDUCATION			
CPE 1.	Personal and Community Hygiene	24	3
CPE 2.	Community Health	8	1
CPE 3.	Playground Activities	16	2
GEOLOGY			
CG 1.	Geology	24	3
CG 2.	Principles of Geography.....	24	3
HISTORY AND CIVICS			
CHC 1.	Community Civics	16	2
CHC 106.	Survey of World Civilizations I.....	24	3
CHC 107.	Survey of World Civilizations II.....	24	3
CHC 151.	American Government	24	3
CHC 127.	Survey of American History I.....	24	3
CHC 128.	Survey of American History II.....	24	3
CHC 7.	History of Latin America.....	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

Statistical Summary for 1946-1947

Students by States, Foreign Countries, and Kansas Counties

State			
Alabama	8	Montana	3
Arizona	2	Nebraska	36
Arkansas	14	New Hampshire	1
California	22	New Jersey	20
Colorado	20	New Mexico	3
Connecticut	3	New York	54
Delaware	1	North Carolina	2
District of Columbia	1	Ohio	7
Florida	3	Oklahoma	36
Georgia	3	Oregon	4
Idaho	2	Pennsylvania	13
Illinois	44	Rhode Island	1
Indiana	13	South Carolina	2
Iowa	10	South Dakota	12
Kansas	7,140	Tennessee	4
Kentucky	2	Texas	29
Louisiana	7	Utah	2
Maryland	6	Virginia	3
Massachusetts	5	Washington	2
Michigan	11	Wisconsin	8
Minnesota	15		
Mississippi	3		
Missouri	208	Total	7,780

Foreign Countries

China	5	Peru	1
Hawaii	2	South Africa	1
Egypt	2	South America	3
India	3	Switzerland	8
Mexico	3		
Palestine	3		
Panama	2	Total	34
Puerto Rico	6	Grand total	7,814

Kansas Counties

Allen	56	Logan	22
Anderson	30	Lyon	70
Atchison	48	McPherson	92
Barber	38	Marion	45
Barton	84	Marshall	165
Bourbon	24	Meade	21
Brown	94	Miami	37
Butler	126	Mitchell	60
Chase	37	Montgomery	94
Chautauqua	25	Morris	67
Cherokee	23	Morton	1
Cheyenne	20	Nemaha	78
Clark	22	Neosho	41
Clay	93	Ness	31
Cloud	131	Norton	65
Coffey	46	Osage	40
Comanche	20	Osborne	41
Cowley	88	Ottawa	61
Crawford	54	Pawnee	45
Decatur	28	Phillips	41
Dickinson	197	Pottawatomie	153
Doniphan	17	Pratt	30
Douglas	16	Rawlins	12
Edwards	37	Reno	170
Elk	16	Republic	97
Ellis	18	Rice	88
Elsworth	34	Riley	1,224
Finney	35	Rooks	30
Ford	53	Rush	27
Franklin	61	Russell	41
Geary	118	Saline	172
Gove	6	Scott	2
Graham	26	Sedgwick	368
Grant	4	Seward	21
Gray	10	Shawnee	284
Greeley	11	Sheridan	17
Greenwood	60	Sherman	19
Hamilton	9	Smith	57
Harper	46	Stafford	51
Harvey	69	Stanton	5
Haskell	5	Stevens	6
Hodgeman	9	Sumner	86
Jackson	67	Thomas	38
Jefferson	31	Trego	18
Jewell	42	Wabaunsee	70
Johnson	126	Wallace	11
Kearny	10	Washington	109
Kingman	42	Wichita	14
Kiowa	28	Wilson	55
Labette	63	Woodson	18
Lane	16	Wyandotte	251
Leavenworth	47		
Lincoln	42		
Linn	26		
		Total	7,140

