

**BULLETIN**  
**OF**  
**TEXAS TECHNOLOGICAL COLLEGE**

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Vol. XLII

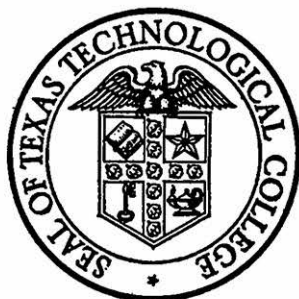
MAY 1966

No. 7

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*Forty-first Annual*  
**General Catalog**

*With Announcements for 1966-1967*



Twelve issues annually, January through December of each year by the College. Second-class postage paid at Lubbock, Texas 79409.

## **Texas Technological College Catalogs**

General Catalog: Part I, General Information and Degree Programs

General Catalog: Part II, Courses and Curricula

General Catalog (Parts I and II combined with the Official Directory)

Summer School Catalog

Graduate School Catalog

Law School Catalog

The Catalogs are separate numbers in the official bulletin series of Texas Technological College. This series forms a whole volume each calendar year, and the separate issues during the year are issue numbers in that particular volume. The General Catalog, the most important number in the bulletin series, has traditionally been numbered with its own serial number as well as with the volume and issue number. Thus, the 40th General Catalog for 1965-1966 was Volume XLI, No. 4, in the official bulletin series.

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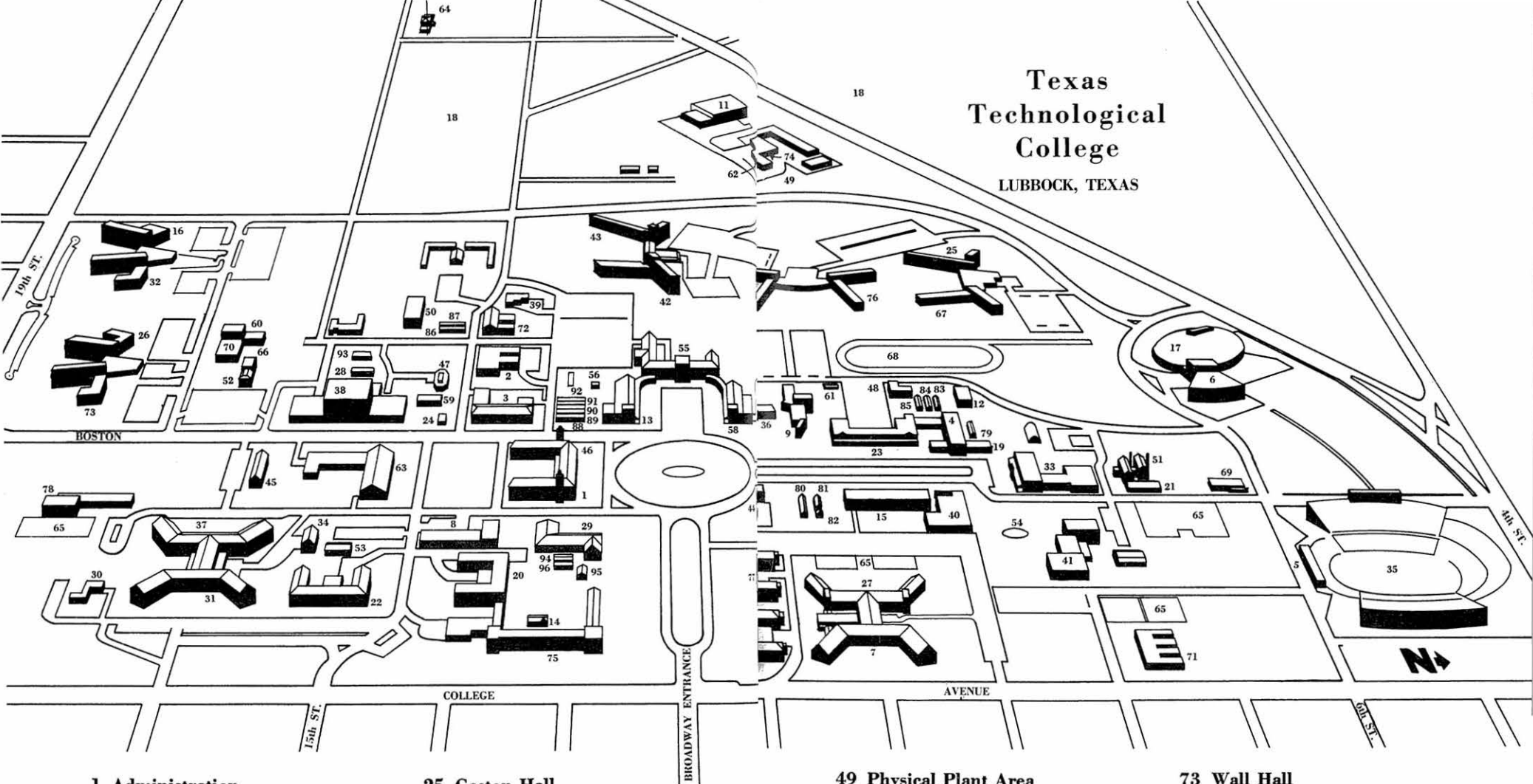
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LUBBOCK, TEXAS



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# College Calendar, 1966-1967

## *Forty-Second Annual Session*

### Fall Semester

1966

- Sept. 16      Friday. Fall semester begins.  
10 A.M., general faculty meeting.  
2 P.M., school faculty meetings.
- Sept. 18      Sunday. 10 A.M., residence halls open for occupancy;  
first meal, breakfast, Monday, Sept. 19.
- Sept. 19      Monday. Academic counseling, testing, and registration  
for entering freshmen. Academic counseling for all other  
undergraduate students entering Texas Tech for the first  
time.
- Sept. 20      Tuesday. Continuation of academic counseling, testing,  
and registration for entering freshmen. Registration begins  
for all other students, undergraduate and graduate.
- Sept. 21      Wednesday. Registration.

### Registration Calendar for Fall Semester, 1966

#### Monday, Sept. 19

8 A.M. to 12 Noon—Academic counseling and testing for entering freshmen who did not register during the summer.

1:30 P.M. to 5 P.M.—Registration for entering freshmen.

#### Tuesday, Sept. 20

8 A.M. to 12 Noon and 1:30 to 6 P.M.—Graduate registration and Scholastic Order Registration for upper classmen.  
Continue freshman registration.

#### Wednesday, Sept. 21

8 A.M. to 12 Noon and 1:30 to 6 P.M.—Continue registration for all students.

#### Thursday, Sept. 22

8 A.M. to 12 Noon—Continue registration for all students.

#### Saturday, Sept. 24

8 A.M. to 12 Noon—Registration, restricted to graduate students only who have been unable to complete registration after initiating it during the regular registration period.

Registration is not complete until fees are paid. Class and lab tickets must be stamped "PAID" by the College Cashier before a student may attend class.

There is no late registration.

- Sept. 22 Thursday. 8 A.M.-12 Noon, registration.  
8 A.M., orientation for entering freshmen and all other undergraduate students entering Texas Tech for the first time.
- Sept. 23 Friday. 8 A.M., classes begin.
- Sept. 24 Saturday. 8 A.M.-12 Noon, registration, restricted to those graduate students who have been unable to complete enrollment during the regular registration period.
- Oct. 10-12 Monday-Wednesday. Period for 1967 degree candidates to file information forms and photographs with the Placement Service.
- Oct. 22 Saturday. Homecoming.
- Oct. 24 Monday. Grade of W will be given for courses dropped on or before this date.
- Nov. 14 Monday. 9 A.M., midsemester grade reports due in Office of the Registrar.
- Nov. 23 Wednesday. 10 P.M., classes dismissed for Thanksgiving holidays.
- Nov. 28 Monday. 8 A.M., classes resumed.
- Dec. 21 Wednesday. 10 P.M., classes dismissed for Christmas holidays.

## 1967

- Jan. 3 Tuesday. 1 P.M., residence halls open. First meal, breakfast, Wednesday, Jan. 4.
- Jan. 4 Wednesday. 8 A.M., classes resumed.
- Jan. 9 Monday. Last day to drop a course.
- Jan. 15-19 Sunday-Thursday. Period of restricted social activities.
- Jan. 19 Thursday. Day of no classes.
- Jan. 20-27 Friday-Friday. Final examinations for the fall semester.
- Jan. 28 Saturday. Fall semester ends.
- Jan. 29 Sunday. Students without reservations for the spring semester must vacate residence halls by 10 A.M.
- Jan. 30 Monday. 9 A.M., grades and absence reports for fall semester due in Office of the Registrar.

## Spring Semester

- Jan. 30 Monday. Spring semester begins.  
10 A.M., residence halls open to new occupants.  
1:30 P.M., academic counseling, testing, and registration for entering freshmen. Academic counseling and testing for undergraduate students entering Texas Tech for the first time.

10 *College Calendar*

- Jan. 31      Tuesday. Registration.
- Feb. 1      Wednesday. Registration.
- Feb. 2      Thursday. Registration, 8 A.M.-12 Noon.
- Feb. 3      Friday. 8 A.M., classes begin.
- Feb. 4      Saturday. 8 A.M.-12 Noon, registration, restricted to those graduate students who have been unable to complete enrollment during the regular registration period.
- March 6      Monday. Grade of W will be given for all courses dropped on or before this date.
- March 14      Tuesday. Last day for June degree candidates to file information forms and photographs with the Placement Service.
- March 21      Tuesday. Last day for June degree candidates to order academic regalia and invitations at the Bookstore.  
Last day for degree candidates who expect to receive diplomas at June Commencement to pay graduation fee at Comptroller's Office.
- March 22      Wednesday. 10 P.M., classes dismissed for spring vacation.

**Registration Calendar for Spring Semester, 1967**

**Monday, Jan. 30**

1:30 P. M. to 5 P.M.—Academic counseling for entering freshmen and freshman registration.

**Tuesday, Jan. 31**

8 A.M. to 12 Noon and 1:30 to 6 P.M.—Graduate registration and Scholastic Order Registration for upper classmen. Continue freshman registration.

**Wednesday, Feb. 1**

8 A.M. to 12 Noon and 1:30 to 6 P.M.—Continue registration for all students.

**Thursday, Feb. 2**

8 A.M. to 12 Noon—Continue registration for all students.

**Saturday, Feb. 3**

8 A.M. to 12 Noon—Registration, restricted to graduate students only who have been unable to complete registration after initiating it during the regular registration period.

Registration is not complete until fees are paid. Class and lab tickets must be stamped "PAID" by the College Cashier before a student may attend class.

There is no late registration.

- March 30 Thursday. 8 A. M., classes resumed.
- April 3 Monday. 9 A.M., midsemester reports due in Office of the Registrar.
- April 25 Tuesday. Last day for June degree candidates to complete correspondence courses. (Instructors will file grades on correspondence courses by Wednesday, May 3.)  
 Last day to submit to an academic dean a request to graduate *in absentia*.  
 Last day for June degree candidates to remove grades of I and P. Instructors will send change-of-grade cards to the student's academic dean as soon as work has been completed.
- May 8 Monday. Last day to drop a course.
- May 17-23 Wednesday-Tuesday. Period of restricted social activities.
- May 19 Friday. Last day to submit to the Graduate Dean the final copy of thesis or dissertation and to pay the binding fee.
- May 23 Tuesday. Day of no classes.
- May 24-31 Wednesday-Wednesday. Final examinations for the spring semester.
- May 31 Wednesday. Residence halls dining rooms close with serving of the evening meal.
- June 1 Thursday. 10 A.M., residence halls close. Degree candidates may occupy rooms until 10 A.M., Sunday, June 4.  
 12 Noon, grades and absence reports for degree candidates due in Office of the Registrar.
- June 2 Friday. 3 P.M., final and official graduation lists due in the Office of the Registrar.
- June 3 Saturday. 8:30 A.M., Graduation rehearsal for all degree candidates.  
 Academic regalia must be obtained at the Bookstore prior to 12 Noon.  
 8 P.M., Commencement exercises.  
 Spring semester ends.
- June 5 Monday. 9 A.M., all grades and absence reports for the spring semester due in the Office of the Registrar.

### Summer Session, 1967

- June 6 Tuesday. Summer session begins.

### Fall Semester, 1967

- Sept. 15 Friday. Fall semester begins.



## The Meaning of College

Selecting a college is one of the most important choices a person ever makes. On this decision often depends not only how one spends four years of his life, but also the career he follows, the friends he chooses, and the interests he develops.

The person who contemplates going to college should look upon it as the greatest opportunity of his life. Here he is concerned solely with one thing, learning, and other affairs are subordinated to this. He will read many books (a lifelong habit). He will listen to lectures and take part in classroom discussions. He will perform experiments in the laboratory, write reports, and take field trips. All of these activities are designed to increase his knowledge, sharpen his intellectual powers, test his ideas. College is a place where the student learns to think for himself and to recognize ignorance and prejudice and to overcome them through knowledge and by submitting his beliefs to the test of reason.

Ideally, a college is a community of scholars joined together in the search for knowledge and truth. And at the heart of it lies the one essential element without which there can be no college: intellectual activity fostered by intellectual curiosity. Professors and students are united, as has so often been said, in the effort to roll back the frontiers of knowledge. Thus is knowledge passed on to succeeding generations, new knowledge created, and experts developed for the service of society—the three functions of a university.

Naturally, college offers other things as well. The student may expect to obtain the knowledge necessary for building a successful career and living a useful life. He will form lifelong friendships, become interested in new things (the fine arts or science, perhaps), and participate in athletics. If he has already decided on a career, his years at college will equip him to pursue it. If he is undecided about his life's work, college will enable him to explore many fields of knowledge before deciding on one. In either event his studies will broaden his understanding of the society of which he is a part and of the people who belong to it.

In short, college provides a bridge between protected childhood years and adult life with all of its complexities and responsibilities. It should provide a means for making the transition successfully.

The person contemplating going to college should understand that it is far from being merely a continuation of high school. He will be expected to study harder (about two hours of preparation for every hour spent in class), show a considerable amount of maturity, and assume the responsibility for making his own decisions and regulating his conduct. The student who ranked low in his high school class, who showed little interest in concentrated and sustained effort in his studies, or who scored low on the entrance tests given by the college, should consider seriously whether he wishes to accept the challenge implicit in his entrance into college work.

It is the aim of Texas Technological College to provide facilities and instructors so that students may benefit to the maximum extent possible from their college years. The advantage taken of these opportuni-

ties depends upon each individual, but it should be noted that competition for a place in the College is becoming stiffer each year. While the College has not yet had to restrict its enrollment, it does require its students to maintain increasingly high standards if they wish to continue.

## **Purpose of the Catalog**

This Catalog is issued in two parts. Part I, General Information and Degree Programs, is sent to all persons who inquire about the undergraduate programs at Tech. Part II, Courses and Curricula, is sent to all persons making application for admission. Parts I and II together with a third section, the official staff directory, constitute the complete Catalog.

Part I is designed to explain as clearly and as logically as possible the programs and facilities the College offers, who is admitted and how, regulations currently in force, and how to obtain a degree. Part II contains a complete record of undergraduate courses offered and should furnish answers to most questions that may arise after a prospective student has decided to enroll. It is suggested that the student become thoroughly familiar with the sections that apply to him and bring his copies with him when he comes to the College. Questions which cannot be answered should be directed to the Dean of Admissions or to the dean of the school in which the student plans to enroll.

## General Information

### Texas Technological College

Texas Technological College is one of the principal members of the institutions of higher learning of the State of Texas. The College provides educational opportunities for the youth of the state and continuing education for its citizens. The purpose of the College is to provide the undergraduate, the graduate, the pre-professional, and the professional training necessary to meet the academic, cultural, and professional demands of its students and of the State of Texas for their individual and collective development and progress.

#### History

Texas Technological College was created by the state legislature on Feb. 10, 1923, culminating many years of activity by groups of West Texas citizens, especially the West Texas Chamber of Commerce, in support of an institution of higher learning for the area. In addition to providing for a liberal arts school of the first class, the legislature also hoped to promote the utilization of cotton through an emphasis on textile engineering and agriculture.

A special locating board, after inspecting 37 West Texas towns, selected Lubbock, then having a population of approximately 15,000, as the site for the future school. The citizens of the town donated a campus of over 2,000 acres (since slightly reduced) and have continued to support the school with enthusiasm. The town is located on the fertile South Plains at an elevation of 3,250 feet above sea level and enjoys a dry, invigorating climate. Known as the "Hub of the South Plains," Lubbock has grown tenfold since Texas Technological College was built and now has a population of over 150,000.

The College first opened its doors to students in the Fall of 1925 with six buildings (several of which were still unfinished) and an enrollment of 910, which exceeded expectations. The original enrollment represented 220 towns of Texas and included 24 students from five other states. As Texas Tech reached its fortieth year, the student body of 1965 numbered 16,305, representing 686 Texas towns, 46 other states and 33 foreign countries. In the last decade alone, the school has experienced an increase of over 100 percent, and another doubling of the current student population is predicted during the next decade with an enrollment forecast of over 35,000 by 1975.

In 1965 there were 163 buildings housing the operation of Texas Tech and its six schools: Agriculture, Arts and Sciences, Business Administration, Engineering, Home Economics, and the Graduate School.

The original subdivisions for instruction (then called "Colleges") were Liberal Arts, Household Economics, Agriculture, and Engineering. These later became "divisions," and in 1956 the present designation of "schools" was adopted, with Liberal Arts becoming Arts and Sciences and Household Economics, Home Economics. Graduate instruction was begun in the Fall of 1927 within the "College" of Liberal Arts, and in 1935 the Graduate School was established. The School of Business Administration was created (as the "Division" of Commerce) in 1942.

The greatest growth came after World War II. Graduate programs in most of the academic areas were instituted, the Library was expanded, and the athletic program was incorporated into the Southwest Athletic Conference.

Texas Technological College is one of the youngest major universities in the nation, and a spirit of intellectual growth pervades the campus. Many of the special facilities for research, such as the Computer Center, the Seismological Observatory, and the Southwest Collection, are described on subsequent pages of this Catalog. The Library, heart of the academic world, is one of the finest in the Southwest, with strong collections in the humanities and the biological and physical sciences. Although retaining the words "Technological" and "College" in its name, the institution has become a true university.

Presidents of Texas Tech have been Paul Whitfield Horn (1925-1932), Bradford Knapp (1932-1938), Clifford B. Jones (1938-1944 and President Emeritus since 1944), William Marvin Whyburn (1944-1948), Dossie M. Wiggins (1948-1952), Edward Newlon Jones (1952-1959), and Robert Cabaniss Goodwin (1960-1966, acting president, 1959-1960). Grover E. Murray was selected by the Board of Directors to assume the presidency on September 1, 1966 (following Dr. Goodwin's retirement).

## **Physical Plant**

With 1,839 acres in one contiguous tract, the Texas Technological College campus is one of the largest in America. In addition, the College operates the Texas Technological College Research Farm near Amarillo, consisting of 5,821 acres of deeded land, and holds an agricultural use permit on another 8,000 acres.

In physical appearance the campus buildings are predominantly in the architectural style of the Spanish Southwest. The newer buildings, such as the strikingly modern Library, have been designed to harmonize with the original Spanish Renaissance motif. There are 163 buildings on the campus, 99 of which are considered permanent. The plant value has been set at \$61 million with an anticipated additional \$30 million in construction to be added by 1970.

The Texas Tech campus is also noted for its landscaping which presents colorful, well kept flower beds and tree-dotted lawns to complement its architecture.

## **Financial Support**

The College receives a major share of its money from appropriations by the legislature out of general revenue funds of the state. Income from tuition, fees, and services also forms an important part of college revenue. For the construction of academic and general buildings, funds are made available from a constitutional building amendment fund.

The Texas Technological College Foundation is a nonprofit corporation which serves as the gift-receiving agency of the College. Gifts and grants received through the foundation supplement state funds in supporting research, maintaining scholarships and fellowships, and helping to provide physical facilities and educational materials.

## **Organization of the College**

Texas Technological College is governed by a Board of Directors whose nine members are appointed by the Governor of the State of Texas to hold office for six-year periods; the terms of office of three Directors expire every two years. The Board is legally responsible for the establishment and control of the College's policies; it appoints the President who directs the operations of the institution. Based on the President's recommendations, the Board of Directors appoints all faculty and employees and fixes their salaries.

The President is responsible for carrying out policies determined in him by the Directors and for supervising the College's activities.

Upon recommendation of the faculty and under authority vested in him by the Board of Directors, the President also confers all degrees granted by the College. The President is assisted by a Vice President for Academic Affairs who oversees the educational programs of the institution, a Vice President for Business Affairs who is the fiscal manager of the College, and a Vice President for Development who has charge of the program of gifts and bequests. An Assistant to the President also serves as Secretary of the Board of Directors.

The Dean of Admissions and Registrar is responsible for the acceptance of students under the institution's admission policies, for maintaining students' records, and for directing the registration process.

The Dean of Student Life, the Dean of Men, and the Dean of Women are concerned with the general welfare of the student and are responsible for a variety of programs which the College considers appropriate to the educational development of the individual.

In the traditional pattern of a true university, Texas Technological College consists of six separate schools: the School of Agriculture, the School of Arts and Sciences, the School of Business Administration, the School of Engineering, the School of Home Economics, and the Graduate School. All undergraduate degree programs are conducted by the five undergraduate schools; all graduate degree programs, by the Graduate School. Each school is administered by a dean and his staff, and each (except the Graduate School) consists of a number of instructional departments which offer the courses taught at Texas Technological College. In addition there are a number of specialized divisions and departments, including the Extension Division, the departments of Military Science and Aerospace Studies, and others such as the Library and the Museum.

## Statistics

### Enrollment for the Fall Semester, 1965

	Freshmen	Sophomores	Juniors	Seniors	Graduates	Totals
Agriculture	388	241	257	299	70	1,255
Arts and Sciences	2,905	1,587	1,323	1,167	1,023	8,005
Business Administration	1,250	786	755	695	169	3,655
Engineering	974	516	364	441	102	2,397
Home Economics	367	276	179	140	31	993
<b>TOTALS</b>	<b>5,884</b>	<b>3,406</b>	<b>2,878</b>	<b>2,742</b>	<b>1,395</b>	<b>16,305</b>
Total Men — 10,138			Total Women — 6,167			

### Enrollment for the Spring Semester, 1966

	Freshmen	Sophomores	Juniors	Seniors	Graduates	Totals
Agriculture	400	260	252	273	88	1,273
Arts and Sciences	2,714	1,549	1,242	1,089	1,073	7,667
Business Administration	1,317	851	703	608	189	3,668
Engineering	862	468	329	444	91	2,194
Home Economics	403	282	155	126	30	996
<b>TOTALS</b>	<b>5,696</b>	<b>3,410</b>	<b>2,681</b>	<b>2,540</b>	<b>1,471</b>	<b>15,798</b>
Total Men — 9,996			Total Women — 5,802			

### Enrollment for the Long Session, 1965-1966\*

	Freshmen	Sophomores	Juniors	Seniors	Graduates	Totals
Agriculture	430	272	283	312	88	1,385
Arts and Sciences	3,149	1,733	1,432	1,222	1,332	8,868
Business Administration	1,411	889	818	724	206	4,048
Engineering	1,034	545	397	455	112	2,543
Home Economics	398	298	185	144	43	1,068
<b>TOTALS</b>	<b>6,422</b>	<b>3,737</b>	<b>3,115</b>	<b>2,857</b>	<b>1,781</b>	<b>17,912</b>
Total Men — 11,147			Total Women — 6,765			

### Enrollment for the Summer, 1965

#### FIRST TERM

	Freshmen	Sophomores	Juniors	Seniors	Graduates	Totals
Agriculture	65	39	97	168	60	429
Arts and Sciences	453	395	543	783	1,127	3,301
Business Administration	197	198	268	469	87	1,219
Engineering	96	99	115	198	70	578
Home Economics	647	62	67	79	90	945
<b>TOTALS</b>	<b>1,458</b>	<b>793</b>	<b>1,090</b>	<b>1,697</b>	<b>1,434</b>	<b>6,472</b>
Total Men — 3,507			Total Women — 2,965			

#### SECOND TERM

	Freshmen	Sophomores	Juniors	Seniors	Graduates	Totals
Agriculture	29	32	57	131	45	294
Arts and Sciences	294	282	403	687	700	2,366
Business Administration	133	129	210	392	84	948
Engineering	71	91	102	179	77	520
Home Economics	31	39	46	47	72	235
<b>TOTALS</b>	<b>558</b>	<b>573</b>	<b>818</b>	<b>1,436</b>	<b>978</b>	<b>4,363</b>
Total Men — 2,746			Total Women — 1,617			

### Summer Session, 1965\*

	Freshmen	Sophomores	Juniors	Seniors	Graduates	Totals
Agriculture	74	47	107	183	73	484
Arts and Sciences	581	486	614	881	1,371	3,933
Business Administration	239	224	296	500	107	1,366
Engineering	126	117	129	209	75	656
Home Economics	662	70	79	88	124	1,023
<b>TOTALS</b>	<b>1,682</b>	<b>944</b>	<b>1,225</b>	<b>1,861</b>	<b>1,750</b>	<b>7,462</b>
Total Men — 3,999			Total Women — 3,463			

\* Excluding duplicates.

**Attendance, 1925-1965**

TERMS					SUMMER TERMS				
Year	Fall	Winter	Spring	Long Session*	First Term	Second Term	Summer Session*	Exten- sion Totals**	
1925-26	910	897	704	1,043			336	1,379	
1926-27	1,378	1,357		1,535			677	2,212	
1927-28	1,412	1,401	1,278	1,682	858		965	3,886	
1928-29	1,810	1,693	1,570	2,088	1,118		1,298	4,206	
1929-30	2,051	1,917	1,730	2,353	1,139		1,318	4,787	
1930-31	1,983	1,919	1,769	2,319	1,336		1,556	5,102	
1931-32	1,823	1,813	1,669	2,155	1,368	945	1,606	4,772	
1932-33	1,950	1,939	1,758	2,332	1,082	738	1,288	4,453	

Year	SEMESTERS			SUMMER TERMS				Exten- sion Totals**
	Fall	Spring	Long Session*	First Term	Second Term	Summer Session*		
1933-34	1,943	2,067	2,361	1,596	1,096	1,970	1,236	5,567
1934-35	2,433	2,184	2,684	1,549	1,114	1,956	1,403	6,043
1935-36	2,441	2,338	2,748	1,470	886	1,678	1,522	5,948
1936-37	2,703	2,591	3,010	1,459	892	1,695	1,255	5,960
1937-38	3,154	2,998	3,494	1,580	986	1,839	1,067	6,400
1938-39	3,507	3,335	3,896	1,647	1,069	1,932	1,137	6,965
1939-40	3,890	3,636	4,246	1,485	1,014	1,800	1,198	7,244
1940-41	3,797	3,398	4,076	1,298	862	1,522	1,063	6,661
1941-42	3,549	2,906	3,824	1,376	1,035	1,653	1,050	6,527
1942-43	2,860	2,166	3,079	980	717	1,140	1,273	5,492
1943-44	1,696	1,454	1,928	904	705	1,060	1,354	4,342
1944-45	1,949	1,669	2,222	913	658	1,060	2,084	5,366
1945-46	2,443	3,220	3,744	2,310	2,011	2,670	1,791	8,205
1946-47	5,366	5,183	6,095	2,704	2,265	3,067	2,625	11,787
1947-48	6,114	5,572	6,689	2,728	2,332	3,097	3,059	12,845
1948-49	6,145	5,760	6,750	2,839	2,315	3,189	3,006	12,945
1949-50	5,844	5,463	6,511	2,733	2,161	3,127	4,212	13,850
1950-51	5,475	4,660	6,124	2,310	1,881	2,745	3,627	12,498
1951-52	4,906	4,554	5,634	1,957	1,547	2,389	3,282	11,305
1952-53	5,160	4,576	5,885	1,998	1,598	2,422	2,677	10,984
1953-54	5,418	5,066	6,274	2,124	1,676	2,570	2,838	11,682
1954-55	6,257	5,859	7,229	2,480	1,947	2,900	3,467	13,596
1955-56	7,156	6,430	7,992	2,793	2,384	3,286	3,151	14,429
1956-57	8,055	7,394	9,004	3,049	2,478	3,586	3,808	16,398
1957-58	8,566	7,739	9,524	3,004	2,472	3,563	4,218	17,305
1958-59	8,770	7,927	9,787	3,617	2,504	3,945	4,645	18,377
1959-60	8,866	8,121	9,558	3,661	2,700	4,350	5,061	19,269
1960-61	9,178	8,682	10,297	4,152	2,774	4,743	5,413	20,453
1961-62	10,212	9,669	11,419	4,757	3,202	5,534	4,380	21,333
1962-63	11,183	10,638	12,483	5,169	3,467	5,873	4,818	23,174
1963-64	12,036	11,676	13,600	5,326	4,125	6,442	4,623	24,665
1964-65	13,827	13,380	15,457	6,472	4,363	7,462	5,085	28,004
1965-66	16,305	15,798	17,912					

**Degrees Conferred, 1927-1965**

SCHOOL OF AGRICULTURE	
Total Degrees Conferred	3,408
SCHOOL OF ARTS AND SCIENCES	
Total Degrees Conferred	10,822
SCHOOL OF BUSINESS ADMINISTRATION	
Total Degrees Conferred	5,168
SCHOOL OF ENGINEERING	
Total Degrees Conferred	5,634

SCHOOL OF HOME ECONOMICS	
Total Degrees Conferred	2,003
THE GRADUATE SCHOOL	
Total Masters' Degrees Conferred	3,459
Total Doctors' Degrees Conferred	133
HONORARY DEGREES CONFERRED	
	24
TOTAL DEGREES CONFERRED	
1927-1965	30,651

**Summary of Degrees Conferred, 1927-1965**

Total Bachelors' Degrees	27,035
Total Masters' Degrees	3,459
Total Doctors' Degrees	133
Total Honorary Degrees	24
Total Degrees Conferred	30,651

Total Men Receiving Degrees	20,467
Total Women Receiving Degrees	10,184
GRAND TOTAL	30,651

\* Duplicates excluded.

\*\* Totals of Long Session, Summer Session, and Extension.



## **Campus Facilities**

### **College Bookstore**

The College Bookstore enables students to purchase textbooks, books for extension courses, supplies, and other equipment for classroom and laboratory work. It also provides such services as special ordering, wrapping packages for mail, repair service, and repurchase of usable textbooks. Conveniently located near the Administration Building, the College Bookstore is a modern self-service enterprise. It is self-supporting and is owned and operated by the College. All profits from its operation are returned to student welfare and recreation uses.

### **Computer Center**

The Computer Center is a facility designed and operated for the College as a whole. The center possesses both analog and digital computers; they are available to all departments for research and as teaching aids at both graduate and undergraduate levels. Current facilities include the following computers: an IBM 7040/1401 complex, two IBM 1620's, a Bendix G-15, two CRC-102-A's, a CRC-105, a Litton 20/40, an Electronics Associates TR-48 and peripheral punch-card equipment.

Many departments have incorporated computer programming in their course offerings. Computer theory is also available in specialized courses by some departments. Of considerable utility to faculty members and students are periodic one-week short courses in programming sponsored by the Center. A 2-hour course incorporating Fortran programming is available each semester and both terms of summer school.

### **Food Services**

The Student Union has three separate dining areas in the building to serve the students, faculty, and guests on the campus. The informal Snack Bar, serving breakfasts, hot and cold drinks, sandwiches and a la carte orders, is open approximately 14 hours a day during the week and from 2 P.M. until 10:30 P.M. on Sundays. The Cafeteria provides a variety of foods at reasonable prices during the lunch period, and assorted drinks and snacks are also available in this area from 8 A.M. until 2 P.M., five days a week. The Faculty Club serves coffee and rolls during the day and a cafeteria-style lunch five days a week to club members and their guests. The Union also provides a catering service for campus organizations and groups and is prepared to serve from five to 500 in one or more of the special dining areas in the building. Arrangements can be made at the Union office for buffets, banquets, luncheons, teas, coffees and picnic orders.

All students who live in the residence halls on the campus are provided meals by Residence Halls Food Service in food service areas. Three meals per day are served except on Sundays when no evening meal is served.

In order to minimize the cost to the student, Texas Tech Residence Halls Food Service maintains a Central Food Facility for warehousing of canned food, staple groceries, and frozen food; for preliminary



processing of produce; and for preparation of baked goods. The facility also houses the offices of Residence Halls Food Service and an experimental kitchen for recipe standardization and testing of foods for purchase.

There are food and soft drink concession machines in most buildings on the campus which are owned and serviced by contract vendors under the direction of the Office of the Business Manager.

### **Jones Stadium**

Clifford B. and Audrey Jones Stadium, named for Tech's President Emeritus and his wife who provided the initial funds to make possible its construction, was built in 1947 on the north side of the campus. In 1960 it was enlarged to a capacity of 41,500. Since state tax money is not used for intercollegiate athletics at Texas Tech, bonds were issued to help finance the stadium expansion.

Precedent-setting methods were used in this expansion. First, the entire east stands—more than 10 million pounds of concrete and steel—were moved 226 feet eastward. Then the area between the east and west stands was excavated to a depth of 30 feet—259,000 cubic yards of earth being removed. At the bottom of the man-made bowl, a new gridiron was laid out and new turf planted. Along the slopes created by the excavation new seats were constructed, bringing the stadium to its present capacity. About 15,000 more seats can be placed on the north slope, which has been utilized by overflow crowds five times in the past two years.

Although other stadiums are larger, few have more seating between the goal lines, since only 4,500 seats are in the south end zone, and few are as well lighted for night games.

### **KTXT-FM**

KTXT-FM is the College-owned radio station with studios in the Speech Building. Operating on a frequency of 91.9 mc with a power of 10 watts, the station provides a service of music, news, and special programs complementary to that provided by local commercial stations and provides a channel of communication within the Tech community and from the College to the Lubbock community. KTXT-FM is administered by the Speech Department and is managed and staffed by Tech students. Station facilities are also used by broadcasting students enrolled in some courses in the Speech Department.

### **KTXT Television**

Station KTXT-TV is an open channel, noncommercial, educational television station owned and operated by Texas Technological College and broadcasts on the frequency of Channel 5. The studio, transmitter, and 45-foot tower of KTXT-TV are located on the College campus. Broadcasts can be received over a 25- to 30-mile radius on conventional residential sets. KTXT-TV was constructed through the donation of equipment and funds by friends of the College and is staffed by professional personnel.

Courses for residence credit at the College are broadcast during each of the long semesters. Information on the televised courses is available through the Educational Television Office.

Educational Television is one of the teaching implements used by the College to serve the increasingly large enrollments and to enrich the instructional program. KTXT-TV, through the broadcast of programs on public affairs, science, and fine arts, assists the College in serving the cultural interests of the community.

The television station also provides laboratory facilities for students enrolled in courses related to television station management, operation, and studio production.

## **Library**

The collections of the College Library are intended to meet the research needs of faculty and students in support of the academic program and are housed in an air-conditioned building completed in 1962. Holdings now total nearly 775,000 items, including books, periodicals, government documents, and other materials. The Library maintains the open-shelf principle so that its holdings may be readily available to students and faculty alike; individual study tables are distributed throughout the stacks. To improve its services the Library maintains readers for microfilm and microprint, provides a rapid copy service, and has individual study rooms for faculty members engaged in research. There is space in the stacks and the reserve and reference rooms for a total of 709 readers. The Library is designated as one of the two Regional Depositories for U.S. Government Documents in Texas and as a depository of the Atomic Energy Commission. A recent acquisition of merit is the Mr. and Mrs. J. A. Koger History of Science Collection. Although the Library serves principally the faculty and students of the College, it is often able to supplement the services of other libraries in the area.

The Library is staffed by 24 professional librarians and 30 subprofessionals who provide service during the following hours: 8 A.M. to 12 Midnight, Monday through Friday; 8 A.M. to 5 P.M. Saturday; 2 P.M. to Midnight Sunday. Closed holidays. Summer terms: 7 A.M. to 10 P.M. Monday through Friday; 7 A.M. to 5 P.M. Saturday. Closed Sundays and holidays.

## **Municipal Auditorium-Coliseum**

The Municipal Auditorium-Coliseum is located on the north edge of the campus near Jones Stadium. The Auditorium will seat approximately 3,200 persons and the Coliseum approximately 10,000 persons. Although they are operated by the City of Lubbock, both are used frequently on a rental basis by the College for such occasions as convocations, graduation exercises, cultural events, basketball games, rodeos, and other special events.

## **Museum**

The Texas Technological College Museum is a cooperative enterprise between the College and the West Texas Museum Association. The

College has title to the buildings and collections, except for certain items of art, and administers the operations. Museum exhibits include three permanent galleries treating history, ethnology, archaeology, and geology, and one gallery, plus rotunda wall space, for rotating and temporary exhibits.

The Spitz Planetarium, located in a building behind the Museum, schedules demonstrations for school children during weekdays and holds public demonstrations at regularly scheduled intervals.

The Museum is open to students, faculty, school classes, and all interested visitors to Lubbock.

### **Placement Service**

The Placement Service is a central agency which brings together employers, faculty, and students. Its services are available to all students of the College regardless of major field of study or professional interest. Alumni and ex-students also may use the services.

Students who need part-time employment may seek assistance from the Placement Service to find positions with Lubbock business firms or with the College.

### **Pre-School Laboratory**

The School of Home Economics maintains a Pre-School Laboratory in support of the program in child development and family relations. This laboratory meets the professional and physical standards of the National Association for the Education of Young Children. The laboratory provides opportunities for college students to study young children of different ages and, at the same time, assists students in the understanding of their own development and behavior. Reservations for enrolling children in the Pre-School Laboratory are made through the Department of Home and Family Life.

### **Research Farms**

In addition to the 1,500-acre farm laboratory adjoining the main campus, the School of Agriculture operates the Texas Technological College Research Farm at Pantex, Texas, northeast of Amarillo. This farm consists of approximately 5,821 acres of deeded land and an agricultural use permit on an additional 8,000 acres of the Army Ordnance Plant.

This farm serves as a valuable facility for agricultural research and education, providing strength, flexibility, and prestige to the academic programs at Texas Technological College. Opportunities are provided at the Research Farm for studies in livestock, crops, soils, and water use.

A new center for scientific research in beef cattle improvement has been constructed at the Research Farm with a \$500,000 grant from the estate of Florence Lee and C. L. Killgore. Known as the Killgore Beef Cattle Center, this new facility will be the headquarters for all studies in the Panhandle area originating from the Research Farm.

Field days are held annually and special tours of the Research Farm are arranged at the request of interested individuals and groups.

## **Residence Halls**

The residence halls system is presently made up of 19 halls, 10 dining rooms, nine kitchens, a central food processing and storage facility, and administrative offices. In the Fall of 1966, the residence halls will house 3,001 single men and 4,174 single women students. More housing for women students is being planned on campus while off-campus residence halls for men are being constructed near the campus by various private groups.

In the Fall of 1966 Texas Tech's dormitories for women will be Doak, Drane, Horn, West, Knapp, Weeks, Wall, Gates, Hulen, and Clement halls and another recently constructed hall which is not yet named. Men students will be housed in Sneed, Gordon, Bledsoe, Gaston, Thompson, Wells, and Carpenter halls and one unnamed dorm.

In all of Tech's halls phone service is provided for every room; there is mail service to each hall, and there are separate large storage rooms for trunks and luggage. Laundry and drying rooms with automatic washers and dryers are available in the women's dorms while laundry and dry-cleaning service is available to men living in the residence halls.

In appearance the Tech dormitories range from the newer halls such as Clement, which has such features as a spacious contemporary formal lounge complete with baby grand piano and enclosed sunbathing area, to ivy-covered Doak Hall, located at the end of a long walk under an alcove of trees. Such conveniences as color television and elevators, plus quiet study areas are to be found in all the residence halls. Some of the newer dormitories are fully air-conditioned.

Each residence hall governing group at Texas Tech realizes the responsibility it has to provide a broad program of activities that is suitable for the needs of each hall resident. Some of the halls have organized tutoring systems and adviser lists for help in certain fields. Among the activities sponsored by the dorms are dances, movies, mixers, weekly devotionals, and dinners honoring residents with 3.00 grade-point averages. Participation in intramural sports activities is also encouraged.

## **Seismological Observatory**

The Seismological Observatory is located adjacent to the Science and Chemistry buildings. The Observatory has been in continuous operation since 1956 and since 1961 has been one of the stations of the World-Wide Standard Seismograph Network. It serves as the center of research in seismology and as a laboratory for graduate students in geophysics.

## **Southwest Collection**

The Southwest Collection is both the College archives and a major repository for historical manuscripts pertaining to the American Southwest.

Its quarters in the Social Science Building provide excellent facilities for study and research, as well as space for storage of noncurrent business records, individual manuscripts, biographical data, maps, microfilms, tape recordings, periodicals, photographs, newspapers, and a special library of Southwestern books.

Manuscript holdings alone total two million leaves, and data pertaining to cataloged collections are published by the Library of Congress in *The National Union Catalog of Manuscript Collections*.

All materials may be used by both students and the general public for research or reference, but due to the fact that preservation is inherent in the operation of such a repository, items cannot be removed from the quarters.

With a staff of nine, the Southwest Collection provides service during the following hours: 8 A.M. to 12 Noon and 1 P.M. to 5 P.M., Monday through Friday; 8 A.M. to 12 Noon Saturday. The Collection is closed each Sunday and on College holidays.

### **Speech and Hearing Clinic**

The Speech and Hearing Clinic, located in the University Theater Building, is designed primarily to provide clinical practicums for student speech pathologists and audiologists. Clinical cases of all ages are accepted upon referral from physicians, social agencies, and public or private schools.

In addition the clinic serves the needs of Texas Tech students with speech and/or hearing disorders. Some possibilities for therapy include articulation disorders, voice disorders, and speech disorders resulting from cerebral palsy, cleft palate, or brain injury. The clinic can give service in the selection of a hearing aid and provide the training necessary for the proper use of the hearing aid.

### **Student Health Service**

The Student Health Service is divided into the out-patient clinic and the College Infirmary. Both are staffed by physicians and nurses to care for those who become ill or are injured while on the College campus. The 32-bed Infirmary provides accommodations for those regularly enrolled students who become ill enough to require constant supervision. Students are admitted to the Infirmary by the College Physician and are under constant supervision of that physician and a registered nurse 24 hours a day. Students are entitled to the maximum of seven days without charge except for the cost of special medications, examinations, treatments, x-ray examinations, and special laboratory tests. For each day beyond the seven-day period, patients are charged a modest fee to cover the cost of food, drugs, supplies, and special services. However, in case the College Infirmary is filled to capacity, the College is not obligated to provide students with hospital services elsewhere.

The out-patient clinic serves those not requiring hospitalization. The clinic hours are 8 A.M. to 4:30 P.M., Monday through Friday, and 8 A.M. to 12 Noon on Saturday. Students are encouraged to come into the clinic during regular clinic hours since there is a medical doctor present if one is needed. Students may receive emergency treatment out-

side of clinic hours by reporting to the nurse on duty in the hospital, which is open 24 hours daily. Services of the College Physician and nurses are restricted to the Infirmary and clinic. House calls and dormitory calls are not made by the Student Health Service staff.

The Student Health Service also extends to regularly enrolled students the services of an allergy desensitization program, with hours for immunization being 12:30 to 3:30 P.M., Monday through Friday. It is understood that this is strictly done under the direction of the student's private doctor. A letter of authorization from the parents, as well as instructions from the private doctor, will expedite the desensitization program of the particular student involved.

The Student Health Service is neither staffed nor equipped to provide services for students requiring treatment by specialists or admission to a general hospital. The Student Health Service staff will notify the parents, guardian, or nearest relative of the patient believed to be threatened with a serious illness or thought to be in need of an emergency surgical operation. In such cases, the Student Health Service will provide the student with emergency treatment and assist in his transfer to a general hospital.

The Student Health Service cannot be responsible for the continued medical care of students suffering from chronic diseases such as epilepsy, heart disease, severe asthma, rheumatic fever, diabetes, nephritis, peptic ulcer, etc. Students suffering from such diseases should, upon their arrival in Lubbock, arrange to come under the care of a private physician. The College Physician will be glad to recommend competent doctors and specialists to give special care to students who need it and who are unacquainted with the physicians of Lubbock. The Student Health Service attempts to screen out all students who have communicable diseases and to control such diseases on the campus. Students may be required to have chest x-rays, immunizations, and skin tests before registration. The College requires that all students with communicable diseases be isolated until the danger of transmission has passed. Students are expected to obey the laws of the sanitary code of the city and the state. The College Physician may recommend the dismissal of any student who refuses medical advice or who willfully exposes his associates to a contagious disease.

The College is not responsible for the care of students during vacations. The Student Health Service will be closed while the College residence halls are closed. Special arrangements may be made for the continued care of patients who become ill before the vacation period begins.

Students who desire it may subscribe to a supplemental Student Accident and Sickness Insurance Plan, described in this Catalog in the section on Student Life.

## Student Union

The College has invested over a million and a half dollars to create a Student Union with 88,000 square feet of floor space for the leisure time activities of the campus community. This space is divided into two ballrooms, used for social functions and banquets, a snack bar that will

seat 280, a cafeteria with a capacity of over 200, a games area with billiards and table tennis, a faculty club, and seven meeting rooms of various sizes and decor that are used for meetings and catered meals. Along with the divided areas the building has several attractive lounge areas, two newsstands, and two check rooms for the convenience of all persons on the campus. The Union also provides such services as check cashing, mimeographing, poster making, lost and found department, food catering, and information.

Besides providing many facilities for student and faculty use, the Union sponsors programs to supplement the student's classroom education. To accomplish this the Union Program Council, made up of student committees, plans and presents various cultural, social, educational, and recreational programs which range from dances to fine arts festivals and from noon forums to hootenannies. All students, including freshmen, are eligible to work on the various Union committees and are urged to sign up for the committee of their choice each semester at registration.

Hours of operation of the Union are from 7:30 A.M. until 10:30 P.M. on weekdays, and until 11:30 P.M. on Friday and Saturday. The Union is open from 2 P.M. until 10 P.M. on Sunday. The Director of the Student Union is on the staff of the Dean of Student Life.

### **Texas Tech Press**

From its activation, the Texas Tech Press has done the printing and publishing for the College. This service includes books, magazines, booklets, catalogs, bulletins, programs, reports, announcements, letterheads, envelopes, office forms, registration material, and the student newspaper, *The Daily Toreador*. Another facility is the binding and re-binding of books, periodicals, and magazines for the Library and for other departments.

### **Textile Research Laboratories**

The main objective of the Textile Research Laboratories is to promote greater utilization of Texas cotton and fibers through a program of research projects. The laboratories consist of a pilot spinning plant, a fiber-testing laboratory, and chemical laboratory. Contract research is performed for the Cotton Research Committee of Texas, the Plains Cotton Growers, the United States Department of Agriculture, and others.

The pilot spinning plant, one of two spinning laboratories in the country, can process a bale of cotton completely through to the finished product, and is the only one with complete humidity and temperature controls from opening through the weaving process.

### **Traffic-Security Department**

This branch of physical plant operations is under the supervision of the Vice President for Business Affairs and is primarily responsible for enforcing parking regulations on the campus. The department registers all student and faculty vehicles and issues parking permits.



## University Counseling Center

The College maintains the Counseling Center to aid students in selecting careers, in deciding on major fields of study, and in solving personal problems. Under the auspices of the Center, a reading-study improvement course is available to Texas Tech students. High school graduates who plan to enter the College as well as Texas Tech students are eligible for the counseling service.

## University Theater

An educational facility of the Department of Speech, the University Theater serves the College community and the West Texas area in the presentation of a regular schedule of major dramatic productions. Plays are chosen so that each student generation has an opportunity to see in production a representative selection of the great plays of the past and the experimental works of modern playwrights.

Participation in productions affords laboratory experience for students in theater arts and is under the direction of professionally qualified members of the faculty of the Department of Speech. All students of the College are eligible to participate in University Theater productions.