Record of Enrollment and Degrees Conferred, 1863-1947

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..	
1863-'64								92			14						106	.....	.....	
1864-'65								91			14						114	.....	.....	
1865-'66								99			21	8	1				127	.....	.....	
1866-'67								118			11	7	1	5			142	5	.....	
1867-'68								103			6	5	1				115	.....	1	
1868-'69								137			10	10	2		1		160	.....	.....	
1869-'70								119			10	12	1				142	.....	.....	
1870-'71								118			13	5	4	5			145	5	5	
1871-'72								129			20	11	3	5	2	2	168	3	1	
1872-'73																	173	2	1	
1873-'74								137			24	14	3	6			184	5	.....	
1874-'75								103			26	10	2	2			143	2	1	
1875-'76																	238	5	.....	
1876-'77																	232	9	1	
1877-'78								75			42	23	5	5			152	4	.....	
1878-'79								1			89	89	16	12			214	9	2	
1879-'80								1			166	61	35	11	2		276	7	2	
1880-'81								6			178	48	24	9	2		267	8	.....	
1881-'82								5			227	50	19	11			312	9	2	
1882-'83								4			241	60	30	12			347	12	3	
1883-'84								2			255	92	26	18	2		395	17	.....	
1884-'85								2			271	71	36	16	5		401	14	1	
1885-'86								1			273	91	35	24	4		428	21	2	
1886-'87											303	100	44	24	10		481	21	5	
1887-'88											305	92	46	27	2		472	22	1	
1888-'89											266	103	41	28	7		445	25	1	
1889-'90								1			307	105	63	28	10		514	27	2	
1890-'91											343	135	50	53	12		593	52	2	
1891-'92											336	139	62	37	10		584	35	.....	
1892-'93											339	110	66	43	29		587	39	9	
1893-'94											275	141	72	42	25		555	39	6	
1894-'95								5			276	108	89	64	39		572	57	3	
1895-'96								3			353	121	67	71	32		647	66	5	
1896-'97								6			321	163	69	62	46		734	55	8	
1897-'98											316	174	77	82	57	10	803	69	10	
1898-'99								15			306	177	92	65	40	21	871	53	10	
1899-1900		24						35			376	163	109	69	27	22	1,094	58	3	
1900-'01		47						79			348	183	80	74	40	52	1,321	60	9	
1901-'02		41						19			396	206	120	65	32	59	1,396	52	3	
1902-'03		63						36			471	229	141	86	24	57	1,574	55	.....	
1903-'04	17	51						33			403	206	161	114	20	36	1,605	102	1	
1904-'05	15	88						30			289	198	122	117	26	43	1,462	107	2	
1905-'06	18	92						46			373	214	145	110	30	64	1,690	96	4	
1906-'07	18	134						48			411	269	149	133	24	88	1,937	119	5	
1907-'08	29	188						42			450	357	202	148	26	82	2,192	116	4	
1908-'09	25	168						42			491	381	243	171	28	86	2,308	139	12	
1909-'10	22	152	4					87			456	417	286	170	26	70	2,305	144	2	
1910-'11	31	160	9					107			533	412	288	248	34	59	2,407	205	2	
1911-'12	94	160	14					85			337	461	288	261	44	81	2,523	230	6	
1912-'13	282	175	11					129			444	432	355	268	55	166	2,928	230	4	
1913-'14	370	149	12					112			516	431	324	327	64	159	3,027	283	8	
1914-'15	472	127	18					120			560	575	368	383	321	48	200	3,089	223	6
1915-'16	536	85	17					175			484	605	454	305	401	76	219	3,314	341	18
1916-'17	586	103	14					172			422	693	471	378	282	68	279	3,339	197	13
1917-'18	481	84	8					138			231	483	349	294	238	36	190	2,406	216	17
1918-'19	519	25	5					199			216	810	322	254	201	34	144	2,991	167	7
1919-'20	415	57	3					271			224	894	400	297	273	44	167	3,376	260	11
1920-'21	604	30	10					270			280	878	602	318	273	42	294	3,395	249	14
1921-'22	820	19	10					221			297	931	628	422	296	125	813	3,560	272	28
1922-'23	884	19	8					163			220	1004	656	460	401	118	457	3,626	341	31
1923-'24	978	12	7					161			167	1160	657	458	413	171	475	3,812	342	43
1924-'25	1120	14	14					139			47	1391	679	467	347	185	486	4,031	335	53
1925-'26	947	12	11					89				1494	725	512	344	182	384	4,019	341	51