Performances are presented in the new University Theater which was completed in 1964. Designed to afford a maximum of flexibility in production and enjoyment of performance, the Theater contains 395 seats in aisleless "continental" arrangement, creating an intimacy between audience and actors. The stage is adaptable to a variety of styles of production and includes in addition to facilities for proscenium staging, two side stages and a flexible forestage. Stage lighting equipment includes dimmers of the magnetic amplifier variety with controls located in an observation room in the rear of the auditorium. Backstage areas include a well equipped, fully soundproof, scene shop, costume shop, makeup laboratory, dressing rooms, offices, and the Ruth Pirtle Green Room, a multipurpose room providing space for receptions, meetings, classes, rehearsals, and intimate arena theater productions. The building is fully air-conditioned.

## West Texas Cooperative Audio-Visual Services

The West Texas Cooperative Audio-Visual Services is a cooperative owned and operated by the public schools of West Texas and by Texas Technological College. Educational films, tape recordings, and consultant services are available to departments of the College and to the public schools. Current distribution of these materials is reaching some 100,000 college and public school students.

Offices, the film library, and preview rooms are located in the Social Science Building. College instructors and public school teachers may borrow tapes or films from the audio-visual services for use in campus classes and may also reserve the audio-visual services projection room for use by their classes.



## Academic Affairs

William M. Pearce

*Vice President for Academic Affairs*

Mary E. Randall

*Administrative Assistant*

Office: Ad 121

The Vice President for Academic Affairs is responsible for the development and supervision of the College's instructional programs. He serves as chairman of the Council of Deans and of the Admissions Committee and is the principal adviser to the President on matters having to do with the academic activities of the institution.

The academic programs of the College are offered through five undergraduate schools and a graduate school. The principal administrative officer in each school is the dean, and schools are organized in departments as indicated below.

### School of Agriculture

Agricultural Economics; Agricultural Education; Agricultural Engineering; Agronomy and Range Management; Animal Husbandry; Dairy Industry; Park Administration, Horticulture, and Entomology.

### School of Arts and Sciences

Biology; Chemistry; Education; English; Foreign Languages; Geosciences; Government; Health, Physical Education, and Recreation for Men; Health, Physical Education, and Recreation for Women; History; Journalism; Mathematics; Music; Philosophy; Physics; Psychology; Sociology and Anthropology; Speech.

### School of Business Administration

Accounting; Business Education and Secretarial Administration; Economics; Finance; Management; Marketing.

### School of Engineering

Architecture and Allied Arts; Chemical Engineering; Civil Engineering; Electrical Engineering; Industrial Engineering and Engineering Drawing; Mechanical Engineering; Petroleum Engineering; Textile Engineering.

### School of Home Economics

Applied Arts; Clothing and Textiles; Food and Nutrition; Home Economics Education; Home and Family Life.

### Graduate School

## Enrollment in One of the Schools

Each student accepted for admission will enroll in one of the six schools of the College: Agriculture, Arts and Sciences, Business Administration, Engineering, Home Economics, or Graduate. The student should consult the dean of his school whenever any question arises con-

cerning his academic status. Matters specifically requiring the academic dean's approval include:

Course load and schedule.

Changes in schedule, including dropping and adding courses.

Withdrawal and honorable dismissal from the College.

Graduation requirements and candidacy for a degree.

### **Change of Schools**

A student who desires to transfer from one school of the College to another must first apply to the dean of the school in which he is then enrolled. A change from one school to another cannot be made effective during the semester in which the student is already enrolled; however, action may be initiated at any time to obtain a change which will be effective at the opening of the next semester.

### **Class Attendance**

Responsibility for class attendance rests with the student. Regular and punctual attendance at all scheduled classes is expected, and the College reserves the right to deal at any time with individual cases of nonattendance.

The effect of absences on grades is determined by the instructor, and when absences jeopardize a student's standing in a class, it is the responsibility of the instructor to report that fact to the student's dean. Excessive absences constitute cause for dropping a student from class; in such a case the grade of WF will be given. Should such an action reduce the student's course load to less than 12 semester hours, his extra-curricular privileges will be lost. In extreme cases the academic dean may suspend the student from the College.

There are no "excused absences," but when a student has a legitimate reason for being absent from class, such as illness or participation in an official trip or activity, he may establish his eligibility to make up work he has missed by presenting evidence to his instructor. Acceptable evidence includes written statements from the College Physician, the student's own doctor, or the sponsor of an activity officially recognized by the College.

### **Academic Integrity**

It is the aim of the faculty of Texas Technological College to foster a spirit of complete honesty and a high standard of integrity. The attempt of any student to present as his own any work which he has not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offender liable to serious consequences, possibly suspension.

#### **1. Cheating**

Dishonesty of any kind on examinations and quizzes or on written assignments, illegal possession of examinations, the use of unauthorized notes during an examination or quiz, obtaining information during an examination from the examination paper or otherwise from another

student, assisting others to cheat, alteration of grade records, illegal entry or unauthorized presence in an office are instances of cheating.

Complete honesty is required of the student in the presentation of any and all phases of course work as his own. This applies to quizzes of whatever length as well as to final examinations, to daily reports, and to term papers.

## 2. Plagiarism

Offering the work of another as one's own, without proper acknowledgement, is plagiarism; therefore, any student who fails to give credit for quotations or essentially identical expression of material taken from books, encyclopedias, magazines, and other reference works, or from the themes, reports, or other writings of a fellow student, is guilty of plagiarism.

## Grading Practices

A grade is assigned for all courses in which a student is regularly enrolled during any semester or summer term. Only through regular enrollment can a grade be earned. A passing grade may be earned only if the student is enrolled for the duration of the course; and a grade, once given, may not be changed without the approval of the student's dean.

The grades used, with their interpretations, are A, excellent; B, good; C, average; D, inferior (passing, but not necessarily satisfying degree requirements); F, failure; P, in progress; I, incomplete; W, withdrawal; WF, withdrawal failing. The letter R designates a course repeated to remove an I. Credit in a course can be earned only when the course grade is A, B, C, or D.

The grade P is given only when the work in a course extends beyond the semester or term; it implies satisfactory performance and is used primarily in thesis and dissertation courses.

The grade I is given only when a student's work is satisfactory in quality but, due to reasons beyond his control, has not been completed. It is not given in lieu of an F. The instructor assigning the grade will stipulate, in writing, at the time the grade is given the conditions under which the I may be removed. The I may be replaced by an R if the course is repeated. The appropriate grade will be given for the second registration.

The grade of W is given for a course officially dropped during the first five weeks of a term and for a course officially dropped after that time, provided the student's work is passing at the time the course is dropped.

After the first five weeks of a semester, the grade WF is given when the student's work is not passing at the time the course is dropped or when the student is required by his dean to drop the course for failure to attend the class.

An X is shown on the grade report in those instances where, for any reason, one of the above grades is not reported by the faculty.

### **Midsemester Reports**

After the first half of each semester, the Registrar mails a grade report to the parents of each student. Since the grades reported do not become a part of the student's permanent record, the report is only informative. The student also receives a copy of this report.

### **Semester Grade Reports**

At the close of each semester and each summer term, final course grades are mailed to parents. A copy of his course grade report is prepared for each student. Parents' copies of grade reports are mailed to the address which students indicate on registration forms at the time of enrollment. Changes in the mailing address for grades must be filed on the proper form provided in the Registrar's Office.

### **Grade Points**

The grades A, B, C, and D carry with them grade points of 4, 3, 2, and 1, respectively, for each semester hour of credit value of the course in which the grade is received. All other grades have no grade points assigned them.

### **Grade-Point Averages**

The grade-point average for a semester is determined by dividing the total number of grade points acquired during that semester by the total number of semester hours of all courses in which the student was registered in that semester, exclusive of courses in which a grade of W is received. In the same manner, the overall grade-point average is obtained by dividing the total number of grade points earned in all courses taken at this College by the total number of semester hours of all courses for which the student has registered at this College, exclusive of courses in which the grade of W is received. Repeated registrations are counted in the total.

A student may repeat courses for credit with the prior approval of his academic dean. When a course is repeated, only the grade made in the last registration is used in calculating the grade-point average for meeting graduation requirements.

With the approval of the student's dean, a grade-point deficiency in degree requirements may be made up by earning sufficient grade points in additional courses.

Only courses taken and grades received at this College are used in calculating grade-point averages.

### **Honors Studies**

A program of Honors Studies is available to qualified freshmen and upperclassmen in the schools of Arts and Sciences and Business Administration. Entering freshmen are invited to participate in the program on the basis of the Scholastic Aptitude Test or other College Entrance Examination Board scores, high school records, and interviews. Students other than entering freshmen who have achieved outstanding academic records while in college are also eligible for participation.

The aim of Honors Studies is to provide opportunities for maximum development of the potential of superior students in order that they may realize the satisfaction of achieving the intellectual maturity of which they are capable and may more effectively prepare to share the responsibilities of academic excellence in the classroom and of intellectual leadership in later years. The achievement of this aim is facilitated by providing small Honors sections, increased counseling, and special departmental offerings. To enhance their grasp of their own fields of study and to increase their understanding of the interrelatedness of different fields, Honors students, through their own organizations, initiate and sponsor extracurricular colloquia.

Honors Studies are administered by the dean of each school through a Faculty Honors Council and a Director of Honors, who is responsible for the coordination and the direct operation of the program. Once a student has entered into Honors Studies, his record will be reviewed periodically by his major adviser and by his school Honors Council both to counsel him and to determine whether he should remain in the program.

To continue in Honors Studies, students must maintain the grade averages and take the minimum number of Honors courses (which are identified on transcripts with the letter "H") as prescribed by their schools and departments. Graduation in Honors Studies presupposes that students have met all such curriculum and grade average requirements.

### **Dean's Honor List**

A full-time undergraduate student who earns a grade-point average of 3.00 or higher during a semester is eligible for the Dean's Honor List of the school in which he is enrolled during that semester. Attainment of a place on this roll is indicative of high scholastic achievement.

### **Annual Recognition Service**

A Recognition Service each spring honors those students who rank scholastically in the upper 3 percent of their class within their school during either of the preceding two semesters and who have a grade-point average of 3.25 or higher in the other semester. Students who are honored for the first time receive Individual Honors; those recognized for the second time receive Class Honors; those recognized for the third time receive School Honors; and those recognized for the fourth time receive College Honors and are awarded a gold key by the College.

When two-thirds of the members of a student organization earn grade-point averages of 3.00 or higher during a semester, the organization is honored at the next Recognition Service.

Also recognized are undergraduate students who hold scholarships awarded by the College and who have maintained a grade-point average of 3.00 or higher during the spring and fall semesters preceding a service.

At the annual Recognition Service the College Awards Board, a student-faculty committee, recognizes outstanding individual students and student organizations for services and performances which bring distinction to the College. Also honored at the Recognition Service are

students who have made significant contributions in leadership and those who have earned letters in intercollegiate athletic competition.

### Graduation With Honors

Those members of a graduating class who complete their work with a grade-point average of 3.80 or above are graduated *With High Honors*, and those who complete their work with a grade-point average of 3.50 to 3.80 are graduated *With Honors*. Appropriate designation of the honor is made on the diploma and on the commencement program. No person is considered for graduation honors unless he has completed at least one-half of his degree credit at this institution, and the half must include the senior year. Only grades earned at this College are counted.

### Suspension and Retention

Certain principles have been utilized in developing the regulations governing eligibility to re-register, suspension by the academic dean, and reinstatement following suspension. These principles include:

1. The College's belief that, so long as its resources permit, each bona fide applicant should be given opportunity to demonstrate his ability to perform acceptable work.
2. The belief that the early assumption of responsibility for one's own actions is a part of the educational process.
3. The belief that the College has a particular obligation to the able student.
4. The recognition that discouragement and mistakes are more likely to occur during the early stages of one's college career than in later semesters.

In addition, the regulations reflect the College's experience that a student's performance over a calendar year will likely provide a better measure of his ability than will his performance in a single semester. Finally, the standards become progressively more rigorous as the student moves toward his degree objective.

#### Regulations

1. Eligibility to re-register: The determination of a student's eligibility to re-register is made only at the close of the spring semester and depends upon (1) the semester hours passed in the spring semester or in the last semester attended, and (2) the total number of semesters in which the student has registered in all colleges attended.

a. The requirement for a student who originally registers for 12 or more semester hours during the last semester attended is:

(1) The student who has registered for only one semester in college must earn at least 6 semester hours of credit.

(2) The student who has registered for two, three, four, or five semesters must earn at least 9 semester hours of credit in the last semester attended.

(3) The student who has registered for six or more semesters must earn at least 12 semester hours of credit in the last semester attended.

b. The student who originally registers for less than 12 semester hours in his last semester in attendance must earn credit for at least half of the semester hours for which he registers during that semester.

2. Suspension by the academic dean: Any student who fails to perform his academic duties satisfactorily may be suspended by his academic dean at any time.

3. Period of suspension: A student suspended by his academic dean, or a student who is not eligible to re-register because of his academic record as indicated in Section 1, a or b, above, may not apply for reinstatement until the following periods have elapsed:

a. First suspension: one semester.

b. Second suspension: two semesters. Following this interval, approval by the Committee on Admissions must be obtained before the student may re-register.

A student's application for reinstatement is evaluated on the basis of his record at the close of the last semester attended, or, in the case of a withdrawal, on his record at the time of his withdrawal from college.

A student seeking reinstatement must apply to the Dean of Admissions at least 30 days before the opening of the semester for which he desires to register. As a condition of reinstatement the student may be required to undergo such testing and counseling as his academic dean considers necessary.

### **Withdrawal From College**

A student who finds it necessary to withdraw from the College before the end of a semester or summer term must apply to the dean of the school in which he is enrolled for permission to withdraw with honorable dismissal. A student under 21 years of age should first consult his parents and should secure from them a written statement showing that he has their permission to withdraw. When the student's academic dean is convinced that withdrawal is necessary, the student will receive honorable dismissal from the College and his parents will be notified. Such withdrawal protects the student in case he desires to return to this institution or to transfer to another. The grades of W or WF are recorded in keeping with the regulations set forth in the section above on Grading Practices and are based on the student's standing on the last day of enrollment in each course in which he is registered.

A student who withdraws from a residence course with a grade of W may complete that course through the Division of Extension by registering for correspondence work, provided the course is regularly offered through correspondence and provided the instructor who taught the residence course is assigned as the correspondence instructor. Credit received through the process just described is recorded as correspondence credit.



## Admissions and Registration

Floyd D. Boze

*Dean of Admissions and Registrar*

Don L. Renner

*Assistant Dean of Admissions and Registrar*

Florence Evelyn Clewell

*Assistant Registrar and Coordinator of Space*

Donald Cates

*Director of Undergraduate Admissions*

Donald Elmer Carter

*Administrative Assistant*

Michael Gene Bernard

*Administrative Assistant*

Offices: Ad 150-160

Texas Technological College seeks to admit mature students who will benefit most from its programs, and evidence of satisfactory preparation for college work must therefore be presented. As a state-supported institution, the College recognizes its responsibility to provide educational opportunities to those who show ability and desire to benefit therefrom. Prospective students are advised that persons of marginal ability stand little likelihood of making satisfactory progress in this institution. Extensive records of past performances indicate that students who either ranked in the lower half of their high school graduating classes or received a score below 800 on The Scholastic Aptitude Test of the College Entrance Examination Board will, in all likelihood, fail to make satisfactory progress toward a degree at Texas Technological College.

The Dean of Admissions controls admission to the undergraduate schools of the College; correspondence concerning such matters should be directed to him at Texas Technological College, Lubbock, Texas. The Office of the Dean of Admissions and Registrar is located in the northwest corner of the ground floor of the Administration Building.

### Freshman Admission Procedure

To enter the College as a freshman, an applicant takes the following steps:

1. Applies for admission on forms furnished by the Dean of Admissions.
2. Provides the Admissions Office with an official transcript of his high school record. The applicant must assume the responsibility for having his records forwarded to the Dean of Admissions.

The deadline for applying for admission is August 31, but new students are urged to submit their applications and transcripts to the Admissions Office by July 1. If a person desiring admission waits until after August 20 to file his application, it will not be possible for the Admissions Office to notify him by mail of his admission status. A student desiring early notification of acceptance may request his high school to submit a copy of his transcript at midterm of his senior year.



This transcript must show grades through midterm and list the courses in which he will be enrolled during the last half of the year. Tentative admission may then be granted pending successful completion of high school. Upon graduation, an applicant for admission must submit a supplementary transcript showing final grades and graduation date. While an early application cannot assure preferential treatment, late applicants are more likely to have difficulty enrolling in certain areas for which there is a heavy demand.

3. Files a health data form. This form is to be completed by a physician and must include a statement of successful smallpox vaccination within five years prior to registration. The requirement for this vaccination may be waived on written recommendation by the family physician.

4. Furnishes scores on the Scholastic Aptitude Test of the College Entrance Examination Board.

5. Decides which school or degree program he wishes to enter. A student needing advice or counseling may come to the campus before registration begins and consult with the dean of his school.

When an applicant's file is complete, that is, after his completed application form and all necessary supporting transcripts and records have been received, the application will be evaluated. Normally the applicant will be notified of his acceptance or rejection before he reaches the campus.

6. Reports to the College campus on the day indicated in the official College Calendar and in notices sent in reply to his application. All entering freshmen must report at the beginning of the freshman orientation period.

7. Pays fees on the days indicated for registration.

### **Freshman Preregistration Guidance Testing and Orientation**

All entering freshmen are required to assemble at the College for a period of orientation prior to actual registration (see College Calendar). This program has been developed to assist the student in selecting a program of study and to aid the faculty and administration in guiding him.

Along with other credentials in support of their applications for admission, beginning students are required to submit their scores earned on the College Entrance Examination Board Scholastic Aptitude Test.

Test application blanks are supplied by the College Entrance Examination Board, Post Office Box 592, Princeton, New Jersey. High school counselors and principals usually secure the application blanks for those wishing to take the tests.

It is the responsibility of the prospective student at the College to take these tests during his senior year in high school or during the following summer. They may be taken at the College during the freshman orientation and testing periods preceding the fall and spring registration periods, but students who wait until then to take them will be delayed in registering.

## Uniform Minimum Requirements for Admission

Graduation from an accredited high school is the first entrance requirement for beginning freshmen. The following units are the uniform requirements for admission to the College:

1. English .....	3
2. Mathematics* (algebra, geometry, trigonometry) .....	2
3. Social science .....	2
4. Laboratory science .....	1
5. Electives .....	7

## Special Admission Requirements and Removal of Deficiencies

For entrance to the schools of Agriculture, Business Administration, and Home Economics there are no further admission requirements beyond those listed above.

Students applying for entrance to the School of Arts and Sciences will be accepted if they meet the uniform requirements listed above. However, those who plan to major in chemistry, geosciences, mathematics, or physics must present 2 units in algebra and 1 in plane geometry. Students entering these fields must also submit scores made on the Mathematics, Level I (Standard), Test (of the College Entrance Examination Board) as part of their credentials; those who do not present these scores will be required to remove this deficiency during the first two semesters of attendance at the College.

Acceptance of freshmen by the School of Engineering is based upon the general requirements for admission to the College; however, because of the specialized nature of the programs offered, it is recommended that the student present the following units:

1. English .....	4
or	
English .....	3
Foreign Language .....	2
2. Algebra .....	2
3. Geometry .....	1
4. Trigonometry .....	$\frac{1}{2}$
5. Physics .....	1

Chemistry and advanced algebra or mathematics analysis, also, are strongly recommended. Physics is not a requirement for majors in either advertising art and design or the design option in architecture. Trigonometry is not required for advertising art and design.

In order that those applicants displaying clear evidence of intellectual competence and professional promise may be accepted, even though they do not meet the above recommendations, special provisions have been made for their entrance.

Students planning to major in any of the engineering programs or the architecture-construction option are advised to take, in addition to

\* One unit in general mathematics may be accepted as a substitute for one of the required units in mathematics toward entrance in the schools of Agriculture, Business Administration, or Home Economics, and for nonscience majors in Arts and Sciences. Courses falling under the description of arithmetic are not accepted as one of the uniform required units in mathematics.

the Scholastic Aptitude Test (SAT) required of all students admitted to the College, the Mathematics, Level I (Standard), Test, which is also offered by the College Entrance Examination Board. This test is required of students wishing to begin their first year of mathematics with analytics and calculus. Those who make low scores or who do not take the test will follow a special program for their first year in the School of Engineering. The Mathematics, Level I (Standard), Test should not be taken until the student has completed, or nearly completed, the second year of high school algebra and trigonometry, since both are included in this test.

A student who is admitted with deficiencies—either in tests or in courses—is required to remove these during the first two semesters of attendance at the College.

### **Credit by Advanced Placement and Achievement Examinations**

Students who demonstrate by examination that they have gained a competent knowledge of the content of certain courses at this College, either in high school or by independent study, may be granted credit for this proficiency. The examinations used for credit placement of entering freshmen are provided by the College Entrance Examination Board (CEEB) and are taken in high school or are locally developed and given on the campus at the time of registration.

#### **Chemistry**

Upon request by a student, the Department of Chemistry will give an examination in any course offered by the Department. Satisfactory achievement on this examination or examinations permits the student to receive credit for the course or courses involved.

#### **English**

Entering freshmen who receive a rank of 4 or 5 on the CEEB Advanced Placement Examination or make a score of 650 or above on the Achievement Examination and submit a writing sample judged superior will receive credit for 6 hours of freshman English.

Entering freshmen who take the CEEB Advanced Placement Examination and are awarded a rank of 3 or who take the Achievement Examination and make a score of 575 or above and submit a writing sample judged superior, may elect either (1) to receive credit without grade for English 133 and enroll in English 134 to complete their requirements in freshman English, or (2) to enroll in proficiency sections of sophomore English in lieu of freshman English and complete their required hours of English in advanced courses.

#### **Foreign Languages**

Students who satisfactorily complete a high school program of advanced study in French, German, Latin, or Spanish under the CEEB Advanced Placement Program may take the Advanced Placement Examination and may receive 3 to 6 hours of college credit. Such students should request that the results of their examination be sent to the Department of Foreign Languages where they will be reviewed and where credit will be granted according to the following criteria:

1. Students making scores of 2 and 3 will receive 3 hours of credit equivalent to the 331 course in the language presented.
2. Students making scores of 4 and 5 will receive 6 hours of credit equivalent to the 331 and 332 courses in the language presented.

### **History**

Entering freshmen with scores of 4 or 5 on the CEEB Advanced Placement Examination in European History will be granted credit in History 131 or 132 as appropriate. Examinations with the score of 3 will be reviewed by the departmental faculty.

### **Mathematics**

Competence necessary to secure credit in mathematics may be demonstrated in one of the following methods:

1. Scores of 3, 4, or 5 on the CEEB Advanced Placement Examinations in those areas for which such examinations are nationally available.
2. Scores of B or better on locally devised examinations equal to the final examinations for courses in those areas for which Advanced Placement Examinations are not nationally available.

### **Physics**

Credit will be given for either Physics 141-142 or Physics 143-241 to students who make a score of 3 or better on the Advanced Placement Examination.

## **Admission of Out-of-State Students**

An applicant for admission who is not a legal resident of Texas (for tuition purposes) must meet the following minimum requirements:

1. Have been graduated from an accredited high school with at least the 15 units listed above under Uniform Minimum Requirements for Admission.
2. Have ranked in the top half of his high school graduating class.

## **Admission of Mature Students on Condition**

A mature student (21 years of age or over) who did not graduate from high school and has not attended another college may be admitted conditionally as a freshman without having met the formal requirements for admission. Such admission is granted only to an applicant who shows that he is above average in ability and who has not recently attended high school. His admission must be recommended by the Committee on Admissions. The applicant must forward a complete transcript of his high school credits when applying for admission as a mature student. He should apply for an interview at the Admissions Office a minimum of 30 days before the opening of the semester. He may then be directed to the Counseling Center to take the tests required for this type of admission.

Admission of a person as a mature student places him under special obligation to justify the exception made. He will be assigned to the

program of his choice, but neglect of work or other evidence of lack of serious purpose on the part of a person with this standing will be sufficient cause for withdrawal of his status as a student. A grade average of at least a C (2.00) on the first 30 hours of residence work will absolve all admission requirements.

### **Admission of Foreign Students**

Graduates of foreign secondary schools who believe they have completed the equivalent of at least an American high school diploma may apply for admission to Texas Technological College by writing to the Dean of Admissions. With the official application form, foreign applicants should enclose original documents, or official certified copies, indicating the nature and scope of their educational program. A student whose native tongue is not English should also present evidence that he has enough competence in the use of the English language to enable him to pursue a regular program of study in an American university. Texas Technological College does not offer special courses in English for students deficient in that subject.

Foreign students who are not in the United States at the time of application should apply a year in advance. A foreign student will not be admitted to the College until he can prove his ability to support himself financially (a minimum of \$2,000 for the academic year in addition to travel money is necessary).

### **Admission From Other Colleges and Universities**

Undergraduate students who have attended another accredited college, who are in good standing there, and who are not under disciplinary or scholastic difficulty may be accepted for admission to Texas Technological College if their performance at the other institution meets the standard at Texas Tech.

The student seeking admission from another college must present official transcripts of his entire academic record, both high school and college. His record must meet the minimum standards in one of the following categories:

- A. If he originally enrolled for 12 or more semester hours during the last semester in attendance, and:
  1. Has registered for only one semester in college, he must have earned at least 6 semester hours of academic credit with grades of C or better.
  2. Has registered for 2, 3, or 4 semesters, he must have earned at least 9 semester hours of academic credit with grades of C or better during his last semester.
  3. Has registered for five or more semesters, he must have earned at least 12 semester hours of academic credit with grades of C or better during his last semester.
- B. If he originally registered for less than 12 semester hours during his last semester in attendance elsewhere, he must have passed one-half of his hours with a grade of C or above during the semester.

Students whose academic standing is so low during their last semester of attendance at Texas Technological College that they are no longer eligible to continue may not gain readmission by attending a summer session at another institution.

The student seeking admission from another college who presents less than 15 semester hours of transferable credit must submit scores earned on the Scholastic Aptitude Test of the College Entrance Examination Board and an official copy of his high school transcript.

### **Transfer of Credits From Other Colleges and Universities**

Since the College offers a number of degrees which require the fulfillment of widely differing curricula, acceptance of credits from another college by the Admissions Office does not guarantee the use of all these credits in a given curriculum. The usefulness of transferred credit is determined by whether or not the work is equivalent to work in the curriculum or to permissible electives. After being admitted to the College, the student should consult the dean of the school in which he plans to enroll to determine which credits will be acceptable in his particular program.

At the option of the academic dean, transferred courses with a grade of D or the equivalent may not be accepted for credit toward requirements for the degree. Transfer credit in physical education activity courses, or substitutes for them, is accepted to the extent that it meets degree requirements, but grade points accumulated in such courses cannot be applied to reduce a deficiency of grade points in other subjects.

Students transferring credits from a nonaccredited institution must validate all such credits by earning a 2.00 grade average on the first 30 hours of residence work at this College. The student may be dropped at any time he falls below a 2.00 average during the first 30 semester hours of work at Texas Technological College. Students inadmissible to this College at the time they were admitted to a nonaccredited institution must pass required testing before being admitted here.

A former student of the College who has afterward attended another institution will be considered as a transfer student when applying for readmission and will be required to meet the standards for such students.

### **Admission of Graduate Students**

Full details of admission requirements for those wishing to enter the graduate program at Texas Technological College are published in the *Graduate Catalog*, which is issued annually. A copy may be secured from the Office of the Dean of Admissions. It may be noted here, however, that those who wish to enter the graduate program in order to work toward a master's or doctor's degree will be required to take the Aptitude Test of the Graduate Record Examination. This may be done before enrollment or at the first examination date thereafter.

### **Concurrent Registration at Texas Technological College and Other Institutions**

A student registered at Texas Technological College who wishes to register concurrently at another institution must obtain written approval from his academic dean at Texas Technological College. This approval applies to all residence courses, extension courses, correspondence courses in progress elsewhere at the time of registration, and to those begun during the semester.

A student registered at another institution who wishes to enroll concurrently for credit at Texas Technological College must have written approval from his institution and make application for concurrent registration with the Dean of Admissions at Texas Technological College.

In no case will a student at the College be authorized to register concurrently for more than one course per semester at another institution, nor will a student from another institution be permitted to register concurrently for more than one course per semester at Texas Technological College.

Concurrent registration is not permitted during the summer session.

### **Registration**

Each semester and summer term opens with a registration period during which the formal process of enrollment in the College is completed. Prior to registering for each semester or summer term, each student who completes the admission process as explained above is furnished registration materials with his notice of admission. These materials include the application for a registration permit—packet and a form on which the student must indicate his local Lubbock address.

The student should complete and return these forms to the Registrar as soon as possible so that he may have a Permit to Register processed and be assigned a registration time. If time permits, the student will be notified by mail when to report for registration. Duplicate permits are not processed until the last day of registration, regardless of the registration time on the original permit.

### **Scholastic Order for Registration**

All undergraduate students' registration times are assigned according to their total hours passed and grade points (NOT GRADE-POINT AVERAGE), as determined at the end of each spring semester. All hours passed and grade points earned are accumulated to determine the "Registration Number" for each student. The students with the higher registration numbers are given priority. The registration time assigned for the spring semester is the same as the student had for the fall semester. (THIS INCLUDES OTHER THAN SCHOLASTIC ORDER TIMES ASSIGNED IN THE FALL AS A RESULT OF LATE ADMISSIONS AND DATA FURNISHED LATE BY THE STUDENT FOR THE FALL SEMESTER.)

Registration numbers for transfer students are equitably assigned on a comparable basis with Tech students according to the number of hours accepted in transfer to Texas Tech (IF TRANSCRIPTS ARE ON FILE WHEN ACADEMIC RECORDS ARE ACCUMULATED).



Graduate students and ENTERING freshmen are not included in the scholastic order of registration time assignments. (These are assigned on first-come-first-served basis and according to the counseling and scheduling load as determined by the College administration.)

Exceptions to any of the registration times cannot be made. Therefore, the student is reminded not to ask to have his time changed.

### **Matriculation Number**

The MATRICULATION NUMBER is the student's Social Security number. This number must be furnished on all forms where it is requested, as it is the primary means for maintaining students' academic records. Prospective students who do not have Social Security numbers should apply through their local post offices (or Social Security offices) in ample time to secure such numbers prior to application for admission.

### **Stop Enrollment**

Insufficient information or improper information given by the student on any admission or registration form will constitute cause for the student to receive a "Stop Enrollment" card or "Notice of Permit Delay" in lieu of his regular Permit to Register. Suspension or probationary status also constitutes cause for the same action.

### **Name Change**

Students who have a change in name after their last registration must provide a certified COPY of marriage certificate or COPY of court order which substantiates the legal name change. These documents must be submitted to the Registrar PRIOR to the ensuing registration to be effective for that semester of enrollment. Registration under a name different from the student's last enrollment cannot be accomplished without the above documents, which become a part of the student's permanent record file. All grade reports and transcripts are issued under the student's LEGAL name as recorded in the Registrar's office.

### **Transcript Service**

Students may request copies of their academic records accumulated while at Texas Technological College as well as work transferred to the College. The first copy of a student's record, in whole or part, is furnished free of charge. Thereafter, a charge of \$1.00 per copy is assessed the student, payable in advance. Adequate advance notice of requests, normally one week, is required for transcript processing. All transcripts must be requested by the student and all requests should be made in writing.

### **Admission of Undergraduate Students to Graduate Courses**

An undergraduate student who is within 12 semester hours of graduation and who has at least a B average in his major subject may enroll for courses carrying graduate credit, subject to the approval of



the dean of his school and the Dean of the Graduate School. This approval must be obtained on special forms at the time of registration. No course taken without this approval may be counted for graduate credit.

Unless he has previously taken it, an undergraduate student who is permitted to enroll for graduate credit as indicated above is required to take the Aptitude Test of the Graduate Record Examinations at the first administration of it after his enrollment for graduate work.

The maximum course load which may be carried by an undergraduate taking courses for graduate credit is 16 credit hours in a semester or 6 hours in a summer term. An undergraduate may not accumulate more than 12 semester hours for graduate credit before being admitted to the Graduate School. Undergraduates permitted to enroll for graduate credit are expected to complete all of their undergraduate requirements within the academic year in which they first enroll for graduate credit.

It is the responsibility of the student to secure the necessary forms and to follow prescribed procedure in registering for any course. An undergraduate student who enrolls in a course for graduate credit without obtaining proper approval will be dropped from that course.

### **Change of Schedule**

Once a complete and accurate program has been approved at registration, no changes in that schedule may be made without the approval of the student's academic dean. If the request originates with the student, a fee of \$3 will be charged for each approved request.

The College reserves the right to make changes in a student's schedule; when this occurs, no fee is charged.

With the consent of his academic dean, a student may drop a course. No course may be dropped during the last two weeks of a semester or during the last week of a summer term.

All changes in schedules, including adding and dropping courses, must be arranged by the student in person; changes are not official until all steps in the process have been completed.

### **Enrollment Without Credit**

There are two types of enrollment for students who desire to attend classes for no credit:

1. Auditing Courses: A person not regularly enrolled in the College may attend a class for the purpose of hearing or observing only; he does not have the privilege of participating in class discussions or laboratory and field work, of turning in papers, or receiving credit in the course. Permission to audit a class may be denied if the classroom is crowded.

A person desiring to audit a course should secure a letter of permission from the dean of the school in which the course is offered, then pay the fee of \$10 per course at the Cashier's Office. The letter, properly stamped by the Cashier, is the permit to audit the course.

2. Enrolling for No Credit: A student regularly enrolled in the College in either a regular or a summer session may register for resi-

dence courses for no credit and no grade. Such registrations are considered on the same basis as credit registrations in determining fees and course loads. Class cards and tickets are marked "No Credit" by the issuing department at the time of registration. A student registered for no credit has the privilege of taking part in class discussions, submitting papers, and taking examinations.

After the designated date for changing schedules, a course cannot be changed from credit to noncredit or from noncredit to credit.

## Financial Affairs

Marshall L. Pennington  
*Vice President for Business Affairs*  
Anna Burt Steele Gibson  
*Administrative Assistant*  
John G. Taylor  
*Business Manager*  
Robert B. Price  
*Comptroller*  
Hollis Smith  
*Chief Accountant*  
Marvin Taylor  
*Bursar*  
Virginia Smelling  
*Head, Payroll Department*  
E. D. Smith  
*Purchasing Agent*  
Jerry House  
*Assistant Purchasing Agent*  
Offices: Ad 110-120

The principal business offices of the College are those of the Vice President for Business Affairs, the Business Manager, the Comptroller, and the Purchasing Agent. Other services related to the business offices are Addressing Service, Campus Concessions, Data Processing, Environmental Health and Safety, Mail Service, Mimeograph Service, Property Inventory Control, and Telephone Service.

The Vice President for Business Affairs is the chief executive of all the fiscal operations of the College. In addition to the supervision of the various business offices, he is primarily responsible for the multi-million dollar physical plant and for advising the President and the Board of Directors on all financial matters. He is also the chairman of the Campus Planning Committee, the agency responsible for planning physical growth.

The Business Manager is the immediate supervisor of the offices of the Comptroller and Purchasing Agent and the other business-related services. He also functions as the principal assistant to the Vice President for Business Affairs.

The Comptroller is responsible for collecting, depositing, and disbursing all funds received by the College. The collections and deposits

are handled by the Bursar and his staff, and funds are disbursed through the Payroll and Accounting Departments.

The Purchasing Agent handles purchases of all College equipment, most of which are channeled through the State Board of Control.

### Summary of Student Expenses

Every student is necessarily concerned about expenses while attending college. In a large student body such as that at Texas Technological College, there are so many different tastes, as well as such a wide range of financial resources, that each student must determine his own budget in keeping with his own needs and financial condition. It is possible to live simply and participate moderately in the life of the college community on a modest budget. College authorities can offer their best help to the student in his budget planning by furnishing information about certain definite items of expense and acquainting him with others for which in all probability he will have to make provision.

Each student should have approximately \$310 available at the time of his first enrollment. All registration expenses must be paid in full at the time of registration.

To enable the resident student to approximate his expenses at the time of entering college, the following estimates are offered:

	FALL	SPRING
Registration Fee	\$ 50.00	\$ 50.00
Laboratory Fees (estimated)	4.00	4.00
Student Services Fee	21.00	21.00
Student Union Fee	5.00	5.00
General Property Deposit (new student)	7.00	
Books and Incidentals (estimated)	65.00	50.00
Total (estimated)	\$ 152.00	\$ 130.00

For estimated costs, including residence hall room and board, add charges for the proper residence hall as shown in section entitled "Charges for Room and Board in College Residence Halls."

The student who is not a resident of Texas should add an additional \$150 per semester to the above estimate to cover the nonresident tuition fee.

The cost of books and supplies will vary with the different curricula of the College. Engineering students are required to purchase their own drawing equipment, slide rules, etc., which, plus books, cost approximately \$100 the first year, or an average of \$50 per semester.

### Payment of Fees

All fees are payable in full at the time of registration, and a student is not registered until his fees are paid in full. Payment may be made by cash, check, or money order, but all checks, drafts, or money orders are accepted subject to final payment. Texas Technological College reserves the right to change fees in keeping with acts of the Texas State Legislature or the Board of Directors.

## Registration Fee for Texas Resident Students

Each resident of Texas enrolled for 12 or more semester credit hours pays a registration fee of \$50 per semester. Those enrolled for less than 12 semester hours pay fees on the following basis:

For 11 semester hours—\$47.00	6 semester hours—\$27.00
10 semester hours— 43.00	5 semester hours— 23.00
9 semester hours— 39.00	4 semester hours— 19.00
8 semester hours— 35.00	3 semester hours
7 semester hours— 31.00	or less— 15.00

## Registration Fee for Non-Texas Students

Each nonresident (out-of-state) student is required by an act of the Texas Legislature to pay a nonresident registration fee of \$200 per semester of the long session. A nonresident student enrolled in the long session for less than 12 semester hours pays fees on the following basis:

For 11 semester hours—\$184.00	6 semester hours—\$100.00
10 semester hours— 167.00	5 semester hours— 84.00
9 semester hours— 150.00	4 semester hours— 67.00
8 semester hours— 134.00	3 semester hours
7 semester hours— 117.00	or less— 50.00

It is the duty of each student to register under the proper residence and pay the correct tuition fees. The explanation below of what constitutes a nonresident is intended to assist the student in properly determining whether or not he qualifies as a resident of the state for tuition purposes. If there is any possible question whether or not he qualifies as a resident of Texas, the student should confer with the Dean of Admissions. For each improper registration there may be a penalty of \$10 in addition to the proper fee. A copy of the law defining nonresidents is available in the Registrar's Office. There can be no change in residence status except upon express authorization by the Dean of Admissions.

## Interpretations of Residence

It is the responsibility of the student to pay the correct registration fee at the beginning of each semester. The following information is furnished to explain and clarify the question of residency. Additional information, if needed, may be obtained from the Dean of Admissions.

1. A student under 21 years of age is considered to be a resident student if his parents are living in Texas at the time of his registration and have lived in the state continuously for at least the 12 months immediately preceding his registration.

2. If the parents of a resident student move out of the state, that student will be classified as a nonresident for all future semesters.

3. If his parents are divorced, a minor has the same residence status as the parent with whom he has lived for the 12 months preceding registration. If he has not lived with either parent, and there is no court-appointed guardian, the minor takes the same residence as the parent with whom he last lived. If he has lived with or been dependent on a grandparent for more than a year preceding registration, a minor

takes the same residence as the grandparent. If custody is granted to some person other than a parent, the minor takes the same residence as that person for as long as he actually makes his home with such person.

4. A student over 21 years of age who comes from outside of Texas is considered to be a nonresident unless he has resided in the state for the full 12 months immediately preceding his enrollment and has not been enrolled in an educational institution during that time.

5. A student classified as a nonresident when he first registers will continue to be considered a nonresident while a student, unless he provides conclusive evidence (such as buying a homestead with a substantial down payment, full-time employment prior to registration, entering business) of his intention of becoming a permanent resident. But the student still must reside in the state 12 months before becoming eligible for reclassification as a resident student. Such reclassification will not be granted merely because of the payment of a poll tax, taking out of a Texas driver's license, or payment of personal property taxes.

6. Every student classified as a nonresident retains that status until he applies in writing to the Dean of Admissions for reclassification as a resident, and until he obtains the reclassification in writing from that dean.

7. The residence of a wife is that of her husband. Therefore, a woman student who is a resident of Texas and who marries a nonresident will be considered a nonresident and will be required to pay the nonresident tuition fee in subsequent semesters. A nonresident woman student who marries a resident of Texas is entitled to reclassification as a resident student upon submission of evidence of her marriage and of her husband's residence.

8. An alien is considered to be a nonresident unless he has applied for naturalization in the United States. An alien who has petitioned for citizenship has the same opportunity to qualify for status as a resident of Texas as do citizens of the United States. His 12-month period required to establish residency begins with the acceptance of his petition.

9. Persons in the military services who are assigned to duty in Texas are considered as residents. The actual duty station must be here, and the person must be paying his own tuition. Military personnel may enroll themselves, their wives, or husbands, and their children by paying the tuition fees and other charges paid by regular residents of the state, without regard to the length of time such officers, enlisted men, selectees, or draftees have been stationed on active duty within the state. While enrolled at the College, the wife or child of military personnel must have on file in the Registrar's Office a letter from the commanding officer of the student's husband or father certifying the student's status as a military dependent and to the fact that the husband or father is stationed in Texas.

10. Regular employees of Texas State institutions of higher learning shall be permitted to register themselves and members of their immediate family by paying resident tuition without regard to length of time resided within the state. However, part-time appointment to the teaching

or research staff or the holding of a scholarship or assistantship normally does not affect the residence status of a student.

### **Veterans' Exemptions From Fees**

Men and women who were legal residents of Texas at the time of entry into the Armed Forces, who have been legal residents of Texas for a period of not less than 12 months immediately preceding their registration in Texas Technological College, and who hold an honorable discharge from the Armed Forces of the United States after service during the Spanish American War, World War I, World War II, or the Korean War, are by state law exempt from the payment of all fees except library and laboratory fees or similar deposits and fees, or charges for room and board. These exemptions also apply to the children of members of the United States Armed Forces who were killed in action or died while in the service during World War II or the Korean War. Exemptions are not granted to persons who were discharged from the services because of being over the age of 38 or because of a personal request on the part of such person to be discharged from such service.

Discharge papers must be presented by the student to the Coordinator of Veterans' Affairs, who will in turn certify the student's eligibility to the Business Office.

Veterans are not eligible for the above outlined benefits under state law until their eligibility for educational benefits from Federal funds through the Veterans Administration has expired.

### **Miscellaneous General Fees**

1. *General Property Deposit*: Each student enrolled in the College must make a general property deposit of \$7. This deposit is subject to charges for property loss, damages, breakages, or violation of rules in the Library or laboratories.

If the charges incurred for any semester reduce the deposit by 50 percent, the student, upon notice from the Comptroller, will be required to restore the deposit to its original amount by paying the charges at once; pending payment, no credit will be allowed for the work of that semester or term, and the student will be ineligible to re-enter the College. At his request this deposit, less charges, will be returned to the student upon termination of his tenure here as a student. Deposits will be held at least 60 days after the close of a semester, or after a student withdraws during a semester, so that all charges and fines may be accumulated from the various departments.

Under state law, deposits which remain without call for a refund for a period of four years from the date of last attendance will be forfeited and transferred to the Student Property Deposit Scholarship Account.

2. *Laboratory Fees*: A laboratory fee of \$2 per semester is charged for all courses in which the combined lecture and laboratory credit is from 1 to 3 semester hours. For courses in which the semester credit is 4 semester hours or more the laboratory fee is \$4 per semester.

3. *Student Services Fee*: A \$21 fee every student must pay each semester of the long session if he is enrolled for 6 semester hours or more.

4. *Student Union Fee*: This is a \$5 fee authorized by state law, to be paid each semester of the long session by every student enrolled for 3 semester hours or more.

5. *Fee for Change in Class Schedule*: Each time a student initiates a change in his previously approved class schedule he must pay a fee of \$3 for each approved request. No charge will be made when the change is made for the convenience of the College. This fee will not be collected after the tenth week of any semester.

6. *Enrolling for No Grade*: Students regularly enrolled in either the summer session or the long session are entitled to register in residence courses for no grade and no credit. In making the student's schedule such registrations are to be considered on the same basis as registrations for credit courses, both in paying of fees and in consideration of the amount of work to be carried.

7. *Visitor's Fee*: A person not enrolled in the College must pay a fee of \$10 for the privilege of visiting any course. No credit may be obtained for auditing courses in this manner. (See section titled "Enrollment Without Credit.")

8. *Graduation Fee*: Graduating students will be charged a graduation fee of \$5 for each degree granted. The fee will be refunded, provided the student cancels his graduation intentions before the diploma has been printed and before other related steps are taken.

If the student's intention to graduate is not cancelled in time, he will be charged \$2 for reordering the diploma insert. If both the insert and the cover have to be reordered, the charge will be \$5, as in the initial order.

A student who is graduated *in absentia* must pay an additional fee of \$1.50.

9. *Replacement of Lost ID-Activity Cards*: Students who lose their ID-Activity cards may have them replaced by paying the charges as indicated by the following schedule:

FALL	SPRING	COST
After Oct. 15	After March 1	\$ 15.00
After Nov. 15	After April 1	10.00
After Dec. 15	After May 1	5.00

10. *Duplicate Receipt Fee*: A fee of 50 cents will be charged for each duplicate registration receipt issued.

11. *Transcript Fee*: Transcript service is provided by the Office of the Registrar at a charge of \$1 per copy. For details see section entitled "Transcript Service."

## Miscellaneous Special Fees

1. *Music Fees for Private Instruction*: The college registration fee does not cover the following costs for individual instruction offered by the Department of Music in voice and in wind and string instruments. When instruction is given in one of the following courses in applied music, the charges listed are made for each course, payable in full at the time of registration:



Applied Music 115, 116, 215, 216, 315, 316 .....	\$15.00
Applied Music 125, 126, 225, 226, 235, 236, 325, 326, 345, 346, 425, 426, 435, 436, 445, 446, 535, 545 .....	\$30.00

The following charges are made for practice room use and piano rentals; they are payable at the College Business Office:

One hour per day per semester .....	\$ 5.00
Each additional hour .....	\$ 2.50
Musical instrument rental for class strings, woodwinds, brasses (each class) .....	\$ 2.50

2. *Fees for Use of Gymnasium Facilities:* Students not enrolled in a physical educational laboratory course who wish to use the College gymnasium facilities will pay a fee of \$1 per semester for use of lockers, if they are available. Towel service may be secured by payment of a \$1 deposit, which will be refunded upon return of the towel.

Faculty members using the gymnasium-natatorium facilities will pay a \$2 fee for each fiscal year or any part of a fiscal year.

## Refund of Fees

Any student officially withdrawing during a semester, either at his request or at the request of the College because of failure to comply with a condition upon which his enrollment was approved, will receive a refund on registration fees, applied music fees, and activity fees according to the following schedule:

1st class day through 14th class day	80 percent
15th class day through 20th class day	60 percent
21st class day through 25th class day	40 percent
26th class day through 30th class day	20 percent

No refund will be made after the 30th class day.

The official College Calendar near the front of this Catalog indicates the official date of the beginning of each semester.

Refund of tuition and fees will be made when the College is at fault. Refund of tuition or fees will not be made on courses of less than six weeks' duration. In no case will fees be refunded to a student suspended from the College by college authorities.

If the student is permitted to re-enter school during the same semester in which he officially withdraws or is suspended, a re-entrance fee of \$5 will be charged.

Once a student has registered for a laboratory class and has attended the class, no refund of the laboratory fee will be made unless the College is at fault.

Students who complete registration and are later dropped by the College for violation of College rules and regulations will be ineligible to receive refund of fees.

## Charges for Room and Board in College Residence Halls

All prices indicated below are subject to change without notice prior to registration date and with 10 days' notice thereafter.



Payments may be made in several ways: (1) for the full nine-month period; (2) September through January; (3) February through May; (4) by the month as outlined in the schedule below.

Charges for room and board in West, Sneed, Bledsoe, Gordon, Doak, Drane, Horn, and Knapp halls will be \$630.00\* per nine-month period for the regular double rooms occupied by two students.