RECORD OF ENROLLMENT AND DEGREES CONFERRED, 1863-1947—CONCLUDED

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
77	357	4,083	300	179	411	509	854	1311	19	19	71	71	52	52	18	18	959	1926-'27...	
70	428	3,878	418	167	500	584	819	1039	7	7	88	88	57	57	20	20	966	1927-'28...	
84	461	3,879	321	197	537	584	743	1084	9	9	70	70	51	51	18	18	920	1928-'29...	
91	469	3,987	548	432	554	581	787	1128	9	9	57	57	59	59	13	13	902	1929-'30...	
91	424	4,045	589	506	528	605	790	1077	7	7	50	50	52	52	24	24	995	1930-'31...	
119	486	3,928	688	572	572	633	752	933			54	54	29	29	12	12	1059	1931-'32...	
118	523	3,359	518	552	590	552	596	666			72	72					995	1932-'33...	
70	423	2,928	422	327	522	520	558	707			61	61					655	1933-'34...	
52	470	3,436	456	316	557	548	616	1081			52	52					722	1934-'35...	
72	478	4,261	572	391	574	660	820	1330			69	69					989	1935-'36...	
90	521	4,457	634	440	623	774	947	1326			64	64					917	1936-'37...	
92	637	4,695	537	409	787	810	972	1297			67	67					890	1937-'38...	
86	720	4,800	559	463	855	864	959	1246			61	61					911	1938-'39...	
79	710	4,910	622	490	871	926	958	1306			61	61					920	1939-'40...	
85	734	4,902	655	524	900	905	969	1284			40	40					935	1940-'41...	
68	617	4,479	590	417	748	807	926	1274			17	17					880	1941-'42...	
28	646	3,861	86	253	717	587	717	1234			21	21					1178	1942-'43...	
...	...	3,786	...	217	587	717	587	1234			21	21					1181	1943-'44*	
28	390	2,109	619	193	440	312	371	483			18	18					911	1943-'44...	
27	261	2,064	594	196	260	289	383	601			48	48					881	1944-'45...	
55	464	5,052	1784	331	468	524	771	1730			227	227					2785	1945-'46...	
102	779	7,814	2849	383	856	1019	1910	3453			183	183					2859	1946-'47...	

† 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, 1946-1947

SCHOOL	Men	Women	Total
School of Agriculture	1,254	9	1,263
Graduate students	94	.....	94
Seniors	114	1	115
Juniors	132	1	133
Sophomores	255	4	259
Freshmen	633	2	635
Special students	26	1	27
School of Arts and Sciences	1,976	805	2,781
Graduate students	112	52	164
Seniors	163	125	288
Juniors	188	154	342
Sophomores	361	233	594
Freshmen	1,122	216	1,338
Special students	30	25	55
School of Engineering and Architecture	2,674	22	2,696
Graduate students	63	.....	63
Seniors	256	3	259
Juniors	371	2	373
Sophomores	764	9	773
Freshmen	1,124	6	1,130
Special students	96	2	98
School of Home Economics	3	851	854
Graduate students .....	.....	56	56
Seniors .....	.....	128	128
Juniors .....	.....	171	171
Sophomores	1	217	218
Freshmen	2	276	278
Special students .....	.....	3	3
School of Veterinary Medicine	204	6	210
Graduate students	6	.....	6
Seniors	62	4	66
Juniors .....	.....	.....	.....
Sophomores	64	2	66
Freshmen	72	.....	72
Totals	6,111	1,693	7,804
Counted twice	531	103	634
Net totals	5,580	1,590	7,170
Summer Schools, 1947	2,266	593	2,859
Totals	7,846	2,183	10,029
Counted twice	1,965	250	2,215
*Net grand totals	5,881	1,933	7,814
Graduate School	368	180	548
Graduate students in regular sessions	217	105	322
Graduate stud. nts in summer schools	213	96	309
Counted twice	120	24	144
Net in summer schools only	93	72	165
Graduate students in absentia (included in above figures)	12	2	14
Undergraduate students carrying graduate work	58	3	61

* This total does not include 16 men in the Freezer Locker Short Course, 34 men and 1 woman in Education and Psychology Work Shops.