Sept. and Oct.	\$ 168.00	March	\$ 66.00
Nov.	66.00	April	66.00
Dec.	66.00	May	66.00
Jan.	66.00		
Feb.	(a) 66.00	Total	\$630.00*

(a) Will be \$117.00 for students entering the residence halls at the beginning of the spring semester.

Charges for room and board in Thompson, Gaston, Wells, Carpenter, and Weeks halls will be \$696.00\* per nine-month period for the regular double rooms occupied by two students.

Sept. and Oct.	\$ 178.00	March	\$ 74.00
Nov.	74.00	April	74.00
Dec.	74.00	May	74.00
Jan.	74.00		
Feb.	(b) 74.00	Total	\$696.00*

(b) Will be \$126.00 for students entering the residence halls at the beginning of the spring semester.

Charges for room and board in the new air-conditioned residence halls, Wall and Gates, Hulen and Clement, and 9 and 10 will be \$760.00\* per nine-month period for the regular double rooms occupied by two students.

Sept. and Oct.	\$ 200.00	March	\$ 80.00
Nov.	80.00	April	80.00
Dec.	80.00	May	80.00
Jan.	80.00		
Feb.	(c) 80.00	Total	\$760.00*

(c) Will be \$140.00 for students entering the residence halls at the beginning of the spring semester.

In some residence halls there are a few rooms with private baths for which there is an additional charge of \$7.50 per month per person.

If facilities are available, one student may occupy a double room for an additional charge of \$7.50 per month.

Payment for room and board is due in advance and is to be made from the first through the fifth business day of each month except at the beginning of a semester, at which time it is payable during the first five business days of the semester. An additional charge of 50 cents per day will be made after the fifth business day of the pay period.

Refund of room and board to students who move out during the nine-month period will be figured on a straight percentage basis, using calendar days.

No charge is made for electrical appliances; however, only certain appliances will be permitted in the rooms. Each student will be furnished a list of the permitted appliances.

\* Includes 2% State Sales Tax on meals.

## Residence Hall Reservations

An application for a room reservation in the residence halls may be secured by sending a request to the Office of Room Reservations. *Do not* send a \$40.00 deposit with your request. Such deposit should be made when the application is returned to the Office of Room Reservations. Please do not send the checks to the Registrar's Office, as this only delays the letters. Any questions about the residence hall life or furnishings to be brought by the student should be sent to the Director of Residence Halls. General information on the residence halls will be sent to you with your application for housing. The \$40.00 deposit will serve as a reservation fee and will be held as a residence hall property deposit. It will be refunded, less any breakage charges, at the end of the nine-month period or if the student graduates at the end of the fall semester or is forced to withdraw at the end of the fall semester for scholastic deficiencies. The deposit will not be returned if the student moves from his residence hall at any other time during the nine-month period for any other reason; this includes the student who is dropped from school for disciplinary reasons.

Should a student find he is unable to enroll in the College, he will receive a refund of his reservation fee if application is made in writing not later than July 31 for the fall semester, January 10 for the spring semester, May 15 for the first term of the summer session, and June 30 for the second summer term. All unclaimed rooms in the residence halls will be declared vacant at 8 A.M. on the first day of classes, and the \$40.00 deposit will be forfeited.

All arrangements for housing accommodations off of the campus are made through the offices of the Dean of Men or Dean of Women.

## Check Cashing Services

For convenience of the student, personal checks may be cashed for limited amounts at the College Bookstore and the Tech Union upon presentation of the student's ID card. All checks are accepted subject to final payment. Checks returned by the bank on repeated occasions will subject the student to suspension.

## Student Part-time Job Opportunities

In recognition of the worthwhile student who must contribute to his finances through part-time employment, the College has arranged for assistance through the Placement Service.

It is not the policy of the College to encourage an entering freshman to seek employment. If, after careful consideration, a student finds that a part-time job is the best solution, he should consult with the Placement Office staff. Letters of inquiry should be addressed to the Director of Placement.

## Loan Funds

Texas Technological College administers 23 student loan funds upon which students may draw for assistance in paying their college-related expenses. With the exceptions of the Texas Opportunity Plan and the

National Defense Student Loan Program, the basic eligibility requirements for student loans are enrollment as a full-time student, financial need, satisfactory academic performance (a minimum of 2.00 overall grade-point average for previous college work, or, for first-semester freshmen, a high school record which indicates the ability to establish a 2.00 average at Texas Tech), and satisfactory citizenship.

Applications for student loans administered by the College should be acquired from the Student Loan Adviser, Office of the Dean of Student Life, Texas Technological College, Lubbock, Texas 79409, and be submitted no fewer than 30 days before the date on which the loan is needed. Although this does not constitute a definite deadline for these applications, it is usually necessary for applicants to allow that amount of time for the complete processing of their applications. Applications in emergency situations will be accepted at any time, but they must be processed in the same manner as other applications.

An integral part of the student loan program at Texas Technological College is the financial advisement of all students whose resources appear to be insufficient to cover the costs of their education. Through the financial experiences of previous students, the staff of the Dean of Student Life is able to evaluate realistically the basic needs of most Texas Tech students, and to assist them in the solution of their financial problems. When a student's financial difficulty does not require a student loan, maximum use of other student services offered by the College is employed if these may be of assistance.

Parents are cordially invited to participate in conferences with the student and the financial adviser in which the responsibility and initiative for alleviating the problem are given to the student, and the function of the adviser is that of a counselor and facilitator. Financial advisement and student loan applications may be obtained from the Student Loan Adviser, Room 168, Administration Building.

*The National Defense Student Loan Program:* Applications for this loan are considered by a faculty committee which is responsible for the final disposition of each application. Applicants must show evidence of need, and must have demonstrated the capacity for a high degree of academic achievement. Evidence of the integrity and reliability of the applicant will be considered by the committee.

Need is determined by examination of a financial statement prepared by the parents, guardians, or spouse of the applicant and by a budget of expenses and income prepared by the applicant. A high degree of academic achievement for undergraduates is interpreted as having, or, in the opinion of the committee, being capable of achieving a minimum 2.50 overall grade-point average at Texas Technological College. Graduate students must have achieved or, in the opinion of the committee, be capable of achieving a 3.25 overall grade-point average on the graduate courses at Texas Technological College.

Students or prospective students may secure applications for the National Defense Student Loan from the Student Loan Adviser at Texas Technological College. Applications for this loan must be postmarked or submitted before July 1 for the fall semester, November 1 for the spring semester, and April 15 for the summer sessions. Applications may be made for more than one semester at a time but they may not

include parts of more than one academic year. The academic year begins on September 1 and terminates on August 31.

*The Texas Opportunity Plan:* A 1965 Amendment to the Constitution of the State of Texas established the Texas Opportunity Plan which makes long-term, low-interest student loans available to qualified Texas residents. Information concerning the Texas Opportunity Plan can be obtained from the Student Loan Adviser at Texas Technological College.

## Scholarships and Awards

Fellowships, scholarships, and awards are administered by designated faculty members or organizations through the faculty Committee on Scholarships and Awards.

Scholarships are awarded on various bases, such as academic achievement, the demonstration of high qualities of leadership and citizenship, and financial need. A student is eligible for only one college-administered scholarship amounting to more than tuition costs during any one semester. In the event a student is offered multiple awards, he has his preference, though this does not apply to scholarships for honor graduates of Texas high schools.

For general information about undergraduate scholarships, consult the Chairman, Committee on Scholarships and Awards, Office of the Dean of Arts and Sciences. Information about graduate fellowships, traineeships, and scholarships may be secured from the Associate Dean of the Graduate School.

## Student Life

- James G. Allen  
*Dean of Student Life*
- Lewis N. Jones  
*Dean of Men*
- Florence Phillips  
*Dean of Women*
- Nelson H. Longley  
*Director of Student Union*
- Thomas P. Stover  
*Adviser to Fraternities, Foreign Students, and for Student Loans*
- Jacqueline Olsen  
*Assistant Dean of Women*
- Loyce Katz  
*Assistant Dean of Women*
- Dennis Watkins  
*Assistant Dean of Men*
- Dorothy Pijan  
*Program Director of Student Union*

The Dean of Student Life and his staff are concerned with the general welfare of the student. They exert their efforts toward seeing

that every phase of the college experience represents an opportunity for the growth of the student; they base their program on the premise that all of college life, both in and out of class, represents a real and significant part of educational development.

Student life staff members offer counseling and guidance service to all students enrolled in the College and are in a position to refer a student to the many service agencies interested in his welfare. In addition to giving counsel and guidance on personal, social, and individual problems, the staff is prepared through training and experience to bring the student to full understanding of himself as a part of the rich and full opportunity which is a college education. The student life staff includes the Dean of Men, the Dean of Women, and their assistant deans; the adviser on loans, fraternities, and foreign students; and the Director of the Student Union.

### **Housing**

The determination of the housing of all students, a part of registration, is the responsibility of the Dean of Men and the Dean of Women. The College maintains 19 residence halls which house over 7,000 students. The College requires that students live in the College residence halls if there are vacancies. Students who cannot be accommodated in a residence hall at the time of registration and who are not excepted on one of the bases given below are required to move into a residence hall upon notification by the College. The College feels that its students will have their best opportunity for a well-rounded educational experience while living in a supervised residence hall designed for student living.

Students who live with their parents or who are married and live with their wives or husbands in Lubbock or its vicinity are requested to verify their housing in the office of the Dean of Men or Dean of Women. Students otherwise eligible to live on campus but whose health condition demands special services and living conditions, or whose part-time employment prohibits their securing meals regularly in an on-campus residence hall must secure permission from the Dean of Men or Dean of Women to live off of the campus. Men students who find it necessary to reside off of the campus will be afforded supervised, privately owned residence hall accommodations, beginning the Fall, 1966.

The student is required to obtain the approval of the Dean of Men or the Dean of Women before changing his residence, and as the final step in obtaining this approval, he must file a change of address notice with the Office of the Dean of Men or of the Dean of Women. Failure to notify the College of his change of address may cause the student to be dropped from the rolls of the College.

### **Residence Hall Regulation and Government**

The College maintains its residence halls in the belief that the experience in group living and self-discipline which they afford is wholesome, contributes to academic achievement, and helps materially in the development of the mature person.

Residence halls are supervised by a staff of trained and experienced personnel. Each men's residence hall has a resident supervisor. Each

women's hall has a counselor selected on the basis of professional training, experience, and special qualifications for the counseling and guidance of college students.

Each of the residence halls has its own student governing body which sets the pattern of living and sponsors a program of cultural, social, and recreational events.

### **Student Accident and Sickness Insurance Plan**

Any full-time student taking 6 semester hours may subscribe to a supplemental Student Accident and Sickness Insurance Plan which provides 24 hour coverage on or off campus while in any hospital or under the care of any qualified physician (according to the policy provisions). The 12-month plan covers all vacations and remains in force even though the student graduates or drops out of school. The policy is effective on September 12 (or date applied for, if later) and terminates on September 12 of the following year. A married student may include his spouse and children in the 12-month plan for an additional premium. Students may apply for 9-month coverage which terminates on June 12. The deadline for enrolling is October 12 for the fall semester. New spring students may enroll at a prorated premium with coverage terminating on September 12. The deadline is March 1 for spring enrollees. This insurance is not available to students enrolling for the summer session only. Additional information concerning this insurance may be secured from the Student Council Office or the Office of the Dean of Student Life or by writing STUDENT INSURANCE, TEXAS TECH, LUBBOCK, TEXAS 79409.

### **Advisement of International Students**

Texas Technological College recognizes the unique problems of adjustment to a new land and culture which face the student from abroad. The College also recognizes that a full and meaningful education and the solution of problems of adjustment for international students depend in part on their association with American students, the American community and family, and the American culture.

The Foreign Student Adviser at Texas Tech is a member of the staff of the Dean of Student Life and is responsible for all nonacademic advisement of international students. The Foreign Student Adviser provides personal counseling, advise on the United States immigration regulations, and liaison between international students and the International Hospitality Committee of Lubbock.

### **Citizenship**

Honesty and integrity in class work, as well as respect for the rights of others, along with a regard for the laws of the state and the county, and for city ordinances, and campus regulations, reflect the ability of the college student to establish sound citizenship values.

The students of Texas Technological College are given maximum opportunity for citizenship performance. Cooperation with the plan of traffic control on the campus, financial responsibility on and off campus,

and respect for the privileges offered through the Identification (ID-Activity) Card are significant areas in which each student may demonstrate mature judgment.

Each student is required to sign the following pledge each time he registers at the College:

In becoming a student of Texas Technological College, I hereby pledge absolute obedience to the laws of the State of Texas, the United States of America, and the regulations of the Texas Technological College. I pledge conformity to those highest standards of conduct which are universally recognized in good society and among honorable men and women. I especially pledge obedience to the laws of the State of Texas against hazing, and to refrain from encouraging, aiding, or assisting any other person in any hazing enterprise.

## **Participation in Extracurricular Activities**

The broad program of extracurricular activities of Texas Technological College is offered to students in order to provide fellowship, opportunities for leadership, recreation, and cooperative participation with members of the faculty. Students may elect to participate in clubs and societies, publications, sports, music, drama, or forensics as their abilities and interests suggest.

Any undergraduate student not on disciplinary probation who is enrolled for 12 or more semester hours (in residence) is eligible to become a candidate for or to hold student office or to represent the College in any extracurricular activity, provided such student has a grade-point average of at least 2.00 for both the whole of his work at the College and that of the preceding semester on the complete scholastic load. For the method of computing the grade-point average, see the section of this Catalog entitled "Academic Affairs." A transfer student may establish eligibility by earning a C (2.00) average on all courses at midsemester of his first semester in residence. A student with less than a 2.00 average may establish eligibility by attending summer school at Texas Tech and averaging his summer term work with his previous semester's course grades so that his average reaches 2.00.

The above eligibility standards must be met by any student who serves as a college representative, as an officer or representative of a recognized club or organization, or as a member of an academic, departmental, or intramural athletic squad or committee.

A student holding a bachelor's degree is ordinarily not eligible to hold office in a student organization or to participate in college-sponsored extracurricular activities in general.

To be eligible to participate in out-of-town trips or field trips which require absence from any class other than that for which the trip is assigned, a student must have a 2.00 grade average, must not be on disciplinary probation, and must have a current academic standing satisfactory to his academic dean. Exceptions to this academic requirement for off-campus trips are student organization-sponsored trips approved by the College and beginning Saturday noon and ending not later than Monday at 8 A.M., or between the end of the last scheduled final examination and the beginning of the next registration.

Other eligibility requirements than those given above may be determined by student organizations and agencies but operate within the framework of the eligibility requirements as stated above. Eligibility



rules for the Southwest Conference are administered by the Texas Tech Athletic Council.

## **Student Government**

By enrolling in the College all undergraduate students automatically become members of the Student Association of Texas Technological College. The Student Senate serves as the executive council of the association.

The Student Senate plans, publicizes, and supervises student elections. It supports student enterprises and organizations through funds it receives from student services fees, and plays a leading role in the administration of student affairs. It appoints from its membership representatives on the Artists Course Committee, the College Athletic Council, the College Awards Board, the Discipline Committee, the Student Welfare Committee, the Student Publications Committee, the Union Board, the University Speakers Committee, the Committee on Student Organizations, and the Student Traffic Court.

The Association of Women Students serves as a coordinating body in all activities concerning women students. Every woman who enrolls in the College automatically becomes a member of the association. The governing body is composed of elected officers and representatives from every women's organization on the campus. The association is a member of the Intercollegiate Association of Women Students, a national organization made up of member schools throughout the country.

At the beginning of the school year the Association of Women Students assists in orienting women freshmen in college life through its Big Sister-Little Sister program and Howdy Party. Other activities include Women's Day and Dads Day programs, the Carol of Lights, training workshops for legislators and officers of the women's residence halls, and other college service projects.

## **Clubs and Societies**

The College feels that student organizations compatible with the ends of college education are means toward personal development. The College recognizes some 170 student organizations, whose general supervision is under the staff of the Dean of Student Life.

Recognition of these, and the plan under which they function, is the assignment of the Committee on Student Organizations, a student-faculty committee appointed by the President of the College. Recognition of a student organization automatically gives it the right and responsibility to schedule on the Social Calendar, and entitles it to the sponsorship of the College faculty and administration, and to the use of such College facilities as may be designated for that purpose. The recognition of a club or society on the Texas Technological College campus is based on the assumption that such an organization satisfies a student need for professional, scholastic, social, religious, service, or common-interest expression consistent with the best college achievement.

The following is a list of recognized student organizations at Texas Tech:



## 60 Student Organizations

- Agricultural Economics Club  
 Agronomy Club  
 Air Force ROTC Angel Flight  
 Air Force ROTC Association  
 Alpha Chi Omega (Social Sorority)  
 Alpha Delta Pi (Social Sorority)  
 Alpha Delta Sigma (Advertising-Men)  
 Alpha Epsilon Delta (Pre-Medicine Honorary)  
 Alpha Lambda Delta (Freshman Women's Honorary)  
 Alpha Phi (Social Sorority)  
 Alpha Phi Omega (Men's Service Organization)  
 Alpha Pi Mu (Industrial Engineering Honorary)  
 Alpha Psi Omega (Drama)  
 Alpha Tau Omega (Social Fraternity)  
 Alpha Zeta (Agriculture)  
 American Chemical Society  
 American Home Economics Association  
 American Institute of Architects  
 American Institute of Chemical Engineers  
 American Institute of Industrial Engineers  
 American Institute of Interior Designers  
 American Institute of Physics  
 American Marketing Association  
 American Society of Agricultural Engineers  
 American Society of Civil Engineers  
 American Society of Mechanical Engineers  
 American Society of Range Management  
 Army CorpsDettes  
 Army ROTC Association  
 Arnold Air Society (Air Force ROTC)  
 Arts and Sciences Honors Council  
 Association of Women Students (Coordinating)  
 Bacteriological Society  
 Baptist Student Union  
 Beta Alpha Psi (Accounting)  
 Beta Gamma Sigma (Business Administration Honorary)  
 Bledsoe Hall Association (Men's Residence)  
 Block and Bridle (Animal Husbandry)  
 Board of Student Organizations (Coordinating)  
 Campus Service Council  
 Capa y Espada (Spanish)  
 Carpenter Hall Association (Men's Residence)  
 Channing Club (Unitarian)  
 Chi Omega (Social Sorority)  
 Chi Rho (Men's Catholic Service)  
 Christian Science Organization  
 Circle "K" International (Men's Service)  
 Clement Hall Association (Women's Residence)  
 College Panhellenic Association (Coordinating)  
 Counterguerrilla Unit (Army)  
 Dairy Industry Club  
 Delta Delta Delta (Social Sorority)  
 Delta Gamma (Social Sorority)  
 Delta Phi Alpha (German)  
 Delta Sigma Pi (Business Administration-Men)  
 Delta Sigma Rho (Forensics Honorary)  
 Delta Tau Delta (Social Fraternity)  
 Der Liederkranz (German)  
 Disciples Student Fellowship (Christian Church)  
 Doak Hall Association (Women's Residence)  
 Dolphin Swimming Fraternity  
 Double "T" Association (Athletic Lettermen)  
 Drane Hall Association (Women's Residence)  
 Engineering Society  
 Eta Kappa Nu (Electrical Engineering Honorary)  
 Freshman Council (Coordinating)  
 Future Farmers of America  
 Gamma Alpha Chi (Advertising-Women)  
 Gamma Delta (Lutheran)  
 Gamma Phi Beta (Social Sorority)  
 Gaston Hall Association (Men's Residence)  
 Gates Hall Association (Women's Residence)  
 Gordon Hall Association (Men's Residence)  
 Horn Hall Association (Women's Residence)  
 Horticulture and Park Administration Club  
 Hulén Hall Association (Women's Residence)  
 Institute of Electrical and Electronics Engineers  
 Interfraternity Council (Coordinating)  
 International Club  
 International Trade Society  
 Junior Council (Junior Women's Service Honorary)  
 KTXT-FM Radio Station (College Radio Station)  
 Kappa Alpha Order (Social Fraternity)  
 Kappa Alpha Theta (Social Sorority)  
 Kappa Kappa Gamma (Social Sorority)  
 Kappa Kappa Psi (Band-Men)  
 Kappa Mu Epsilon (Mathematics)  
 Kappa Sigma (Social Fraternity)  
 Knapp Hall Association (Women's Residence)  
 Le Cercle Francais (French)  
 Los Tertulianos (Spanish)  
 Lutheran Student Association  
 Major-Minor Club (Physical Education-Women)  
 Men's Dorm No. 10  
 Men's Residence Council (Coordinating)  
 Mortar Board (Senior Women's Service Honorary)  
 Mu Phi Epsilon (Music-Women)  
 Newman Club (Catholic)  
 Omicron Delta Epsilon (Economics Honorary)  
 Optimates (Latin)  
 Phi Alpha Kappa (Finance)  
 Phi Alpha Theta (History Honorary)  
 Phi Delta Theta (Social Fraternity)  
 Phi Epsilon Kappa (Physical Education-Men)  
 Phi Eta Sigma (Freshman Men's Honorary)  
 Phi Gamma Delta (Social Fraternity)  
 Phi Gamma Nu (Business Administration-Women)  
 Phi Kappa Phi (Junior, Senior, and Graduate Men and Women's Honorary)  
 Phi Kappa Psi (Social Fraternity)  
 Phi Mu (Social Sorority)  
 Phi Mu Alpha (Music-Men)  
 Phi Psi (Professional Fraternity, Textile Engineering)  
 Phi Upsilon Omicron (Home Economics)  
 Pi Beta Phi (Social Sorority)  
 Pi Delta Phi (French)  
 Pi Kappa Alpha (Social Fraternity)  
 Pi Omega Pi (Business Education)  
 Pi Sigma Alpha (Government Honorary)  
 Pre-Law Society  
 Pre-Medical Society  
 Presbyterian Student Association  
 Professional Retailing Association  
 Psi Chi (Psychology)  
 Religious Interest Council  
 Saddle Tramps (Men's Service)  
 Scabbard and Blade (Military Honorary)  
 Sigma Alpha Epsilon (Social Fraternity)  
 Sigma Alpha Eta (Speech)  
 Sigma Chi (Social Fraternity)  
 Sigma Delta Chi (Journalism-Men)  
 Sigma Delta Pi (Spanish Honorary)  
 Sigma Gamma Epsilon (Geology Honorary)  
 Sigma Iota Epsilon (Management)  
 Sigma Kappa (Social Sorority)  
 Sigma Nu (Social Fraternity)  
 Sigma Pi Sigma (Physics Honorary)  
 Sigma Tau Delta (English Honorary)  
 Sneed Hall Association (Men's Residence)  
 Society for Advancement of Management  
 Society of Petroleum Engineers of AIME  
 Sock and Buskin (Dramatics)  
 Speleological Society

Student Agricultural Council (Coordinating)  
 Student Association (Coordinating)  
 Student Education Association  
 Tau Beta Pi (Men's Engineering Honorary)  
 Tau Beta Sigma (Band-Women)  
 Tau Sigma Delta (Architecture and Allied Arts Honorary)  
 Texas Tech Accounting Society  
 Texas Tech Amateur Radio Club  
 Texas Tech Association of Childhood Education  
 Texas Tech Entomology Club  
 Texas Tech Finance Association  
 Texas Tech Forensics Union  
 Texas Tech Geology Club  
 Texas Tech Rodeo Association  
 Texas Tech Sociology Club

Texas Tech Union Program Council (Coordinating)  
 Theta Sigma Phi (Journalism-Women)  
 Thompson Hall Association (Men's Residence)  
 Town Girls  
 Tyrian Rifles (Drill Team)  
 Wall Hall Association (Women's Residence)  
 Weeks Hall Association (Women's Residence)  
 Wells Hall Association (Men's Residence)  
 Wesley Foundation (Methodist)  
 West Hall Association (Men's Residence)  
 Women's Dorm No. 9  
 Women's Residence Council (Coordinating)  
 Women's Service Organization  
 Zeta Tau Alpha (Social Sorority)

## Religious and Cultural Opportunities

The churches of Lubbock cordially invite students at Texas Technological College to become associated with them. A number of denominations maintain student centers near the campus; these are staffed with qualified advisers and leaders who assist students in planning religious and social programs during the academic year. Among active student religious groups are the Baptist Student Union, Channing Club, Christian Science Organization, Church of Christ Bible Chair, Disciples Student Fellowship, Gamma Delta, Lutheran Student Association, Newman Club, Presbyterian Student Association, and the Wesley Foundation.

The Religious Interest Council is a recognized student agency for stimulating religious interest through panel programs and through carefully selected individual speakers.

Each year, usually early in the spring semester, the Willson Lectures are scheduled. These four lectures are delivered by a person of national distinction in the fields of science and religion.

The students of Texas Technological College have a rich and full opportunity for developing cultural interests. The University Speakers Committee and the Artists Course Committee bring a varied schedule of speakers and concerts, dramatic and dance productions.

Students with cultural talent and ability have an ample opportunity for development in the speech department productions in the University Theater and in the 12 musical organizations sponsored by the Music Department. All eligible students, whether enrolled in those departments or not, are invited to participate.

In the city community, Civic Lubbock, Community Concerts, and Lubbock Symphony offer opportunities for students in the College both as participants and spectators. The Lubbock Theater Center, Texas Tech Museum, and the Garden and Arts Center are additional cultural resources for Tech students to enjoy.

## Student Publications

*The Daily Toreador*, the college newspaper, is published daily Tuesday through Saturday. *La Ventana* is the college yearbook, published annually. Both of these publications draw their editors, business managers, and other personnel from the student body. The Committee on Student Publications, a faculty-student committee, has general supervision of both publications. Creative writing done by students is recognized through

publication in *The Harbinger*, a literary magazine issued once each semester by Sigma Tau Delta, the professional English society.

### **Intercollegiate Athletics**

Texas Technological College maintains a well-rounded program of intercollegiate athletics in football, basketball, track, baseball, golf, swimming, and tennis. It is the intention of the College to place its main emphasis on academic excellence and within this framework to conduct a superior athletic program as an integral part of campus activities. The College holds membership in the Southwest Athletic Conference and the National Collegiate Athletic Association and conducts its program under the rules and regulations of these bodies. College policy is set by the Athletic Council composed of members from the faculty, the student body, and the Ex-Students Association. The Department of Athletics is organized under the Director of Athletics, with head coaches in each of the sports responsible to the director.

### **Intramural Sports**

Students not participating in intercollegiate activities are offered a variety of team and individual sports in which they may compete. These programs are supervised by the departments of Health, Physical Education, and Recreation for Men and for Women. Participation is on a voluntary basis and enables the student to choose the sport best suited to his abilities and interests.

### **Ex-Students Association**

The Ex-Students Association is an independent organization co-operating with and serving the College and providing an opportunity for continued friendship and a close relationship among ex-students. Every former student of the College is eligible for membership on application to the Association. Besides serving as an alumni organization, the Association performs a number of services for the College. It maintains records of alumni, recruits outstanding academic students, provides scholarships and loan funds, and publishes news of college and alumni activities through *The Texas Techsan* and *Tex Talks*.

## **The Graduate School**

Fred Durnford Rigby  
*Dean*

Roger Leon Brooks  
*Associate Dean*

Irene Neal Temple  
*Administrative Assistant*

Offices: Ad 251

Graduate study is much more than a continuation of undergraduate work. Its true spirit is one of inquiry and the desire to add something to

human knowledge. Graduate study should therefore be contemplated only by students who have already demonstrated in their undergraduate programs unusual intellectual attainments and the power of independent thought and investigation.

For this reason, practically all graduate schools exercise some type of selectivity in their admission of students. Selective entrance requirements are partly for the maintenance of the high standards that must always characterize graduate study and partly for the benefit of students in helping them decide early whether they should undertake such work.

The Graduate School of Texas Technological College recognizes its obligations both to the standards mentioned above and to the citizens of Texas by a twofold classification of graduate students. In connection with the first obligation, the Graduate School requires evidence of an applicant's special ability for admission to its degree programs and reserves the right to decline to accept any applicant whose admission would not be to his best interest or that of the College. On the other hand, to fulfill its obligation to the citizens of Texas, the Graduate School makes its facilities available to a wide variety of students who are not eligible or do not wish to become applicants for degrees.

For more particulars and details on courses and degree requirements refer to the *Graduate Catalog*.

## Degrees and Degree Programs

Accounting	Chemical Engineering
<i>Master of Business Administration</i>	<i>Master of Science in Chemical Engineering</i>
Agricultural Economics	<i>Doctor of Philosophy</i>
<i>Master of Science</i>	
Agricultural Education	Chemistry
<i>Master of Science</i>	<i>Master of Science</i>
	<i>Doctor of Philosophy</i>
Animal Breeding	Civil Engineering
<i>Master of Science</i>	<i>Master of Science in Civil Engineering</i>
Animal Nutrition	<i>Doctor of Philosophy</i>
<i>Master of Science</i>	
Applied Music	Clothing & Textiles
<i>Master of Music</i>	<i>Master of Science in Home Economics</i>
Biology	
<i>Doctor of Philosophy</i>	Crop Science
Botany	<i>Master of Science</i>
<i>Master of Science</i>	Dairy Industry
<i>Doctor of Philosophy</i>	<i>Master of Science</i>
Business Education	Economics
<i>Master of Business Administration</i>	<i>Master of Arts</i>
<i>Master of Education</i>	<i>Master of Business Administration</i>

## Education

*Master of Education**Doctor of Education*

## Electrical Engineering

*Master of Science in Electrical  
Engineering**Doctor of Philosophy*

## Engineering

*Doctor of Philosophy*

## English

*Master of Arts**Doctor of Philosophy*

## Entomology

*Master of Science*

## Finance

*Master of Business Administration*

## Food &amp; Nutrition

*Master of Science in Home  
Economics*

## French

*Master of Arts*

## Geology

*Master of Science**Doctor of Philosophy*

## German

*Master of Arts*

## Government

*Master of Arts**Doctor of Philosophy*

## History

*Master of Arts**Doctor of Philosophy*

## Home Economics Education

*Master of Science in Home  
Economics*

## Horticulture

*Master of Science*

## Industrial Engineering

*Master of Science in Industrial  
Engineering**Doctor of Philosophy*

## Management

*Master of Business Administration*

## Marketing

*Master of Business Administration*

## Mathematics

*Master of Arts**Master of Science**Doctor of Philosophy*

## Meat Science

*Master of Science*

## Mechanical Engineering

*Master of Science in Mechanical  
Engineering**Doctor of Philosophy*

## Microbiology

*Master of Science**Doctor of Philosophy*

## Music Education

*Master of Music Education*

## Park Administration

*Master of Science*

## Physical Education

*Master of Education*

## Physics

*Master of Science**Doctor of Philosophy*

## Psychology

*Master of Arts**Doctor of Philosophy*

## Range Science

*Master of Science*

## Sociology

*Master of Arts*

## Soil Science

*Master of Science*

## Spanish

*Master of Arts*

## Speech

*Master of Arts*

## Zoology

*Master of Science**Doctor of Philosophy*

## Division of Extension

Jacob H. Millikin  
*Director of Extension*

For those who cannot attend regularly scheduled classes the Texas Technological College Division of Extension offers approximately 200 courses by correspondence. Correspondence and extension class study courses have been approved by the Association of Texas Colleges and Universities. The Division of Extension is a member of the National University Extension Association.

### Correspondence Department

The control of a student's program by his academic dean includes correspondence and extension work, and a student in residence at this College may begin or continue correspondence or extension work only with the approval of his academic dean.

Correspondence courses taken for college credit are equivalent in content to corresponding residence courses and require a comparable amount of work. Each such course for which college credit is received must be concluded by a final examination taken under the supervision of a designated examiner at an approved college.

A student at Texas Technological College may do 18 semester hours of his work for a bachelor's degree through correspondence courses. No student may register for or complete a correspondence course during the last semester or summer term before graduation, unless registration is approved by his academic dean because of schedule conflict or the absence of the needed course in the residence schedule. In any event no more than 6 hours of the final semester's work may be completed by correspondence, providing the work does not constitute a part of the major or minor requirements toward the degree.

If he is enrolled full time in both long and summer sessions and carries a normal course load, a student pursuing a degree program at Texas Technological College may not complete more than 6 semester hours by correspondence during any 12-month period beginning September 15. If his course load is more than 15 hours per semester, or 6 hours each summer term, the dean of the student's school may reduce the above maximum of 6 hours by correspondence. If the student should not be enrolled during a semester, or during either or both terms of the summer session, the dean may permit a proportionate increase in the amount of correspondence work to be completed in any 12-month period beginning September 15.

If a student receives a grade of F in a course taken in residence at this College, he may not subsequently take that course by correspondence for credit. Failure in residence of a course for which there are alternate choices in meeting degree requirements precludes the taking of the alternate course, or courses, by correspondence.

The registration fee for each semester hour is \$10. Thus a course carrying 3 semester hours credit costs \$30. All fees are payable in advance and are not refundable. A correspondence course may not be exchanged for another course or transferred to another person.

If a course carries 2 semester hours credit it may not be completed until 30 days or more from the date of registration; a course carrying 3 semester hours credit may not be completed earlier than 45 days from the date of registration.

Correspondence study courses are available in the following schools and departments:

*Agriculture:* Agricultural Economics.

*Arts and Sciences:* Biblical Literature; Education; English; Foreign Languages (French, German, Greek, Latin, and Spanish); Government; Health, Physical Education, and Recreation; History; Mathematics; Philosophy; Psychology; Sociology; and Anthropology.

*Business Administration:* Accounting; Finance; Management; Marketing; Business Administration and Secretarial Administration.

*High School:* College entrance (or high school credit) courses are available in the following fields: agriculture, business, English, foreign languages (French, German, Latin, and Spanish), history and social sciences, mathematics, and physics.

## **Extension Department**

At the request of a sufficient number of students, extension classes may be organized in convenient centers. The number of students required to justify the organization of such a class increases with the distance from the campus. Both graduate and undergraduate work may be made available.

Registration fees for extension class courses are \$10 per semester hour credit. Laboratory fees may be required for courses entailing laboratory work. All fees are paid in advance and are not refundable after a course is started.

A maximum of 6 hours of extension class credit will be allowed toward a master's degree. One-fourth of the work for a bachelor's degree may be earned through extension class and/or correspondence study work (provided not more than 18 semester hours are done through correspondence study alone).

Inquiries concerning specific courses should be addressed to the Division of Extension, Texas Technological College, P.O. Box 4110, Lubbock, Texas 79409.

## **Reserve Officers Training Corps**

All physically fit male students of the freshman and sophomore years, except veterans, are required to elect either band, physical education, military science, or aerospace studies.

On Oct. 13, 1964, the passage of Public Law 88-647 by the United States 88th Congress updated and modified the four-year Reserve Officers Training Corps commissioning programs and provided a new two-year college commissioning program. The new two-year program affords the opportunity for all college students, including junior college transfers, to obtain Army and Air Force commissions under certain provisions.



Both the Departments of the Army and the Air Force maintain a senior division ROTC unit at Texas Technological College. The Army ROTC has the mission of developing officers for the United States Army and providing a corps of well-educated, well-rounded reserve officers to enable the Army to expand with lightning speed in a national emergency. The Air Force ROTC has the mission of producing officers of appropriate quality to qualify for active duty and possible careers in the United States Air Force. Consequently, the Army and Air Force ROTC programs have been designed to "develop the qualities of leadership" in college-trained men. Outstanding ROTC graduates may be recommended for Regular Army or Air Force commissions. The Army offers a general military science curriculum which qualifies graduates for appointment in any one of 14 branches. The Air Force curriculum is a general military and professional officer course qualifying graduates for flying and nonflying appointments in the Air Force. Students enrolled in the ROTC program are not active members of the Armed Forces of the United States.

Students desiring entry into either Air Force or Army ROTC will be required to contact the Professor of Aerospace Studies or Professor of Military Science for specific entry requirements prior to enrollment.

## Teacher Education

The preparation of new teachers and the improvement of teachers already in service is an important function of the College at both the undergraduate and graduate levels. The coordination of the total teacher education program is a responsibility of the Director of Teacher Education and Certification. The Teacher Education Council, appointed by the President of the College, has the authority and responsibility to approve teacher education curricula.

General advisement on degree requirements occurs in the offices of the several academic deans. Advisement on general teacher education requirements and certification is a responsibility of the office of the Director of Teacher Education and Certification. Advisement for courses in the various teaching fields and/or areas of specialization is a responsibility of the particular departments involved. Advisement for courses in professional education is a responsibility of the Department of Education.

### Teacher Certificates

Requirements for a certificate to teach in the public schools of Texas are based on the 1955 Law on Certification of School Personnel as modified. Under this law there are two classes of teacher's certificates; these are designated as the Provisional Certificate and the Professional Certificate. Each certificate, once issued, is permanent and valid for life unless cancelled by lawful authority.

Such teacher's certificates are issued only to persons who have completed the requirements for a bachelor's degree and an approved certification program and have been recommended by the Director of Teacher Education and Certification. Teacher certification and degree programs



are two distinct programs. Policies governing certification programs are administered by the Office of Teacher Certification which may be contacted for additional information.

### **Admission to the Teacher Education Program**

The student expecting to enter a program leading to teacher certification must apply for admission to the Teacher Education Program in the Office of Teacher Education and Certification during his sophomore year or, if he is a transfer student, during the first semester of his attendance at Texas Technological College. Failure to qualify for admission to the Teacher Education Program by the close of the sophomore year may result in a delay in the completion of the certification requirements in the usual four-year period.

A student making application to the Teacher Education Program must have a certification plan on file in the Office of Teacher Certification.

Prerequisites for admission to the Teacher Education Program:

- (1) A scholastic grade-point average of 2.25 on all work taken prior to admission.
- (2) A minimum grade-point average of 2.25 in required English courses or demonstrated proficiency of the fiftieth percentile or above on an English proficiency test administered by the College.
- (3) Competency in speech and hearing. Competency will be determined by tests administered by the Speech Department.
- (4) Freedom from physical and health handicaps believed to be detrimental to teaching.
- (5) Good character and high ethical standards.

### **Certification Plan**

Any undergraduate student working toward a teacher's certificate must file a certification plan with the Director of Teacher Education and Certification during his sophomore year or during his first semester of attendance at Texas Technological College.\* The student's advisers will assist him in filing the certification plan. Any graduate student working toward a professional certificate should file a certification plan with the Director of Teacher Education and Certification following his admission to the professional certificate program. The requirement for filing of a certificate plan applies regardless of the degree being sought, the subject which the student expects to teach, or the level (elementary, secondary, or all-level) at which he expects to be certified. Transfer students must make a certification plan during the first semester of attendance at Texas Technological College. The certification plan is distinct from the degree plan; the latter is filed with the student's academic dean.

Certification plan forms are obtained from the Office of the Director of Teacher Education and Certification. Once the form is secured, the student is responsible for seeing that the proper entries are made by the Director of Teacher Education and Certification.

\* A student in agricultural education or home economics education must consult his department head regarding the proper time to file this certification plan.

## **Admission to Student Teaching**

The completion of 6 semester hours in student teaching is required of every person who obtains a teacher's certificate. Normally a student will take the student teaching course in a single semester during his senior year. Since the teaching experience requires one-half day's time daily during the entire semester, the student teacher is permitted to enroll for no more than 16 semester hours, including student teaching, of college work while he is performing his student teaching.

The following are prerequisite to admission to student teaching:

(1) The applicant must have completed a minimum of 90 semester hours of college work. A student seeking certification to teach in secondary schools must have completed a minimum of 15 semester hours required in each of the teaching fields and 9 semester hours in professional education courses. For those seeking certification in the elementary grades, the 90 hours must include: (a) 24 semester hours in the academic specialization area, and (b) the completion of Education 332, 3331, 3344, and 3345, or their approved equivalents.

(2) Each student, unless he is in agricultural education or home economics education, must file an application with the Department of Education to enroll in student teaching and must do so on or before April 15 preceding the school year in which he expects to register for the course.

(3) The student must pass the health examination required of teachers in the school system in which the student teaching is performed. A health certificate must be presented at the time of registration for student teaching. Forms may be secured from the Office of the Director of Teacher Education and Certification.

(4) The applicant must present evidence that he is free from extreme handicaps that are judged by the Committee on Student Teaching to be detrimental to effective classroom instruction.

(5) The student must have a grade-point average of 2.25 or higher on all his college work and a grade-point average of 2.25 or higher in professional education courses, in each of the two teaching fields (for secondary teaching), and in the fields of academic specialization (for elementary teaching).

(6) Proficiency in the use of the English language must be demonstrated by those who do not have a 2.25 grade-point average on the required courses in English.

The Committee on Student Teaching applies the above standards to transfer students on an individual basis. Transfer students must absolve the requirements above by the beginning of the junior year or during the first semester of attendance at this College, whichever is later.

## **Recommendation for Teacher Certification**

A student who has successfully completed an approved program in teacher certification, who has maintained levels of performance not less than stated as prerequisites for admission to student teaching, and who meets high moral standards is eligible to apply to the College for its recommendation for the appropriate teaching certificate. The student

making application under the above conditions will be recommended by the College to the Texas Education Agency, which is the authority for the issuance of the teacher's certificate.

## **Provisional Certificate Programs**

Provisional certificate programs have been approved for Texas Technological College at the elementary level and at the secondary level. In addition, all-level programs have been approved which qualify the individual for certification in his special subject at both the elementary and secondary levels.

### **1. Provisional Certificate—Elementary**

A student seeking certification to teach in the elementary (grades 1-8) schools must earn a bachelor's degree, complete approximately two years of course work in "Academic Foundations," approximately 36 semester hours in "Academic Specialization" courses, and 30 semester hours in professional education and elementary content courses. The requirements in professional education include 6 semester hours in student teaching.

Areas of academic specialization are biology, English, French, German, government, health and physical education for men, health and physical education for women, history, mathematics, music, sociology, Spanish, speech-drama.

### **2. Provisional Certificate—Secondary**

A student seeking a provisional certificate to teach in the secondary (grades 7-12) schools must earn a bachelor's degree, complete approximately two years of course work in "Academic Foundations," 18 semester hours in professional education courses, including 6 semester hours in student teaching, and a minimum of 48 hours in "Academic Specialization." In completing the requirements in academic specialization, a student may select one of three routes (plans) to his certification objective. Plan I requires him to elect two fields (subjects) in which he expects to teach and to complete a minimum of 24 semester hours in each. At Texas Technological College, the selection may be made from the following:

Biology	History
Chemistry	Journalism
English	Latin
French	Mathematics
German	Physics
Government	Spanish
Health and Physical Education	Speech-Drama

The student following Plan I must consult the heads of the departments in which he plans to qualify for certification in order to determine the specific courses which are required.

Plan II is sometimes referred to as the broad field or composite program. This requires the completion of 48 semester hours in a broad field of such related subjects as art, or science, or business education. Such composite programs do not require an additional teaching field. At

Texas Technological College, the student who elects to follow Plan II may select one of the following broad fields:

Art	Science
Business Education	Social Science
Music	

The student who expects to teach in one of the broad fields listed above should consult the academic department in which he plans to complete the major portion of his studies in order to plan the details of his program; that department will advise him concerning all the courses required in the composite area.

Plan III is restricted to those who are preparing to teach in the vocational fields; at this College, agricultural education and home economics education meet the requirements set forth in the State Plan for Vocational Education. A student who wishes to obtain a certificate in either vocational agriculture or home economics education should consult the head of the appropriate department regarding his course requirements.

To insure the completion of certificate requirements within the time normally required for graduation, students should observe the course sequence in professional education, listed elsewhere in this Catalog.

### 3. All-Level Provisional Certificates

All-level certificate programs are approved at Texas Technological College in the following:

Art	Music Education
Health and Physical Education	Speech-Drama

The student qualifying for an all-level certificate must earn a bachelor's degree and must complete the course work prescribed for the certificate. For a certificate in health and physical education or in music education, the head of the appropriate department must be consulted regarding the details of his academic specialization.

### 4. Provisional Certificates—Teaching Exceptional Children

Certificate programs for teaching exceptional children are approved at Texas Technological College in the following fields:

Mentally Retarded	Speech and Hearing Therapy
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The Provisional Certificate in mental retardation requires the completion of the Bachelor of Science program in Elementary Education plus the addition of 12 semester hours of course work in Special Education. Student Teaching is done in both the regular and the special classrooms. Students interested in the Provisional Certificate in either program should contact designated personnel in the Department of Education or the Department of Speech for specific information.

## Professional Certificate Programs

The professional certificate is the highest teacher's certificate issued in Texas. Each program leading to professional certification is designed to prepare the applicant for a specific professional position. The professional certificate may be issued to a person who (1) has earned

a bachelor's degree, (2) possesses at least three years of teaching experience, (3) has completed 30 semester hours of graduate course work in an approved program, and (4) is recommended by the Director of Teacher Education and Certification. If properly planned, the graduate work may fulfill the requirements for a master's degree and a professional certificate.

At Texas Technological College, approved professional certification programs exist in the following:

Elementary	Special Service
Secondary	Counselor
Health and Physical	Principal
Education	Superintendent
Music	Supervisor
Speech-Drama	Vocational Education
	Agricultural Education
	Home Economics

A student wishing to work toward a professional certificate should first consult the Office of the Director of Teacher Education and Certification to obtain information regarding the programs available and to make application for admission to graduate study for the certificate.

### **Graduate Degrees and Professional Certificates**

A student who wishes to work toward a graduate degree and professional certificate should consult the Dean of the Graduate School regarding degree requirements and the Office of the Director of Teacher Education and Certification regarding certification requirements.

## **Programs of the Undergraduate Schools**

### **Uniform Degree Requirements**

All bachelor's degrees conferred by Texas Technological College are based on the satisfactory completion of specific authorized degree programs. A student's major subject is the degree program in which he is working. The degree programs are offered through the five undergraduate schools of the College and are usually supervised by the instructional departments in each school. For example, a Degree of Bachelor of Science is conferred through the School of Agriculture upon the successful completion of the program in horticulture, supervised by the Department of Park Administration, Horticulture, and Entomology.

Requirements for undergraduate degrees, therefore, are established at these three different levels: (1) the College as a whole (Uniform Degree Requirements), (2) the undergraduate school through which the degree is conferred, and (3) the particular degree program in which the student is working. Students should familiarize themselves with all three sets of requirements which must be fulfilled before the degree is granted.

Each degree program and its special requirements are described in the following pages under the appropriate undergraduate school. The introductory statements explain the degree requirements of that school.

Immediately following are explanations of the Uniform Degree Requirements of the College which apply to all degrees conferred.

### **Residence Credit**

The minimum actual residence required of each student is two consecutive semesters or the equivalent, and the minimum amount of residence work required is 30 semester hours applicable toward the degree sought. In addition, the student must complete the last 30 hours at this College, but these may include a maximum of 6 semester hours in correspondence course work, provided he has met the minimum residence and course work requirements stated above, and provided the correspondence courses are not the final advanced courses in the major and minor fields.

Course work taken through the Division of Extension at Texas Technological College or at any other institution will not be counted as residence credit.

The term, "residence," as a degree requirement should not be confused with "residence" in the State of Texas for enrollment purposes. Residence

credit as used here means credit for work done while enrolled and attending classes on the campus at Texas Technological College.

### **Quality Points**

A minimum grade-point average of 2.00 is required for graduation. The grades on all courses which the student takes at this College are used in determining this average, with these exceptions:

1. When a course has been repeated, only the grade made on the last registration is used, and

2. When a student transfers from one school to another within the College, grades of F and WF are not used, provided they were made prior to the first such transfer.

These provisions apply only when the grade-point average is calculated for meeting degree requirements.

### **Application for Degree**

A candidate should file his application for a degree at least two semesters in advance of graduation, and must file it not later than the beginning of the semester in which he expects to receive the degree.

Any student who registers in the semester or summer session in which he expects to complete the work for a bachelor's degree, but who has less than the number of grade points required for graduation, will be granted only conditional admission to candidacy. In this status, the student acts on his own responsibility in ordering a diploma or making other graduation arrangements.

### **Personnel Information Forms**

Graduating seniors are required to complete Personnel Information Forms and to present two 2" x 3" glossy photographic prints for filing with the Placement Service prior to graduation. This enables the College to complete its personnel files and is required of all graduating seniors, whether or not they are seeking a position.

### **Requirements in Government and History**

Under state law all students who receive a bachelor's degree from Texas Technological College must have received credit for 6 semester hours in government, covering the Federal and the Texas constitutions, and 6 semester hours in American history; 3 semester hours in the history of Texas may be substituted for 3 of the American history hours.

### **Physical Education**

Completion of four semesters of physical education activity courses is a requirement for all bachelor's degrees, with the exceptions noted below. Normally, students will enroll in and complete these courses during their freshman and sophomore years. Credits in physical education activity courses or substitutes are accepted in transfer to the extent that they meet degree requirements; however, grade points earned in such courses may not be applied to reduce a grade-point deficiency acquired in other subjects.

**Exceptions**

1. When approved by the student's academic dean, band may be substituted for physical education.

2. Male students who qualify for participation in aerospace studies or military science may take the basic courses (four semesters) of the four-year ROTC program or the two-year (four semesters) ROTC program in place of physical education. Once entered upon, the satisfactory completion of these courses becomes a requirement for graduation unless the student is specifically excused by the Department of Aerospace Studies or the Department of Military Science and the student's academic dean.

3. Any student who has been honorably discharged from the Armed Forces with a minimum of 90 days' service may receive credit for 2 of the semester hours in physical education normally required as part of his curriculum. With one year or more of active service he may receive credit for the 4 semester hours in physical education normally required. Application for this credit must be made in the first semester of attendance at the College following honorable discharge.

4. A student over 25 years of age may substitute 3 semester hours of academic work in physical education for the required four semesters in physical education activity work.

5. Students who have a doctor's recommendation for limited physical activity must enroll in the appropriate physical education activity courses (Physical Education for Men and Physical Education for Women). Four semester hours of credit may be earned by repeating one of these courses.

**Graduation Under a Particular Catalog**

A student is expected to complete the *degree requirements* set forth in a particular college catalog. Normally this will be the catalog in effect the year the student first registers in the school from which he receives his degree. Only with the specific approval of his academic dean may a different catalog be selected. In no case may a student complete the requirements set forth in a catalog more than seven years old. When necessary, a catalog issued later than the student's first registration may be selected by the academic dean in conference with the student.

The annual *General Catalog* is published in the spring, and its provisions are applicable during the following school year, September through August. However, a student who registers for the first time in the College during a summer session is subject to the degree requirements set forth in the catalog effective for the fall semester immediately following his initial enrollment.

**Commencement Exercises**

Diplomas are awarded at commencement exercises which are conducted twice each year: at the end of the spring semester and at the end of the summer session. Students who complete their degree



requirements in a fall semester will be awarded diplomas at the next scheduled commencement.

To receive a degree, a student must either attend the commencement exercise or receive approval for graduating *in absentia*. Application for *in absentia* graduation must be submitted in writing to the student's academic dean within the time specified in the College Calendar.

### **Second Bachelor's Degree**

No second bachelor's degree is conferred until the candidate has completed at least 24 semester hours in addition to the courses counted toward his first bachelor's degree.

## **School of Agriculture**

Gerald W. Thomas  
*Dean*

J. Wayland Bennett  
*Associate Dean*

Offices: Ag 201

The programs of this school are designed to qualify the student for a place in modern agricultural industry—an industry that encompasses three closely related segments: (1) the producers of agricultural products on farms and ranches, (2) the suppliers of machinery, fertilizers, feed, seed, and other production resources, and (3) innumerable phases of processing, storage, distribution, and other services associated with our food and fiber economy.

Through proper selection of courses, opportunity is provided for training in the business aspects of agriculture in several subject-matter departments. Those students interested in the highly specialized scientific aspects of the industry will receive more training in mathematics and the basic sciences, followed by well-planned courses in technical agriculture. As the size and complexity of farms and ranches continue to increase, more technology and management information is also needed by students who plan careers as producers of farm and ranch products.

Laboratory facilities in agriculture include the 1,500-acre College Farm and approximately 14,000 acres at the Texas Tech Research Farm near Amarillo. Research in agriculture and service to the industry are a part of the program involving well qualified advanced undergraduate and graduate students. Field trips and participation in intercollegiate contests are a part of the training program, and students have at their disposal a farm which serves as a laboratory, well stocked with machinery and farm animals.

Recent surveys indicate that the agricultural industry could employ approximately 15,000 new college graduates each year. At present the major agricultural colleges graduate only about 7,500 young men and women for these positions. With these excellent opportunities for the college graduate, however, are associated demands for better training and more highly specialized skills.

The School of Agriculture participates in the graduate program at Texas Technological College with master's level work in the areas of agricultural economics, agricultural education, animal breeding, animal nutrition, crop science, dairy industry, entomology, horticulture, meat science, park administration, range science, and soil science. Details concerning these programs are available in the *Graduate Catalog*.

The following pages summarize the undergraduate programs offered by the School of Agriculture and the requirements for degrees.

## General Requirements of the School of Agriculture

All agricultural students, except those majoring in agricultural engineering, are required to take 6 semester hours of English and 16 hours of interdisciplinary agricultural courses. The total hours required for graduation range from 136 to 140 exclusive of physical education, band, or basic ROTC. It is expected that students enrolled in the School of Agriculture will earn credit toward a degree by following an orderly sequence of courses through consultation with the major department. Specific curricula have been established for all degree programs. These are given in detail in Part II of this Catalog (Courses and Curricula). Any deviation from the approved curriculum for a particular degree must have prior approval from the head of the department involved and the Office of the Dean. The degree requirements for each undergraduate program are summarized below.

## Degree Programs

### Agricultural Economics

Agricultural economics provides both scholarly and practical training toward effective solution of economic problems encountered on farms, in agricultural marketing and by non-farm agricultural business firms. Farm or ranch management, including economics of farm production, land and water economics, and land appraisal, is a principal area of emphasis. Another is agricultural business management which includes instruction in economics, marketing, accounting, and price analysis. Instruction in agricultural finance, statistical analysis, research methods, and agricultural policies and programs also are provided. A program of training in rural socio-economics places emphasis on sociological as well as economic problems of rural areas. Agricultural economics prepares students for occupations in agriculture; agricultural utility, processing, supply or marketing firms; federal and state agencies; chambers of commerce; extension services; and as agricultural representatives of banks. A special program of study is offered to those interested in graduate study and a professional career in education or research.

Degree: *Bachelor of Science*.

Special Requirements:

(a) Agribusiness emphasis:

	Sem. Hrs.
Agricultural Economics	42
Agricultural Sciences	13
Economics or Business	30
Other Science and Mathematics	16

Communications	12
History and Government	12
Electives	11
Total (exclusive of physical education, band, or basic ROTC):	136
(b) Farm or Ranch Management emphasis:	
	Sem. Hrs.
Agricultural Economics	42
Agricultural Sciences	36-39
Other Science and Mathematics	24
Communications	12
History and Government	12
Electives	10-7
Total (exclusive of physical education, band, or basic ROTC):	136
(c) Rural Socio-Economics emphasis:	
	Sem. Hrs.
Agricultural Economics	33
Agricultural Sciences	13
Economics or Business	3
Other Science and Mathematics	16
Communications	12
History and Government	12
Sociology, Psychology, and Philosophy	21
Electives	26
Total (exclusive of physical education, band, or basic ROTC):	136
(d) Agricultural Economics Research emphasis:	
	Sem. Hrs.
Agricultural Economics	39
Agricultural Sciences	13
Economics or Business	15
Other Science and Mathematics	25
Communications	9
History and Government	12
Electives	23
Total (exclusive of physical education, band, or basic ROTC):	136

### **Agricultural Education**

The program in agricultural education is designed to qualify the student to teach vocational agriculture under the Federal Vocational Education (Smith-Hughes) Act and to supplement the student's instruction in technical and professional agriculture. Graduates also find employment with the Agricultural Extension Service, Soil Conservation Service, other agricultural agencies, and in industries related to agriculture.

Students expecting to receive a teaching certificate in vocational agriculture must meet the requirements for admittance to student teach-

ing. These are listed in the section of this Catalog devoted to Teacher Education.

Degree: *Bachelor of Science*

Special Requirements:

	Sem. Hrs.
Agricultural Sciences	55
Other Sciences and Mathematics	30
History and Government	12
Communications	12
Professional Education	18
Electives	9
Total (exclusive of physical education, band, or basic ROTC):	136

### Agricultural Engineering

Agricultural engineering, a relatively new field, basically applies engineering techniques to the agricultural industry. Course work is of such nature as to prepare a student as a professional engineer. For those who wish to specialize in this field, there are five areas of specialization: Farm Power and Machinery, Farmstead Buildings and Structures, Farm Electrification and Utilities, Agricultural Crop Processing, and Soil and Water Conservation, including irrigation.

Expanding agricultural mechanization has caused an increasing demand for agricultural engineering graduates, and many graduates move rapidly into management positions. Employment is well distributed among industrial organizations, individual private enterprises, and government agencies.

Agricultural engineers are employed by equipment manufacturers producing farm machinery, farm processing equipment, rural electrical equipment, farm structures, and irrigation equipment. They are also employed as distributors, dealers, and company representatives for farm equipment suppliers, electric service companies, trade associations, agricultural processors, consulting engineers, construction firms, and farm engineering and management services. Many are self-employed in some of the above types of businesses. Local, state, and federal government agencies employ graduates for teaching, extension, research, and construction work.

This program is under the joint supervision of the schools of Agriculture and Engineering.

Degree: *Bachelor of Science in Agricultural Engineering*

Special Requirements:

	Sem. Hrs.
Mathematics and Basic Science	42
Engineering Science	27
Engineering Analysis, Design, and Systems	25
Other Technical Courses	13
Humanities and Social Sciences	28
Electives	5
Total (exclusive of physical education, band, or basic ROTC):	140

**Agricultural Science**

The agricultural science curriculum provides a sound background in the basic physical and biological sciences and includes sufficient advanced agricultural courses for the student interested in agricultural research, in teaching agricultural science in colleges and universities, or work in specialized fields of agricultural science. The curriculum is strongly recommended for students who expect to continue into graduate study. It is administered by the Dean of Agriculture.

Only those students who by their freshman entrance test records are placed in the top 10 percent of their class, or those capable of maintaining an average of B or above, should follow this curriculum. Students electing it must agree to be available for summer employment for two years, the place of employment to be approved by the curriculum adviser.

Degree: *Bachelor of Science*

Special Requirements:

	Sem. Hrs.
Agricultural Sciences	16
Other Sciences and Mathematics	44
Communications	12
History and Government	12
Agricultural courses and Science electives	56
Total (exclusive of physical education, band, or basic ROTC):	140

**Agronomy, Crops Major**

The crops major has as its objective the application of crop science, soil science, and related sciences to the improvement, production, and use of field crops, along with the efficient and effective utilization of the available agricultural resources of soil, water, and light. The agronomist aims at higher yields per acre of better quality food, seed, feed, and fiber.

Areas of emphasis include crop science (to prepare the student for graduate study, research or other technical areas); crop production (for those interested in seed production, farm management, and public agency work); and agronomic industry (for the student who wishes to prepare for farm services and other business phases of agricultural production).

The agronomy curriculum includes courses in the biological, chemical, physical, social, and agricultural sciences to provide for broad but basic training in a chosen profession. Students are counseled by staff members in choosing courses best suited to their needs and interests.

Degree: *Bachelor of Science*

Special Requirements:

(a) Crop Science emphasis:

	Sem. Hrs.
Agricultural Science	47
Other Science and Mathematics	55
Communications and Humanities	9
Social and Political Science	15
Electives	10
Total (exclusive of physical education, band, or basic ROTC):	136

## (b) Crop Production emphasis:

	Sem. Hrs.
Agricultural Science	56
Other Science and Mathematics	33
Communications and Humanities	9
Social and Political Science	18
Electives	20
Total (exclusive of physical education, band, or basic ROTC):	136

## (c) Agronomic Industry emphasis:

	Sem. Hrs.
Agricultural Science	40
Other Science and Mathematics	30
Communications and Humanities	12
Social and Political Science	24
Other Areas (Business)	15
Electives	15
Total (exclusive of physical education, band, or basic ROTC):	136

**Agronomy, Soils Major**

The soils major has as its goal the preparation of the student in that science dealing with the physical, chemical, and biological properties and the processes which occur in our most valuable natural resource, the soil.

The curriculum is designed to provide the student with a core of courses in the physical, chemical, biological, and soil sciences necessary to the understanding of the makeup, development, and profitable utilization of the available soil resources.

The curriculum provides sufficient flexibility to permit the development of a program which will prepare the student for one of many areas in the field of soil science, such as civil service work, soils research, land appraisal, or graduate study.

Degree: *Bachelor of Science*

Special Requirements:

	Sem. Hrs.
Agricultural Science	44
Other Science and Mathematics	55
Communications and Humanities	9
Social and Political Science	15
Electives	13
Total (exclusive of physical education, band, or basic ROTC):	136

**Animal Business**

The animal business program is designed to give the student broad training in both the areas of animal husbandry and business. Today, the majority of animal husbandry students find employment in allied fields such as feed research, feed plant management, manufacturing and sales, meat processing and merchandising, agricultural credit, and others.

In addition to the core curriculum, the student with special interests will be counseled into courses in communications, business law, or marketing.

Degree: *Bachelor of Science*

Special Requirements:

	Sem. Hrs.
Animal Husbandry	28
Agricultural Science and Veterinary Science	26
Other Science and Mathematics	23
Communications	12
Political and Social Sciences	24
Electives	23
Total (exclusive of physical education, band, or basic ROTC):	136

### **Animal Production**

Animal husbandry today is a composite of several fields of specialization, each of which is constantly undergoing changes due to new concepts or improved techniques. For this reason, the curricula for animal husbandry students have been revised to provide for current and anticipated needs. The animal production curriculum provides a general course of study in breeding, feeding, management, production, and processing for market of animal products and poultry. This program is designed for students who contemplate return to a ranch or farm.

A large, well-equipped farm and feedlot system, a milking parlor, and a modern meat industry laboratory provide on-the-spot experience in dealing with current problems of the livestock and meat industries.

Degree: *Bachelor of Science*

Special Requirements:

	Sem. Hrs.
Animal Husbandry	35
Agricultural Science and Veterinary Science	39
Other Science and Mathematics	26
Communications	12
Political and Social Sciences	12
Electives	12
Total (exclusive of physical education, band, or basic ROTC):	136

### **Animal Science**

This course of study is designed particularly for the student who plans to continue his training in graduate school. Able students who are interested in science and research, and who desire careers as animal scientists, either in government, industry, or in colleges, are encouraged to elect this major.

In addition to the core curriculum, the student will be counseled into courses providing adequate preparation for many of the areas of specialization encountered in advanced studies. Preparation at an early stage of undergraduate study is recommended for subsequent major or



minor specialization in the fields of animal breeding (genetics), animal nutrition, biometrics, meats, physiology, and physiology of reproduction.

Degree: *Bachelor of Science*

Special Requirements:

	Sem. Hrs.
Animal Husbandry	16
Agricultural Science and Veterinary Science	27
Other Science and Mathematics	33
Communications	12
Political and Social Sciences	12
Electives	36
Total (exclusive of physical education, band, or basic ROTC):	136

### Dairy Industry

The program in dairy industry emphasizes courses in the scientific and business aspects of the food and dairy industry. Graduates are prepared for careers in college teaching, research work with experiment stations and other agencies, and positions in various aspects of the food and dairy industry, such as office management, salesmanship, advertising, quality control and laboratory supervision, and public health work with governmental organizations on the local, state, and national level. Through free electives the student may receive training in closely allied fields.

Degree: *Bachelor of Science*

Special Requirements:

	Sem. Hrs.
Agricultural Sciences	16
Other Sciences and Mathematics	26
Humanities and Communications	27
Dairy and Food Sciences	40
Electives	27
Total (exclusive of physical education, band, or basic ROTC):	136

### Entomology

The entomology major enables students to specialize in the sciences dealing with insects and their relationship to other animals, man, and agriculture. The curriculum is designed to prepare students for careers in research, teaching, or insect control. Opportunities are available in such fields as state and federal experiment station work, public health services, plant quarantine, insecticide sales and development, state and federal extension work, pest control, and agricultural consultation. There are many opportunities for remunerative summer employment, and such work is considered an integral part of the entomology program.

A student may obtain a degree in the entomology program with a major in entomology by following the agricultural curriculum, or may specialize in entomology with a zoology major in the School of Arts and Sciences by taking 24 hours of entomology courses.

Degree: *Bachelor of Science*

Special Requirements:

	Sem. Hrs.
Agricultural Sciences	23
Entomology	32
Basic Science and Mathematics	35
Humanities and Communications	21
Electives	25
Total (exclusive of physical education, band, or basic ROTC) :	136

### Horticulture

The program in horticulture is designed to teach the science and skills in growing and utilization of horticultural crops. Because the field of horticulture is broad, provision has been made for the student to place emphasis in his training upon the particular field of horticulture in which he has the greatest interest. Thus the student may prepare for a career in the production, business management, or one of the many scientific careers in floriculture, vegetable crops, fruit, ornamental plants, or turf. Young men and women who enjoy working with plants will find abundant career opportunities in each of these fields.

The curriculum provides abundant elective hours for course work in business, the fine arts, agricultural science, and other areas which complement the major. Professional experience may be obtained by participation in a summer intern program which places students in horticultural jobs throughout the United States.

Degree: *Bachelor of Science*

Special Requirements:

	Sem. Hrs.
Humanities and Communication	21
Natural Sciences	36
Applied Sciences	38
Electives	41
Total (exclusive of physical education, band, or basic ROTC) :	136

### Mechanized Agriculture

Mechanized agriculture is a study of basic agriculture with emphasis on mechanization technology and business. It is not a professional engineering program nor a vocational program, but rather an intermediate program designed to prepare a young man for an interesting, enjoyable, and profitable career in mechanized agricultural enterprises.

Modern farming has created a need for farm operators, agricultural associated business personnel, and service personnel to have a thorough knowledge of agricultural mechanization technology. This curriculum is essentially one in which the student is prepared in basic agriculture, provided with agricultural mechanization technology, and encouraged in the area of sales, service, and managerial aspects of industries doing business with modern farmers and ranchers. The program is designed to apply mechanized technology to modern agriculture and provide a means of implementation of same.

Students are prepared upon graduation to work in such occupations as mechanized farm management, industry agricultural representation, equipment and structural sales and services, farm produce processing, farm electric power supplies, transportation, and other businesses supplying goods and services to farmers. Employment is also available in trade associations, advertising agencies, various state and federal government agencies, as well as individual enterprises.

Degree: *Bachelor of Science*

Special Requirements:

	Sem. Hrs.
Agricultural Sciences	33
Other Sciences and Mathematics	35
Other Technical and Business	24
Humanities and Social Sciences	30
Electives	14
Total (exclusive of physical education, band, or basic ROTC):	136

### Park Administration

A growing awareness of the importance of parks and recreation has brought about an increasing demand for trained administrators and planners in this field. Employment opportunities are numerous among all levels of governmental agencies. Opportunities are also available in private firms in landscape architecture and planning.

The course of study for park administration includes courses in the arts (architecture and landscape architecture), humanities, pure and applied science, business administration, and agriculture.

The student is given the opportunity to participate in the summer intern program. Placement is made through the department and ample jobs are available.

Degree: *Bachelor of Science*

Special Requirements:

	Sem. Hrs.
Humanities and Communication	27
Natural Sciences	19
Applied Sciences	45
Administration	5
Design and Planning	30
Electives	10
Total (exclusive of physical education, band, or basic ROTC):	136

### Range Management

This course of study trains in the art of obtaining maximum sustained use of native lands for production of domestic and wild animals.

Courses and curricula are designed to provide adequate training in production of range forage, animal husbandry, and economics of wild land use.

Areas of emphasis include general range management for the rancher or land administrator; wildlife management to emphasize wildlife

production and recreation; and ranch management for those who will go into the business phase of range management.

A student desiring to train for a career in wildlife management may major in a range-wildlife combination which will be largely habitat oriented with major emphasis placed on the relationship between native animals, domestic livestock and the land which produces them. The student interested only in wildlife management can be guided in selecting at least two years of course work which can be transferred to schools offering degrees in wildlife management.

Degree: *Bachelor of Science*

Special Requirements:

	Sem. Hrs.
Agricultural Science	57
Other Science and Mathematics	35
Communications and Humanities	12
Social and Political Sciences	18
Electives	14
Total (exclusive of physical education, band, or basic ROTC):	136

### **Pre-Veterinary Medicine**

This curriculum is designed to qualify students for entrance to schools of veterinary science. Texas Technological College offers only the two-year pre-veterinary medicine curriculum. Students who contemplate completing their D.V.M. training in states other than Texas are advised to check catalogs from the school of their choice for requirements of that school. Students who complete this curriculum may either apply for admission to a school of veterinary medicine or change to one of the four-year curricula in the School of Agriculture.

Special Requirements:

	Sem. Hrs.
Agricultural Sciences	10
Other Science and Mathematics	40
History and Government	12
Humanities and Communications	12
Total (exclusive of physical education, band, or basic ROTC):	74

## **School of Arts and Sciences**

S. M. Kennedy  
*Dean*

Ivan L. Little  
*Associate Dean*

Kathryn S. Durham  
*Administrative Assistant*

Offices: Ad 206

The primary function of the School of Arts and Sciences is to provide a liberal education for its students. Through the programs offered

by its 18 departments, the school aims to develop habits of independent and creative thinking which will enrich the lives of its graduates and enable them to become participating members of their community. Through its courses in the liberal arts and the sciences, the school also provides the background for further specialization and is of special value to the student who comes to college without a predetermined field of study. Although it is one of the traditions of American education that the student shall have the right to select for himself the areas of study he wishes to follow, experience has demonstrated that certain studies are of fundamental importance, not only in providing a base from which to explore more definite realms of knowledge, but also in affording lifelong personal satisfaction and enjoyment. These basic studies are to be found among those offered by the School of Arts and Sciences.

The work offered in this school is most diversified. Herein the student can learn of the society in which he lives and how that society developed through its history, its literature, its art and music. Through political science the student learns how society governs itself, and through the physical and biological sciences he learns the fundamental laws of the universe. The student is enabled to broaden his concepts and by liberal education to attain values which last a lifetime.

The departments in the School of Arts and Sciences participate extensively in the graduate programs of Texas Technological College on both master's and doctor's levels. Details are available in the *Graduate Catalog*.

The following pages summarize the undergraduate programs offered by the School of Arts and Sciences and the requirements for degrees.

## General Degree Requirements of the School of Arts and Sciences

Requirements for the Degree of Bachelor of Arts also apply to all other degrees offered through the School of Arts and Sciences unless specifically shown to the contrary.

### Bachelor of Arts

The curriculum established for the Degree of Bachelor of Arts is designed to provide the foundation of a liberal education through a well rounded study of the humanities and the physical, biological, and social sciences. It provides also the factual basis and the insights requisite for specialized study and professional work in these fields.

The following are the general requirements for this degree:

	Sem. Hrs.
1. English .....	12
2. Foreign Language .....	12-14*
3. Mathematics .....	0-6**
4. Required Government and History .....	12

\* A student must complete 12-14 hours in the same language. Courses at the freshman level may not be used to fulfill this requirement if a student has studied this language for two or more years in high school.

\*\* If  $3\frac{1}{2}$  units of mathematics including 2 of algebra, 1 of geometry, and  $\frac{1}{2}$  of trigonometry are accepted for admission, no further courses in mathematics are required. If 3 units are accepted, including 2 of algebra and 1 of geometry, 3 semester hours are required. If these admission requirements are not met, 6 semester hours of mathematics are required.

5. Social science other than major or minor and in addition to the legislative requirements in government and history above .....6
6. Laboratory Science .....8-16\*
7. Fine Arts .....6\*\*
8. Major, minor, and electives sufficient with the above courses to total a minimum of 123 semester hours, not including physical education, band, or basic ROTC

The student should have selected his major and minor fields by the time he reaches his junior year. In the majority of cases, students completing the requirements for the Degree of Bachelor of Arts will carry their major and minor work in departments of this school. For the major subject he will be required to complete a minimum of 30 semester hours, although as indicated in the degree programs on the following pages, some majors require more than the minimum. Eighteen hours of the major subject must be in courses of junior and senior rank. For the minor, a minimum of 18 semester hours must be completed, at least 6 of which must be of junior or senior rank. All courses in the major and minor subjects must be approved by the head of the department concerned.

For the Bachelor of Arts Degree, a minimum of 40 semester hours of junior and senior work must be presented; not more than 42 semester hours in one subject may be counted; not more than 12 hours in Biblical history and literature may be counted; not more than 8 hours may be counted in applied music and/or music ensemble, except for students offering music as a major or minor; not more than 8 hours of advanced ROTC may be counted as electives toward degree requirements, subject to the approval of the head of the student's major department; not more than 24 hours in the technical or professional subjects of agriculture, business administration, engineering, and/or home economics may be counted as electives; and courses in shorthand and typewriting may not be offered for this degree except in the bilingual secretarial major.

### Bachelor of Science

The curriculum for the Degree of Bachelor of Science places greater emphasis on specialized training in mathematics and the sciences. The following are the requirements for this degree:

	Sem. Hrs.
1. English .....	12
2. Foreign Language .....	12-14
3. Mathematics .....	6
4. Required Government and History .....	12
5. Major, minor, and electives sufficient with the above courses to total a minimum of 124 semester hours, not including physical education, band, or basic ROTC	

\* If 2 or more units of laboratory science, biological or physical or both, but not including general or applied science, are accepted for admission, one year of a laboratory course in college will satisfy the natural science requirement. If this admission requirement is not met, one year of two sciences or two years in one science must be completed.

\*\* Al. Art 131, 132, 4318, 4319; Music Lit. 238, 239; P.E. 3313; Speech 231, 4352. For course descriptions see Part II of this Catalog (Courses and Curricula).

Both a major and a minor are required for the Bachelor of Science Degree, and each is to be completed within one of the separate subject matter fields of microbiology, botany, chemistry, geosciences, mathematics, physics, or zoology. The minimum requirements for the major and minor are 36 and 18 semester hours, respectively, including a minimum of 18 hours advanced work in the major and 6 advanced hours in the minor.

Specific curricula are provided in Part II of this Catalog (Courses and Curricula) for all programs leading to the Bachelor of Science Degree, and it is expected that students will follow the suggestions and recommendations contained therein.

#### **Bachelor of Science in Education—Elementary Level**

Specific curricula have been established for this degree, and these are described in detail in Part II of this Catalog (Courses and Curricula). The following is a generalized summary of these requirements:

Sem. Hrs.

1. Foundation courses in humanities, social sciences, laboratory sciences, and mathematics .....58
2. Academic specialization, music education, physical education, and applied art (may include some courses in Group 1 above) .....36
3. Professional education and elementary content courses .....30
4. Sufficient electives with the above courses to total a minimum of 124 hours, not including required physical education, band or basic ROTC
5. Completion of the requirements for teacher certification

#### **Bachelor of Science in Education—Secondary Level**

Specific curricula have been established for this degree, and these are described in detail in Part II of this Catalog (Courses and Curricula). The following is a generalized summary of these requirements:

Sem. Hrs.

1. Foundation courses in humanities, social sciences, laboratory science, and mathematics or foreign language .....53-55
2. Teaching field No. 1 (may include courses in Group 1 above) .....24
3. Teaching field No. 2 (may include courses in Group 1 above) .....24
4. Professional education .....24
5. Sufficient electives with the above courses to total a minimum of 124 semester hours, not including physical education, band, or basic ROTC
6. Completion of the requirements for teacher certification

Note that in the curriculum for secondary education the student may select and begin work in one of the major teaching fields in the freshman year. With the approval of the deans concerned, teaching fields may be chosen in schools of the College other than Arts and Sciences. A student may substitute 48 semester hours in one of the broad fields of art, business education, music, science, or social science for the two teaching



fields of 24 hours each. If the broad field of science is elected, the course work must be distributed in at least three of the science departments, but work taken in the Department of Geosciences should not exceed 8 semester hours.

The specific work taken in each of the teaching fields must be planned in consultation with the appropriate department head. Special requirements are made for music education [vocal and instrumental majors] and for physical education.

### **Bachelor of Science in Medical Technology**

The curriculum leading to the Degree of Bachelor of Science in Medical Technology requires a minimum enrollment of three academic years and one summer term in the School of Arts and Sciences and 12 months' training in a school of medical technology approved by the American Society of Clinical Pathologists. The specific courses for the degree program are provided in Part II of this Catalog (Courses and Curricula). Transfer students from other colleges or from other degree plans will be integrated into the degree program with as little loss of work and time as the requirements permit. A student is required to be in residence at the College for two semesters, during which he must complete 30 semester hours of work; at least 24 of the last 30 hours offered for credit must be completed in residence. An overall C average on work taken at Texas Technological College is required.

### **Bachelor of Music Education**

The Bachelor of Music Education Degree is for the student who expects to teach or direct vocal or instrumental music in the public schools.

Minimum requirements for the Degree of Bachelor of Music Education are as follows:

	Sem. Hrs.
1. English .....	12
2. Required Government and History .....	12
3. Foreign Language .....	6-8
4. Science or Mathematics .....	6-8
5. Academic Electives .....	6
6. Professional Education and Student Teaching .....	18
7. Applied music, music literature, music education, music theory, music ensemble (band, chorus, orchestra, opera), and free electives, to total a minimum of 130-134 semester hours, not including physical education, band, or basic ROTC	

### **Bachelor of Music**

Minimum requirements for the Degree of Bachelor of Music (Applied Music) are as follows:

	Sem. Hrs.
1. English .....	12
2. Required Government and History .....	12
3. Foreign Language .....	6-22
4. Applied music, music literature, music education, music theory, music ensemble (band, chorus, orchestra,	

opera theater), and free electives to total a minimum of 120 to 132 semester hours, depending upon the major, not including physical education, band, or basic ROTC

## **Degree Programs**

### **Anthropology**

The primary objective of anthropology is to introduce students to the story of man and to provide some understanding of man's physical development and an appreciation of the variables which have contributed to his culture. Primitive peoples of the world are studied to provide insight into the operational mechanisms of their relatively simple cultures, thus contributing to the student's understanding of our own complex civilization and developing in him the objectivity necessary for analysis and comparison of our modern social relationships and institutions.

Most anthropology majors anticipate completion of postgraduate study which qualifies them for the better positions within the field. However, there are worthwhile positions for which only a bachelor's degree is required. Included in this category are positions at research institutions and museums. Other positions exist in international organizations, such as the United Nations' subdivisions (UNESCO, World Health Organization, International Labor Office, etc.), The Inter-American Indian Institute, The Arctic Institute of North America, and the International African Institute. The United States government employs anthropologists, both in this country and on foreign assignment, for both educational and research organizations. Positions in the business and industrial world are few in number but constantly increasing.

Degree: *Bachelor of Arts*

Special Requirements:\*

(1) Completion of certain courses specified in Part II of this Catalog (Courses and Curricula) as a part of the work on the major or minor.

(2) A grade of C or better in all advanced courses counted toward a major or minor in anthropology.

### **Applied Music**

This traditional degree program in music is aimed at helping the student attain the skills and proficiencies of a strong musician while at the same time acquiring through liberal arts courses a broad general education. Applied music courses concentrate on the student's development of proficiency with at least two instruments.

Degree: *Bachelor of Music*

Special Requirements:\*

(1) Certain courses in music as specified in Part II of this Catalog (Courses and Curricula) as a part of the work on the major.

(2) Or, the completion of the eight-semester curriculum in voice or instrument (which may be obtained from the Department of Music) for the Bachelor of Music Degree.

### **Art**

Texas Technological College has two strong departments related to art. Allied arts is associated with architecture in the School of En-

\* See preceding section for general requirements for degrees.

gineering, and the Department of Applied Arts is in the School of Home Economics. A major may be taken in either (or both) of these departments which will provide the student with an excellent background for the enjoyment of art as well as professional preparation in certain areas. For further information, students should consult the department head concerned.

Degree: *Bachelor of Arts*

Special Requirements:\*

Completion of the general degree requirements with a minimum 30 semester hours in art courses as arranged with the head of either department involved.

### **Bilingual Secretarial Program**

This program is designed for students who wish to enjoy the benefits of a liberal education and at the same time prepare themselves in an occupational field.

Degree: *Bachelor of Arts*

Special Requirements:\*

(1) Completion of a major (of 33 semester hours) in French, German, or Spanish and a minor (minimum 18 hours) in an academic subject.

(2) An additional 25 semester hours in courses in the Department of Business Education and Secretarial Administration. This will not normally cause the total hours required for a degree to exceed 123 because the usual elective courses may be used for this purpose.

(3) For students who have previously attained basic skills in typing and/or shorthand the requirements in business education and secretarial administration will be proportionately reduced.

(4) Courses in typing and shorthand may be counted as semester hours toward the degree if this program is completed.

### **Botany**

Botany, the study of the structure, function, classification, and adaptation of plants, deals with fundamental principles of life, living systems, and the interaction of organisms with their environment. Botany is closely allied to many applied sciences such as agriculture, medicine, oceanography, pharmacy, microbiology, and pathology. Professional opportunities for students in botany are, primarily, in teaching and research, both at the high school and university level. Currently, employment is available for technical personnel in space biology, oceanography, agricultural research, and pharmacy. Graduate study is important to those students seeking the most rewarding positions in botany.

Degrees: *Bachelor of Arts*

*Bachelor of Science*

Special Requirements:\*

(1) Completion of certain courses specified in Part II of this Catalog (Courses and Curricula) as a part of the work on the major.

(2) In the Bachelor of Science program, the completion of freshman courses in each of the three fields of chemistry, geology, and physics.

\* See preceding section for general requirements for degrees.

(3) A grade of D will be accepted in no more than two courses in botany.

### Chemistry

For those who desire a maximum flexibility in their choice of courses, the Bachelor of Arts Degree is recommended, and those who are preparing for professional work in medicine or in the teaching of science may also find this program preferable.

The Bachelor of Science Degree is designed to give the student fundamental work in the various fields of chemistry, with supporting work in mathematics and other sciences. This program may be preferred by those who wish to enter industry as chemists. Both curricula are designed to fit the student for graduate work as well as the professional pursuits mentioned above.

Degrees: *Bachelor of Arts*

*Bachelor of Science*

Special Requirements:\*

(1) Grades of D will not be accepted in more than 20 percent of the hours counted toward a major in chemistry. Not more than one D will be accepted in any two-semester course.

(2) For the Bachelor of Science program, the completion of certain courses specified in Part II of this Catalog (Courses and Curricula) is required as a part of the work on the major.

### Economics

Students in the School of Arts and Sciences may earn the B.A. Degree with either a major or minor in the Department of Economics, which is in the School of Business Administration. Such a program affords the student an opportunity to receive both a broad liberal education and rigorous training in the tools of scientific economic analysis. The core of required economics courses within the major is small. It includes one year of principles of economics, one year of economic theory, and one year of the development of economic ideas. Considerable latitude thus exists for the student to select additional courses from among such areas as international economics, mathematical economics, comparative economic systems, labor economics, public finance, and business economics. Students complement their major in economics by choosing minors in relevant academic disciplines within the various schools of the College.

Degree: *Bachelor of Arts*

Special Requirements:\*

Completion of the general degree requirements for a Bachelor of Arts Degree with a major program (minimum 30 semester hours) in courses in the Department of Economics in the School of Business Administration as arranged with the head of that department.

### Education

In keeping with the continuing emphasis on competent, well rounded teachers with a solid academic background, the program in education aims at five major goals: (1) to provide each prospective teacher a

\* See preceding section for general requirements for degrees.

comprehensive and balanced experience in general education as a foundation for classroom teaching and citizenship; (2) to develop the teacher as a personality through a well rounded program including free electives; (3) to provide the teacher with a thorough subject matter preparation through extensive work in the content and teaching fields; (4) to develop an understanding of the learner and the learning process; (5) to develop the understandings, attitudes, and skills essential for effective teaching.

Degree: *Bachelor of Arts*

Special Requirements:\*

The completion of a major program (for a Bachelor of Arts Degree) in courses in education as arranged with the head of that department.

Degree: *Bachelor of Science in Education*

Special Requirements:\*

#### A. *Education, Elementary*

(1) Completion of certain courses specified in Part II of this Catalog (Courses and Curricula) as a part of the overall degree program.

(2) Completion of the requirements for a professional teacher's certificate at the elementary level as arranged with the head of the Department of Education or the Director of Teacher Certification.

(3) Completion in proper sequence of certain courses specified in Part II of this Catalog (Courses and Curricula) in the field of professional education.

#### B. *Education, Secondary*

(1) Completion of certain courses specified in Part II of this Catalog (Courses and Curricula) as a part of the overall degree program.

(2) Completion of 24 semester hours in each of two teaching fields as arranged with the department heads involved. (With the approval of the deans involved, these fields may be in schools of the College other than that of Arts and Sciences.)

(3) Or, if the broad teaching field of science is elected, completion of a minimum of 48 hours distributed in at least three of the science departments (not to exceed 8 hours in the Department of Geosciences) and including such particular courses as specified by those departments.

(4) Or, if the broad field of social sciences is elected, the program must be arranged with the department heads involved.

(5) Completion in proper sequence of certain courses specified in Part II of this Catalog (Courses and Curricula) in the field of professional education.

(6) Completion of the requirements for a professional teachers' certificate at the secondary level as arranged with the head of the Department of Education or the Director of Teacher Certification.

### **English**

English as a major provides students the opportunity to acquire an extensive and thorough knowledge in the various fields of English literature, American literature, comparative literature, literary criticism, folklore, and linguistics. Studies in English provide an understanding of man's situation in the world as it has been interpreted by significant writers

\* See preceding section for general requirements for degrees.

through the centuries. These studies also provide an excellent background for many areas of graduate and professional training. Career opportunities for English majors include editing and publishing, professional writing, teaching, and other vocations in which a skillful command of language is essential.

Degree: *Bachelor of Arts*

Special Requirements:\*

(1) Completion of 21 semester hours in English in addition to the required freshman and sophomore courses.

(2) This work on the major must be in particular courses and groups of courses as specified in Part II of this Catalog (Courses and Curricula).

(3) A grade of C or better on all advanced courses counted toward the degree.

### **French**

This program gives the student general linguistic training and a foundation in the language suitable for graduate study, interpreting, or government service. It also prepares students to teach in college or on the elementary or secondary levels.

Degree: *Bachelor of Arts*

Special Requirements:\*

(1) Completion of 33 semester hours in French.

(2) At least a C average in all courses in French with no grade lower than C in senior level courses in French.

### **Geochemistry**

The field of geochemistry is a rapidly expanding phase of the geosciences. The application of refined analytical techniques has provided new approaches to many perplexing problems of the earth. Geochemistry has many industrial applications as well as those in the field of pure research.

Degree: *Bachelor of Science*

Special Requirements:\*

(1) Completion of certain courses specified in Part II of this Catalog (Courses and Curricula) as a part of the work on the major.

(2) No grade below C in any geoscience courses will be accepted for either major or minor.

### **Geology**

The field of scientific study that is devoted to investigations of the earth in regard to its composition, physical properties, origin, and history is called geoscience. Geoscientific investigations are made through the application of biological, chemical, physical and mathematical principles, requiring that persons majoring in the field have broad training in the related sciences. The subject is so extensive that specialization and graduate training are essential to careers based on the applications of geoscientific principles.

Opportunities for careers in the field of geoscience are excellent for those students who maintain creditable academic records through gradu-

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\* See preceding section for general requirements for degrees.

ate degrees. Employment is available in a wide range of industrial and governmental positions, as well as in private consulting practices. The recent trend toward the teaching of Earth Science in our public schools provides an additional area of employment for those majoring in geoscience. In addition, undergraduate degrees in this field can be the basis for careers in other fields; some students have used them as pre-law or pre-medical degrees.

#### A. *General Geology Option*

Geology, which may be regarded as being the classical approach to earth study, is in itself a broad field. The subject matter includes the nature of earth materials, the architecture of the earth, the forces that deform rock materials, the oceans and their basins, and the surface forms of the continents.

#### B. *Paleontology Option*

Paleontology, a field of specialization within geology, is the study of ancient life. The preserved remains of ancient life, fossils, are the fundamental subjects for study. This represents the biological approach to geology, and it is of great importance to many other phases of the subject.

#### C. *Ground Water Option*

Because of the importance of ground water to the South Plains, a special curriculum in the subject is offered. In addition to the geological aspects, students must have extensive training in mathematics and hydrology.

Degrees: *Bachelor of Arts*

*Bachelor of Science*

Special Requirements:\*

(1) Completion of certain courses specified in Part II of this Catalog (Courses and Curricula) as a part of the work on the major for either the Bachelor of Arts or Bachelor of Science Degree.

(2) Selection of one of the three optional programs for the Bachelor of Science Degree.

(3) No grade below C on any geoscience course will be accepted for either a major or a minor in geology.

### **Geophysics**

Geophysics is another broad field of study that has its most familiar applications in exploration for petroleum and in the study of earthquakes. These are, however, but two aspects of a field in which gravity, the earth's magnetic field, the physics of the atmosphere, the physical properties of the oceans and their basins, and the nature of the earth's interior are among the problems considered. The department operates and maintains a superior seismograph station, affording the student unusual opportunity for training in the field of earthquake seismology.

Degree: *Bachelor of Science*

Special Requirements:\*

(1) Completion of certain courses specified in Part II of this Catalog (Courses and Curricula) as a part of the work on the major.

\* See preceding section for general requirements for degrees.



(2) No grade below a C in any geoscience courses will be accepted for either major or minor.

### German

This program gives the student general linguistic training and a foundation in the language suitable for graduate study, interpreting, or government service. It also prepares students to teach in college or on the elementary or secondary levels.

Degree: *Bachelor of Arts*

Special Requirements:\*

(1) Completion of 33 semester hours in German.

(2) At least a C average in all courses in German with no grade lower than C in senior level courses in German.

### Government

This program endeavors to prepare the student for a basic understanding of the governmental processes and to transmit to the students the basic tools of analysis and research and knowledge relating to organization and distribution of power, office, and the rewards in governing man.

Degree: *Bachelor of Arts*

Special Requirements:\*

A flexible curriculum is permitted in fulfillment of the general requirements of the Bachelor of Arts Degree.

### History

The curriculum offered in the discipline of history is based on the belief that every individual is entitled to a liberal education, the main purpose of which is to broaden and deepen his understanding and enjoyment of the world around him. In the process of acquiring a liberal education, a person becomes a more effective member of the community, trained in the technique of living in a complex society. History, which is one way of arranging all known facts, can assist an individual to gain a perspective in time by extending his experience beyond the horizon of his own age.

- Degree: *Bachelor of Arts*

Special Requirements:\*

(1) Completion of a few particular courses specified in Part II of this Catalog (Courses and Curricula) as a part of the work on the major.

(2) A grade of C or better on all advanced courses in history to be counted for either a major or a minor.

### Journalism

In the education of its students the Department of Journalism attempts to supply a broad understanding of the role in a democracy of the mass communications media, along with accurate vocational information and sound training in such journalistic techniques as writing, editing, layout, photography, and typography.

All journalistic work demands technical skill and experience along with the widest possible education. In addition to class and laboratory

\* See preceding section for general requirements for degrees.

work, the student gains experience by work on student publications and through summer employment and internships, the latter supervised by the department in cooperation with the Texas Daily Newspaper Association and the Texas Press Association.

Degree: *Bachelor of Arts*

Special Requirements:\*

(1) Completion of 33 semester hours in certain courses in journalism specified in Part II of this Catalog (Courses and Curricula).

(2) An overall average of C or better in all required courses in journalism with no more than one D to be included.

### **Latin**

This program gives the student general linguistic training and a foundation in Latin and Greek suitable for graduate study. It also prepares students to teach in college or on the secondary level.

Degree: *Bachelor of Arts*

Special Requirements:\*

(1) Completion of 27 semester hours in Latin and 6 hours in Greek.

(2) At least a C average in all courses in Latin and Greek with no grade lower than C in senior level courses in Latin.

### **Latin American Area Studies**

Students in Latin American Area Studies receive a liberal education in several interrelated fields to serve as a foundation for possible employment in export-import houses, manufacturing businesses, shipping companies, airline systems, banking institutions or government agencies. Also, the program provides preparation for graduate work in Latin American fields.

A major in Latin American Area Studies consists of course work in several departments. Additional information may be obtained from the chairman of the Latin American Area Studies Committee, Raymond D. Mack, SSc. 230.

Degree: *Bachelor of Arts*

Special Requirements:\*

Completion of a major of 30 semester hours of certain Latin American content courses in the field of anthropology, government, economics, geography, history, Spanish (or Portuguese), and sociology as specified in Part II of this Catalog (Courses and Curricula).

### **Mathematics**

The age of missiles, earth satellites, and astronauts has directed attention to the increasing importance of mathematics in modern life. Graduates trained in this field are in demand by many industries and research organizations, as well as by colleges and high schools needing teachers. However, since the number of opportunities open at a given time is less important in the long run than proficiency and interest in the chosen field, the facts stated above should not be the main consideration for one deciding on a field of specialization. Certainly no student should elect mathematics as his major field unless he likes the subject and has above-average grades in it.

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\* See preceding section for general requirements for degrees.

Degrees: *Bachelor of Arts*  
*Bachelor of Science*

Special Requirements:\*

(1) Completion of 33 semester hours in mathematics as a major for the Bachelor of Arts Degree.

(2) Completion of 36 semester hours in certain courses specified in Part II of this Catalog (Courses and Curricula) as a major for the Bachelor of Science Degree.

(3) An average grade of C or better for all courses in mathematics and an average grade of C or better for all advanced courses in mathematics counted for the degree.

### Medical Technology

Medical Technology is one of the important new careers in science open to young people today. Medical technologists are trained specialists working in a clinical or medical laboratory where they perform scientific tests on which pathologists and other doctors rely for help in diagnosing and treating disease. They have an important place along with doctors and nurses and other trained specialists on the medical team and the role of the medical technologist on this team is one of increasing importance. Medical laboratories have increased greatly in number and also in the significance of the work they perform, as medical tests and new drugs steadily increase. Modern laboratory workers must have highly specialized skills and training in order to perform properly the many laboratory tests and analyses which have been developed.

The program in medical technology prepares a student for entrance into a school of medical technology approved by the American Society of Clinical Pathologists.

Degree: *Bachelor of Science in Medical Technology*

Special Requirements:\*

(1) The equivalent of three academic years and one summer semester in the School of Arts and Sciences, and 12 months in a school of medical technology approved by the American Society of Clinical Pathologists.

(2) Certain courses specified in Part II of this Catalog (Courses and Curricula) as a part of the Arts and Sciences portion of the program which totals approximately 100 semester hours.

(3) An overall C average on all courses taken at Texas Technological College.

### Microbiology

Microbiology, the study of micro-organisms, and more specifically bacteriology, the study of bacteria, contributes significantly to our understanding of basic biological principles. In addition to being a basic biological science, bacteriology provides valuable complementary service to other fields. Because bacteriology has wide application, trained bacteriologists encounter little difficulty in finding private and governmental employment in medicine, public health, agriculture, quality control of foods and beverages, technology of foods and beverages, and in the antibiotic, biologic, drug, and chemical industries. Graduate training is prerequisite to professionalism in microbiology leading to careers in teach-

\* See preceding section for general requirements for degrees.

ing, applied research in the areas listed above and basic research concerning unsolved biological problems in ecology, immunology, physiology and genetics. A brochure, *Microbiology in Your Future*, explains many details for career opportunities and is available free upon request to the American Society for Microbiology, 115 Huron View Boulevard, Ann Arbor, Michigan.

Degrees: *Bachelor of Arts*  
*Bachelor of Science*

Special Requirements:\*

(1) Certain courses in bacteriology as specified in Part II of this Catalog (Courses and Curricula) as a part of the work on the major.

(2) A grade of D will be accepted in no more than two courses in microbiology or bacteriology.

### **Music Education**

This program is for the student who expects to teach or direct vocal or instrumental music in public schools.