Degrees Conferred in the Year 1947

SCHOOL AND CURRICULUM (or Major Study)	Men	Women	Total
School of Agriculture (B. S.)	102	1	103
Agriculture.....	87	.....	87
Landscape Design.....	4	1	5
Milling Industry.....	11	.....	11
School of Arts and Sciences (B. S.)	140	124	264
General Curriculum.....	50	77	127
Business Administration.....	52	14	66
Industrial Chemistry.....	13	1	14
Industrial Journalism.....	10	17	27
Music Education.....	1	10	11
Physical Education.....	14	5	19
School of Engineering and Architecture (B. S.)	206	2	208
Agricultural Engineering.....	12	.....	12
Architecture.....	5	.....	5
Architectural Engineering.....	3	.....	3
Chemical Engineering.....	24	2	26
Civil Engineering.....	39	.....	39
Electrical Engineering.....	49	.....	49
Industrial Arts.....	4	.....	4
Mechanical Engineering.....	70	.....	70
School of Home Economics (B. S.).....	.....	138	138
Home Economics.....	.....	132	132
Home Economics and Nursing.....	.....	6	6
School of Veterinary Medicine (D. V. M.)	61	5	66
Veterinary Medicine.....	61	5	66
Total of undergraduate degrees.....	509	270	779
Graduate School (M. S.)	72	26	98
Agricultural Economics.....	4	.....	4
Agricultural Engineering.....	3	.....	3
Agronomy.....	12	.....	12
Animal Husbandry.....	2	.....	2
Applied Mechanics.....	1	.....	1
Architecture.....	1	.....	1
Bacteriology.....	2	.....	2
Chemical Engineering.....	7	.....	7
Chemistry.....	2	.....	2
Child Welfare and Euthenics.....	.....	4	4
Clothing and Textiles.....	.....	3	3
Dairy Husbandry.....	4	.....	4
Economics and Sociology.....	1	.....	1
Education.....	3	.....	3
Education and Psychology.....	2	1	3
Electrical Engineering.....	4	.....	4
English.....	1	1	2
Entomology.....	2	.....	2
Food Economics and Nutrition.....	.....	6	6
Geology.....	1	.....	1
History.....	3	1	4
History and Government.....	.....	1	1
Home Economics Education and Genl. Home Economics.....	.....	2	2
Horticulture.....	2	.....	2
Household Economics.....	.....	3	3
Industrial Journalism.....	1	.....	1
Institutional Management.....	.....	2	2
Machine Design.....	1	.....	1
Milling Industry.....	3	.....	3
Pathology.....	1	.....	1
Physics.....	2	.....	2
Poultry Husbandry.....	1	.....	1
Psychology.....	2	.....	2
Speech.....	.....	1	1
Surgery and Medicine.....	1	.....	1
Zoology.....	3	1	4
Graduate School (Ph. D.)	1	1	2
Bacteriology.....	1	.....	1
Chemistry.....	.....	1	1
Honorary Degrees	2	.....	2
Doctor of Science.....	2	.....	2
Total degrees conferred in 1947.....	584	297	881

Certificates Conferred in the Year 1947

SCHOOL AND CURRICULUM	Men	Women	Total
School of Agriculture.....	1	.....	1
Agriculture (Two-year).....	1	.....	1
School of Engineering and Architecture.....	20	.....	20
Industrial Draftsmen.....	1	.....	1
Industrial Technology.....	2	.....	2
Refrigeration and Air Conditioning.....	17		17
Total certificates conferred in 1947.....	21		21

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Dietetics and Institutional Management		Journalism		Totals		Counted Twice		Net Grand Totals	
M	W	Total	M	W	M	W	M	W	Total
26	25	51	595	261	17	4	578	257	835
34	35	69	691	328	34	10	657	318	975
1	2	3	1,445	465	121	29	1,324	436	1,760
			2,953	500	285	57	2,668	443	3,111
			152	31	16		136	31	167
3	120	123	5,836	1,585	473	100	5,363	1,485	6,848
2	13	15	2,063	497	1,855	226	208	271	479
			2,560				5,571	1,756	7,327
			309	217			217	105	322
			7	213	120	24	93	72	165
				12	12	2		3	61
				65	7		58		
5	133	138					368	180	548
2	11	13	2,876	8,406	2,467	352	5,939	1,936	7,875
			17	2,288			58	3	61
3	122	125	2,859				5,881	1,933	*7,814

Architecture, School of Engineering and Architecture..... 194

Certificates Conferred in the Year 1947

SCHOOL AND CURRICULUM	Men	Women	Total
School of Agriculture.....	1	.....	1
Agriculture (Two-year).....	1	.....	1
School of Engineering and Architecture.....	20	.....	20
Industrial Draftsmen.....	1	.....	1
Industrial Technology.....	2	.....	2
Refrigeration and Air Conditioning.....	17		17
Total certificates conferred in 1947.....	21		21

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Animal Husbandry.....	80
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Applied Mechanics.....	208
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