Degree: *Bachelor of Music Education*

Special Requirements:\*

Fulfillment of the general requirements for a Degree of Bachelor of Music Education as indicated in the preceding section.

### **Music Theory**

The theory program prepares the student for further graduate study in music. Students interested in applied music or music education should refer to those programs:

Degree: *Bachelor of Music*

Special Requirements:\*

Certain courses in music as specified in Part II of this Catalog (Courses and Curricula) as a part of the work on the major.

### **Philosophy**

Philosophy is concerned primarily with problems of meaning centering on such concepts as reality, knowledge, and value. Courses in the Department of Philosophy are designed to guide students in the study of the major works of the great philosophers and to enhance their development toward independent critical inquiry. Emphasis is placed on clarity and breadth of understanding of philosophical concepts and issues; therefore, maximum efforts are made toward developing the logical skills requisite to the student's achievement of coherent knowledge and the practice of intelligent inquiry.

Degree: *Bachelor of Arts*

Special Requirements:\*

A flexible curriculum is permitted in fulfillment of the general requirements of the Bachelor of Arts Degree. As many as 6 semester hours of upper division courses of a theoretical nature offered by other departments may be counted toward a major in philosophy with the approval of the head of the department.

\* See preceding section for general requirements for degrees.

### Physical Education (Men or Women)

Students desiring to become coaches or physical educators should choose the physical education major; students desiring to work in city recreation programs, camps, and related fields should select a recreation major.

Degrees: *Bachelor of Arts*  
*Bachelor of Science in Education*

Special Requirements:\*

(1) Completion of certain courses specified in Part II of this Catalog (Courses and Curricula) as part of the work on the major.

(2) Completion of the requirements for a provisional teachers' certificate, elementary, secondary, or all-level, as arranged with the Head of the Department of Education or the Director of Teacher Certification.

### Physics

Physics is the study of the interaction between the basic constituents of matter and of the behavior of matter in bulk. Its aim is the development of laws which describe and predict the behavior of physical systems as determined by experimental measurement. The preparation of a physicist, therefore, includes a combination of both the theoretical and experimental aspects of physics in order that he may apply himself creatively to problems of current interest in the realm of the physical world.

Degrees: *Bachelor of Arts*  
*Bachelor of Science*

Special Requirements:\*

(1) Completion of a minimum of 38 semester hours of physics, 36 of which must have a grade of C or better and the average grade for all courses in physics must be at least 2.00.

(2) For a Bachelor of Science Degree the completion of certain courses specified in the curriculum of the Department of Physics in Part II of this Catalog (Courses and Curricula).

### Pre-Law

Schools of law usually do not require specific courses as part of their admission requirements. Instead, they expect students to be intellectually mature and well grounded in the fundamentals of a liberal education. While many schools of law admit students who have completed only three years of pre-professional work, it is to be noted that a high percentage of those students admitted have their baccalaureate degrees. Hence the pre-law student should keep constantly in mind the various requirements for the bachelor's degree.

Degree: *Bachelor of Arts*

Requirements:

The Bachelor of Arts Degree for pre-law students may be obtained in one of two ways:

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\* See preceding section for general requirements for degrees.

A. By completing the degree requirements prescribed in this Catalog while in residence at Texas Technological College. The major selected depends upon the interest of the student.

B. By completing three years of work in the School of Arts and Sciences, totaling a minimum of 96 semester hours, and by graduation from a three-year standard law school. Granting of the bachelor's degree is subject to the following regulations:

1. Of the three years of pre-professional work, at least the junior year must be completed in residence at this College.

2. The three years work must satisfy all graduation requirements for the Bachelor of Arts Degree at Texas Technological College, with the exception of the requirements in the major field.

3. A minimum of 18 semester hours of pre-law work should be in one social science and a minimum of 18 hours in one or more of the other social sciences.

4. In lieu of the completion of an undergraduate major, the applicant for the Bachelor of Arts Degree must present credentials showing graduation from an approved law school, together with a request for the granting of the Bachelor of Arts Degree from Texas Technological College.

The Head of the Department of Government is the official College adviser for pre-law students, and recommendations to the law schools should be channeled through him. Regardless of their major field of interest, pre-law students should consult him for counseling and guidance in planning their programs.

### **Pre-Medical and Pre-Dental**

Colleges of medicine and dentistry require an applicant to present a certificate of graduation from an accredited high school, together with a minimum of two years of college work. Most medical schools require three years of college work, and many require a bachelor's degree. The course of study meets the usual requirements for entrance to medical school. For pre-dentistry students, certain modifications may be advisable.

The pre-medical program is not designed to meet the minimum requirements of any specific medical school, but is planned to fit the student for the successful study of medicine. Each student is charged with the responsibility for knowing any special requirements of the medical school which he plans to attend and should consult the pre-medical adviser at each registration period. Application for admission to the professional school should be made through the office of the Chairman of the Pre-Medical Advisory Committee, Dr. Joe Dennis, Chem. 213. Professional aptitude and admission tests may be taken at Texas Technological College.

Degree: *Bachelor of Arts*

Requirements:

The Degree of Bachelor of Arts for pre-medical or pre-dental students may be obtained in one of two ways.

A. By completing the requirements for a B.A. while in residence at Texas Technological College. The major selected depends on the interest of the student.

B. By completing three years of work in the School of Arts and Sciences, totaling a minimum of 100 semester hours, and by graduation from a Class A medical or dental college. The following regulations apply:

1. Of the three years of pre-professional work, at least the junior year must be completed in residence at this College. This minimum will apply to transfer students from other colleges, provided they have satisfactorily completed the work outlined in the freshman and sophomore years or its equivalent.

2. The three years of work must satisfy all graduation requirements for the Bachelor of Arts Degree at this College, with the exception of the major requirements.

3. The applicant for a degree under this plan must submit properly approved credentials from a Class A college of medicine or college of dentistry to the effect that the applicant has completed satisfactorily the work leading to a Degree of Doctor of Medicine or Doctor of Dental Surgery. Evidence of the degree will substitute for the degree requirements in a major field.

### Psychology

The undergraduate program in psychology is designed to provide the student with a broad exposure to the field. It is not intended to train the student for professional competency. This is done only at the graduate level. However, the holder of a B.A. Degree in Psychology can find employment in a number of places, such as in industry, government agencies, etc.

Degree: *Bachelor of Arts*

Special Requirements:\*

- (1) Completion of a core program of a minimum of 10 courses in psychology (30 semester hours) specified in Part II of this Catalog (Courses and Curricula).

- (2) Grades below C will not be acceptable for fulfillment of either major or minor requirements in psychology.

### Recreation for Men or Women

The student who is interested in positions of leadership in recreation, rather than in teaching, should select the Bachelor of Arts Degree. This degree offers a broad liberal background. The completion of a major in recreation prepares the student for positions in city recreation programs, camps, and allied areas.

Degree: *Bachelor of Arts*

Special Requirements:\*

- (1) Certain courses as specified in Part II of this Catalog (Courses and Curricula) to complete a major in physical education of 30 semester hours.

- (2) Additional courses specified in Part II of this Catalog (Courses and Curricula) in applied arts, drama, music, park administration and horticulture.

### Sociology

Sociology is one of the social sciences. Its particular concern is the study of the nature of human behavior in groups. As such, it does not

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\* See preceding section for general requirements for degrees.



prepare the student in a specific way for a vocation. However, students who graduate with a major or minor in sociology are in demand in such public community agencies as health and welfare, recreation, and probation. Also, private agencies—such as Camp Fire Girls, Scouts, and Red Cross—employ sociology majors as counselors and group leaders. Industry is increasingly offering opportunities in the field of personnel work. Service in a variety of government agencies also provides a vocational outlet for people trained in sociology. In many states, sociology majors teach their subject in high schools. For the gifted student, graduate study opens the way to careers in research and college teaching.

Degree: *Bachelor of Arts*

Special Requirements:\*

(1) A few particular courses specified in Part II of this Catalog (Courses and Curricula) as a part of the work on the major.

(2) A grade of C or better in all advanced courses in sociology to be counted for either a major or minor.

### Spanish

This program gives the student general linguistic training and a foundation in the language suitable for graduate study, interpreting, or government service. It also prepares students to teach in college or on the elementary or secondary levels.

Degree: *Bachelor of Arts*

Special Requirements:\*

(1) Completion of 33 semester hours in Spanish.

(2) At least a C average in all courses in Spanish with no grade lower than C in senior level Spanish courses.

### Speech

Unlimited opportunities are offered the student taking courses or participating in the extracurricular activities of the Speech Department to improve his competence in the oral communication skills essential in a modern dynamic society. For some this may be developing and perfecting their capability in conference and public speaking situations, in preparation for more effective careers in engineering or business. For others it may be improving speech competence for professional careers as doctors, lawyers, clergymen, or teachers. For many it may mean exciting, enjoyable experiences in theater that will contribute to a better use of leisure time after college days are past. For everyone it means more skillful use of an important tool of democracy—government by talk among responsible citizens. Since the time of the Greeks the ideal citizen of a free society has been the man or woman broadly educated and skillful in his ability to express himself orally. Our goal is to assist every speech student in approaching this ideal as nearly as possible.

The student wishing to major or minor in speech will find himself prepared for one or more of many interesting and challenging occupations. A few of these are personnel work, recreational work, teaching, speech and hearing therapy, professional or community theater directing, various kinds of work in radio and television, and public relations.

\* See preceding section for general requirements for degrees.



Degree: *Bachelor of Arts*

Special Requirements:\*

A minimum of 9 semester hours in general speech courses and 12 semester hours selected from four of the following areas: oral interpretation, public address, radio-television, speech correction, speech education, theater. Additional hours in speech to make a minimum total of 36 semester hours.

### **Zoology**

Zoology, the study of the structure, function, classification, and adaptation of animals, contributes significantly to our understanding of basic biological principles. Courses in zoology are designed to meet the needs of several groups of students: those who desire a general knowledge of animals for its cultural value; those who desire complementary information for other fields of study such as biochemistry, agriculture, home economics, geosciences, and psychology; those who desire pre-professional training in various fields of medicine, dentistry, physiology, oceanography and wildlife conservation; those who wish to prepare for high school teaching; and those who wish to prepare for research and teaching careers at the university level. Graduate training is important to those students desiring the most rewarding positions in zoology.

Degrees: *Bachelor of Arts*

*Bachelor of Science*

Special Requirements:\*

(1) The completion of certain courses specified in Part II of this Catalog (Courses and Curricula) as a part of the work on the major and minor.

(2) In the Bachelor of Science programs, the completion of freshman courses in chemistry, geology, and physics.

(3) A grade of D will be accepted in no more than two courses in zoology.

## **Special Programs**

### **Biblical Literature**

The purpose of this area is to introduce students to that world of literature, the Bible, which has so broadly affected Western culture. Guidance is given in the study of its moral and religious teachings and their relevance to life today. Though recognized for credit by the College, all courses are taught off campus in centers provided by the churches at no expense to the College.

### **Honors Studies**

The Dean of Arts and Sciences administers Honors Studies through departmental channels, an Honors Council, the Chairman of Honors (Associate Dean), and an Honors Director. The Honors Council consists of faculty representatives from the major areas of mathematics, the natural and social sciences, fine arts, and the humanities. Students interested in the program are encouraged to consult with any or all of these personnel.

\* See preceding section for general requirements for degrees.

**Pre-Professional Programs**

Basic courses for entrance into seminaries and into schools of optometry and pharmacy may be completed at Texas Technological College. Pre-ministerial students may receive advice from the Head of the Sociology Department; pre-optometry students, from the Head of the Physics Department; pre-pharmacy students, from the Head of the Chemistry Department.

**School of Business Administration**

George G. Heather  
*Dean*

Germain Boer  
*Assistant Dean*

Seldon C. Robinson  
*Freshman Adviser*

Offices: BA 216

The School of Business Administration, organized in 1942, offers work leading to the degrees of Bachelor of Business Administration and Bachelor of Science. Instruction is given in six departments: Accounting, Business Education and Secretarial Administration, Economics, Finance, Management, and Marketing. The school has a normal enrollment of over 3,500 undergraduate and 150 graduate students. In addition, it makes its courses available to students in other schools of the College in order that they may include business administration subjects in their programs.

The School of Business Administration holds full membership in the American Association of Collegiate Schools of Business and is also a member of the National Association of Business Teacher Education.

The objectives of the School of Business Administration may be classified under three headings—education, research, and service. The primary role of the School of Business Administration is to prepare the individual student at the undergraduate and at the graduate levels for personally rewarding and socially useful careers in business and related types of activity. The final product of the school, the graduate, needs the capacity to understand the environment in which he operates as well as the ability to adjust to the changes that are continually occurring. It is believed that this may be accomplished through study in general education, business fundamentals, and the advanced courses of professional preparation through the master's level.

The faculty of the School of Business Administration recognizes, as a second objective, the importance of encouraging research to further the development of business and industry in West Texas, the Southwest, and the United States. Not only may this expand the frontiers of knowledge, but it adds also to the preparation and the quality of the faculty. In addition, a research climate fosters in the student an appreciation for research and what might be termed a "research attitude."

Service to the public is the third objective of the school. The faculty assumes a responsibility to disseminate the knowledge it has

acquired. At times faculty members may be in a position to provide professional aid in the solution of specific problems.

### **Opportunities for Women**

Opportunities for business-trained women are continually expanding and becoming more attractive in government, education, and business. In recent years women who have graduated with majors in accounting generally have found ready employment. Merchandising has long provided major opportunities for women, with more and more of them moving into managerial levels. Women also are being employed increasingly in credit management positions and personnel work. And almost every advertising agency and advertising department has one or more women in responsible and creative positions. However, probably the largest number of opportunities still lies in the field of business education and secretarial administration. There is indeed an opportunity for a woman in any field for which she prepares, and it increases rapidly as her strength of purpose and adequacy of preparation strengthen.

### **Load**

The normal study load for regular students in the school is 15 or 16 semester hours each semester. The student who shows promise of compiling only a mediocre grade record may have further load restrictions imposed. No student is permitted to enroll for a program of more than 17 semester hours (exclusive of required freshman or sophomore physical education) without special approval from the Dean; the student desiring approval of an irregular load should address a written request to the Dean *prior* to the registration period, incorporating all pertinent information. In a six-week summer term the maximum load is 7 semester hours, composed of two courses, or three courses including a 1-semester-hour physical education activities course.

### **Academic Counseling**

During his freshman year the beginning business administration student is counseled on academic matters by the freshman adviser. At the time the student has accumulated 24 semester hours, responsibility for counseling is transferred to the adviser of the student's specialization.

### **Selection of a Major**

It is recommended that the student not attempt to make final selection of his major until he has completed some college work and has had an opportunity to investigate the study programs which are available to him. The required freshman course, Professional Careers in Business (Mgt. 110), should prove to be of considerable help to the student in making his decision. The student should counsel with the advisers in those fields which he believes to be of possible interest to him. Aptitude tests are available in giving students additional help in deciding upon their majors.

Upon the accumulation of 24 semester hours, each student must have selected, and had approved by a major adviser from that particular field, a major field of study from one of the programs outlined

below. The student should notify the freshman adviser of his choice. A student may decide to change to another major at a later time.

Since some courses are offered only in alternate years, there is no reasonable assurance that a student will be able to schedule all of his required courses before an expected graduation date, unless he makes his final major selection and plans his program of courses a full two years in advance.

### **Length of Degree Programs**

Many of the major programs can be completed within normal load limits in eight semesters. Because of their greater semester-hour requirements, some of the majors necessitate a ninth semester or the attendance in one summer session. A student in any major program may be required to attend more than the normal eight semesters because of poor schedule-planning or failure of one or more courses, or for other reasons. Before the close of his junior year each student should plan carefully the scheduling of his remaining degree requirements to determine his proper graduation date, and should file an application for the degree in the Office of the Dean of Business Administration.

### **Graduate Study**

The School of Business Administration offers programs in each of its departments leading to the Degree of Master of Business Administration, in the Department of Economics leading to the Master of Arts, and in the Department of Business Education and Secretarial Administration to the Master of Education. Course work leading to the Doctor of Business Administration Degree will become fully available in 1967. Details of the graduate programs of the School of Business Administration will be found in the *Graduate Catalog*.

## **General Degree Requirements of the School of Business Administration**

### **Bachelor of Business Administration**

This degree will be awarded to all students who elect the degree and who have fulfilled the minimum requirements as follows:

1. The specific course requirements set forth in Part II of this Catalog (Courses and Curricula) for majors in accounting, advertising, business education, economics, finance, industrial management, international trade, management, marketing, pre-law, public administration, retailing, or secretarial administration.

2. Additional courses approved by the major adviser to complete the degree program.

3. A minimum grade-point average of 2.00 in all business administration subjects.

4. A total number of semester hours as stated for the major with a minimum grade-point average of 2.00. In addition, a minimum of four semesters of freshman and sophomore physical education, band, or basic ROTC must be completed.

5. Application for the degree made through the Office of the Dean of Business Administration at least one year in advance of the proposed graduation date.

## 6. Completion of a personnel data file with the Placement Service.

**Bachelor of Science**

This degree will be awarded to all students who elect the degree and who have completed the minimum requirements as follows:

1. The specific course requirements set forth in Part II of this Catalog (Courses and Curricula) for majors in economics, international trade, or public administration.

2, 3, 4, 5, and 6. Same as for the Degree of Bachelor of Business Administration.

**Accounting**

The curriculum in accounting emphasizes (1) preparation for public accounting practice and for the Certified Public Accountant examination, (2) a background for government service in administrative or regulatory agencies, (3) foundations for work in managerial accounting and controllership, and (4) groundwork for teaching and research at the college or university level.

Accounting as a discipline and a profession provides a means for obtaining information essential to modern industry in making policy decisions and in setting up plans for the successful conduct of business. It serves to maintain the system of internal check and control so as to reduce the need for supervision, and to minimize errors, fraud, and waste; and it plays a part in setting and enforcing standards of performance which improve efficiency and coordinate and integrate business activities.

The growing complexity of business, of revenue systems, and of all forms of social organizations make increasingly greater demands on the accounting profession. It is therefore recommended that the student looking to public accounting practice plan to continue for at least one year of graduate study to round out his professional background.

Degree: *Bachelor of Business Administration*

Special Requirements:

- I. Nonprofessional courses: 49 sem. hrs.
- II. Basic professional courses: 31 sem. hrs.
- III. Major professional courses: 29 sem. hrs.
- IV. Electives to complete a total of 126 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC.

**Advertising**

This program is offered by the Department of Marketing with the cooperation of the Department of Journalism and the Department of Architecture and Allied Arts. It is planned for those qualified students who aspire to positions in advertising. The managerial aspirant is qualified upon graduation to enter a program for future managers. The agency hopeful can prepare for a media or industry position by supplementing his advertising sequence with a careful choice of electives both within and outside the School of Business Administration.

Degree: *Bachelor of Business Administration*

Special Requirements:

- I. Nonprofessional courses: 49 sem. hrs.

- II. Basic professional courses: 31 sem. hrs.
- III. Major professional courses: 29 sem. hrs.
- IV. Electives to complete a total of 126 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC.

### **Business Education**

The purpose of this program is to prepare competent business teachers. The program is planned to provide a background in liberal arts, a knowledge of business subjects, a philosophy of education, and experience in teaching methods. Completion of the curriculum will qualify the student for a provisional certificate under the broad field (Plan II) for secondary teachers. Besides consulting his adviser, the business education major should become familiar with the teacher education program at this College.

Degree: *Bachelor of Business Administration*

Special Requirements:

- I. Nonprofessional courses: 49 sem. hrs.
- II. Basic professional courses: 31 sem. hrs.
- III. Major professional courses: 43 sem. hrs.
- IV. Electives to complete a total of 129 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC.
- V. Evidence of at least eight weeks of continuous full-time business experience.

### **Economics**

In this period of world crisis, when the very existence of our economic system is being challenged, a thorough grounding in fundamental economic concepts is essential for the person who would either assume a position of responsibility in the business world or in public office, or who would wish only to meet his full responsibility as an informed and intelligent citizen. Economics may be thought of as a science or as a social science, but in either case it should play an important role in the program of a person seeking a truly liberal education.

The major in economics has been designed to allow the student to accomplish one or a combination of three objectives:

- 1. General preparation for entering the business world in various types of activity, excluding the highly specialized fields. Considerable flexibility is provided in the courses and options available.
- 2. Specialized preparation as a professional economist. This preparation is designed to produce qualified economists to fill the numerous positions available in business firms, banks, trust companies, insurance companies, government agencies, foundations, and in public school and college teaching.
- 3. Cultural training in the foundations of our economic institutions, ideas, and policies.

Degrees: *Bachelor of Business Administration*

*Bachelor of Science*

*Bachelor of Arts* (See School of Arts and Sciences)

Special Requirements:

- I. Nonprofessional courses: 49 sem. hrs.
- II. Basic professional courses: 31 sem. hrs.

III. Major professional courses: 38 sem. hrs.

IV. Electives to complete a total of 126 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC.

### Finance

#### A. *Banking and Investments*

The majority of finance majors at Texas Tech select the option in banking. In part this is due to the built-in interest in the subject matter. Another important reason appears to be the flexibility that the program provides the student.

Those who choose the banking option will find the program is structured around several basic ideas. The student needs an intimate knowledge of the framework of our financial system. Thus, he learns about our commercial banking system, central banking, the stock market, investment banking, and many other financial areas.

Factual knowledge of financial institutions alone is not sufficient if the student is to be adequately prepared. He needs to know the principles of financial administration and to learn certain tools of analysis to enable him to understand cause and effect relationships in the area of finance. Thus the student will receive preparation in the areas of accounting, economics, and statistical analysis and their application to finance.

#### B. *Financial Administration*

The financial administration program was started in 1963 and has approximately 80 students currently enrolled. Although a new option, employers have shown great interest.

The financial administration option includes professional course work emphasizing finance and accounting, with a strong foundation of courses in other business areas and liberal arts. Over half of the curriculum includes courses outside the school of business which provides balance to the program.

The curriculum includes corporation finance, money and banking, general insurance, corporate financial problems and cases, and investments. Also, the student is given preparation in accounting including courses in elementary accounting, intermediate accounting, income tax accounting, and budgeting.

#### C. *Real Estate and Insurance*

A great number of finance majors at Texas Tech select the option in insurance and real estate. One of the most rapidly growing industries in the United States is insurance. The real estate industry has also experienced a rapid expansion. Hence, ample opportunities in these fields are available to our graduates.

Those students who select the real estate and insurance option will discover that the emphasis is placed upon current theory and the latest practices within the field. The finance major who selects this option receives a firm foundation in liberal arts, in basic business courses, and in specific courses in insurance and real estate. He acquires knowledge of the various tool subjects (accounting, economics, mathematics, and statistics). With some minor adjustment in the curriculum he may also prepare for a career as an actuary.



Degree: *Bachelor of Business Administration*

Special Requirements:

- I. Nonprofessional courses: 49 sem. hrs.
- II. Basic professional courses: 31 sem. hrs.
- III. Major professional courses: 29 to 38 sem. hrs.
- IV. Electives to complete a total of 126 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC.

### **Industrial Management**

Industry offers excellent career opportunities for students in industrial management and production, particularly those who are prepared to utilize the quantitative tools employed by modern science and technology. The industrial management curriculum provides a rigorous educational experience emphasizing the principals involved in proper use of materials, machines, manpower methods, and standards in manufacturing, as well as in the production function of all business enterprise. Courses are provided in decision theory, industrial organization, production planning and control, materials management and inventory control, manufacturing methods and operations analysis, and cost analysis and control.

Degree: *Bachelor of Business Administration*

Special Requirements:

- I. Nonprofessional courses: 51 sem. hrs.
- II. Basic professional courses: 31 sem. hrs.
- III. Major professional courses: 48 sem. hrs.
- IV. Electives to complete a total of 130 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC.

### **International Trade**

Through more effective communication and transportation, the trade between nations has reached the point that specialists in international trade are needed to facilitate the flow of goods and services.

The major in international trade prepares the student for a career in various phases of the export-import business either at home or abroad, or for service in the several governmental departments concerned with such activities.

Degrees: *Bachelor of Business Administration*

*Bachelor of Science*

Special Requirements:

- I. Nonprofessional courses: 49 sem. hrs.
- II. Basic professional courses: 31 sem. hrs.
- III. Major professional courses: 39 sem. hrs.
- IV. Electives to complete a total of 126 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC.

### **Management**

#### **A. Administrative Management**

A concentration in administrative management is provided to give a broad and deep background in the principles involved in the administration of business and industrial enterprises, not only to those students who plan to seek employment with established concerns, but also to



those students who intend to manage their own businesses. This program is designed for the general business administrator and includes courses in finance, procurement, production, marketing, accounting, personnel management, employee supervision, and a second concentration of courses specifically related to the industry or the type of business in which the student hopes to be employed.

#### B. *Office Management*

The office of a business is the center of its system of communications and the depository for its files and records. With the rapidly mounting volume of office work now being done, and the rapid increase in the number of office workers required to do it, effective office supervision is needed. There is an ever-growing group of executives who believe that the management of the office is quite as important as the management of a factory or other industrial enterprise. Courses are offered for the purpose of educating efficient office administrators. Office management has proved to be a stepping stone to greater responsibilities for many of our present executives.

#### C. *Personnel Management*

A program in personnel administration and industrial relations is provided for the student who has a particular interest in these fields. Courses are available in personnel selection and placement, training, wage and salary administration, employee benefit plans, employee appraisal, human relations and industrial psychology, and collective bargaining and labor law. Successful business operation depends on harmonious cooperation between employer and employee, and the selection, development, and efficient utilization of manpower resources is one of the most difficult tasks of the modern manager. This program is designed to prepare owners for meeting this challenge in their own business. It also will meet the needs of young people who expect to become specialists in the field of personnel administration and industrial relations.

#### D. *Traffic Management*

A concentration in traffic management is available to those students who have a specific interest in the field of transportation. Our railroads, motor transport companies, airlines, and public utilities companies require many college graduates each year with training in the management of the flow of goods and commodities through common carriers and under Interstate Commerce regulations. Numerous governmental agencies charged with the responsibility of promoting or regulating transport facilities, rates, and services also offer careers to specialists in the field of transportation. Courses are available in industrial traffic management, rate determination, traffic law, safety, and Interstate Commerce regulations.

Degree: *Bachelor of Business Administration*

Special Requirements:

- I. Nonprofessional courses: 49 sem. hrs.
- II. Basic professional courses: 31 sem. hrs.
- III. Major professional courses: 41 to 44 sem. hrs.
- IV. Electives to complete a total of 130 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC.

**Marketing**

The curriculum in marketing introduces the student to the broad field concerned with the distribution of goods and services to consumers and business users. It includes such diverse activities as retailing, wholesaling, industrial marketing, marketing research, salesmanship, and advertising. By majoring in marketing a student can aim toward such positions as director of marketing, sales manager, research analyst, or professional salesman.

Degree: *Bachelor of Business Administration*

Special Requirements:

- I. Nonprofessional courses: 49 sem. hrs.
- II. Basic professional courses: 31 sem. hrs.
- III. Major professional courses: 33 sem. hrs.
- IV. Electives to complete a total of 126 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC.

**Pre-Law**

Schools of law do not normally prescribe specific courses as part of their admission requirements. Some admit only persons who hold baccalaureate degrees, while others admit students who have completed only three years of college, although the latter are usually in a small minority.

The traditional undergraduate preparation for the study of law is the pure liberal arts program. Thus, at Texas Technological College the Head of the Department of Government in the School of Arts and Sciences is the official adviser for pre-law students. For details of the pre-law program, see the discussion under the offerings of the School of Arts and Sciences. However, since it is recognized that a knowledge of economics and business is a desirable foundation for the study of law, it is suggested that the pursuit of any one of the four-year programs leading to the Bachelor of Business Administration Degree will provide a valuable background for the potential attorney.

The student who desires to be admitted to a school of law after only three years of college preparation may, upon graduation from law school, apply for and receive a Business Administration Degree from Texas Technological College, provided he has completed the pre-law program set forth in this Catalog.

Degree: *Bachelor of Business Administration*

Special Requirements:

- I. Nonprofessional courses: 49 sem. hrs.
- II. Basic professional courses: 25 sem. hrs.
- III. Major professional courses: 13 sem. hrs.
- IV. Electives in business administration to complete a total of 95 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC.

**Public Administration**

This program is intended to qualify those electing it for administrative positions in government, particularly at the municipal level. Persons trained in business administration are finding themselves equally adapted to public service or private business. The curriculum in public administration provides training in such varied areas as accounting, economics, law,

taxation, purchasing, personnel, city planning, and public relations. Graduates find opportunities in city management, purchasing, budgeting, personnel, research, accounting and auditing, and various other governmental activities.

The graduate in public administration is urged especially to consider continuing his study through the master's degree in a graduate school of public administration.

Degrees: *Bachelor of Business Administration*  
*Bachelor of Science*

Special Requirements:

- I. Nonprofessional courses: 49 sem. hrs.
- II. Basic professional courses: 31 sem. hrs.
- III. Major professional courses: 39 sem. hrs.
- IV. Electives to complete a total of 130 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC.

### **Retailing**

Retailing involves those marketing activities which are most immediate in putting goods and services into the hands of the consuming public. The curriculum includes both broad and specialized courses concerning merchandising, store operations, and other phases of retailing. The program in retailing has been designed for those aiming at careers of leadership in the modern retail establishment in such positions as store manager, department head, buyer, merchandise manager, sales promotion manager, credit manager, and others.

Degree: *Bachelor of Business Administration*  
Special Requirements:

- I. Nonprofessional courses: 49 sem. hrs.
- II. Basic professional courses: 31 sem. hrs.
- III. Major professional courses: 33 sem. hrs.
- IV. Electives to complete a total of 126 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC.

### **Secretarial Administration**

The curriculum in secretarial administration leading to the Bachelor of Business Administration Degree is designed to qualify the student to become a competent professional secretary. As business becomes more complex, the executive secretary is assuming more and more responsibility. This secretary must be well grounded in the recording, computing, and communicating functions of business. For the well qualified secretary, whether man or woman, there are many opportunities in all parts of the United States and overseas.

A two-year stenographic program is provided for students who wish to acquire the basic knowledge and skills necessary for careers as stenographers and secretaries. It should be elected only by those students who are certain they do not wish a four-year program leading to a degree.

Degree: *Bachelor of Business Administration*  
Special Requirements:

- I. Nonprofessional courses: 49 sem. hrs.
- II. Basic professional courses: 31 sem. hrs.

III. Major professional courses: 37 sem. hrs.

IV. Electives to complete a total of 129 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC.

## Special Programs

### Honors Studies

The Honors Plan of the School of Business Administration is designed to present special instruction, counseling, and recognition to superior students in order that they may better realize and develop their capabilities through stimulating, intensive, and enriched study. Qualified students are admitted to the program at the beginning of their freshman year. Admission is based upon the scores of the Scholastic Aptitude Test, standing in senior class, and recommendation of high school or college instructors. Some outstanding students may be admitted to the program in the middle of the freshman year or at the beginning of the sophomore year.

The program consists of special classes in business and nonbusiness subjects that are required for the bachelor's degree in the School of Business Administration. Through this plan a student may pursue any one of the majors and options within the School of Business Administration. The student who graduates under this program will have the best possible preparation for graduate and professional work in business administration and will be awarded a special display certificate designating him an Honors Plan graduate.

## School of Engineering

John R. Bradford  
*Dean*

Robert L. Newell  
*Assistant Dean*

Georgina Conner  
*Administrative Assistant*

Offices: Elec. E. 105

Engineering has been defined as the "scientific utilization of the forces and materials of nature in the construction, production, and operation of works for the benefit of man." The fundamental training of the engineer includes a knowledge of pure science, as well as its application to the various specializations.

The aim of the School of Engineering is to impart a complete knowledge of the fundamentals of engineering, with specialization in one particular branch to that extent which experience indicates to be desirable. The course of study is planned to give the student basic training which he cannot obtain after graduation. As an aid to the development of scientific attitude, the importance of the qualities of honesty, loyalty, thoroughness, and industry is emphasized. A desire for learning and for knowledge of the ethics of the profession is also fostered. As much specialization as possible is left to the student's later employment. Ex-

perience has shown that this type of training produces the most successful engineers.

Upon graduation, the student usually spends a period of time in subordinate positions, obtaining experience and preparing himself for the more important work of the executive, designer, consulting engineer, teacher, researcher, or supervisor of manufacturing operations. From 60 to 70 percent of graduates in engineering have attained executive positions. Engineering training is recognized as desirable preparation for a commercial career. Indeed, surveys of employment records disclose that men possessing an engineering education have found their way into nearly every type of vocation. A few which the engineering student may reasonably expect to enter upon graduation, or after a period of practical experience, are indicated below in the descriptions of degree programs. Attention is called to the fact that in a civilization such as ours, in which one is at all times in contact with the results of our modern industrial development, no type of education is more suitable than that leading to an engineering degree.

Programs are available through the School of Engineering leading to Master of Science and Doctor of Philosophy degrees in the fields of chemical, civil, industrial, and mechanical engineering, and to a Doctor of Philosophy Degree with interdisciplinary combinations of the above. For details see the *Graduate Catalog*.

## General Requirements of the School of Engineering

The School of Engineering has few general degree requirements common to all degrees; instead, specific curricula have been established for each degree program. These curricula are given in detail in Part II of this Catalog (Courses and Curricula) and are only summarized in the next section.

Some general regulations, however, do apply to all degrees.

1. A student in the School of Engineering is expected to earn credit in the particular courses listed in one of the curricula and to follow the sequence of courses therein recommended.

2. Any substitution or deviation in a curriculum requires the written approval of the Dean of the School of Engineering and the head of the student's major department.

3. Courses transferred from another institution will be evaluated by the Office of the Dean of the School of Engineering for substitutions in a given curriculum.

4. A student planning to complete one of the Bachelor of Science in Engineering degrees must have adequate preparation in mathematics as evidenced by placement tests and high school credits, or he must earn credit in college courses in algebra and trigonometry. An alternate freshman curriculum is provided in Part II of this Catalog (Courses and Curricula) for those students with inadequate preparation in mathematics.

5. With the approval of a student's major department head, one-half of the advanced ROTC credits may be counted for nontechnical elective courses.

6. General college regulations allow a maximum of 18 semester hours of work toward an undergraduate degree to be completed by cor-

respondence. Of this general total of 18 hours, however, the School of Engineering specifies that no more than 9 hours of credit may be obtained in this way in courses in engineering, science, and/or mathematics. All correspondence work taken for degree credit requires written approval of the Dean of Engineering.

7. A student who expects to receive a degree during a particular year must file an "Application for Degree" with the Office of the Dean of Engineering during the spring semester of the preceding year. Prior to his fall registration he will receive a list of courses and be apprised of the number of grade points which he lacks.

8. In making this application, the student must indicate the year's catalog under which he plans to graduate, since he must meet the requirements of a specific year's catalog in their entirety. This must be a year during which he registered as a student in the School of Engineering, with the restriction that all requirements for an undergraduate degree must be completed within seven years of the date of the catalog chosen.

9. A student who has completed the requirements for his first bachelor's degree from the School of Engineering may acquire a second by completing the curriculum prescribed for it, together with a minimum of 30 additional hours of required work, the precise number of additional hours being determined by the particular specialization in which the degree is sought.

## Degree Programs

### Advertising Art and Design

The four-year program for majors in advertising art and design is a carefully arranged sequence of courses endeavoring to provide a balance of theories, background sources, and skills to students who plan to enter any of the diversified branches of the advertising and editorial art and design at the professional level. Course work emphasizes graphic communication by means of creative painting and drawing, print making, sculpture, ceramics, illustration, product design, package design, and art history.

Degree: *Bachelor of Advertising Art and Design*

Special Requirements:

	Sem. Hrs.
Architecture and Allied Art	96
Science and Mathematics	6
Humanities and Social Sciences	32-29
Electives	9-12
Total (exclusive of physical education, band, or basic ROTC)	143

### Agricultural Engineering

In agricultural engineering, a relatively new field, a basic engineering curriculum is pursued, with special emphasis upon application of engineering principles to the agricultural industry, particularly in these five of its aspects: farm power and machinery, farmstead buildings and structures, farm electrification and utilities, agricultural crop processing,

and soil and water conservation, including irrigation. The program is under the joint supervision of the schools of Agriculture and Engineering.

Expanding agricultural mechanization has given rise to a great increase in the demand for agricultural engineers, many of whom move rapidly into management positions. Their employment is well distributed among industrial organizations, individual private enterprises, and governmental agencies, where their training may be utilized in the production of a wide variety of agricultural equipment; in connection with electrical services; or as manufacturers' distributors or representatives. They are frequently employed in local, state, or federal governmental agencies as teachers; or in extension, research, or construction work.

Degree: *Bachelor of Science in Agricultural Engineering*

Special Requirements:

	Sem. Hrs.
Basic Sciences and Mathematics	42
Engineering Sciences	27
Engineering Analysis, Design, and Systems	29
Humanities and Social Sciences	21
Electives and Other Courses	21
Total (exclusive of physical education, band, or basic ROTC)	140

### Architecture

Two five-year programs in architecture are offered: the design option and the construction option. Both include a gradual and orderly sequence of courses to afford the student an opportunity to develop his creative powers and capacities for principled and disciplined thought by the problem-solving method. Problems assigned endeavor to follow a pattern of increasing requirements and complexities by introducing additional variables, moving from the basic course in the principles of design to the final synthesis and integration of all architectural considerations. Work at all levels is conducted by individual guidance and criticism by the faculty and consultants.

Both options follow the same sequence of design courses for four years. The fifth year of the design option places heavy emphasis on city planning and urban design and a terminal problem of the student's choice, while the construction option emphasizes engineering subjects and work in advanced structural design. Both programs stress heavily the professional aspect of architecture, with considerable emphasis being placed on the apprenticeship and registration procedures currently required for professional registration.

Degree: *Bachelor of Architecture*

Special Requirements:

<i>Construction Option</i>	Sem. Hrs.
Architecture and Allied Art	76
Engineering, Science, and Mathematics	56
Humanities and Social Sciences	21
Electives	15
Total (exclusive of physical education, band, or basic ROTC)	168



<i>Design Option</i>	Sem. Hrs.
Architecture and Allied Art	100
Engineering, Science, and Mathematics	23
Humanities and Social Sciences	35-32
Electives	12-15
Total (exclusive of physical education, band, or basic ROTC)	170

### Chemical Engineering

Chemical engineering is that branch of engineering concerned with the manufacture of products by separation, purification, or chemical transformation of our natural resources. Industries in which chemical engineers hold dominant positions are typified by petroleum refining and manufacture of petrochemicals, plastics, synthetic fibers, heavy chemicals, and metals and alloys. Areas of specialization within these industries include research, process and product development, process and equipment design, plant operations, economic optimization, analog and digital computer control, sales, and customer service. The educational background and early professional experiences of the chemical engineer make him particularly well qualified for management positions in the chemical and petroleum industries. A large percentage of chemical engineers progress into management after a number of years of strictly technical work.

Degree: *Bachelor of Science in Chemical Engineering*

Special Requirements:

	Sem. Hrs.
Basic Sciences and Mathematics	48
Engineering Sciences	27
Engineering Analysis, Design, and Systems	31
Humanities and Social Sciences	18
Electives and Other Courses	16
Total (exclusive of physical education, band, or basic ROTC)	140

### Civil Engineering

Civil engineering is concerned with the adaption and control of man's environment. It brings the tools of modern technology to bear on such problems as water shortages, stream pollution, smog, obsolete structures, and traffic congestion. Civil engineers are involved in the planning, design, construction, and operation of large-scale systems of facilities such as those connected with water resources and transportation. This branch of engineering is of particular interest to the young men who are challenged by the potential of science and are motivated to exploit the frontiers of science and technology on a large-scale basis for the direct benefit of mankind.

Degree: *Bachelor of Science in Civil Engineering*

Special Requirements:

	Sem. Hrs.
Basic Sciences and Mathematics	38
Engineering Sciences	41



Engineering Analysis, Design, and Systems	19
Humanities and Social Sciences	18
Electives and Other Courses	22
Total (exclusive of physical education, band, or basic ROTC)	138

### Electrical Engineering

Electrical engineering is concerned with the conversion, transmission, and control of energy in electrical form; with the utilization of such energy in the performance of useful work; and with the application of related phenomena to the control, transmission, and processing of information.

The professional program has been arranged to provide training in the fundamentals of circuit theory, electronics, electromagnetic theory, and energy conversion. Specialized training in their application is provided in the laboratory sequence, with emphasis on experimental techniques. This work involves individual projects which provide the student with training in the planning and execution of experimental investigations; the proper choice and use of laboratory equipment; and the evaluation and interpretation of experimental data. Technical electives in specialized areas, such as those of control systems, computers, acoustics, electronic instrumentation, and solid-state devices, are provided for students whose interests lie in these directions.

Degree: *Bachelor of Science in Electrical Engineering*

Special Requirements:

	Sem. Hrs.
Basic Sciences and Mathematics	35
Engineering Sciences	36
Engineering Analysis, Design, and Systems	28
Humanities and Social Sciences	18
Electives and Other Courses	19
Total (exclusive of physical education, band, or basic ROTC)	136

### Engineering Physics

This program prepares students for careers in scientific research or in engineering development. Its first purpose, however, is their preparation for positions which require both a thorough and a broad understanding of basic physical principles and a clear conception of the methods and techniques involved in the application of these principles. Therefore, the program is one which includes course work in intermediate and advanced physics supplemented by a firm grounding in mathematics and fundamental engineering.

The course of study includes work in the area of mechanics, electricity and magnetism, thermodynamics, fluid dynamics, electronics, and contemporary physics.

Degree: *Bachelor of Science in Engineering Physics*

Special Requirements:

	Sem. Hrs.
Basic Sciences and Mathematics	54

Engineering Sciences	38
Engineering Analysis, Design and Systems	10
Humanities and Social Sciences	18
Electives and Other Courses	19
Total (exclusive of physical education, band, or basic ROTC)	139

### **Industrial Engineering**

Industrial engineering may be defined as the application of engineering methods and the principles of scientific analysis to work and work systems. To quote the American Institute of Industrial Engineers: "Industrial engineering is concerned with the design, improvement, and installation of integrated systems of men, materials, and equipment. It draws upon specialized knowledge and skill in the mathematical, physical, and social sciences, together with the principles and methods of engineering analysis and design to specify, predict, and evaluate the results to be obtained from such systems." Industrial engineering is used most widely in manufacturing fields, but contributes and is growing in use in such areas as engineering sales, farm management, home economics, hospital work, surgery, hotel and restaurant operation, retail store operation, architecture, construction work, regional planning, mail order selling, and various branches of the federal government.

Degree: *Bachelor of Science in Industrial Engineering*

Special Requirements:

	Sem. Hrs.
Basic Sciences and Mathematics	35
Engineering Sciences	24
Engineering Analysis, Design, and Systems	31
Humanities and Social Sciences	21
Electives and Other Courses	25
Total (exclusive of physical education, band, or basic ROTC)	136

### **Mechanical Engineering**

Mechanical engineering is that branch of engineering concerned with such subjects as dynamics, metallurgy, thermodynamics, and the design of machinery and equipment for modern technology. The program is organized on a four-year-plus-one-summer basis and includes thorough training in the basic sciences of physics, chemistry, and mathematics, in conjunction with a substantial number of cultural studies. Mechanical engineering instruction is provided in three general areas: (1) design and dynamics, (2) physical metallurgy and mechanics of materials, (3) thermodynamics, heat transfer, and heat power.

Degree: *Bachelor of Science in Mechanical Engineering*

Special Requirements:

	Sem. Hrs.
Basic Sciences and Mathematics	39
Engineering Sciences	39
Engineering Analysis, Design, and Systems	31
Humanities and Social Sciences	18

Electives and Other Courses	10
Total (exclusive of physical education, band, or basic ROTC)	137

### Petroleum Engineering

Petroleum engineering is concerned with the development, production, reservoir mechanics, valuation, and conservation of petroleum and natural gas reserves.

The student is trained in mathematics, chemistry, physics, geology, engineering mechanics, and related subjects, embracing all background needed in the study of petroleum engineering. Advanced work in production, natural gas, and reservoir engineering prepares the student for the more specialized technical problems encountered in industry. By completing the degree requirements, the graduate is trained for employment as a production, research, or reservoir engineer for oil and gas companies, either domestic or foreign; or for a position with educational or governmental agencies.

Degree: *Bachelor of Science in Petroleum Engineering*

Special Requirements:

	Sem. Hrs.
Basic Sciences and Mathematics	54
Engineering Sciences	32
Engineering Analysis, Design, and Systems	21
Humanities and Social Sciences	18
Electives and Other Courses	15
Total (exclusive of physical education, band, or basic ROTC)	140

### Textile Engineering

The textile industry today is a modern, scientific, management- and research-oriented enterprise, which supplies not only ordinary apparel and household textiles but a large and ever increasing number of well engineered and highly complex products for industry. Notable developments in textiles have come from the industry in the form of special high performance fabrics for space age travel. Development and production of such fabrics require a high degree of scientific, engineering, and management skills.

As the rapid growth of industry occurs in this area, opportunities for textile graduates increase, and Texas Technological College is looked to as a major source from which to fill this demand. The purpose of the program in textile engineering is to provide training in the engineering aspects of the textile industry.

Degree: *Bachelor of Science in Textile Engineering*

Special Requirements:

	Sem. Hrs.
Basic Sciences and Mathematics	35
Engineering Sciences	33
Engineering Analysis, Design, and Systems	40
Humanities and Social Sciences	21

Electives and Other Courses	10
Total (exclusive of physical education, band, or basic ROTC)	139

### **Textile Technology and Management**

The program in textile technology and management was created and is geared to meet the developing needs of the textile industry (described above) in the areas of production, management, and distribution. Women students will find this degree to be an excellent entrance into textile styling, merchandising, and related areas.

Degree: *Bachelor of Science in Textile Technology and Management*  
Special Requirements:

	Sem. Hrs.
Basic Sciences and Mathematics	29
Textile Technology	33
Business, Economics, and Management	30
Humanities and Social Sciences	21
Electives and Other Courses	18
Total (exclusive of physical education, band, or basic ROTC)	131

## **School of Home Economics**

Willa Vaughn Tinsley  
*Dean*

Billie Williamson  
*Assistant to the Dean*

Offices: H.E. 151

The School of Home Economics was one of the four initial schools of the College when it opened in 1925. Since then this school has continuously revised its program to meet the steadily expanding roles of educated women as homemakers, mothers, citizens, employees, and attractively intelligent persons. Teaching continues to be the most appealing profession for graduates in home economics, although increasing numbers of home economists are being employed in business and government. The demand for qualified home economists is always greater than the supply.

The objectives of the School of Home Economics may be classified under the three headings of education, research, and service, with the three aims overlapping at many points. The two major objectives of the school are the education of women for personal family living and for employment in the field of home economics. Research is carried on to expand the boundaries of knowledge in home and family living and in the professional fields of home economics. An effective program in home economics by its very nature provides a service to the campus and the community.

The School of Home Economics designs its offerings to serve both men and women in three groups: students majoring in home economics

in preparation for a career in that field; students registered in other schools of the College who wish training either for homemaking or for supplementing their degree plans; and persons in the area served by the College who wish to take refresher courses in home economics or to work toward an advanced degree.

#### **Course Load**

Normally, students in the School of Home Economics carry a load of 16-18 semester hours. No student is permitted to enroll for a program of more than 18 or less than 12 semester hours without special approval of the Dean.

In a six-week summer term the maximum load is 7 semester hours, composed of two courses or three courses including a 1-semester-hour physical education activities course.

#### **Home Economics Advisory Program**

One of the outstanding features of the School of Home Economics at Texas Technological College is its faculty-student advisory program.

#### **Aid to Students**

A number of student assistantships are available in home economics providing financial assistance as well as valuable experience to capable students. A student interested in employment of any type should consult with her adviser, the head of her department, or the Dean.

#### **Selection of a Major**

The student should not attempt to make a final selection of her major until she has investigated the programs available. An entering freshman is encouraged to take the beginning course in each of the five areas of home economics: applied arts, clothing and textiles, food and nutrition, child development and family relations, and home management. The required freshman course, Personal Competence in College (Child Development and Family Relations 112), should prove of considerable help to the student in making her decision.

Because of poor schedule planning, failure in one or more courses, or for other reasons, a student in any major program may be required to attend more than the normal eight semesters. Before the close of her junior year, therefore, each student should plan carefully the scheduling of courses needed to fulfill the degree requirements in order to determine her expected date of graduation.

#### **Graduate Study**

The departments in the School of Home Economics participate extensively in the master's degree programs offered by Texas Technological College. For details see the *Graduate Catalog*.

### **General Degree Requirements of the School of Home Economics**

Specific curriculum tables for all programs in Home Economics are provided in Part II of this Catalog (Courses and Curricula). The general requirements of the School of Home Economics for all programs

are summarized in the three groups below. In the following section the special requirements for each program are indicated.

- I. Foundation courses in humanities, social and natural sciences, including the uniform requirements of the College: 46 to 48 semester hours.
- II. Home Economics core courses to provide basic concepts in personal and family living: 20 semester hours.
- III. Additional required and elective courses as specified in major degree programs to complete a total of a minimum of 127 semester hours for graduation.

## Degree Programs

### Applied Arts

#### A. *General Option*

The general option is designed for the student who wishes a broad art background. This area is planned to help the student acquire personal enrichment in his daily living through the development of an awareness and appreciation of the arts in a creative society.

#### B. *Interior Design Option*

In recent years there has been a decided increase in the demand for individuals with training in interior design. Such training offers preparation for work in interior design specialty shops and in furniture or accessory shops. Businesses of various kinds employ trained personnel to design window displays; manufacturers employ people with this background as consultants or designers.

#### C. *Art Education Option*

A teacher certification plan leading to a secondary art certificate or an all-level art certificate is available through a joint program involving the departments of Applied Arts, Architecture and Allied Arts, and Education. A student working toward certification in art education may obtain his degree in any one of three schools: Arts and Sciences, Engineering, or Home Economics.

For information concerning the requirements in art courses, a student working toward certification in art education should consult the Head of the Department of Applied Arts. For information concerning the requirements in professional education, the student should consult the Head of the Department of Education in the School of Arts and Sciences. He should also familiarize himself with the teacher education program discussed in this Catalog in the section entitled "Teacher Education."

#### D. *Design Option*

The person choosing this program is given a sound foundation in design principles, supplemented by a complete and thorough examination of the various art and craft areas. Graduates who have selected this option are now designing and producing crafts either for manufacturers in industry or in their own shops and homes as a private endeavor.

#### E. *Double Major Option*

A student desiring to combine a major in applied arts with the teaching of home economics in the secondary schools may select a double major in applied arts and home economics education.

**F. Interdisciplinary Option**

Through cooperative arrangements with the School of Arts and Sciences, the Department of Applied Arts in the School of Home Economics and the Department of Architecture and Allied Arts in the School of Engineering offer a major in art leading to the Degree of Bachelor of Arts in the School of Arts and Sciences. For information concerning requirements for this degree, consult the Head of the Applied Arts Department.

Degree: *Bachelor of Science in Home Economics*

Special Requirements:

*General Option:* In addition to the general requirements of the School of Home Economics,

	Sem. Hrs.
Courses in Applied Arts	21
Courses to support major field	18

*Interior Design Option:* In addition to the general requirements of the School of Home Economics,

	Sem. Hrs.
Courses in Applied Arts	27
Courses to support major field	18

*Art Education Option:* In addition to the general requirements of the School of Home Economics,

	Sem. Hrs.
Courses in Applied Arts, Architecture and Allied Arts	48
Courses to support major field	36-42
Additional required and elective courses to total 153-161 hours	

*Design Option:* In addition to the general requirements of the School of Home Economics,

	Sem. Hrs.
Courses in Applied Arts	27
Courses to support major field	18

*Double Major Option:* A special program designed by the department heads involved, combining the requirements of a major in applied arts and in home economics education to total a minimum of 127 semester hours.

*Interdisciplinary Option:* For information concerning requirements for this degree, consult the Head of the Applied Arts Department.

**Clothing and Textiles****A. Fashion Option**

This curriculum is planned to help the student develop creative ability and fashion judgment in preparation for entering some phase of fashion work; for example, designing, fashion coordinating, or retailing. This option provides opportunity for a wide choice of courses in the arts.

**B. Merchandising Option**

The merchandising program combines the fashion work of the department with courses in the School of Business Administration. Thus

the student has an opportunity to develop discriminating taste in fashion as well as to obtain training in operations concerning retail functions.

Students who complete the fashion or the merchandising option may have the advantage of an additional training period with the employing firm.

#### C. *Technology Option*

Textile technology prepares the individual to enter technical fields of clothing and textiles, such as laboratory testing, fabric analysis, and specification buying. This training is based on a strong background in chemistry, physics, and mathematics, plus the requirements in clothing and textiles.

#### D. *Double Major Option*

The double major option combines the requirements of the fashion option with the requirements of the Home Economics Education Department, thus preparing the student for teaching or for fashion work in either professional or commercial areas.

Degree: *Bachelor of Science in Home Economics*

Special Requirements:

*Fashion Option:* In addition to the general requirements of the School of Home Economics,

	Sem. Hrs.
Courses in Clothing and Textiles	21
Courses to support major field	17

*Merchandising Option:* In addition to the general requirements of the School of Home Economics,

	Sem. Hrs.
Courses in Clothing and Textiles	21
Courses to support major field	26

*Technology Option:* In addition to the general requirements of the School of Home Economics,

	Sem. Hrs.
Specified courses in science	8
Courses in Clothing and Textiles	21
Courses to support major field	23

*Double Major Option:* A special program designed by the department heads involved, combining the requirements of a major in clothing and textiles and in home economics education to total a minimum of 133 semester hours.

### **Food and Nutrition**

#### A. *Dietetics Option*

This curriculum meets the academic requirements for admission to approved dietetic internships as well as for membership in the American Dietetic Association. Graduates trained in this option qualify as dietitians for food service in institutions of every type, including both civilian and military hospitals, school cafeterias, college and university dormitories and student unions, commercial and industrial restaurants and cafeterias, and private club dining rooms.



The different branches of the military organizations of the United States need dietitians so urgently that each one has programs of financial assistance for students majoring in dietetics as well as for their internship.

#### B. *Community Nutrition Option*

This program is planned for students interested in the betterment of community health; it will prepare students to fill positions in nutrition services of departments of public health, social and welfare agencies, commercial organizations, and government agencies, such as the Extension Service and the Peace Corps. Electives should be chosen with the special area of interest in mind.

#### C. *Research Option*

The increasing stress placed on people trained for research requires that individuals prepare for this work during the undergraduate curriculum. The preparation for a research career in the area of nutrition requires additional training in chemistry and other sciences.

#### D. *Business and Merchandising Option*

This option is designed to meet the academic training of those interested in food photography and writing for news media, in developing recipes and products in test kitchens of various food industries, in presenting food programs on radio and television, and in directing consumer service of equipment and utility companies.

#### E. *Double Major Option*

Students interested in teaching at the secondary level may plan a double major with home economics education.

Degree: *Bachelor of Science in Home Economics*

Special Requirements:

*Dietetics Option:* In addition to the general requirements of the School of Home Economics,

	Sem. Hrs.
Specified Courses in Science	7
Courses in Food and Nutrition	21
Courses to support major field	12

*Community Nutrition Option:* In addition to the general requirements of the School of Home Economics,

	Sem. Hrs.
Specified Courses in Science	7
Courses in Food and Nutrition	21
Courses to support major field	12

*Research Option:* In addition to the general requirements of the School of Home Economics,

	Sem. Hrs.
Specified Courses in Science	12
Courses in Food and Nutrition	21
Courses to support major field	12

*Business and Merchandising Option:* In addition to the general requirements of the School of Home Economics,

	Sem. Hrs.
Courses in Food and Nutrition	21
Courses to support major field	17

**Double Major Option:** A special program designed by the department heads involved, combining the requirements of a major in food and nutrition and in home economics education to total a minimum of 127 semester hours.

### **General Home Economics**

The degree program in general home economics is designed for those students who wish a broad background of preparation for homemaking and related occupations but who do not wish to specialize in a professional area of home economics.

Degree: *Bachelor of Science in Home Economics*

Special Requirements:

In addition to the general requirements of the  
School of Home Economics,

	Sem. Hrs.
Courses in School of Home Economics	24
Courses to support major field	27

### **Home Economics Education**

The program leading to the above degree is designed to meet the legal requirements for teaching vocational homemaking in the secondary schools of Texas. Texas Technological College has been approved by the State Department of Education to provide training in vocational home-making education. On successful completion of this program the student is recommended for the Permanent Provisional Vocational Homemaking Certificate. The student may qualify for this certificate while earning a bachelor's or master's degree.

#### *Double Major Option*

An increasing number of students in the School of Home Economics desire to qualify in two major areas of home economics. This choice is encouraged, since women who enter professional fields often find it highly advantageous to be prepared for a number of occupations related to the broad areas of home economics. Many professional women must adapt their occupational choices to family needs and situations. The choice of a second major should be made early, preferably not later than the last semester of the sophomore year or first semester of the junior year in order that carefully designed programs may be planned. A student intending to complete requirements for two majors usually must plan to spend a longer time in college. Careful selection of electives may shorten this period.

Degree: *Bachelor of Science in Home Economics*

Special Requirements:

In addition to the general requirements of the School of Home Economics,

	Sem. Hrs.
Courses in professional development	20
Courses to support major field	33

*Double Major Option:* A special program designed by the department heads involved, combining the requirements of a major in home economics education and in applied arts, clothing and textiles, food and nutrition, or home and family life to total a minimum of 127 semester hours.

### Home and Family Life

#### A. *Child Development and Family Relations Option*

As its name suggests, this option offers opportunities to study all phases of the child from conception to maturity and to investigate various aspects of family relations. Laboratory experiences with children of different ages help the students learn how children mature, assist in developing skills in child guidance, and aid college students in understanding their own development and behavior. Work in the family relations area provides students with opportunities to gain information and to examine attitudes about such mature personal and interpersonal relationships in college and at home as courtship, marriage, and relations between husband and wife, other members of the family, and society.

Students selecting this option are prepared for homemaking or for such professional work as teaching in private or community preschool working with school age children in such groups as Scouts and Camp-fire Girls. Students in this field have a good background toward directing their further study toward parent education, child welfare work, special education, and occupational therapy.

#### B. *Home Management Option*

Those electing this option are given preparation for homemaking or for such professional work as agricultural extension, college teaching, and in industries producing goods and services for the home. Students are assisted in setting goals and identifying values as a part of home management and in the solution of personal problems. Attention is paid to the study of the decision-making process as used by individuals and families in reaching their goals.

An important contribution in home management is the opportunity for residence in the Home Management House, located on the campus, where students experience many phases of home living, including the care of an infant. Married students may elect a special problems course in lieu of residence in the Home Management House.

#### C. *Double Major Option*

A student desiring to combine a major in home and family life with preparation for teaching home economics in the secondary schools may select a double major in home and family life and home economics education.

Degree: *Bachelor of Science in Home Economics*

Special Requirements:

*Child Development and Family Relations Option:* In addition to the general requirements of the School of Home Economics,

	Sem. Hrs.
Courses in Child Development and	
Family Relations	21
Courses to support major field	18

*Home Management Option:* In addition to the general requirements of the School of Home Economics,

	Sem. Hrs.
Courses in Home Management	21
Courses to support major field	29

*Double Major Option:* A special program designed by the department heads involved, combining the requirements of a major in home and family life and in home economics education to total a minimum of 127 semester hours.

## Special Programs

### Pre-Nursing

Although Texas Technological College does not offer a degree program in nursing, students who contemplate nursing as a profession may secure a number of college courses which are required in all degree and nondegree programs in nursing. Inquiries should be addressed to the Dean of Home Economics for a recommended curriculum.

## Explanation of Curricula

In this part of the Catalog are listed the courses and curricula supporting the degree programs described in Part I. The courses are offered by the instructional departments of each school which also direct the fulfillment of the special requirements for the degree programs, including the planned curricula. These curricula apply to most of the Bachelor of Science degrees, and tables outlining them are presented in the section with the appropriate department.

### Programs and Instructional Departments

The following table is an alphabetical list of the undergraduate degree programs and a guide to the department directing or administering the program.

PROGRAM	SCHOOL	DEPARTMENT OR ADVISER
ACCOUNTING	Business Administration	Accounting
ADVERTISING	Business Administration	Marketing
ADVERTISING ART AND DESIGN	Engineering	Architecture and Allied Arts
AGRICULTURAL ECONOMICS	Agriculture	Agricultural Economics
AGRICULTURAL EDUCATION	Agriculture	Agricultural Education
AGRICULTURAL ENGINEERING	Agriculture	Agricultural Engineering
AGRICULTURAL SCIENCE	Agriculture	Administered by the Dean's Office
AGRONOMY, CROPS MAJOR	Agriculture	Agronomy and Range Management
AGRONOMY, SOILS MAJOR	Agriculture	Agronomy and Range Management
ANIMAL BUSINESS	Agriculture	Animal Husbandry
ANIMAL PRODUCTION	Agriculture	Animal Husbandry
ANIMAL SCIENCE	Agriculture	Animal Husbandry
ANTHROPOLOGY	Arts and Sciences	Sociology and Anthropology
APPLIED ARTS	Home Economics	Applied Arts
APPLIED MUSIC	Arts and Sciences	Music
ARCHITECTURE	Engineering	Architecture and Allied Arts
ART	(1) Engineering	Architecture and Allied Arts
	(2) Home Economics	Applied Arts
BILINGUAL SECRETARIAL PROGRAM	(1) Arts and Sciences	Foreign Languages
	(2) Business Administration	Business Education and Secretarial Administration

BOTANY	Arts and Sciences	Biology
BUSINESS EDUCATION	Business Administration	Business Education and Secretarial Administration
CHEMICAL ENGINEERING	Engineering	Chemical Engineering
CHEMISTRY	Arts and Sciences	Chemistry
CIVIL ENGINEERING	Engineering	Civil Engineering
CLOTHING AND TEXTILES	Home Economics	Clothing and Textiles
DAIRY INDUSTRY	Agriculture	Dairy Industry
ECONOMICS	Business Administration	Economics
EDUCATION	Arts and Sciences	Education
ELECTRICAL ENGINEERING	Engineering	Electrical Engineering
ENGINEERING PHYSICS	Engineering	Engineering Physics*
ENGLISH	Arts and Sciences	English
ENTOMOLOGY	Agriculture	Park Administration, Horti- culture, and Entomology
FINANCE	Business Administration	Finance
FOOD AND NUTRITION	Home Economics	Food and Nutrition
FRENCH	Arts and Sciences	Foreign Languages
GENERAL HOME ECONOMICS	Home Economics	Interdepartmental
GEOCHEMISTRY	Arts and Sciences	Geosciences
GEOLOGY	Arts and Sciences	Geosciences
GEOPHYSICS	Arts and Sciences	Geosciences
GERMAN	Arts and Sciences	Foreign Languages
GOVERNMENT	Arts and Sciences	Government
HISTORY	Arts and Sciences	History
HOME ECONOMICS EDUCATION	Home Economics	Home Economics Education
HOME AND FAMILY LIFE	Home Economics	Home and Family Life
HORTICULTURE	Agriculture	Park Administration, Horti- culture, and Entomology
INDUSTRIAL ENGINEERING	Engineering	Industrial Engineering
INDUSTRIAL MANAGEMENT	Business Administration	Management
INTERNATIONAL TRADE	Business Administration	Economics
JOURNALISM	Arts and Sciences	Journalism
LATIN	Arts and Sciences	Foreign Languages
LATIN AMERICAN AREA STUDIES	Arts and Sciences	Special adviser in Department of Government
MANAGEMENT	Business Administration	Management
MARKETING	Business Administration	Marketing
MATHEMATICS	Arts and Sciences	Mathematics
MECHANICAL ENGINEERING	Engineering	Mechanical Engineering
MECHANIZED AGRICULTURE	Agriculture	Agricultural Engineering
MEDICAL TECHNOLOGY	Arts and Sciences	Biology
MICROBIOLOGY	Arts and Sciences	Biology
MUSIC EDUCATION	Arts and Sciences	Music
MUSIC THEORY	Arts and Sciences	Music
PARK ADMINISTRATION	Agriculture	Park Administration, Horti- culture, and Entomology
PETROLEUM ENGINEERING	Engineering	Petroleum Engineering
PHILOSOPHY	Arts and Sciences	Philosophy
PHYSICAL EDUCATION (FOR MEN)	Arts and Sciences	Health, Physical Education, and Recreation for Men
PHYSICAL EDUCATION (FOR WOMEN)	Arts and Sciences	Health, Physical Education, and Recreation for Women

\* Administered by the Department of Physics in the School of Arts and Sciences, but the curriculum is presented in the Catalog with other curricula of the School of Engineering

PHYSICS	Arts and Sciences	Physics
PRE-LAW	(1) Arts and Sciences	Special adviser in Department of Government
	(2) Business Administration	Special adviser in School of Business Administration
PRE-MEDICAL AND PRE-DENTAL	Arts and Sciences	Pre-Medical adviser in Department of Chemistry
PRE-VETERINARY MEDICINE	Agriculture	Animal Husbandry
PSYCHOLOGY	Arts and Sciences	Psychology
PUBLIC ADMINISTRATION	Business Administration	Special adviser in School of Business Administration
RANGE MANAGEMENT	Agriculture	Agronomy and Range Management
RECREATION (FOR MEN)	Arts and Sciences	Health, Physical Education, and Recreation for Men
RECREATION (FOR WOMEN)	Arts and Sciences	Health, Physical Education, and Recreation for Women
RETAILING	Business Administration	Marketing
SECRETARIAL ADMINISTRATION	Business Administration	Business Education and Secretarial Administration
SOCIOLOGY	Arts and Sciences	Sociology and Anthropology
SPANISH	Arts and Sciences	Foreign Languages
SPEECH	Arts and Sciences	Speech
TEXTILE ENGINEERING	Engineering	Textile Engineering
TEXTILE TECHNOLOGY AND MANAGEMENT	Engineering	Textile Engineering
ZOOLOGY	Arts and Sciences	Biology

## Classification of Students

During each calendar year a student making normal progress will complete one-fourth of the semester hours and grade points required for his degree. On this basis students are designated as freshmen, sophomores, juniors, or seniors, according to the following criteria:

**Freshman:** a student who lacks enough semester hours to be classed as a sophomore.

**Sophomore:** a student who has completed not less than 32 semester hours.

**Junior:** a student who has completed not less than 64 semester hours.

**Senior:** a student who has completed not less than 96 semester hours and who has achieved a minimum grade-point average of 2.00 (C).

A student is considered to be making satisfactory progress toward a degree objective when he completes at least 12 credit hours in each semester, achieves a grade-point average of 2.00 or higher in each semester, and maintains an overall grade-point average of 2.00 or higher.

A **full-time** student is one who is enrolled for 12 or more credit hours in a given semester.

A **part-time** student is one who is enrolled for fewer than 12 credit hours in a given semester.

The semester hour is the unit of measure for credit purposes. The student is expected to spend approximately two hours in preparation for each hour of lecture or recitation.

The number of semester hours a student may carry (his course load) is regulated by his academic dean. In determining this load the dean takes



into account the quality of scholastic work performed by the student, the types of courses involved, the student's health, and his extracurricular interests and activities. A student who is employed must keep his academic dean informed of the nature of his employment and his working hours.

### **Explanation of Course Offerings**

Courses are designated by a name and a number along with a descriptive title. The name normally used is that of the subject. The first digit in the number indicates the academic level of the course. First digits of 1, 2, 3, or 4 indicate that the course is primarily designed for the freshman, sophomore, junior, or senior year, respectively. A number of 5 or above designates a graduate course. The second digit indicates the semester-hour credit of the course. The remaining digit or digits are the distinguishing numbers of the particular course.

When a hyphen appears between the numbers of two courses, both courses must be satisfactorily completed in order for credit to be received on either. The department offering the courses may, in certain instances, allow credit toward graduation for one course in the sequence. For example, Eng. 131-132, College Rhetoric: The 1 means it is a freshman level course, the 3 indicates the credit hours for the semester's work, and the final number is the department's number for the course. The hyphen means both semesters must be completed if credit is to be received.

In the departmental course lists, certain information is placed in parentheses following the course name. The first figure in the parentheses indicates the semester-hour credit of the course; the second figure shows the number of lecture hours per week attended by a student enrolled in the course; and the third figure indicates the number of hours per week during which the student is in a laboratory, practice session, or other activity related to the course. For example, (3:2:3) following the listing of Botany 232, Taxonomy, means that the course carries 3 semester hours' credit, that 2 hours per week are spent in lecture sections, and that 3 hours per week are spent in the laboratory. Where only one figure appears in the parentheses, the course value in semester hours is indicated.

## School of Agriculture

Gerald W. Thomas, *Dean*

J. Wayland Bennett, *Associate Dean*

Offices: Ag. 201

The School of Agriculture is divided into instructional departments which offer course work and supervise the degree programs described in Part I of this Catalog. Specific curricula are designed by the departments for each of the degree programs. Any deviation from the approved curriculum for a particular degree must have prior approval from the head of the department involved and the Office of the Dean of Agriculture. These curricula are presented in special tables on the following pages along with a descriptive list of the courses offered by each department.

### Uniform Freshman Year for Students in Agriculture

All students in the School of Agriculture (except those majoring in agricultural engineering, mechanized agriculture, or pre-veterinary science) follow a uniform freshman curriculum and need not designate a major interest during the freshman year. These uniform requirements include a series of orientation lectures, survey courses in various departments of agriculture, and basic training in biology, chemistry, mathematics, and English.

FRESHMAN YEAR			SEMESTER	1st	2nd
Ag. Ed.	111	The Agric. Indus.		1	
Agron.	131	Fund. of Agron.		3	
A.H.	131	Gen. Anim. Husb.		3	
Biol.	141	Botany		4	
Math.	137	Intro. Math. Analysis or			
Math.	133	College Algebra		3	
Eng.	131	Col. Rhet.		3	
P.E., Band, or Basic ROTC				1	
Ag. Eco.	235	Fund. of Ag. Eco.			3
Chem.	141	Gen. Chem.			4
Eng.	132	Col. Rhet.			3
D.I.	131	Prin. of Dairy & Food Indus.			3
Hort.	131	Prin. of Hort.			3
P.E., Band, or Basic ROTC					1-2
Total credit hours				18	17-18

Required freshman courses should be taken during the freshman and sophomore years. Students who postpone taking required freshman subjects until the senior year must still take such subjects, but credit will not apply toward the hours required for a degree. (For purposes of this regulation a senior is considered as a student with a minimum of 96 hours.)

AGRICULTURAL SCIENCE CURRICULUM  
Bachelor of Science  
(See Uniform Freshman Year)

SOPHOMORE YEAR			SEMESTER	1st	2nd
Chem.	142	Gen. Chem.		4	
English (200 level or above)				3	
Biol.	142	Zoology		4	
P.E., Band, or Basic ROTC				1-2	
Ag. courses and electives				6	
Math.	131	Trig.			3
Biol., Bot., Mbio., or Zool. (200 level or above)					3
English (200 level or above)					3
P.E., Band, or Basic ROTC					1-2
Ag. courses and electives					8
Total credit hours				18-19	18-19
JUNIOR YEAR			SEMESTER	1st	2nd
*Chem.	341	Intro. Org. Chem.		4	
Govt.	231	Amer. Govt., Org.		3	
Phys.	141	Gen. Phys.		4	
Ag. courses and electives				7	
Biol., Bot., Mbio., or Zool. (200 level or above)					3
*Chem.	342	Physiol. Chem.			4
Govt.	232	Amer. Govt., Func.			3
Phys.	142	Gen. Phys.			4
Ag. courses and electives					5
Total credit hours				18	19
SENIOR YEAR			SEMESTER	1st	2nd
Hist.	231	Hist. of U.S. to 1865		3	
Ag. courses or basic science and electives				15	
Hist.	232	Hist. of U.S. since 1865			3
Ag. courses or basic science and electives					15
Total credit hours				18	18

Hours required for graduation, exclusive of P.E., Band, or Basic ROTC--  
140; 41 hours of total must be taken in the School of Agriculture.

\*May substitute Chem. 353, 354.

## Agricultural Science Major

An interdepartmental curriculum for the agricultural science program is supervised directly by the Dean of the School of Agriculture. Course work, as indicated in the accompanying curriculum table, is provided in various departments.

## Department of Agricultural Economics

Willard F. Williams, *Head of the Department*

Office: Ag. 314

*Professors:* J. Wayland Bennett, Willard F. Williams

*Associate Professors:* Herbert W. Grubb, Archie L. Leonard, Thomas R. Owens

*Assistant Professors:* James E. Osborn, Hong Y. Lee, Robert G. Welch

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: AGRICULTURAL ECONOMICS, *Bachelor of Science* and *Master of Science*. In the undergraduate program, areas of emphasis are Agribusiness, Farm and Ranch Management, Rural Socio-Economics, and Agricultural Economics Research.

## Courses in Agricultural Economics

### FOR UNDERGRADUATES

#### 235. Fundamentals of Agricultural Economics. (3:3:0)

Introduction to fundamental economic principles and their application to farm and ranch problems.

#### 236. Principles of Marketing Agricultural Products. (3:3:0)

Prerequisite: Ag. Eco. 235. Introduction to agricultural marketing, with emphasis on applications of economic principles to marketing firms, functions, and problems.

#### 324. Agricultural Economics Research Methodology. (2:2:0)

Prerequisite: Ag. Eco. 235, 236, and junior standing. Methods of research analysis employed in agricultural economics, including surveys, budgeting and synthesis, experimental design, tabulation, graphic correlation, and introduction to programming and use of electronic computers.

#### 325. Farm Laws. (2:2:0)

Prerequisite: Ag. Eco. 236 or permission of the instructor. Legal problems and practices affecting the farmer in his business relations with neighbors and the business agents with whom he deals.

#### 333. Cooperatives in Agriculture. (3:3:0)

Prerequisite: Ag. Eco. 236. Organization and operation of agricultural cooperatives.

#### 334. Farm Management. (3:2:3)

Prerequisite: Ag. Eco. 236 and junior standing. The organization and management of the individual farm. Field trips to nearby farms.

#### 335. Agricultural Records and Analysis. (3:2:2)

Prerequisite: Ag. Eco. 236, 334 and junior standing. Accounts in modern agriculture; methods and systems of recording and analyzing farm and ranch operational data; summarizing and using records as effective aids to improve farming and ranching. Laboratory practice in record keeping and analysis for operational efficiency.

#### 339. Agricultural Price Theory. (3:3:0)

Prerequisite: Ag. Eco. 235 and 236 and junior standing or approval of the Department Head. Basic intermediate agricultural economics principles applicable to agri-

**AGRICULTURAL ECONOMICS CURRICULUM**  
Bachelor of Science

(See Uniform Freshman Year)

SOPHOMORE YEAR			SEMESTER	1st	2nd
Ag. Eco	236	Mkt. of Ag. Prod.		3	
Chem.	142	Gen. Chem.		4	
Eng.	233	Tech. Writing		3	
Hist.	231	Hist. of U.S. to 1865		3	
Govt.	231	Amer. Govt., Org.		3	
P.E., Band, or Basic ROTC				1-2	
Hist.	232	Hist. of U.S. since 1865			3
Govt.	232	Amer. Govt., Func.			3
P.E., Band, or Basic ROTC					1-2
*Other courses					11
Total credit hours				17-18	18-19

JUNIOR YEAR			SEMESTER	1st	2nd
Ag. Eco.	324	Ag. Eco. Research Meth.		2	
Ag. Eco.	341	Ag. Stat.		4	
Ag. Eco.	339	Ag. Price Theory		3	
*Other courses				9	
*Other courses					18
Total credit hours				18	18

SENIOR YEAR			SEMESTER	1st	2nd
Ag. Eco.	433	Prod. Eco.		3	
Ag. Eco.	435	Ag. Policy & Org.		3	
*Other courses				11	
Ag. Eco.	411	Seminar			1
Ag. Eco.	430	Spec. Prob. in Ag. Eco.			3
*Other courses					13
Total credit hours				17	17

**AGRIBUSINESS EMPHASIS**

\*In addition, students electing this emphasis must take the following courses: Acct. 234 and 235; Bus. Law 338 and 339; Mgt. 331; Fin. 333; Speech 338 or Soc. 331; Ag. Eco. 333, 334, 431 or 436, 432, 434, and 439, plus 23 electives to be approved by the department, of which 12 must be selected from the following: Fin. 331 and 334; Mgt. 339, 3381, 430, and 435; Mkt. 332, 339, 431, and 439; Eco. 331 and 3311; D.I. 322; Jour. 233 and 3312.

**FARM OR RANCH MANAGEMENT EMPHASIS**

\*In addition, students electing this emphasis must take the following courses: Chem. 341; Ento. 231; Agron. 241, 341, and 4311; A.H. 331; Speech 338 or Soc. 331; Ag. Eco. 334, 335, 437, 4311, and 4313 or 4314, plus (1) for Farm Management: Ag. Eco. 431 or 434; one of the following courses: R.M. 333, Agron. 331, 431 or 4313; Ag. Engr. 333; one additional livestock production course and 12 hours of electives or (2) for Ranch Management: Ag. Eco. 431 or 438; Range Mgt. 333; A.H. 432, one additional livestock production course, and 11 hours of electives. Electives to be approved by the department.

**RURAL SOCIO-ECONOMICS EMPHASIS**

\*In addition, students electing this emphasis must take the following courses: Psy. 230 and 330; Phil. 230; Soc. 230, 331, 438, and 4313; Speech 338; Fin. 333; Ag. Eco. 333, 432, and 434, plus 26 hours of electives to be approved by the department, of which 12 must be selected from the following: Soc. 334, 339, 432, 436, and 437; Psy. 436, Phil. 231, 336, and 436; Eco. 337, 339, 3311, and 435; Fam. Rel. 433 and 439; Jour. 233 and 3312 and Ag. Eco. 333, 436, 4311 and 4313.

**AGRICULTURAL ECONOMICS RESEARCH EMPHASIS**

\*In addition, students electing this emphasis must take Acct. 234 and 235; Math. 131, 139, and 231; Fin. 333; Soc. 331 and 3314; Ag. Eco. 432, 434, 439, 4312, and 4313, plus 24 hours of electives to be approved by the department, of which 12 must be selected from the following: Math. 232, 331, and 4324; Eco. 331, 334, 336, and 3313; Speech 338; Soc. 331; Jour. 3312; and Ag. Eco. 333, 431, 436, and 4311.

Hours required for graduation, exclusive of P.E., Band or Basic ROTC-136.

cultural production and marketing with applications of production and marketing problems.

### **341. Agricultural Statistics. (4:3:3)**

Prerequisite: Junior standing and 3 hours of mathematics. Principles and procedures involved in the collection, tabulation and analysis of agricultural data including indices of central tendency and dispersion, probability, sampling, significance tests, chi-square and simple linear correlation.

### **411. Seminar. (1:1:0)**

Assigned readings, informal discussion, written and oral reports on subjects relating to agribusiness management, farm management, research, or agricultural policy.

## **FOR UNDERGRADUATES AND GRADUATES**

### **430. Special Problems in Agricultural Economics. (3)**

Prerequisite: Senior standing and Ag. Eco. 324 or approval of the Department Head. Individual instruction and assigned research on a special problem of interest to the individual student. May be repeated with the approval of the Department Head.

### **431. Livestock Marketing. (3:3:0)**

Prerequisite: Ag. Eco. 236 and junior standing. Organizational structure and adjustments to change in the livestock-meat industry, with additional emphasis on prices and pricing; grades and grading; regulatory programs; and foreign trade.

### **432. Statistical Methods in Agricultural Research. (3:3:0)**

Prerequisite: Ag. Eco. 341 or equivalent. Advanced training in agricultural research methods using statistical analysis and employing probability theory, tests of statistical significance, multiple correlation and regression analysis, analysis of variance and covariance. Includes basic principles of experimental design.

### **433. Production Economics. (3:3:0)**

Prerequisite: Junior standing and Ag. Eco. 339 or approval of Department Head. The basic tools of economics are used to analyze problems facing the farm business firm. Emphasis is placed on applications of economics in decision making.

### **434. Advanced Agricultural Marketing. (3:3:0)**

Prerequisite: Junior standing and Ag. Eco. 339 or approval of Department Head. Applications of economic principles to marketing problems, with emphasis on field crops, dairy and horticultural products; pricing, costs, market structure, marketing programs, and research procedures.

### **435. Agricultural Policies and Organizations. (3:3:0)**

Prerequisite: Junior standing or permission of the instructor. Historical development and economic analysis of public programs and policies affecting agriculture, with emphasis upon the role of farm organizations, economic effects of alternative production or marketing programs, and current policy developments.

### **436. Trade in Agricultural Products. (3:3:3)**

Prerequisite: Senior standing, Ag. Eco. 339, or permission of the instructor. Economic principles of interregional and international trade, location, and inter-area competition in agricultural products, including information on the extent and nature of both interregional and world trade.

### **437. Farm and Ranch Appraisal. (3:2:3)**

Prerequisite: Senior standing or permission of the instructor. Factors governing the price of land; emphasis on valuation procedure. Appraisal of lands for use, for sale, for purposes of making loans, for condemnation, settlement of estates, and for taxation. Appraisal reports.

### **438. Range and Ranch Economics. (3:3:0)**

Prerequisite: Ag. Eco. 236 and junior standing. Organization and management of ranch business, with emphasis on resource and enterprise combination, prices and marketing, ranch records, financing, appraisal, and range conservation. Short field trips.

### **439. Agricultural Price Analysis. (3:3:0)**

Prerequisite: Ag. Eco. 341 and 339 or approval of Department Head. Analysis of agricultural price changes and variations, including trends, cycles, seasonal variations, and statistical analysis of factors responsible for price changes.

### **4311. Agricultural Finance. (3:3:0)**

Prerequisite: Ag. Eco. 236 and junior standing. Scope of agricultural finance and problems of financing agricultural needs. Capital and credit needs in agriculture; cost of credit; sources of credit; payment methods; terms and risks involved in the use of credit. Analysis of private and public agricultural credit agencies.

AGRICULTURAL EDUCATION CURRICULUM  
Bachelor of Science

(See Uniform Freshman Year)

SOPHOMORE YEAR			SEMESTER	1st	2nd
Eng.	233	Tech. Writing		3	
Ag. Engr.	220	Ag. Mech.--Woodwork		2	
Chem.	142	Gen. Chem.		4	
Biol.	142	Zoology		4	
Ag. Eco.	236	Mkt. Ag. Prod.		3	
P.E., Band, or Basic ROTC				1-2	
Hist.	231	Hist. of U.S. to 1865			3
Ag. Engr.	221	Ag. Mech.--Metalwork			2
Chem.	341	Intro. Org. Chem.			4
Eng.	232	Mast. of Lit. or			
Speech	338	Bus. & Prof. Speech			3
Ento.	231	Intro. Ento.			3
P.E., Band or Basic ROTC					1-2
Total credit hours				17-18	16-17
JUNIOR YEAR			SEMESTER	1st	2nd
Ag. Engr.	333	Farm Power & Mach.		3	
Agron.	241	Soils		4	
Educ.	332	Educ. Psy.		3	
P.H.	231	Intro. Poult. Husb.		3	
Govt.	231	Amer. Govt., Org.		3	
Hist.	232	Hist. of U.S. Since 1865		3	
Ag. Engr.	222	Ag. Surveying or			
Ag. Engr.	223	Farm Utilities			2
Agron.	331	For. & Past. Crops or			
Range Mgt.	333	Range Plants			3
Agron.	341	Fund. Prin. of Genetics			4
Govt.	232	Amer. Govt., Func.			3
A.H.	331	Prin. of Feeding			3
Electives					3
Total credit hours				19	18
SENIOR YEAR*			SEMESTER	1st	2nd
Ag. Eco.	334	Farm Mgt. or			
Ag. Eco.	438	Ranch Eco.		3	
A.H.		Advanced courses		5	
Agron.	4312	Crop Prod.		3	
Edu.	4315	Audio-Visual Edu.		3	
Electives				3	
Ag. Ed.	434	High School Meth.			3
Ag. Ed.	435	Supervised Farm & FFA			3
Ag. Ed.	461	Stud. Teaching			6
Ag. Engr.	4311	Adv. Ag. Mech.			3
Electives					3
Total credit hours				17	18

Hours required for graduation, exclusive of P.E., Band or Basic ROTC--136.

\*First and second semesters of senior year are interchangeable. Approximately 50 per cent of the senior students qualifying to teach vocational agriculture will take the agricultural education work the first semester, and the other 50 per cent will take it the second semester.

**4312. Mathematical Economics and Econometrics for Agriculture. (3:3:0)**

Mathematical tools necessary for treatment of basic economic relationships involving prices and quantities, inputs and outputs, and costs and revenue. Formulation and analysis of economic models applicable to agriculture.

**4313. Agricultural Resource Economics. (3:3:0)**

Prerequisite: Junior standing or approval of Department Head. Economics of agricultural resource allocation and use. Includes land economics and economics of water development, allocation and conservation.

**4314. Advanced Farm Management. (3:2:3)**

Prerequisite: Ag. Eco. 334 or approval of Department Head. Advanced principles and practices of farm management consistent with the rapid development of scientific agriculture. Includes emphasis upon management principles in the purchasing and use of farm machinery and equipment; use of labor, feed resources, capital, water, fertilizer and land; and farm planning procedures.

## FOR GRADUATES

**511. Seminar. (1:1:0)**

Assigned readings, written and oral reports, discussions on subjects relating to current agricultural economic problems.

**530. Research Methodology in Agricultural Economics. (3:3:0)**

Prerequisite: Graduate standing. Advanced training in research methods and procedures including role and uses of theory, problem selection, development of hypotheses, budgeting and partial budget analysis, linear, non-linear and spatial programming and preparation of research proposals and reports.

**531. Advanced Production Economics. (3:3:0)**

Prerequisite: Ag. Eco. 433, graduate standing, and approval of Department Head. Criteria of resource efficiency utilization; inter-industry relationships; uncertainty and expectations; location and timing of production; technological changes; returns to individuals and society.

**532. Seminar in Agricultural Policy. (3:3:0)**

Prerequisite: Approval of Department Head. Development of agricultural policy with particular reference to objectives, procedures, accomplishments, uncertainty, and welfare considerations and consequences. Consideration of American agricultural policy in aiding underdeveloped countries.

**533. Seminar in Agricultural Marketing. (3:3:0)**

Prerequisite: Ag. Eco. 434 or equivalent. Study of advanced topics in agricultural marketing including market structure analysis and public policy, interregional competition and regional economic development, economics of grades and grading and marketing research.

**534. Research in Agricultural Economics. (3)**

A selected research problem in agricultural economics, farm management, marketing, or rural sociology. May be repeated for credit upon the approval of the major professor.

**535. Contemporary Agricultural Economics. (3:3:0)**

Prerequisite: Graduate standing. Survey of the nature and development of basic economic principles and of analytical economic research methods, with applications to agricultural production and marketing problems. Applications selected according to major interests of students. For non-majors only.

**631. Master's Thesis. (3)**

Enrollment required at least twice.

## Department of Agricultural Education

Thomas Luther Leach, *Head of the Department*

Office: Ag. 320

*Professors:* Levi M. Hargrave, Thomas L. Leach

*Associate Professor:* Ulrich L. Eggenberger

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: AGRICULTURAL EDUCATION, *Bachelor of Science* and *Master of Science*.



The department also supervises the programs in vocational agriculture. Students expecting to receive a teacher's certificate in vocational agriculture must meet the requirements and standards described in the section on Teacher Education (in Part I of this Catalog).

## Courses in Agricultural Education

### FOR UNDERGRADUATES

#### 111. The Agricultural Industry. (1:1:0)

Relationship of the student to the college; habits of study. Survey of the field of agriculture, vocational guidance. Required of all freshman students in the School of Agriculture.

#### 430. Agricultural Education Problems. (3)

Prerequisite: Senior standing and approval of Department Head. Individual investigation. May be repeated for credit.

#### 432. Methods in Adult Agricultural Education. (3:2:2)

Prerequisite: Senior standing in agriculture. Young farmer, adult farmer, and community activities. Preparation of teaching materials. Plans for summer activities and professional improvement.

#### 461. Student Teaching. (6)

Prerequisite: Senior standing in agriculture. One-half of one semester off-campus supervised student teaching in high school vocational department approved by the Agricultural Education Department. Opportunity for participation in all-day, young farmer and adult classes.

### FOR UNDERGRADUATES AND GRADUATES

#### 434. Methods of Teaching Vocational Agriculture in the High School.

(3:2:3)

Prerequisite: Senior standing in agriculture. Analyzing the vocational agriculture teacher's job. The project method of teaching. The long-time annual teaching plan, equipment, reports, daily lesson planning.

#### 435. Methods in Supervised Farming and Future Farmer Work.

(3:2:3)

Prerequisite: Senior standing in agriculture. Methods in building and supervising the vocational agriculture student's farming program. Methods of organizing and administering a high school Future Farmers chapter.

### FOR GRADUATES

#### 522. Advanced Methods in High School Vocational Agriculture. (2:2:0)

Advanced methods of teaching vocational agriculture in all-day classes in the high school.

#### 523. Advanced Methods in Adult Agricultural Education. (2:2:0)

Advanced methods of teaching vocational agriculture in part-time and evening schools.

#### 524. Advanced Methods in Future Farmer Work. (2:2:0)

Advanced methods of teaching Future Farmer work.

#### 531. Investigation in the Field of Agricultural Education. (3)

Prerequisite: Consent of the Department Head. Investigation of a problem in the field of vocational agriculture of special interest to the student; presentation of a paper. May be repeated for credit.

#### 535. Problems. (3)

Prerequisite: Senior standing. Problems in the field of vocational agriculture of special interest to the individual student. May be repeated for credit.

#### 536. Advanced Methods of Teaching Farm Mechanics. (3:3:0)

Organization, management, and equipping the farm shop; preparation and use of job sheets; practice in the demonstration of shop techniques; development of a farm mechanics course of study.

#### 630. Master's Report. (3)

#### 631. Master's Thesis. (3)

Enrollment required at least twice.

## Department of Agricultural Engineering

Willie L. Ulich, *Head of the Department*

Office: Ag. E. 103

*Professors:* Willie L. Ulich, Ira L. Williams

*Associate Professors:* William F. Schwiesow, Ulrich L. Eggenberger

*Assistant Professors:* Marvin F. Dvoracek, Donald F. Wanjura\*

*Research Associate:* Albert W. Sechrist

\* Part-time.

This department supervises the following degree programs described in Part I of this Catalog: AGRICULTURAL ENGINEERING (jointly supervised by the schools of Agriculture and Engineering), *Bachelor of Science in Agricultural Engineering*; MECHANIZED AGRICULTURE, *Bachelor of Science*.

In order to provide students with appropriate course offerings and facilities, the department is staffed with a qualified faculty and is housed in two buildings encompassing approximately 25,000 square feet of classroom and laboratory floor space. An Agricultural Engineering Center is also available on the College Research Farm for research and field laboratory work. Courses offered emphasize production and processing equipment, mechanical and electrical power, storage and processing buildings, soil conservation, and water management. Being located in one of the world's most mechanized farming areas, this department is also able to provide unusual opportunities for research and inspection tours through many agricultural facilities and allied industrial plants.

### Courses in Agricultural Engineering

#### FOR UNDERGRADUATES

#### 111. Fundamentals in Agricultural Engineering. (1:1:2)

Fundamental principles of agricultural engineering, including areas of specialization. May be repeated for credit. May not be applied toward a professional degree.

#### 112. Fundamentals of Agricultural Mechanization. (1:1:0)

An introduction to the development of agricultural mechanization, present concepts, and future role. Provides a study of services, maintenance and management of farm production equipment, farm structure, farm electrification systems, and soil and water conservation practices.

#### 220. Agricultural Mechanics I — Woodwork. (2:1:3)

Selection, use, and maintenance of hand tools and power woodworking equipment. Techniques of selection and estimation of building materials. Methods of wood member construction and wood projects; also, quality of concrete, and rural construction.

#### 221. Agricultural Mechanics II — Metalwork. (2:1:3)

Basic hand and power tools essential to the modern farm shop. Selection, use, and maintenance of tools; electric arc and oxyacetylene welding; and the processes used in repairing farm equipment. Pipe fitting cold metal work, and metal forming.

#### 222. Agricultural Surveying and Land Conservation. (2:1:3)

Techniques in measuring distances and areas; traversing; determining elevations; mapping; and running grade lines. Also, laying out and checking terraces, irrigation and drainage ditches, and use of aerial photographic maps.

#### 223. Farm and Home Utilities. (2:1:2)

Domestic water supply and its distribution; including plumbing, sewage, refuse, and garbage disposal. Fundamentals of electric farm power; wiring of farm buildings; and electric appliances and equipment. Also, heating, lighting, ventilating, and cooling of farm structures.

MECHANIZED AGRICULTURE CURRICULUM  
Bachelor of Science

FRESHMAN YEAR			SEMESTER	1st	2nd
Ag. Ed.	111	The Agricultural Ind.		1	
Agron.	131	Fund. of Agronomy		3	
A.H.	131	Gen. Anim. Husb.		3	
Eng.	131	Col. Rhet.		3	
Hort.	131	Prin. Hort.		3	
Math.	133	College Algebra		3	
P.E., Band, or Basic ROTC				1-2	
Ag. Engr.	112	Fund. of Agri. Mech.			1
Ag. Engr.	220	Agri. Mech. I			2
Chem.	141	Gen. Chem.			4
D.I.	131	Prin. of Dairy & Food Ind.			3
Eng.	132	College Rhet.			3
Math.	131	Trig.			3
P.E., Band, or Basic ROTC					1-2
Total credit hours				17-18	17-18
SOPHOMORE YEAR			SEMESTER	1st	2nd
Ag. Engr.	221	Agri. Mech. II		2	
Ag. Eco.	235	Fund. of Agri. Eco.		3	
Chem.	142	Gen. Chem.		4	
Eng.	233	Tech. Writing		3	
Phys.	141	Gen. Phys.		4	
P.E., Band, or Basic ROTC				1-2	
Acct.	231	Ind. Acct.			3
Ag. Engr.	232	Plane & Topog. Surveying			3
Ag. Eco.	236	Mkt. of Agri. Prod. or			
Mkt.	332	Prin. of Mkt.			3
Hist.	231	Hist. of U.S. to 1865			3
Phys.	142	Gen. Physics			4
P.E., Band, or Basic ROTC					1-2
Total credit hours				17-18	17-18
JUNIOR YEAR			SEMESTER	1st	2nd
Ag. Engr.	233	Prin. of Agri. Engr.		3	
Ag. Engr.	333	Farm Power & Mach.		3	
Govt.	231	Amer. Govt., Org.		3	
Hist.	232	Hist. of U.S. since 1865		3	
Mkt.	334	Prin. of Advertising		3	
Mkt.	339	Prin. of Salesmanship		3	
Ag. Engr.	335	Irrig. & Eros. Control			3
Agron.	241	Soils			4
Govt.	232	Amer. Govt., Func.			3
Mkt.	335	Prin. of Retailing			3
Spch.	338	Bus. & Prof. Speech			3
Elective					2
Total credit hours				18	18
SENIOR YEAR			SEMESTER	1st	2nd
Ag. Engr.	411	Seminar		1	
Ag. Engr.	435	Farm. Mech. Prob.		3	
Ag. Engr.	439	Structures Funct.		3	
Bus. Law	338	Bus. Law		3	
Sec. Adm.	321	Office Machines		2	
Electives				6	
Ag. Engr.	430	Agri. Engr. Problems			3
Ag. Engr.	434	Farm Electrification			3
Jour.	3312	Spec. Jour.			3
Electives					9
Total credit hours				18	18

\*Hours required for graduation, exclusive of P. E., Band, or Basic ROTC--136.

**232. Plane and Topographic Surveying. (3:2:3)**

Prerequisite: Sophomore standing and Math. 131 or equivalent. Techniques and laboratory practice in measuring distances and areas; determining elevations and profiles; plotting sections; traversing; using planimeters and running grade lines. Includes laying out terraces, earthen dams, and ditches; topographic mapping, and use of aerial photographs.

**233. Principles of Agricultural Engineering. (3:2:2)**

Prerequisite: Sophomore standing and minimum of 6 credit hours of math. The application of basic engineering to the agricultural industry. Includes engineering in agricultural crop production, conditioning and storage; livestock structures and feeding plant systems. Effective use of power and utilities available to the agricultural industry and the instrumentation necessary for the design of such systems.

**333. Farm Power and Machinery. (3:2:2)**

Development of farm mechanization. Maintenance operation, adjustment, and servicing of farm tractors and power units. Adaptation, selection, economical utilization, construction, operation, and adjustment of the principal tillage, planting, cultivating, harvesting, and feed-processing machines.

**335. Irrigation and Erosion Control. (3:3:0)**

Prerequisite: Ag. Engr. 222 or 232; or C.E. 231. Principles and practices of irrigation and water erosion control. Water control methods; land preparation; movement and storage of water in soils; quality of water; salinity control; and use of water by plants. Includes irrigation of specific crops, water rights, elements of pumping, and pumping costs.

**336. Principles of Agricultural Machinery Design. (3:2:3)**

Prerequisite: M.E. 237 or 3314 and junior standing in engineering. Mechanical design and materials used for farm machinery construction. Includes selection of materials and principles of design by type, capacity, maintenance, and economical use. Also includes power transmission, measurement and efficient use of farm machinery.

**FOR UNDERGRADUATES AND GRADUATES****411. Agricultural Engineering Seminar. (1)**

Prerequisite: Senior standing and approval of Department Head. Assigned readings, oral and written reports, and discussions relating to agricultural engineering. Lectures by visiting professional representatives, and field trips. May be repeated for additional credit.

**430. Agricultural Engineering Problems. (3)**

Prerequisite: Senior standing and approval of Department Head. The work for this course may be individual study or joint investigation on design problems of a technical nature. For agricultural engineering or mechanization students. May be repeated for additional credit.

**433. Elements of Farm Tractor Design. (3:2:3)**

Prerequisite: C.E. 332, and M.E. 3321. Kinematics and dynamics of tractor power application; drawbar, power take-off, and traction mechanisms; thermodynamic principles and construction of the internal combustion engine, including carburetion and ignition; fuels and lubricants.

**434. Farm Electrification Systems. (3:2:3)**

Prerequisite: Senior standing. Application of electric power to farm processes. Farm electric distribution systems; wiring, controls, motor application; refrigeration, heating, lighting; and ventilation. Special farm applications, electronic controls, and economical use of electric power.

**435. Farm Mechanics Problems. (3)**

Prerequisite: Senior standing and approval of Department Head. Individual study of an advanced phase of some agricultural engineering application such as the development of techniques on teaching farm shop work or a special construction project. Open to students in the School of Agriculture. May be repeated for additional credit.

**436. Processing and Cotton Gin Engineering. (3:2:3)**

Prerequisite: Senior standing in engineering, or approval of instructor. Engineering principles in agricultural processing systems. Basic principles of cleaning, heat and moisture control, product farming, conditioning, conveying, and packaging of agricultural products. Includes cotton ginning, fiber quality control, and gin management.

**437. Design of Farm Irrigation Systems. (3:2:3)**

Prerequisite: C.E. 3351. Principles of design of gravity and sprinkler irrigation systems for the farm. Drilling, development, and hydraulics of wells. Pumping units, water conveyance structures, controls, and efficiency determinations of irrigation systems.

AGRICULTURAL ENGINEERING CURRICULUM  
Bachelor of Science in Agricultural Engineering

FRESHMAN YEAR*			SEMESTER	1st	2nd
Ag. Ed.	111	The Agri. Industry		1	
Agron.	131	Prin. of Agronomy		3	
Eng.	131	Col. Rhet.		3	
E.A.	123	Engr. Des. & Logic I		2	
Grph.	121	Engr. Grph. I		2	
Math.	151	Math. for Engineers I		5	
P.E., Band, or Basic ROTC					
Ag. Engr.	112	Fund. of Ag. Mech.			1
A.H.	131	Gen. Anim. Husb.			3
Eng.	132	Col. Rhet.			3
E.A.	124	Engr. Des. & Logic II			2
Grph.	122	Engr. Grph. II			2
Math.	152	Math. for Engineers II			5
P.E., Band, or Basic ROTC					
Total credit hours				16**	16**
SOPHOMORE YEAR			SEMESTER	1st	2nd
Ag. Eco.	235	Prin. of Ag. Eco.		3	
Ag. Engr.	233	Prin. of Ag. Engr.		3	
Chem.	141	Gen. Chem.		4	
Math.	235	Math. for Engrs. III		3	
Phys.	143	Prin. of Physics I		4	
P.E., Band, or Basic ROTC					
Ag. Engr.	232	Plane & Topog. Surv.			3
C.E.	233	Statics			3
Chem.	142	Gen. Chem.			4
Math.	335	Higher Math. for Engrs. & Scits. I			3
Phys.	241	Prin. of Physics II			4
P.E., Band, or Basic ROTC					
Total credit hours				17**	17**
JUNIOR YEAR			SEMESTER	1st	2nd
Ag. Engr.	336	Ag. Mach. Design		3	
Agron.	241	Soils		4	
C.E.	332	Dynamics		3	
E.E.	233	Elec. Systems Analysis		3	
M.E.	3314	Mach. Elements I		3	
Govt.	231	Amer. Govt., Org.		3	
E.E.	234	Electronic Instrum.			3
C.E.	3311	Mech. of Solids.			3
C.E.	3351	Mech. of Fluids			3
Govt.	232	Amer. Govt., Func.			3
M.E.	3321	Engr. Thermodynamics			3
Elective (Humanity)					3
Total credit hours				19	18
SENIOR YEAR			SEMESTER	1st	2nd
Ag. Engr.	438	Func. Des. Farm Bldgs.		3	
Ag. Engr.	437	Des. of Irrigation Sys.		3	
Ag. Engr.	436	Proc. & Cotton Gin Engr.		3	
Ag. Engr.	411	Seminar		1	
Hist.	231	Hist. of U.S. to 1865		3	
Elective				5	
Ag. Engr.	442	Engr. for Water & Soil Conser.			4
Ag. Engr.	439	Struc. Des. Farm Bldgs.			3
Ag. Engr.	434	Farm Elec. Sys.			3
Ag. Engr.	433	Elem of Tractor Des.			3
Hist.	232	Hist. of U.S. since 1865			3
Elective (Humanity)					3
Total credit hours				18	19

Minimum hours required for graduation--140, plus P.E., Band, or Basic ROTC

\*See Alternate Freshman Year

\*\*Exclusive of required P.E., Band, or Basic ROTC.

**438. Functional Design of Farm Buildings. (3:2:3)**

Prerequisite: Senior standing. Functional design of farm and ranch structures. Building requirements as they relate to crop storage and animal shelters. Includes design function for heating, cooling, moisture and ventilation control; and the planning of layouts for the efficient processing of farm products.

**439. Structural Design of Farm Buildings. (3:2:3)**

Prerequisite: C.E. 3311. Structural design of farm buildings involving economic aspects and estimation of construction costs. Includes load estimation and stress analysis, design, axial loading, columns, beams, connections, foundations, roofs and floors.

**4311. Advanced Agricultural Mechanics. (3:2:2)**

Prerequisite: Senior standing and Agri. Engr. 220 and 221 or equivalent. The organization, equipment and management of vocational agricultural shops. Includes advanced techniques and procedures in design and construction of agricultural shop projects. Emphasis is placed on such items as welding and other construction techniques.

**442. Engineering for Soil and Water Conservation. (4:3:3)**

Prerequisite: C.E. 3351. The engineering aspects and design of soil and water conservation structures including terraces, diversion ditches, outlet channels, drop-structures, chutes, and small dams. Also includes runoff determination and design of drainage control systems.

FOR GRADUATES

**530. Agricultural Engineering Research. (3)**

Prerequisite: Admittance to the Graduate School and approval of adviser. A study of a selected problem related to the student's major area of interest within the field of agricultural engineering. Individual or joint class advanced projects are to be considered in providing the student with advanced research experience.

**531. Investigations in Advanced Agricultural Mechanics. (3)**

Prerequisite: Graduate or senior standing with previous work in agricultural mechanics, an individual study or investigation of an advanced phase of agricultural mechanics. Includes case studies as well as development of techniques and skills in the selection, operation, maintenance, and repair of equipment applied to agricultural production or processing. Emphasis is placed on advanced mechanization technology.

**532. Instrumentation and Research Methods. (3:3:0)**

Prerequisite: Admittance to the Graduate School and consent of the instructor. Advanced instrumentation necessary for technical research work. Principles, use, and limitations of recording and direct read-out instruments for taking measurements of physical quantities. Also includes research design, similitude of pertinent qualities, relations of model to prototype and analysis.

**538. Advanced Technical Problems in Agricultural Engineering. (3)**

Prerequisite: Admittance to the Graduate School and approval of adviser. This course consists of an approved technical problem of interest to the profession and student's major area of interest under the auspices of faculty supervision. Depending upon the specific problem, working with industrial leaders in the area of work is encouraged. Problem must be approved by the student's department graduate adviser.

## Department of Agronomy and Range Management

Arthur Wesley Young, *Head of the Department*  
Office: Pl. Sci. 261

*Professors:* B. L. Allen, Cecil Ayers, T. W. Box, Clark  
Harvey, G. W. Thomas, A. W. Young

*Associate Professor:* Chester C. Jaynes

*Assistant Professors:* J. R. Hunter, K. C. Kilian, R.  
E. Meyer, D. F. Owen, J. L. Schuster

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog: Bachelor of Science* degrees in AGRONOMY—CROPS MAJOR, AGRONOMY—SOILS MAJOR, and

CROPS CURRICULUM  
Bachelor of Science  
(See Uniform Freshman Year)

SOPHOMORE YEAR			SEMESTER	1st	2nd
Eng.	233	Tech. Writing		3	
Agron.	241	Soils		4	
Mbio.	231	Bacteriology		3	
Chem.	142	Gen. Chem.		4	
Govt.	231	Amer. Govt., Org.		3	
P.E., Band, or Basic ROTC				1-2	
Chem.	341	Intro. Org. Chem.			4
Biol.	142	Zoology			4
Ento.	231	Intro. Ento.			3
Govt.	232	Amer. Govt., Func.			3
*Other courses					3
P.E., Band, or Basic ROTC					1-2
			Total credit hours	18-19	18-19
JUNIOR YEAR			SEMESTER	1st	2nd
Agron.	331	For. & Past. Crops		3	
A.H.	331	Prin. of Feeding		3	
*Other courses				12	
Agron.	341	Fund. Prin. of Genetics			4
Bot.	331	Plant Phys.			3
*Other courses					10
			Total credit hours	18	17
SENIOR YEAR			SEMESTER	1st	2nd
Hist.	231	Hist. of U.S. to 1865		3	
*Other courses				13	
Agron.	410	Seminar		1	
Hist.	232	Hist. of U.S. since 1865			3
*Other courses					14
			Total credit hours	17	17

(All electives must be approved by the Department Head. Hours required for graduation, exclusive of P.E., Band, or Basic ROTC--136.)

Crop Science Emphasis

\*In addition to the above courses, the student choosing to emphasize crop science must take the following courses: Phys. 141-142, Math. 131, Chem. 241, Bot. 332, 339, and Agron. 431, at least 6 hours from Agron. 332, 342, 425, 433, and 6 hours from Agron. 434, 435, 436, 439, 4311, 4314, and 16 hrs. of other electives approved by the department.

Crop Production Emphasis

\*In addition to the above courses, the student choosing to emphasize crop production must take the following: Ag. Eco. 236, Ento. 321, Bot. 332, Agron. 431, 4311, Ag. Engr. 222 and 335, at least 15 hours from other agronomic courses, and 18 hours of other electives approved by the department.

Agronomic Industry Emphasis

\*In addition to the above courses, the student choosing to emphasize agronomic industry must take the following courses: Spch. 338, Ag. Eco. 236, 339, 4311, at least 12 hours in Agron., and at least 15 hours from the following courses: Acct. 234, 235; Fin. 231, 335; Mgt. 331, 339; Mkt. 334, 339; Bus. Law 338, 339 and 13 hours of other electives approved by the department.

RANGE MANAGEMENT; *Master of Science* degrees in CROP SCIENCE, SOIL SCIENCE, and RANGE SCIENCE.

The College's 160-acre agronomy farm provides opportunity for field studies and demonstrations of both dryland and irrigation farming and serves as a research facility for graduate students and faculty. An extensive grass and legume nursery is maintained. Facilities of several private ranches and research foundations are available to the department for research and laboratory work. Students are expected to gain practical knowledge from association with these operations.

The crops curriculum meets the standards of the Crop Science Society of America; the soils curriculum that of the Soil Science Society of America, and the range management program that set by the Range Management Education Council and the American Society of Range Management. All curricula meet the Civil Service standards for their respective professions.

## Courses in Agronomy

### FOR UNDERGRADUATES

#### 131. The Fundamentals of Agronomy. (3:2:2)

A survey course. Crops, their classification, adaptation, identification, production, and use. Elementary soils.

#### 241. Soils. (4:3:2)

Prerequisite: Chem. 141-142 or concurrent enrollment in Chem. 142. Origin, formation, classification of soils; physical, chemical, and biological properties; soil water relations; laboratory identification of soil forming materials, physical and chemical analysis, mapping of a designated area.

#### 331. Forage and Pasture Crops. (3:2:2)

Prerequisite: Agron. 131 and junior standing in agriculture. The production and utilization of forage and pasture crops. Fundamental principles of grassland agriculture are emphasized.

#### 332. Grain Crops. (3:3:0)

Prerequisite: Agron. 131, junior standing in agriculture. The production, harvesting, storage, and use of grain crops. Adaptation, identification, and general improvement.

#### 341. Fundamental Principles of Genetics. (4:3:2)

Prerequisite: Junior standing in agriculture or approval of instructor. Heredity and variation in plants and animals. History. The chromosome theory in plants, higher animals, poultry, and insects. Biometry as applied to genetic data.

#### 342. Crop Identification and Grain Grading. (4:0:8)

Prerequisite: Sophomore standing in the School of Agriculture or approval of instructor. Identification of field crops, some important diseases which attack them, weed plants and seeds, commercial grain grading.

#### 410. Seminar. (1)

Prerequisite: Senior standing or approval of instructor. Assigned readings, current advances. Informal discussions, oral reports, and papers. May be repeated.

#### 4312. Crop Production. (3:2:3)

Prerequisite: Agron. 131, 241, and junior standing in agriculture. Not open to agronomy majors. A modified course composed of applied production of fiber, grain and forage crops applicable to Texas. Problems in seed and feed production. Special emphasis on needs of vocational agriculture teachers, county agents, etc.

### FOR UNDERGRADUATES AND GRADUATES

#### 425. Seed Technology. (2:1:2)

Prerequisite: Senior standing in agriculture or approval of instructor. Analysis of planting seed, germination and purity. Methods of producing, processing, storing, and marketing pure seed of high quality with special emphasis on registered and certified seed; study of state and federal seed laws.



SOILS CURRICULUM  
Bachelor of Science

(See Uniform Freshman Year)

SOPHOMORE YEAR			SEMESTER	1st	2nd
Agron.	241	Soils		4	
Chem.	142	Gen. Chem.		4	
Geol.	143	Phys. Geol.		4	
Biol.	142	Zoology		4	
P.E., Band, or Basic ROTC				1-2	
Mbio.	231	Bacteriology			3
Chem.	341	Intro. Org. Chem.			4
*Geol.	144	Hist. Geol.			4
Math.	139	Anal. Geom. & Cal I			3
Eng.	233	Tech. Writing			3
P.E., Band, or Basic ROTC					1-2
Total credit hours				17-18	18-19
JUNIOR YEAR			SEMESTER	1st	2nd
Chem.	241	Anal. Chem.		4	
Math.	231	Anal. Geom. & Cal. II		3	
Phys.	141	Gen. Phys.		4	
Agron.	435	Soil Class.		3	
**Electives				3	
Bot.	331	Plant Phys.			3
Agron.	341	Fund. Prin. of Genetics			4
Chem.	242	Anal. Chem.			4
Phys.	142	Gen. Phys.			4
**Electives					2
Total credit hours				17	17
SENIOR YEAR			SEMESTER	1st	2nd
Govt.	231	Amer. Govt., Org.		3	
Hist.	231	Hist. of U.S. to 1865		3	
Agron.	439	Soil Micro.		3	
Agron.	4311	Soil Physics		3	
**Electives				6	
Govt.	232	Amer. Govt., Func.			3
Hist.	232	Hist. of U.S. since 1865			3
Agron.	436	Soil Chem.			3
Agron.	410	Seminar			1
**Electives					8
Total credit hours				18	18

(All electives must be approved by Department Head.)

Hours required for graduation, exclusive of P. E., Band, or ROTC--136.

\*Biol. 333, or Ag. Engr. 232 may be taken in place of Geol. 144.

\*\*Two courses from the following group must be elected: Agron. 331, 342, 431, 433, 4313, 4315, 4316, Range Mgt. 333. One Agron. course from the following must be elected: Agron. 434, 4311.

**430. Agronomy Problems. (3)**

Prerequisite: Open to all students having satisfactory scholastic records with approval of instructor. An investigation of an assigned problem and individual instruction in the field of special interest to the individual student. May be repeated for credit with approval of department head.

**431. Fundamental Principles of Plant Breeding. (3:3:0)**

Prerequisite: Agron. 341. Practical application of genetics in the breeding and improvement of plants.

**433. Cotton Production and Improvement. (3:3:0)**

Prerequisite: Junior standing in agriculture or approval of instructor. Culture, improvement, and classification of cotton. Disease and insect pests of cotton.

**434. Soil Conservation and Land Use Planning. (3:2:3)**

Prerequisite: Agron. 241, junior standing. Types of erosion, causes and controls. Inspection trips in soil conservation, land use planning and conservation management.

**435. Soil Classification. (3:2:3)**

Prerequisite: Agron. 241 or approval of instructor. A comprehensive study of the basis for soil classification. Systems of classification, with emphasis on that developed in the U.S. and the relationships of world soils to the system. Laboratory work will consist of field trips to study natural relationships of soils.

**436. Soil Chemistry. (3:2:3)**

Prerequisite: Agronomy 241, 12 hours of chemistry or approval of instructor for non-agriculture majors. The chemical composition of soil with special emphasis on the clay fraction. Structure and properties of the important clay minerals. Cation and anion exchange phenomena. Chemical equilibria as applied in soils. Clay-organic reactions.

**439. Soil Microbiology. (3:2:3)**

Prerequisite: Agron. 241, Bact. 231, 12 hours of chemistry. Micro-organisms in the soil, with emphasis upon the functions of the soil bacteria and their influence upon decomposition of organic matter and soil fertility in general.

**431. Soil Fertility. (3:2:3)**

Prerequisite: Agron. 241. The nature and sources of plant nutrients, their liberation, conservation, and utilization. Use of supplements and fertilizers. Irrigation and drainage, inspection trips.

**4313. Weeds and Weed Control. (3:2:2)**

Prerequisite: Chem. 341 and junior standing in agriculture or approval of instructor. This course is concerned primarily with (1) the importance, distribution, reproduction, and dissemination of weeds and (2) mechanical, biological, and chemical methods of controlling them.

**4314. Soil Physics. (3:2:3)**

Prerequisite: Agron. 241, 6 hours each of physics and mathematics or approval of instructor. Fundamental principles of the physical properties of the soil. Soil structure, soil water, soil air, soil temperature.

**4315. Nutrition of Crop Plants. (3:3:0)**

Prerequisite: Bot. 331, Chem. 341, Agron. 241, or approval of instructor. Nutrition of crop plants, with emphasis on the absorption, translocation, accumulation, re-export essentiality and function of the macro- and micro-nutrients and their relationship to each other. Interactions among the various mineral elements and translocation of organic solutes.

**4316. Agricultural Plant Physiology. (3:3:0)**

Prerequisite: Bot. 331, or approval of instructor. Chem. 342 recommended. Basic considerations in plant chemistry, mitochondrial membranes, mitochondrial respiration, and physiological aspects of radiant energy and water. Emphasis on quantitative aspects, measurements and current literature dealing with agricultural plants.

## FOR GRADUATES

**511. Seminar. (1:1:0)**

Prerequisite: Approval of the instructor. Current literature in the field. May be repeated for credit on approval of major professor.

**532. Experimental Design and Analysis. (3:2:2)**

Prerequisite: Approval of instructor. Definition, description, and evaluation of the principal experimental designs and methods of analysis.

RANGE MANAGEMENT CURRICULUM  
Bachelor of Science

(See Uniform Freshman Year)

SOPHOMORE YEAR			SEMESTER	1st	2nd
Agron.	241	Soils		4	
Chem.	142	Gen. Chem.		4	
R.M.	231	Intro. to Wildlife		3	
P.E., Band, or Basic ROTC				1-2	
*Other courses				6	
R.M.	333	Range Plants			3
Bot.	232	Taxonomy			3
Chem.	341	Intro. Org. Chem.			4
Eng.	233	Tech. Writing			3
P.E., Band, or Basic ROTC					1-2
*Other courses					3
Total credit hours				18-19	17-18
JUNIOR YEAR			SEMESTER	1st	2nd
A.H.	331	Prin. of Feeding		3	
Govt.	231	Amer. Govt. Org.		3	
Hist.	231	Hist. of U.S. to 1865		3	
*Other courses				9	
Bot.	331	Plant Phys.			3
R.M.	332	Range Ecology			3
Govt.	232	Amer. Govt. Func.			3
Hist.	232	Hist. of U.S. since 1865			3
*Other courses					6
Total credit hours				18	18
SENIOR YEAR			SEMESTER	1st	2nd
R.M.	437	Range Mgt.		3	
R.M.	410	Range Seminar		1	
*Other courses				13	
R.M.	438	Adv. Range Mgt.			3
*Other courses					14
Total credit hours				17	17

Range Management Emphasis

\*In addition to the above courses, the student selecting the Range Management Emphasis must take the following courses for the sophomore year: Biol. 142, Math. 131, Ag. Engr. 222. For junior year: Agron. 331, 341, 435, Biol. 333, Speech 338. For senior year: Ag. Eco. 438, A.H. 431, 441, R.M. 432, and at least one advanced course from Agron. 434, 436, 439, 4311, 4314, or R.M. 431, and sufficient elective hours to make a total of 136 hours, exclusive of P.E., Band, or Basic ROTC.

Wildlife Emphasis

\*In addition to above courses, the student choosing the Wildlife Emphasis must take the following courses: Biol. 142, Math. 131, Ento. 231, Zool. 231, 232, 333, Biol. 333, Agron. 341, Zool. 437, Vet. Sc. 334, R.M. 430, 431, and sufficient electives to provide a minimum of 136 hours, exclusive of P.E., Band, or Basic ROTC.

Range Business Emphasis

\*Students desiring additional background for the business phases of range management can select courses in agricultural economics, finance, accounting, business law, marketing, and similar areas to provide the needed academic information. The selection of such courses must be made with consultation and approval of the departmental staff. Substitutions in the Range Management Emphasis may be considered where sufficient need is demonstrated by the individual student to permit the completion of courses necessary for emphasizing the business aspects of range management.

Hours required for graduation, exclusive of P. E., Band, or Basic ROTC--136.

**533. Pedology. (3:3:0)**

Prerequisite: Approval of instructor and 6 hours of chemistry and 3 hours of geology or equivalent. Fundamental principles and processes of rock weathering with associated soil formation. Genesis of the various clay minerals. Soil forming factors and their interrelationships.

**534. Research. (3)**

Prerequisite: Approval of major professor. A specific problem in line with the major interest of the student. May be repeated for credit upon approval of major professor.

**536. Soil and Plant Relationships. (3:3:0)**

Prerequisite: Approval of instructor. The theoretical and fundamental bases of soil fertility as related to the physical, chemical, and biological functions within the soil. Cause and effect, management, and control of factors influencing plant growth in the soil.

**537. Methods in Plant Breeding. (3:3:0)**

Prerequisite: Approval of instructor. Methods applicable to improving self- and cross-pollinated plants, the effects of inbreeding, selection, hybridization, heterosis, quantitative inheritance, induced mutation and ploidy.

**631. Master's Thesis. (3)**

Enrollment required at least twice.

**Courses in Range Management****FOR UNDERGRADUATES****231. Introductory Wildlife. (3:3:0)**

Prerequisite: Sophomore standing. An introduction to the ecology and life histories of wild animals. Importance of wild animals to the human population, the role of environment in occurrence and distribution of animals, habitat requirements, population dynamics of wild animals. Ecological principles of community, ecosystem, and population dynamics are stressed.

**332. Range Ecology. (3:2:3)**

Prerequisite: Bot. 232, Agron. 241, and Range Mgt. 333, or approval of the instructor. Principles of ecology and their application to rangelands. Effects of environmental factors on evaluation, adaptation, and success of range plants. Concepts of succession, energy transfer, and climax applied to the range site. Manipulation of environment to reach and maintain sustained production from range sites. Field study of the ecology of the High Plains and literature review of other major vegetation types. Field trips required.

**333. Range Plants. (3:1:4)**

Prerequisite: Sophomore standing in agriculture and approval of instructor. The economic value of the range grasses, non-grass forage plants, and poisonous plants. Identification, habitat, palatability, and regions of growth. Field trips required.

**410. Range Seminar. (1)**

Prerequisite: Senior standing and approval of instructor. An organized discussion of current problems and research in range management. May be repeated each semester with approval of the major professor.

**FOR UNDERGRADUATES AND GRADUATES****430. Wildlife Problems. (3)**

Prerequisite: Approval of instructor. Individual investigation of an assigned problem in wildlife management. Studies will be designed and supervised to give the student the theory, methods, and practice of solving field problems relating to wild animals and their habitats.

**431. Game Management. (3:2:3)**

Prerequisite: Basic zoology, introductory wildlife, 3 hours of range management. Ecological principles of manipulating game populations. Methods and techniques of evaluating and manipulating the habitat. Ecological requirements of the major game animals in the United States. Problems involved in producing, maintaining, and harvesting populations of game animals.

**432. Range Management Problems. (3)**

Prerequisite: Bot. 232, Biol. 333, and Range Mgt. 333. Open to all junior and senior students with satisfactory scholastic records. An investigation of an assigned problem of individual instruction in the science of range management or supervised field study of range surveying procedures, range experimentation, or ranch planning.

**437. Range Management. (3:2:3)**

Prerequisite: Range Mgt. 333 or approval of the instructor. History of the range industry, importance of range livestock, applications of plant physiology and ecology to rangeland management. Economics of range use, obtaining maximum forage and livestock yield. Plant-soil-animal relationships are stressed. Field trips required.

**438. Advanced Range Management. (3:2:3)**

Prerequisite: Range Mgt. 332, 333, 437, or approval of instructor. Advanced problems of native grassland management involving technical methods, range research, economic factors of utilization, and systems of range grassland management. Field trips required.

**FOR GRADUATES****510. Range Seminar. (1)**

Prerequisite: Approval of instructor. An organized discussion of current problems and research in range management. May be repeated each semester with approval of the major professor.

**521. Contemporary Resource Use. (2:2:0)**

Prerequisite: Approval of the instructor. The contribution of related disciplines in agricultural science to the efficient use of resources. The importance of basic and applied research to management of land and water. Emphasis will be placed on the integration of all agricultural research into the solution of complex ecological problems caused by changing land and water use patterns.

**523. Range Research Methods. (2)**

Prerequisite: Approval of the instructor. An organized discussion of methods and techniques for investigation on an original problem, using both deductive and inductive reasoning. Methods of vegetational analysis, measurement of range yield, and presenting final data will be discussed.

**531. Synecology. (3:3:0)**

Prerequisite: Approval of instructor. An advanced study of the range ecosystem, causes and patterns of community development; coactions of plants and animals. Dynamics of succession and community change. Plant and animal indicators of seral expressions. Application of ecological concepts to management. Field trips required.

**532. Vegetation Influences. (3:3:0)**

Prerequisite: Approval of the instructor. Study of the "reaction" phase of ecology. Detailed investigation into the effects of plants on their organic and inorganic environment; influence of forest and range vegetation on soil properties, microclimate, erosion and water yield, effects of change of vegetation types on soil, watershed management, and forage production. Field trips required.

**534. Range Research. (3)**

Prerequisite: Approval of major professor. A specific problem in line with the major interest of the student. May be repeated for credit upon approval of major professor.

**631. Master's Thesis. (3)**

Enrollment required at least twice.

**Department of Animal Husbandry**

Dale W. Zinn, *Acting Head of the Department*

Office: Vet. Sci. 152-A

*Professors:* John H. Baumgardner, Ralph M. Durham,  
Fred G. Harbaugh

*Associate Professors:* Samuel E. Curl, Frank A. Hudson, Kirk B. Turner, Dale W. Zinn

*Assistant Professors:* Robert C. Albin, Coleman A. O'Brien

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: *Bachelor of Science* in ANIMAL BUSINESS, ANIMAL PRODUCTION, or ANIMAL SCIENCE and *Master of Science* in ANIMAL BREEDING, ANIMAL NUTRITION, or MEAT SCIENCE. The Department of Animal Husbandry also directs the program in PRE-VETERINARY MEDICINE.

## Courses in Animal Husbandry

### FOR UNDERGRADUATES

#### 131. General Animal Husbandry. (3:2:2)

An introductory course designed to orient the student in the modern field of animal agriculture. Emphasis on problems of breeding, feeding, management, and marketing. Live animals are appraised for merit and then slaughtered for carcass evaluation.

#### 232. Meat and Meat Products. (3:2:3)

An introductory course designed to orient the student in slaughtering, processing, and preservation techniques; anatomy and nomenclature; the meat packing industry; sanitation practices; and grading of meat and meat products.

#### 321. Livestock and Meat Evaluation. (2:0:6)

Prerequisite: A.H. 131, A.H. 232. Comparative evaluation of breeding and market animals; carcass evaluation, selection and grading. Field trips to herds, plants, shows, and contests. May be repeated once for credit.

#### 331. Principles of Feeding. (3:3:0)

Prerequisite: Chem. 341. Chemical composition of plants and animals. Digestibility, energy, and manurial value of feeds. Feeding standards and calculation of rations for maintenance, growth, fattening, and for milk, wool, and egg production.

#### 335. Artificial Insemination. (3:2:3)

Prerequisite: Vet. Sci. 331. The collection, evaluation, and storage of semen. Insemination techniques in cattle, sheep, swine, and poultry.

#### 338. Meat Processing and Merchandising. (3:2:3)

Prerequisite: A.H. 232. The processing and manufacturing of meat food items, sausages, loaves, etc. Merchandising practices and techniques as they affect carcass value. Sanitation control. Field trips to packing plants and retail stores.

#### 411. Animal Husbandry Seminar. (1:1:0)

Assigned subjects. Review of recent investigations. Reports and discussions. May be repeated once for credit.

#### 421. Advanced Livestock and Meat Evaluation. (2:0:6)

Prerequisite: A.H. 321. Detailed analysis of live animal-carcass evaluation. Selection for quality and quantity characteristics, market classification and grading. Field trips to herds, plants, shows, and contests.

#### 430. Special Problems in Animal Husbandry. (3)

Prerequisite: Approval of Department Head. Individual investigation. May be repeated for credit.

### FOR UNDERGRADUATES AND GRADUATES

#### 427. Swine Production. (2:2:0)

Prerequisite: A.H. 331. The swine industry. Breeding, feeding, housing, and marketing. Herd records. Diseases, parasites, and sanitation. Laboratory practice with farm animals and equipment is done as assigned problems.

#### 431. Beef Cattle Production. (3:3:0)

Prerequisite: A.H. 331. The beef cattle industry. Production and marketing of beef cattle. Analysis of ranch and feedlot systems. Coordination of breeding, feeding, management, and marketing. Inspection trips to ranches and feedlots.

#### 432. Animal Breeding. (3:3:0)

Prerequisite: Agron. 341. Genetics applied to the improvement of farm animals. Systems of breeding and selection. Systems of mating, such as inbreeding, outcrossing, and crossbreeding.

#### 434. Horse Production. (3:3:0)

Prerequisite: Approval of instructor. Breeding, feeding, breaking, training, stabling, and shoeing. Gaits. Care of stallions, brood mares, and foals. Parasites and diseases.

#### 435. Dairy Cattle Production. (3:3:0)

Prerequisite: A.H. 331. The dairy industry. Feeding for growth, maintenance, and milk production. Handling and marketing milk and animals. Dairy barn construction and sanitation. Advanced registry and herd records. Laboratory practice with farm animals and equipment is done as assigned problems.

#### 436. Animal Nutrition. (3:3:0)

Prerequisite: A.H. 331. The role of nutrients in the metabolism of farm animals. Nutrient utilization and energy efficiency in production.

ANIMAL BUSINESS CURRICULUM  
Bachelor of Science

(See Uniform Freshman Year)

SOPHOMORE YEAR			SEMESTER	1st	2nd
Acct.	234	Elem. Acct. I		3	
A.H.	232	Meat & Meat Prod.		3	
Chem.	142	Gen. Chem.		4	
Eng.	233	Tech. Writing		3	
Hist.	231	Hist. of U.S. to 1865		3	
P.E., Band, or Basic ROTC				1-2	
Acct.	235	Elem. Acct. II			3
Ag. Eco.	236	Prin. Mkt. Agric. Prod.			3
Biol.	142	Zoology			4
Hist.	232	Hist. of U.S. since 1865			3
Vet.	331	Anat. of Farm Anim.			3
P.E., Band, or Basic ROTC					1-2
			Total credit hours	17-18	17-18
JUNIOR YEAR			SEMESTER	1st	2nd
A.H.	338	Meat Process. & Merch.		3	
Bus. Law	338	Bus. Law I		3	
Chem.	341	Intro. Org. Chem.		4	
Govt.	231	Amer. Govt., Org.		3	
Vet.	332	Physiol. of Farm Anim.		3	
Other courses*				3	
Agon.	341	Fund. Prin. of Genetics			4
A.H.	331	Prin. of Feeding			3
Bus. Law	339	Bus. Law II			3
Govt.	232	Amer. Govt., Func.			3
Speech	338	Bus. & Prof. Speech			3
			Total credit hours	19	16
SENIOR YEAR			SEMESTER	1st	2nd
A.H.	427	Swine Prod.		2	
A.H.	431	Beef Cattle Prod.		3	
A.H.	436	Anim. Nutr.		3	
Other courses*				10	
A.H.	411	Anim. Husb. Sem.			1
A.H.	432	Animal Breeding			3
A.H.	441	Sheep, Wool, & Mohair Prod.			4
Other courses*					10
			Total credit hours	18	18

\*In addition to the above courses, the student wishing to major in animal business must take the following courses: A total of 15 hours of electives within the areas of communications (Jour. 231, 232, 3312, 3318; Spch. 238; Span. 141-142), or land (Bus. Law 3311, 3313; Ag. Eco. 334, 4313, 437; Fin. 231, 432), or marketing (Ag. Eco. 325, 333, 339, 431, 434, 436; Fin. 231, 333; Mkt. 332, 334, 335, 339, 439). A total of 8 hours of electives subject to approval by the Department Head.

Hours required for graduation, exclusive of P. E., Band, or Basic ROTC--136.

ANIMAL PRODUCTION CURRICULUM  
Bachelor of Science

(See Uniform Freshman Year)

SOPHOMORE YEAR			SEMESTER	1st	2nd
Hist.	231	Hist. of U.S. to 1865		3	
Biol.	142	Zoology		4	
Chem.	142	Gen. Chem.		4	
A.H.	232	Meat & Meat Prod.		3	
Eng.	233	Tech. Writing		3	
P.E., Band, or Basic ROTC				1-2	
Agro.	241	Soils			4
Hist.	232	Hist. of U.S. since 1865			3
Mbio.	231	Bacteriology			3
Spch.	338	Bus. & Prof. Spch.			3
Vet.	331	Anat. of Farm Anim.			3
P.E., Band, or Basic ROTC					1-2
Total credit hours				18-19	17-18
JUNIOR YEAR			SEMESTER	1st	2nd
Agron.	331	For. & Past. Crops or			
Rge. Mgt.	333	Range Plants		3	
A.H.	321	Lvstk. & Meat Eval.		2	
Chem.	341	Intro. Org. Chem.		4	
Govt.	231	Amer. Govt., Org.		3	
Vet.	332	Physiol. of Farm Anim.		3	
Ag. Eco.	236	Prin. Mkt. Agric. Prod.		3	
Agron.	341	Fund. Prin. of Genetics			4
A.H.	331	Prin. of Feeding			3
Govt.	232	Amer. Govt., Func.			3
Vet.	334	Animal San. & Disease Cont.			3
Ag. Eco.	334	Farm Mgt. or			
Ag. Eco.	438	Range & Ranch Eco.			3
Total credit hours				18	16
SENIOR YEAR			SEMESTER	1st	2nd
A.H.	411	Anim. Husb. Sem.		1	
A.H.	436	Anim. Nutr.		3	
Other courses*				14	
A.H.	432	Anim. Breeding			3
Other courses*					15
Total credit hours				18	18

\*In addition to the above courses, the student wishing to pursue an animal production major must complete the following three groups: (A) 8 hours of electives, (B) 5-7 hours chosen from A.H. 427, 431, and 441, (C) 14-16 hours chosen from the remaining course in the preceding group and A.H. 335, 338, 430, 434, 437, 439; P.H. 231; Ag. Eng. 221, 222, or 223 subject to the approval of the Department Head.

Hours required for graduation, exclusive of P. E., Band, or Basic ROTC--136.



ANIMAL SCIENCE CURRICULUM  
Bachelor of Science

(See Uniform Freshman Year)

SOPHOMORE YEAR			SEMESTER	1st	2nd
Hist.	231	Hist. of U.S. to 1865		3	
Chem.	142	Gen. Chem.		4	
A.H.	232	Meat & Meat Prod.		3	
Eng.	233	Tech. Writing		3	
Math.	131	Trig.		3	
P.E., Band or Basic ROTC				1-2	
Agron.	241	Soils			4
Biol.	142	Zoology			4
Hist.	232	Hist. of U.S. since 1865			3
Spch.	338	Bus. & Prof. Spch.			3
Vet.	331	Anat. of Farm Animals			3
P.E., Band or Basic ROTC					1-2
			Total credit hours	17-18	18-19
JUNIOR YEAR			SEMESTER	1st	2nd
Math.	132	Anal. Geom.		3	
Govt.	231	Amer. Govt., Org.		3	
Chem.	341	Intro. Org. Chem.		4	
Vet.	332	Physiol. of Farm Anim.		3	
Other courses*				4	
A.H.	331	Prin. of Feeding			3
Agron.	341	Fund. Prin. of Genetics			4
Chem.	342	Intro. Physiol. Chem.			4
Govt.	232	Amer. Govt., Func.			3
Other courses*					3
			Total credit hours	17	17
SENIOR YEAR			SEMESTER	1st	2nd
A.H.	411	Anim. Husb. Sem.		1	
A.H.	436	Anim. Nutr.		3	
Other courses*				14	
A.H.	432	Anim. Breeding			3
Other courses*					15
			Total credit hours	18	18

\*In addition to the above courses, the student wishing to prepare for advance studies must take the following courses: A total of 8 hours of electives may be selected upon approval by the Department Head. The student will also choose a total of 28 hours, under counsel of the department, from the following lists, depending upon whether his area of interest is animal breeding, animal nutrition, or meats: A.H. 338, 427, 430, 431, 435, 437, 439, 441; Vet. Sci. 334; Math. 139, 231; Mbio. 231, 331; Phys. 141, 142; and Zool. 231, 232.

Hours required for graduation, exclusive of P.E., Band or Basic ROTC--  
136.

**437. Livestock Record Systems. (3:3:0)**

Prerequisite: A.H. 432 or parallel enrollment. Acquaints the student with the principles of performance testing and with records involved in such testing. Analysis and interpretation of actual records is a major part of the work.

**439. Endocrinology. (3:3:0)**

Prerequisite: Vet. 331. A study of the endocrine glands and their secretions. Special reference is made to the role of hormones in livestock production, including their influence upon metabolism, dietary requirements, growth, reproduction, lactation, and fattening.

**441. Sheep, Wool, and Mohair Production. (4:3:2)**

The sheep and mohair industry. Range and farm sheep. Angora goats. Breeding, feeding, disease, and parasite control. Wool and mohair production, grading, sorting, and marketing. Tour of wool warehouses and laboratories.

**FOR GRADUATES**

**511. Seminar. (1:1:0)**

Analysis of current and significant past research. Oral presentations and discussions. Enrollment in each semester while in graduate school.

**533. Techniques in Animal Research. (3)**

Techniques currently employed in animal research. In-service training in the use and application of these techniques.

**534. Research in Animal Science. (3)**

In-service research work in breeding, nutrition, or meats. Problems are done on a semi-independent basis. Design and carrying out of actual experiments, including publication of results. May be repeated for credit.

**536. Biometry. (3:2:2)**

Analysis of experimental procedures and designs for agricultural research. Analysis of variance, and least-squares analysis. Component of variance partitioning. Regression and correlation techniques as used in agricultural research.

**537. Advanced Animal Breeding. (3:3:0)**

Prerequisite: A.H. 432. Population parameters. Heritability and heterosis. Genetic-environmental interactions. Methods for deriving population statistics. Genetic bases for performance testing programs.

**538. Advanced Animal Nutrition. (3:3:0)**

Prerequisite: A.H. 436. Analysis of nutritional theory. Intermediary metabolism of nitrogen, energy, vitamins and minerals under the conditions of maintenance and various types of production. Ruminant fermentation.

**539. Physiology of Reproduction. (3:2:2)**

Gross and microscopic anatomy of the reproductive systems; hormonal regulation and reproductive processes; estrus and estrous cycles; oogenesis and ovulation; fertilization and embryonic development; pregnancy and pregnancy diagnosis; parturition; environmental and genetic factors affecting reproductive efficiency; spermatogenesis; sperm physiology; semen evaluation; lactation; current research techniques; literature reviews.

**541. The Science of Meat and Meat Products. (4:3:3)**

Prerequisite: Chem. 341. The application of various scientific disciplines in the study of meat and meat products. Histological, chemical, and biological properties of meat. Palatability characteristics, nutritive value and quality factors. Preservation and packaging. Methods of analysis.

**631. Master's Thesis. (3)**

Enrollment required at least twice.

**Courses in Poultry Husbandry**

**FOR UNDERGRADUATES**

**231. Introductory Poultry Husbandry. (3:2:2)**

Introduction to the poultry industry. Application of those factors concerned with economic production. Performance tests. Laboratory demonstration in selecting, culling, housing, grading, caponizing, and artificial insemination. Field trips to commercial operations.

## PRE-VETERINARY MEDICINE CURRICULUM

This curriculum is designed to qualify students for entrance to schools of veterinary medicine. Texas Technological College offers only the two-year pre-veterinary medicine curriculum. Students who complete this curriculum may either apply for admission to a school of veterinary medicine or change to one of the four-year curricula in the School of Agriculture.

## FRESHMAN YEAR

		SEMESTER		1st	2nd
Ag. Ed.	111	The Agri. Indust.		1	
A.H.	131	Gen. Anim. Husb.		3	
Biol.	141	Botany		4	
Chem.	141	Gen. Chem.		4	
Eng.	131	Col. Rhet.		3	
Math.	133	Col. Alg.		3	
P.E., Band, or Basic ROTC				1	
Biol.	142	Zoology			4
Chem.	142	Gen. Chem.			4
D.I.	131	Prin. of Dairy Ind.			3
Eng.	132	Col. Rhet.			3
Math.	131	Trig.			3
P.E., Band, or Basic ROTC					1-2
Total credit hours				19	18-19

## SOPHOMORE YEAR

		SEMESTER		1st	2nd
Chem.	353	Org. Chem.		5	
Eng.	233	Tech. Writing		3	
Phys.	141	Gen. Phys.		4	
P.E., Band, or Basic ROTC				1-2	
Chem.	354	Org. Chem.			5
Eng.	231	Mast. of Lit.			3
P.H.	231	Intro. Poult. Husb.			3
Phys.	142	Gen. Phys.			4
P.E., Band, or Basic ROTC					1-2
Total credit hours				13-14	16-17

In addition to the above, 6 hours of American history and 6 hours of government must be completed to meet state requirements. Hours required for completion of this curriculum, exclusive of P.E., Band, or Basic ROTC--74.

**331. Pullet Brooding and Production. (3:2:3)**

Prerequisite: P.H. 231. Selection of egg strains. Factors influencing fertility and hatchability of eggs. Practical chick embryology. Brooding requirements of egg-type chicks. Costs of production and methods of marketing. Laboratory includes the successful brooding of baby chicks.

**332. Broiler Production. (3:2:3)**

Prerequisite: P.H. 231. Detailed study of broiler production. Influence of strains, environment, feed conversion, and mortality upon production costs. Meat production tests. Includes the raising and marketing of finished broilers.

**FOR UNDERGRADUATES AND GRADUATES****431. Poultry Production. (3:3:0)**

Prerequisite: P.H. 231. Breeding, feeding, management, and marketing of poultry and poultry products. Housing types as influenced by biological and engineering requirements. Egg and meat performance tests. Disease control and sanitation. Field trips to nearby poultry enterprises.

**432. Turkey Production. (3:3:0)**

Prerequisite: P.H. 231. The turkey industry. Breeds, breeding, incubation, rearing, housing, feeding, management, and marketing. Turkey meat production tests. Disease control and sanitation. Field trips to nearby turkey farms.

**433. Caged Egg Production. (3:3:0)**

Prerequisite: P.H. 231, or approval of instructor. A detailed introduction to the caged egg industry. Influence of varieties and strains, environment, feeds, culling, and management upon production. Summary and analysis of records. Field trips to nearby cage production areas.

**FOR GRADUATES**

(See A.H. 533)

**Courses in Veterinary Science****FOR UNDERGRADUATES****331. Anatomy of Farm Animals. (3:3:0)**

Introduction to comparative anatomy of domestic animals.

**332. Physiology of Farm Animals. (3:3:0)**

Prerequisite: Vet. Sci. 331. Introduction to physiology of domestic animals.

**334. Animal Sanitation and Disease Control. (3:3:0)**

Prerequisite: Vet. Sci. 332. Diseases of farm animals, both infectious and non-infectious, parasites, parasitic diseases, and the establishment of immunity through the use of biological products.

**Department of Dairy Industry**

Juddie Johnson Willingham, *Head of the Department*

Office: Ag. 215-B

*Professor:* Juddie J. Willingham

*Associate Professor:* Milton L. Peebles

*Instructor:* Ronald M. Miller

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: **DAIRY INDUSTRY, Bachelor of Science and Master of Science.**

The department maintains a dairy plant with modern equipment for laboratory instruction in all phases of the dairy industry and for bacteriological and chemical analyses of food and dairy products.

DAIRY INDUSTRY CURRICULUM  
Bachelor of Science  
(See Uniform Freshman Year)

SOPHOMORE YEAR			SEMESTER	1st	2nd
Mbio.	231	Bacteriology		3	
Chem.	142	Gen. Chem.		4	
D.I.	241	Adv. Prin. Food & Dairy Ind. I		4	
P.E., Band, or Basic ROTC				1-2	
Electives				6	
Ag. Eco.	236	Mkt. Ag. Prod.			3
Chem.	341	Intro. Org. Chem.			4
D.I.	231	Adv. Prin. of Food & Dairy Ind. II			3
Eng.	231	Tech. Writing			3
P.E., Band, or Basic ROTC					1-2
Electives					4
Total credit hours				18-19	18-19
JUNIOR YEAR			SEMESTER	1st	2nd
Acct.	234	Elem. Acct. I		3	
D.I.	313	Dairy Prod. Judging		1	
D.I.	334	Fund. Food & Dairy Science I		3	
D.I.	337	Food Plant Equip. I		3	
Govt.	231	Amer. Govt., Org.		3	
Speech	338	Bus. & Prof. Sp.		3	
Electives				3	
D.I.	314	Adv. Dairy Prod. Judg.			1
D.I.	322	Mkt. Dairy Prod.			2
D.I.	335	Fund. Food & Dairy Science II			3
D.I.	338	Food Plant Equip. II			3
Govt.	232	Amer. Govt., Func.			3
Electives					6
Total credit hours				19	18
SENIOR YEAR			SEMESTER	1st	2nd
D.I.	437	Food Plant Mgt. & Mdse.		3	
D.I.	441	Dairy Prod. Mfg.		4	
Hist.	231	Hist. of U.S. to 1865		3	
Electives				6	
D.I.	411	Food & Dairy Ind. Seminar			1
D.I.	433	Mkt. Milk			3
D.I.	435	Food & Dairy Insp. & Quality Control			3
Hist.	232	Hist. of U.S. since 1865			3
Electives					6
Total credit hours				16	16

Hours required for graduation, exclusive of P.E., Band, or Basic ROTC--136

## Courses in Dairy Industry

### FOR UNDERGRADUATES

#### 131. Principles of the Dairy and Food Industries. (3:3:0)

A general survey of the dairy and food industries, food production, spoilage, preservation and processing.

#### 231. Advanced Principles of Food and Dairy Industry II. (3:1:4)

Prerequisite: D.I. 131. Elementary training associated with bacteriological problems in the food and dairy industry.

#### 241. Advanced Principles of Food and Dairy Industry I. (4:3:3)

Prerequisite: D.I. 131. A survey of methods and techniques involved in processing and laboratory control of food and dairy products.

#### 313. Dairy Products Judging. (1:0:3)

Prerequisite: Consent of instructor. Commercial grades and classification of dairy products; practice in judging milk, butter, cheese, and ice cream; student contests.

#### 314. Advanced Dairy Products Judging. (1:0:3)

Prerequisite: Consent of instructor. Commercial grades and classification of dairy products; practice in judging milk, butter, cheese, and ice cream; student contests.

#### 322. Marketing Dairy Products. (2:2:0)

Prerequisite: D.I. 131 or approval of instructor. Federal marketing orders, by-products markets, pricing formula, brokerage policies.

#### 334. Fundamentals of Food and Dairy Science I. (3:2:3)

Prerequisite: D.I. 131, Chem. 142 or consent of instructor. Chemical and physical principles of basic importance in the processing of dairy and food products.

#### 335. Fundamentals of Food and Dairy Science II. (3:2:3)

Prerequisite: D.I. 334 or consent of instructor. Chemical and physical principles of basic importance in the processing of dairy and food products.

#### 337. Food Plant Equipment I. (3:2:2)

Prerequisite: D.I. 131 or consent of instructor. Application of physical principles of heat and power to operation of food plant equipment; refrigeration; water problems; plumbing, sewage disposal; steam boilers.

#### 338. Food Plant Equipment II. (3:2:2)

Prerequisite: D.I. 337 or consent of instructor. Principles involved in the selection, installation, and care of food plant equipment.

### FOR UNDERGRADUATES AND GRADUATES

#### 411. Food and Dairy Industry Seminar. (1:1:0)

Prerequisite: Senior standing in the department. Review of scientific literature; papers and reports; class discussion. Graduate students may repeat for credit.

#### 430. Food and Dairy Industry Problems. (3)

Prerequisite: Twenty-one hours in the department and consent of the instructor. Investigation of special problems in the field of food and dairy industry in which the student has a special interest. May be repeated for credit.

#### 433. Market Milk. (3:2:3)

Prerequisite: D.I. 131. The fluid milk industry; milk and public health; city, state, and federal regulations and ordinances; production; transportation, handling, retailing, wholesaling of milk; cost studies; processing; field trip.

#### 435. Food and Dairy Inspection and Quality Control. (3:2:3)

Prerequisite: Consent of instructor. Municipal, state, and federal dairy and food regulations; inspection methods; methods of quality control; required field trip.

#### 437. Food Plant Management and Merchandising. (3:3:0)

Prerequisite: D.I. 322. Organization and control of food plants; duties of plant manager; ethics and methods of merchandising; required field trips.

#### 441. Dairy Products Manufacturing. (4:2:4)

Prerequisite: D.I. 231 and D.I. 241. Problems in the manufacturing of butter, cheese, ice cream, and condensed milk products.

# FOR GRADUATES

## 531. Food and Dairy Industry Research. (3)

Prerequisite: Consent of major professor. Scientific research problems in the field of food and dairy industry. May be repeated for credit.

## 535. Food and Dairy Bacteriology Research. (3)

Prerequisite: Consent of major professor. Scientific research problems in the field of food and dairy bacteriology. May be repeated for credit.

## 631. Master's Thesis. (3)

Enrollment required at least twice.

# Department of Park Administration, Horticulture, and Entomology

Elo Joe Urbanovsky, *Head of the Department*

Office: Pl. Sci. 150-B

*Professors:* Donald Ashdown, C. E. Doell,\* George O. Elle, Elo Joe Urbanovsky

*Associate Professors:* E. W. Zukauckas, Jr., Ellis W. Huddleston

*Assistant Professors:* James W. Kitchen, Robert R. Reed

*Instructors:* Bill A. Chevalier, A. C. Hamilton,\* Thomas A. Musiak

\* Part-time.

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog: Bachelor of Science* and *Master of Science* in ENTOMOLOGY, HORTICULTURE, or PARK ADMINISTRATION.

As a part of the training in Park Administration student majors are given the opportunity to work in parks departments throughout the United States and Canada. This work experience permits the students to secure valuable training in the fields of landscape architecture, urban planning, and parks design and administration.

The senior class customarily works on site developments for parks in Texas cities as a class project. Cities involved have included Andrews, Dallas, Lubbock, San Antonio, Tulia, and Amarillo.

The Horticulture major allows the student to concentrate his work in one of three emphasis areas: ornamentals, production, or turf management. Students selecting the ornamental emphasis area are those with an interest in the activities of production, research, marketing, or maintenance within ornamental horticulture, floriculture, and the nursery industry.

The Entomology curriculum is a closely coordinated program stressing both academic and applied phases of the profession. Summer study away from the campus is promoted through a work-study program with state and federal agencies and industry.

The Entomology section sponsors an annual short course for pest control operators from the Texas, New Mexico, Oklahoma region. Other

short courses are conducted for area chemical dealers, gin operators, and students interested in cotton and grain sorghum insects and their control. Research on mosquito and fly control, cotton insects, grain sorghum insects, and wheat insects is conducted in cooperation with the U.S. Public Health Service, U.S. Department of Agriculture, State Department of Agriculture, Texas Agricultural Experiment Stations, and local growers. In addition to basic research much stress is placed on solving problems relating to West Texas agriculture and public health. Undergraduate as well as graduate students are offered many opportunities to participate in research activities in Entomology. Unusual opportunities of research training are offered to outstanding undergraduates who participate in the summer intern research program conducted on the campus.

## Courses in Park Administration

### FOR UNDERGRADUATES

#### 134. Fundamentals of Park Planning. (3:1:6)

Prerequisite: Arch. 133 or may be taken concurrently or with instructor's consent. The study of graphics including lettering; basic forms, descriptive geometry, perspectives, and shades and shadows, as well as principles of design as each relates to park planning.

#### 330. Problems Course. (3)

Prerequisite: Student is assumed to have complete basic work which would equip him for the problem assigned. P.A. 330 is a junior level problems course designed to accommodate students in specific problems assigned during their in-service training.

#### 339. Landscape Construction. (3:3:0)

Prerequisite: Junior classification. Design and construction of landscape structures. Consideration is given to ethics, professional practices, specifications, quantity surveys, and construction materials. Working drawings and specifications of various landscape structures required.

#### 3311. Landscape Architecture I. (3:1:6)

Prerequisite: Ag. Eng. 232, Hort. 232 and 233, Arch. 133 and P.A. 134. A basic course of landscape architecture, with special emphasis on the elements and principles of design, theory analysis, and application to projects in the design of private, semi-private, and public areas, such as homes, schools, play lots, school-park combinations and community parks.

#### 3312. Landscape Architecture II. (3:1:6)

Prerequisite: P.A. 3311. A continuation of 3311, with intermediate landscape architectural problems of greater complexity, with emphasis on practical application. Includes residential developments, industrial parks, community playfields, city and state parks, and large recreational facilities.

#### 3313. Basic Park Administration. (3:3:0)

Prerequisite: Junior classification. A study of administration, operation, management, and history of city, county, state, and national parks.

#### 431. Municipal Recreation Administration. (3:3:0)

Prerequisite: Junior standing. Permission of the Department Head. A course in basic principles of municipal recreation with practical suggestions for carrying these principles into effect.

### FOR UNDERGRADUATES AND GRADUATES

#### 422. Park Administration. (2:2:0)

Prerequisite: Upperclass standing with consent of instructor. The function and operation of park departments as related to other agencies of the city, county, state, and federal governments.

#### 430. Park Administration Problems. (3)

Prerequisite: Open to all advanced students having satisfactory scholastic records. An investigation of a problem in the field of special interest to the individual student concerned. Repeated for credit with approval of Department Head.



PARK ADMINISTRATION CURRICULUM  
Bachelor of Science

(See Uniform Freshman Year)

SOPHOMORE YEAR			SEMESTER	1st	2nd
Arch.	133	Theory of Design		3	
Ag. Engr.	232	Plane & Top. Surveying		3	
Chem.	142	Gen. Chem.		4	
Eng.	233	Tech. Writing		3	
Hort.	232	Plant Materials I		3	
P.E., Band, or Basic ROTC				1-2	
P.A.	134	Fund. of Park Planning			3
Geol.	143	Geology			4
Hort.	233	Plant Materials II			3
Govt.	231	Amer. Govt., Org.			3
Biol.	142	Zoology			4
P.E., Band, or Basic ROTC					1-2
Total credit hours				17-18	18-19
JUNIOR YEAR			SEMESTER	1st	2nd
P.A.	3311	Landscape Arch. I		3	
P.A.	339	Landscape Const.		3	
Ento.	231	Intro. To Ento.		3	
Arch.	332	Hist. Landscape Arch.		3	
Soc.	230	Intro. to Socio. or			
Soc.	4312	The Urban Community		3	
Electives				3	
P.A.	3312	Landscape Arch. II			3
Hort.	234	Prop. Methods			3
Hist.	231	History of U.S. to 1865			3
Hort.	338	Turfgrass Management			3
P.A.	3313	Basic Park Adm.			3
Electives					2
Total credit hours				18	17
SENIOR YEAR			SEMESTER	1st	2nd
P.A.	441	Landscape Arch. III		4	
Hist.	232	Hist. of U.S. since 1865		3	
Hort.	410	Seminar		1	
Bus. Law	338	Bus. Law		3	
R.M.	231	Intro. Wildlife Mgt.		3	
Anthropology	231	The Origin and Nature of Man		3	
P.A.	441	Landscape Arch. IV			4
P.A.	422	Park Adm.			2
Arch.	337	Prin. of City Planning			3
Govt.	232	Amer. Govt., Func.			3
P.A.	431	Municipal Rec. Adm.			3
Electives					3
Total credit hours				17	18

Hours required for graduation, exclusive of P.E., Band, or Basic ROTC--136.

**441. Landscape Architecture III. (4:1:8)**

Prerequisite: P.A. 3312, senior standing or special permission from Department Head. Advanced landscape architectural problems, with emphasis on investigation, analysis, research, application, and graphics relative to large scale projects. Investigation and planning of city, metropolitan, and regional parks and park systems and their relationship to other governmental functions, such as zoning, traffic, expansion, school sites, shopping centers, industrial parks, and other related land use problems.

**442. Landscape Architecture IV. (4:1:8)**

Prerequisite: P.A. 441. A continuation of P.A. 441, with advanced landscape architectural problems in the investigation and planning of city, metropolitan, and regional parks and park systems. Area cities are used as practical problems.

**FOR GRADUATES****531. Park Administration Research. (3)**

Prerequisite: Consent of major professor. An outline of a specific problem of specialized study not included in regular course work. May be repeated for credit with approval of major professor.

**540. Advanced Park Administration. (4:3:2)**

Essential to the development of advanced park administration concepts is the ability to ferret out fundamental facts, to analyze this data and make critical accurate judgments for sound decisions and subsequent action. The aims and topics included within the syllabus outline are geared to achieve these ends.

**541. Advanced Park Planning and Design. (4:1:8)**

The advanced student, through analysis and interpretation, develops comprehensive long-range plans for area, regional, state, and national park systems. Recreational needs, tourism, conservation, recreational economics, policies, and legislation are incorporated into this research and planning.

**542. Advanced Park Planning and Design. (4:1:8)**

Prerequisite: Park Admin. 541. A continuation of Park Admin. 541, in which the advanced student, through analysis and interpretation, develops comprehensive long-range plans for area, regional, state, and national park systems.

**631. Master's Thesis. (3)**

Enrollment required at least twice.

**Courses in Horticulture****FOR UNDERGRADUATES****131. Principles of Horticulture. (3:2:2)**

Fundamental principles and practices of growth, maintenance, and use of horticultural plants, and landscape of small homes.

**231. Vegetable Crops. (3:2:3)**

Prerequisite: Hort. 131. Principles and practices in production of the major truck crops.

**232. Plant Materials I. (3:2:2)**

Prerequisite: Basic Hort. 131. Identification, characteristics, and use of plant materials of ornamental value, from the ferns and conifers to the rose family.

**233. Plant Materials II. (3:2:2)**

Prerequisite: Basic Hort. 131 and Plant Material I. Identification, characteristics, and use of plant materials of ornamental value, from the rose and legume families through the composites.

**234. Propagation Methods. (3:2:3)**

Prerequisite: Hort. 131, Chem. 141. Propagation techniques of commercial nurseries and greenhouse ranges; study of the physiological reaction and cutting material.

**320. Horticulture Problems. (2:2:0)**

Prerequisite: Completion of basic work in the student's program which would equip him for the problem assigned. Subject to approval of the Department.

**333. Fruit Culture. (3:3:0)**

Prerequisite: Hort. 131. Principles of fruit culture, nutrition, irrigation, training, and pruning, fruit development and handling, orchard establishment, and varieties. Required field trips. Offered Spring Semester, 1967, and alternate years.

HORTICULTURE CURRICULUM  
Bachelor of Science

(See Uniform Freshman Year)

SOPHOMORE YEAR			SEMESTER	1st	2nd
Biol.	142	Zoology		4	
Chem.	142	Gen. Chem.		4	
Eng.	233	Tech. Writing		3	
Hort.	231	Veg. Crops		3	
P.E., Band, or Basic ROTC				1-2	
*Other courses				3	
Agron.	241	Soils			4
Chem.	341	Intro. to Org. Chem.			4
Ento.	231	Intro. Ento.			3
P.E., Band, or Basic ROTC					1-2
*Other courses					6
Total credit hours				18-19	18-19
JUNIOR YEAR			SEMESTER	1st	2nd
Mbio.	231	Bacteriology		3	
Hist.	231	Hist. of U.S. to 1865		3	
Hort.	334	Floriculture		3	
*Other courses				9	
Bot.	331	Plant Physiol.			3
Hist.	232	Hist. of U.S. since 1865			3
Hort.	333	Fruit Culture			3
*Other courses					8
Total credit hours				18	17
SENIOR YEAR			SEMESTER	1st	2nd
Agron.	341	Prin. of Genetics		4	
Bot.	332	Plant Path.		3	
Govt.	231	Amer. Govt., Org.		3	
Hort.	410	Seminar		1	
*Other courses				6	
Ento.	431	Ag. Compounds			3
Govt.	232	Amer. Govt., Func.			3
*Other courses					11
Total credit hours				17	17

## ORNAMENTALS EMPHASIS (Orn. Hort.--Floral and Nursery)

\*In addition to the above courses, the student electing the ornamentals emphasis must take the following courses: Ag. Engr. 222 or 232, Hort. 232, 233, 234, 338, 3314, 430, and 436, plus 20 hours of electives, to be approved by the department.

## PRODUCTION EMPHASIS (Fruits and vegetables)

\*In addition to the above courses, the student electing the production emphasis must take the following courses: Ag. Eco. 236, Ag. Engr. 222, Agron. 436 or 4311, Hort. 421, 430, 431, and 435, plus 24 hours of electives, to be approved by the department.

## TURFGRASS MANAGEMENT EMPHASIS

\*In addition to the above courses, the student electing the turfgrass management emphasis must take the following courses: Ag. Engr. 232, Hort. 232, 233, 338, 421, 430, 432, P.A. 339, 3313, plus 17 hours of electives, to be approved by the department.

Hours required for graduation, exclusive of P.E., Band, or Basic ROTC—136.

**334. Principles of Floriculture. (3:2:3)**

Greenhouse construction, heating, fundamental soil treatment, and the basic principles of flower production and floriculture marketing. Offered Fall Semester, 1967, and alternate years. Required field trips.

**338. Turfgrass Management. (3:3:0)**

Principles and practices of turfgrass management for such specialized areas as athletic fields, playground areas, golf courses, home lawns, etc. Offered spring semesters only.

**3314. Fundamentals of Home Landscape Design. (3:2:2)**

Prerequisite: Hort. 131. Aimed at providing sufficient background for the student to plan and analyze the home landscape setting and to design suitable solutions for this problem.

**410. Seminar. (1:1:0)**

Prerequisite: Senior standing in horticulture and park management. Assigned readings, current advances, informal discussions, and oral reports and paper.

**FOR UNDERGRADUATES AND GRADUATES****421. Arboriculture. (2:1:3)**

Prerequisite: Hort. 333 and senior standing. The physiological principles and industry practices in the production, moving, care, and maintenance of ornamental trees and shrubs. Required field trips. Offered Spring Semester, 1966, and alternate years.

**425. Horticulture Problems. (2)**

Prerequisite: Open to all advanced students having satisfactory scholastic records. Investigation of a problem in the field of special interest to the individual student concerned.

**430. Horticulture Problems. (3)**

Prerequisite: Open to all advanced students having satisfactory scholastic records. Investigation of a problem in the field of special interest to the student. Repeated for credit with approval of Department Head.

**431. Advanced Fruit Production. (3:3:0)**

Prerequisite: Hort. 333, advanced standing in agriculture. Practices and problems in the commercial production, storage, and handling of the important fruit crops. Offered Fall Semester, 1967, and alternate years.

**432. Advanced Turfgrass Management. (3:2:3)**

Prerequisite: Hort. 338. Advanced problems of specialized turfgrass management, with special emphasis on golf course management and park lawns. Field trips required. Offered Fall Semester, 1967, and alternate years.

**435. Advanced Vegetable Production. (3:3:0)**

Prerequisite: Hort. 231, advanced standing in agriculture. Practices and problems in the commercial production and handling of important vegetable crops for fresh market and processing. Offered Fall Semester, 1966, and alternate years.

**436. Advanced Floricultural Science. (3:2:3)**

Prerequisite: Hort. 334. Junior standing. Recent cultural techniques of fertilization crop regulation and the detailed study of the factors of culture of the principle floricultural crops. Required field trips. Offered Spring Semester, 1968 and alternate years.

**FOR GRADUATES****511. Horticulture Seminar. (1:1:0)**

Review and discussion of current literature in the field. May be repeated for credit.

**531. Horticulture Research. (3)**

Prerequisite: Consent of major professor. An outline of a specific problem of specialized study not included in regular course work. May be repeated for credit with approval of major professor.

**532. Horticultural Crop Behavior. (3:3:0)**

Aimed at giving the graduate a recent approach to the modifications in crop responses and recently developed techniques used to regulate physiological responses of growth and production of horticultural crops.

**533. Horticultural Plant Evaluation Techniques. (3:3:0)**

Aimed at giving the graduate some of the fundamental methods, means, data taking, and analysis to permit a clearer understanding and more thorough analytical techniques.

**631. Master's Thesis. (3)**

Enrollment required at least twice.

ENTOMOLOGY CURRICULUM  
Bachelor of Science

(See Uniform Freshman Year)

SOPHOMORE YEAR			SEMESTER	1st	2nd
Ento.	231	Intro. Ento.		3	
Biol.	142	Zoology		4	
Chem.	142	Gen. Chem.		4	
Govt.	231	Amer. Govt., Org.		3	
Mbio.	231	Bacteriology		3	
P.E., Band or Basic ROTC				1-2	
Ento.	322	Livestock Pests or			
Ento.	323	Hort. Pests			2
Hist.	231	Hist. of U.S. to 1865			3
Chem.	341	Organic Chem.			4
Eng.	233	Tech. Writing			3
Hort.	231	Vegetable Crops			3
Elective					2
P.E., Band or Basic ROTC					1-2
Total credit hours				18-19	18-19
JUNIOR YEAR			SEMESTER	1st	2nd
Ento.	321	Field Crop Insects		2	
Ento.	335	Insect Taxonomy		3	
Govt.	232	Amer. Govt., Func.		3	
Botany	332	Plant Pathology		3	
Agron.*				3	
Zool.	335	Comp. Invert. Zool.		3	
Ento.	334	Insect Morphology			3
Botany	331	Plant Physiology			3
Hist.	232	Hist. of U.S. since 1865			3
Speech	338	Bus. & Professional Speech or			
B. Law	338	Bus. Law			3
Electives					5
Total credit hours				17	17
SENIOR YEAR			SEMESTER	1st	2nd
Ento.	432	Insect Ecology		3	
Ento.	441	Insect Tox. & Physiol.		4	
Agron.*				4	
Electives				6	
Ento.	421	Immature Insects			2
Ento.	431	Ag. Compounds			3
Ento.	4311	Med. Ent.			3
Ento.	4312	Acarology			3
Ento.	410	Seminar			1
Electives					6
Total credit hours				17	18

\*Must be elected from Agron. 241, 331, 341, 4313, 433.

Hours required for graduation, exclusive of P.E., Band or Basic ROTC—136.

## Courses in Entomology

### FOR UNDERGRADUATES

#### 110. Problems in Entomology. (1)

Specific assigned problems dealing with insect behavior or control. May be used for degree credit with dean's approval.

#### 231. Introductory Entomology. (3:2:2)

An introduction to insects and their role in human affairs, particularly agriculture; emphasis on morphology and biology as applied to control of pest species; control materials and methods.

#### 321. Field Crop Insects. (2:1:3)

Prerequisite: Ento. 231. Field crop pests; cotton, range crop, and small grains insect pests; storage pests. Fall semester only.

#### 322. Livestock Pests. (2:2:0)

Prerequisite: Ento. 231. Livestock pests and associated insect problems. Life history and economic control. Spring semester only.

#### 323. Horticulture Pests. (2:1:3)

Prerequisite: Ento. 231. The arthropod pests of ornamental, vegetable, and fruit crops. Recognition, biology, and control. Spring semester only.

#### 334. Insect Morphology. (3:2:3)

Prerequisite: An introductory course in entomology. A study of form and function of the insect body. Structural adaptation. Spring semester only.

#### 335. Insect Taxonomy. (3:2:3)

Prerequisite: An introductory course in entomology. Classification of insects. The student will be expected to have his own collection. Fall semester only.

### FOR UNDERGRADUATES AND GRADUATES

#### 410. Seminar. (1:1:0)

Prerequisite: Senior or advanced standing in entomology. Assigned readings, current advances, informal discussions, oral reports, and papers. May be repeated for credit.

#### 421. Immature Insects. (2:1:3)

Prerequisite: Ento. 231. A course in the identification, alternate morphology and biology of immature insect forms. Spring semester only.

#### 431. Agricultural Compounds. (3:3:0)

Prerequisite: An introductory course in entomology and Chem. 341. Nature, mode of action and uses of insecticides, fungicides, herbicides, and fertilizers. Spring semesters and summer terms.

#### 432. Insect Ecology. (3:2:3)

Prerequisite: An introductory course in entomology. The adaptation of the insect to its biological and physical world. Population dynamics, macro- and micro-habitants, and insect responses. Fall semester only.

#### 433. Insect Natural History. (3:2:2)

An introductory course for non-majors. The resources of the insect as applied to our understanding of life, the animal world, and man's relationship to insects.

#### 4311. Medical Entomology. (3:2:3)

Prerequisite: Advanced standing in zoology, pre-med, or agriculture. Insects, mites, and ticks as vectors of human disease and as pests. Spring semester only.

#### 4312. Acarology. (3:2:3)

Prerequisite: Advanced standing in zoology, pre-med, or agriculture. The systematics, life histories, and control of mites affecting man, animals, and plants. Spring semester only.

#### 441. Insect Toxicology and Physiology. (4:3:3)

Prerequisite: Ento. 231, Chem. 341. A study of physiological processes of digestion, metabolism, nerve transmission, etc., and the toxic mechanisms used to combat insect pests. Fall semester only.

# FOR GRADUATES

## 521. **Advanced Economic Entomology.** (2:2:0)

Prerequisite: Ento. 231, Ento. 321, or graduate standing. Factors influencing insect control, with special emphasis on the principles of insect control, resistance, and new control measures, as they relate to specific insect problems.

## 522. **Literature and History of Entomology.** (2:2:0)

Prerequisite: A basic entomology course, permission of the instructor, or graduate standing. The background and development of entomology as a science is traced through its historical literature. Concepts of insect life and taxonomy from the ancients down to modern genetic concepts are developed.

## 523. **Advanced Insect Taxonomy.** (2:0:6)

Prerequisite: Basic entomology and Ento. 334, Ento. 335, or permission of the instructor. Description, keys, and literature for determining insects to genus and species. A specialized group will be assigned for detailed study.

## 531. **Entomology Research.** (3)

Prerequisite: Consent of major professor. An outline of a specific problem of specialized study not included in regular course work. May be repeated for credit with approval of major professor.

## 631. **Master's Thesis.** (3)

Enrollment required at least twice.

## School of Arts and Sciences

S. M. Kennedy, *Dean*

Ivan L. Little, *Associate Dean*

Offices: Ad. 206

The School of Arts and Sciences is divided into instructional departments which offer course work and supervise the degree programs described in Part I of this Catalog. The student should note carefully any particular requirements indicated by a department in which he plans to major or minor as well as those special requirements indicated in Part I. For most of the Bachelor of Science programs specific curricula have been designed and are presented in tables under the appropriate departmental heading.

Courses are listed on the following pages by departments. Each course is listed by name and number, and many include brief descriptions. An examination of these course descriptions will reveal that many subjects are covered to meet different interests and purposes. Some courses are open to all students, while others are for the specialist in that area. The student thus has an opportunity to take courses which broaden his educational experience or which provide concentration in a particular subject. The wise student will include courses of both kinds.

### Course Load

The amount of work normally carried by a student in the School of Arts and Sciences should not exceed 17 hours per semester. Unless specifically prescribed by a particular curriculum, loads exceeding 17 hours or loads of less than 12 hours must have the specific approval of the Dean. In calculating the load, the Dean will consider all active correspondence courses, grade-point averages, and the student's extracurricular work.

### Freshman Year

Entering freshmen are expected to follow the program outlined below during their first year in college:

#### Sem. Hrs.

- |   |       |
|---|-------|
| 1. English composition .....                                | 6     |
| 2. Mathematics, foreign language, science, or history ..... | 20-22 |
| 3. Electives, if not included under 2 above .....           | 6     |
| 4. Physical education, band, or basic ROTC .....            | 2-3   |
| Total for both semesters of freshman year .....             | 34-37 |

The entering freshman develops his program in conference with his academic adviser, to whom he is assigned for his first year in college. The student reports to his adviser for such individual conferences or group



meetings as are needed for the purpose of orienting himself to academic regulations and procedures, curricula, and degree requirements in the student's various areas of interest.

Required freshman courses should be taken during the freshman year and not postponed. During the sophomore year the student should take the second year of English and physical education, band, or basic air or military science, and should remove all unabsolved freshman requirements. Students who postpone taking required freshman subjects until the senior year must still take such subjects, though the credit therefrom will not apply toward the hours required for a degree. For the purpose of this regulation a senior is considered as a student with a minimum of 96 semester hours to his credit.

## **Curricula for Interdepartmental Programs**

### **Art**

The degree (Bachelor of Art) is offered through the School of Arts and Sciences, but the curriculum is arranged through student consultation with the Head of the Department of Applied Arts (School of Home Economics) or the Head of the Department of Architecture and Allied Arts (School of Engineering).

### **Bilingual Secretarial**

The curriculum is arranged through student consultation with the Head of the Department of Foreign Languages.

### **Economics**

The degree (Bachelor of Art) is offered through the School of Arts and Sciences, but the curriculum is arranged by student consultation with the Head of the Department of Economics (School of Business Administration).

### **Latin American Area Studies**

For the major, 30 semester hours must be completed from among the following courses:

Anthropology and Sociology: 3 to 6 hours in Anthropology 4316, Sociology 336.

Economics: 3 hours in Economics 339 (Prerequisite: Economics 231-232).

Spanish/Portuguese: Either 6 hours of Spanish 4321, 4322, 4323, 4324, 4325, 4326, 4327, 4328, 4329, or 6 hours of Portuguese in 430, 435, 436.

Geography: 3 to 6 hours in Geography 4363, 4364.

Government: 3 to 6 hours in Government 4374, 4375.

History: 6 to 12 hours in History 4321, 4322, 4323, 4324.

For the minor, 18 hours may be chosen from any field in which a minor is customarily taken. However, the same course may not be counted in both the major and the minor.

Additional information may be obtained from the chairman of the Latin American Area Studies Committee, Mr. R. D. Mack, Department of Government.

### **Recreation**

See departments of Health, Physical Education, and Recreation for men or women.

### **Pre-Law**

**Freshman Year:** The courses in the freshman year will vary somewhat depending upon whether or not the student intends to complete a degree before going to law school, but should include History 133-134 and Government 231-232.

**Sophomore Year:** English 231-232, History 231-232, advanced government courses, and Economics 231-232 should be taken. If a foreign language was begun in the freshman year, it should be continued. The student should consult the Pre-Law Adviser in the Department of Government concerning other courses.

**Junior and Senior Years:** The student should decide upon his major and minor subjects by the beginning of his junior year, and if he expects to earn his Bachelor of Arts Degree, he should work out a degree plan during his junior year. Electives should be chosen chiefly from the social sciences.

### **Pre-Medical and Pre-Dental**

See Pre-Medical Adviser in the Department of Chemistry and refer to the accompanying curriculum table for the three-year program.

### **Teacher Education**

The curricula of most of the Bachelor of Arts degree programs and some of the Bachelor of Science programs are sufficiently flexible to permit a student to major in an academic subject, yet meet the requirements for certification by taking the required courses in the Department of Education. The student should refer to the section of this Catalog (Part I) describing Teacher Education and should consult with the Head of the Department in which he wishes to major

## PRE-MEDICAL AND PRE-DENTAL CURRICULUM

## FRESHMAN YEAR

The curriculum should include Chem. 141-142, Biol. 141-142, Eng. 131-132 or 133-134, Math. 131, 133, and 1-2 semester hours of P.E., Basic ROTC, or Band. In addition to this, 6-8 semester hours of work will be chosen in a foreign language or history (Hist. 231, 232).

## SOPHOMORE YEAR

			SEMESTER	1st	2nd
Chem.	241	Anal. Chem.		4	
Zool.	241	Comp. Vert. Anat.		4	
Phys.	141	Gen. Phys.		4	
Eng.	231	Mast. of Lit.		3	
Foreign Language or History				3	
P.E., Band, or Basic ROTC				1-2	
Chem.	242	Anal. Chem.			4
Elective					3
Phys.	142	Gen. Phys.			4
Eng.	232	Mast. of Lit.			3
Foreign Language or History					3
P.E., Band, or Basic ROTC					1-2
Total credit hours				19-20	18-19

## JUNIOR YEAR

			SEMESTER	1st	2nd
Zool.	331	Anim. Histol. or			
Mbio.	331	Gen. Bact.		3	
Chem.	353	Org. Chem.		5	
Govt.	231	Amer. Govt., Org.		3	
Electives				6	
Zool.	332	Comp. Vert. Embry. or			
Mbio.	430	Adv. Gen. Bact.			3
Chem.	354	Org. Chem.			5
Govt.	232	Amer. Govt., Func.			3
Electives					6
Total credit hours				17	17

## Department of Biology

Earl D. Camp, *Head of the Department*  
Office: Sci. 221

*Professors:* Earl D. Camp, Elsie Bodemann, James Cecil Cross, Milton Frederic Landwer, Paul Verdayne Prior, Vernon Willard Proctor, Jesse Q. Sealey, Russell William Strandtmann

*Associate Professors:* Lyle Carlton Kuhnley, Mildred Eileen Lowe, John Stephen Mecham, Robert Lewis Packard

*Assistant Professors:* Archie Cornelious Allen, Murray Whitfield Coulter, Arthur McAuley Elliot, Rolf Eugene Huff, Harold Loyd Lewis, Robert Wetsel Mitchell, Chester Morrison Rowell, Jr.,\* Michael Kent Rylander, Jia-Hsi Wu\*\*

*Instructors:* Herschel Whitaker Garner, Polly Imogene Tilton

\* On leave, Fall Semester.

\*\* On leave, 1965-1966.

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: BIOLOGY, *Doctor of Philosophy*; BOTANY, *Bachelor of Arts* or *Bachelor of Science*, *Master of Science*, *Doctor of Philosophy*; MEDICAL TECHNOLOGY, *Bachelor of Science in Medical Technology*; MICROBIOLOGY, *Bachelor of Arts* or *Bachelor of Science*, *Master of Science*, *Doctor of Philosophy*; ZOOLOGY, *Bachelor of Arts* or *Bachelor of Science*, *Master of Science*, *Doctor of Philosophy*.

From the standpoint of research, Texas Technological College is located in an area that has not been as intensely studied in field work as have areas near older colleges and universities. Much work needs to be done in the taxonomy and the ecology of both plants and animals of the High Plains and adjacent areas. Active research programs in plant, animal, and cell physiology are in progress, and excellent training is available for students interested in advanced studies related to metabolism, growth regulation, physiological genetics, and environmental control of developmental processes. Microbiology offers programs useful to students whose interests are in sanitation, medical technology, home economics, and agriculture. Pre-medical and pre-dental students may major or minor in microbiology or zoology.

Students majoring in microbiology, botany, or zoology may minor in any of these fields, provided the major and minor are not in the same field. Students majoring in botany for the bachelor's degree are expected to complete as a minimum 37 semester hours of the following courses in the Department of Biology: Biology 141-142, 331, 411; Botany 231, 232, 331, 339; Zoology 241; and 9 additional hours in courses of junior and senior rank in microbiology, biology or botany. Students majoring in zoology for the bachelor's degree are expected to complete as a minimum 37 semester hours of the following courses in the Department of Biology: Biology 141-142, 331, 411; Zoology 241 and three of the following six:

Zoology 331, 332, 333, 336, 437, 439; Botany 231,\*\* 232,\*\* and 6 additional hours in courses of junior and senior rank in biology, entomology, or zoology.

Students majoring in microbiology will be expected to complete 37 to 39 semester hours of the following courses: Biology 141-142, 331, 411; Zoology 235-236, or 241; Microbiology 331, 430, 432, 433; plus 6 semester hours of microbiology of junior and senior rank, or 3 semester hours of junior or senior rank and Zoology 333, and 3 additional semester hours of junior or senior rank offered in the Department of Biology. Dairy Industry 335 may be counted as a course of junior rank in microbiology.

Chemistry provides an excellent minor for students majoring in microbiology. Students majoring in microbiology may minor in chemistry by completing the following courses: Chemistry 141-142, 241, 341, 342. If the student expects to do graduate work in microbiology, the following courses are recommended: Chemistry 141-142, 241, 353-354. Students majoring in microbiology who minor in fields other than chemistry are expected to complete a minimum of 12 hours in chemistry, including organic chemistry (Chemistry 141-142, 341; or Chemistry 141-142, 241, 341).

Students majoring in one of the programs in this department may count no more than two courses with a grade of D, and minors in the department may count no more than one course with a grade of D. Students looking forward to a master's degree should add enough courses as electives in their proposed major and minor subjects to meet the entrance requirements of the Graduate School. At least one field course is very strongly recommended for all graduate students majoring in botany or zoology. This work may be taken from this institution or at one of the mountain, seashore, or other biological field stations.

Courses numbered 300 or above in microbiology or biology may be counted as part of the major in the degree programs in botany or zoology. The program in entomology has course listings in both this department and the Department of Park Administration, Horticulture, and Entomology. Honors sections in Biology 141-142 are offered for all students in the Honors Program. Honors Research (Biology 334) and Honors Thesis (Biology 432) are offered in the Honors Program.

Specific curricula for the Bachelor of Science Degree programs in botany, medical technology, microbiology, and zoology are set forth in the accompanying tables.

## Teacher Education

Students completing the Bachelor of Arts or the Bachelor of Science Degree, together with the special requirements for teacher certification, will be qualified to teach biology in the public schools of Texas. Chemistry, Physics, or Mathematics is recommended as a second teaching major.

Those students using biology as a teaching major for the Degree of Bachelor of Science in Education should take the following courses: Biology 141-142, 331, 411; Microbiology 331; Botany 232; Zoology 137, 336, 437.

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\*\* With the consent of the Head of the Department a pre-medical or a pre-dental student may substitute another course offered in the Department of Biology.

Students may elect a science teaching option. Under this plan a student must complete a minimum of 48 semester hours in the science departments. Eighteen of these hours must be above the sophomore level.

Students following this plan who wish a major concentration of courses in the Department of Biology should complete the following courses: Biology 141-142; Chemistry 141-142; Geology 143, 144; Physics 141-142; Biology 331, 411; Microbiology 331; Zoology 336, 437; and 5 semester hours of junior and senior rank in biology, chemistry, or physics.

Students following this plan who wish a major concentration of courses in departments other than the Department of Biology may take any of the following combinations of courses in biology:

1. 8 semester hours: Biology 141-142.
2. 12 semester hours: Biology 141-142, 331, 411.
3. 15 semester hours: Biology 141-142, 331, 411; Microbiology 331.
4. 18 semester hours: Biology 141-142, 331, 411; Microbiology 331; Zoology 437.

## Courses in Biology

### FOR UNDERGRADUATES

#### 141-142. Botany and Zoology. (4:3:3 each)

Both botany and zoology are offered each semester; either may be taken first, but both, or their equivalents, must be completed before credit is received toward a degree. Biol. 141, botany, emphasizes the important groups of plants. In Biol. 142 a survey of general zoology is given, with emphasis on the vertebrates, protozoa, insects, and certain parasitic forms. In both, general principles and concepts are stressed.

#### 312. Experimental Heredity. (1:0:3)

Prerequisite: Biol. 141-142; prerequisite or parallel: Biol. 331. A survey of the techniques of experimental inquiry of the materials, methods, and the terminology used in genetics.

#### 334. Honors Research in Biology. (3:0:9)

Prerequisite: Junior standing in biology and participation in the Honors Program. Independent investigation in biology by students in the Honors Program majoring in botany, microbiology, or zoology. An independent study program under direction of staff member.

#### 411. Biology Seminar. (1:1:0)

Prerequisite: Senior standing in microbiology, botany, or zoology. Critical reviews of classical and recent literature and reports of original investigations. May be repeated for credit.

#### 432. Honors Thesis in Biology. (3:3:0)

Prerequisite: Senior standing in biology and participation in the Honors Program. Preparation of a senior honors thesis by student participating in the Honors Program and majoring in microbiology, biology, botany, or zoology. An independent study program under the direction of a staff member.

### FOR UNDERGRADUATES AND GRADUATES

#### 331. Heredity. (3:3:0)

Prerequisite: 8 semester hours in the Biology Department and junior standing. Principles of heredity with special reference to practical application in human affairs, heredity mechanisms, and problems.

#### 333. Bio-Ecology. (3:2:3)

Prerequisite: 12 semester hours in the Biology Department, or junior standing in the School of Agriculture, or Biol. 141-142, and junior standing in the Department of Geology. Introduction to the relationship of organisms to their environment. Field trips to nearby points included at a minimum cost to the student.

#### 431. Biological Techniques. (3:0:9)

Prerequisite: Biol. 141-142, and senior standing or above; or consent of the instructor. Preparation and interpretation of microscopic slides of plant and animal tissues; research techniques.

BOTANY CURRICULUM  
Bachelor of Science

FRESHMAN AND SOPHOMORE YEARS			
		SEMESTER	
		1st	2nd
Biol.	141	Botany	4
*Chem., Geol., or Phys.		(beginning course)	8
Mathematics			3
Eng.	131	Col. Rhet.	3
Eng.	231	Mast. of Lit.	3
Foreign Language			4
Bot.	231	Survey Plant Groups	3
Zool.	241	Comp. Vert. Anat.	4
P.E., Band, or Basic ROTC			2-3
Biol.	142	Zoology	4
Chem., Geol., or Phys.		(beginning course)	8
Mathematics			3
Eng.	132	Col. Rhet.	3
Eng.	232	Mast. of Lit.	3
Bot.	232	Taxonomy	3
Foreign Language			4
P.E., Band, or Basic ROTC			2-3
		Total credit hours	34-35
			30-31
JUNIOR AND SENIOR YEARS			
		SEMESTER	
		1st	2nd
Bot.	331	Plant Physiol.	3
Mbio., Biol., or Bot.		(junior or senior)	6
Biol.	331	Heredity	3
Chem., Geol., or Phys.		(beginning course)	4
Science or Mathematics minor			6
Foreign Language			3
Hist.	231	Hist. of U.S. to 1865	3
Govt.	231	Amer. Govt., Org.	3
Elective			2
Bot.	339	Plant Anat.	3
Mbio., Biol., or Bot.		(junior or senior)	3
Chem., Geol., or Phys.		(beginning course)	4
Science electives			9
Foreign Language			3
Hist.	232	Hist. of U.S. since 1865	3
Govt.	232	Amer. Govt., Func.	3
Biol.	411	Seminar	1
Science or Mathematics minor			6
		Total credit hours	33
			35

\*This curriculum requires the completion of the freshman year in chemistry, geology, and physics.

## FOR GRADUATES

**511. Seminar. (1:1:0)**

Prerequisite: Graduate standing in biology. Seminar for graduate students majoring or minoring in biology. Required of all graduate students majoring in biology. May be taken more than once for credit.

**512. Advanced Experimental Heredity. (1:0:3)**

Prerequisite: Biol. 141-142; Biol. 331 or its equivalent; graduate standing. Experimental inquiry of heredity mechanisms; emphasis on *Drosophila* genetics.

**532. Population Genetics. (3:2:3)**

Prerequisite: Biol. 331 or the equivalent; graduate standing. Genetics of natural populations, basic dynamics, and evolutionary mechanisms responsible for origin of species. Individual problems are conducted in the laboratory.

**5313. Biochemical Genetics. (3:3:0)**

Prerequisite: Biol. 331 and Chem. 353-354 or Chem. 341. Chem. 436 or Chem. 342 recommended. A comprehensive basis of heredity as interpreted through molecular and biochemical studies. Biochemical constituents of a cell and their functions; metabolic pathways as related to gene action, the nature of a gene, bacterial genetics, plant pigments, and human biochemical genetics.

**731. Research. (3)**

Prerequisite: Admission to doctoral study and consent of the instructor. May be repeated for credit. Research in areas of current interest.

**831. Doctor's Dissertation. (3)**

Enrollment required at least four times.

## Courses in Botany

## FOR UNDERGRADUATES

**231. Survey of the Plant Groups. (3:2:3)**

Prerequisite: Biol. 141-142. Morphology of plant groups not emphasized in Biol. 141. Field trips required.

**232. Taxonomy. (3:2:3)**

Prerequisite: Biol. 141-142. Principles and practice in classification of flowering plants. Field trips required.

## FOR UNDERGRADUATES AND GRADUATES

**331. Plant Physiology. (3:2:3)**

Prerequisite: Bot. 231-232; or Biol. 141-142 and 6 semester hours in horticulture or agronomy; prerequisite or parallel, Chem. 141. Physiological processes as applied to the seed plants.

**332. Plant Pathology. (3:2:3)**

Prerequisite: Biol. 141-142 and 6 additional hours in agronomy, botany, or horticulture; prerequisite or parallel: Mbio. 231 or equivalent. Principles underlying the cause, identification, and control of plant diseases.

**339. Plant Anatomy. (3:2:3)**

Prerequisite: Bot. 231-232; or Biol. 141-142 and 6 semester hours in horticulture or agronomy. Studies of the anatomy of the vascular plants.

**435. Advanced Taxonomy. (3:0:9)**

Prerequisite: Bot. 232, 331, 339 or Bot. 232, and 9 semester hours in horticulture or agronomy. A critical study of classification and nomenclature as applied to vascular plants. Offered at intervals.

**436. Plant Geography. (3:3:0)**

Prerequisite: 6 semester hours in botany of junior rank; or Biol. 141-142 and 12 semester hours of zoology, geology, geography, horticulture, or agronomy. Principles of the geography of plants; vegetation types, especially of North America. Field trips to nearby sections of the country are included as feasible at a minimum of cost to the student.

**438. Morphology of Fungi. (3:2:3)**

Prerequisite: Biol. 141-142, and junior standing or above; or consent of the instructor. Morphology and its use as a basis for the classification of the fungi.



MEDICAL TECHNOLOGY CURRICULUM  
Bachelor of Science

FRESHMAN YEAR			SEMESTER	1st	2nd
*Biol.	141	Botany		4	
*Chem.	141	Gen. Chem.		4	
Eng.	131	Col. Rhet.		3	
Foreign language				3-4	
P.E., Band, or Basic ROTC				1	
Bio.	142	Zoology			4
Chem.	142	Gen. Chem.			4
Eng.	132	Col. Rhet.			3
Foreign language					3-4
P.E., Band, or Basic ROTC					1
			Total credit hours	15-16	15-16
SOPHOMORE YEAR			SEMESTER	1st	2nd
Chem.	241	Anal. Chem.		4	
Eng.	231	Mast. of Lit.		3	
Mathematics				3	
Zool.	235	Anat., Phys., & Hyg.		3	
Foreign language				3	
P.E., Band, or Basic ROTC				1-2	
Chem.	341	Intro. Org. Chem.			4
Eng.	232	Mast. of Lit.			3
Mathematics					3
Zool.	236	Anat., Phys., & Hyg.			3
Foreign language					3
P.E., Band, or Basic ROTC					1-2
			Total credit hours	17-18	17-18
SUMMER SCHOOL PRECEDING JUNIOR YEAR					
Mbio.	331	Gen. Bact.		3	
Mbio.	430	Adv. Gen. Bact.		3	
			Total credit hours	3	6
JUNIOR YEAR			SEMESTER	1st	2nd
Mbio.	432	Immun. & Serol.		3	
Mbio.	434	Path. Bact.		3	
Phys.	141	Gen. Phys.		4	
Govt.	231	Amer. Govt., Org.		3	
Hist.	231	Hist. of U.S. to 1865		3	
Mbio.	333	Comm. Diseases or			
Biol.	431	Biol. Tech. or			
Biol.	331	Heredity			3
Phys.	142	Gen. Phys.			4
Chem.	342	Physiol. Chem.			4
Govt.	232	Amer. Govt., Func.			3
Hist.	232	Hist. of U.S. since 1865			3
			Total credit hours	16	17
SENIOR YEAR					
Twelve months in a school of medical technology approved by the American Society of Clinical Pathologists.					

\*Certain changes are possible in order of work suggested, when circumstances indicate the advisability of such change. Biology 141-142 and Chemistry 141-142 should be completed during the first year, because these courses are prerequisite to the others required in these fields.

## FOR GRADUATES

**531. Problems in Botany. (3:0:9)**

Prerequisite: Graduate standing in botany. Selected problems in morphology, anatomy, ecology, taxonomy, or possibly others. May be repeated for full credit in another field or with new materials in the same field. Offered at intervals.

**534. Advanced Plant Anatomy. (3:0:9)**

Prerequisite: Bot. 339 and graduate standing in botany. Advanced anatomy of vascular plants. Offered at intervals.

**535. Field Botany. (3:3:0)**

Prerequisite: Graduate standing in botany. Readings, reports, and field work on assigned problems. Cost of field trips held to a minimum. May be repeated for credit with new materials. Offered at intervals.

**536. Taxonomy of Lower Green Plants. (3:2:3)**

Prerequisite: Biol. 141-142.; Bot. 231, 232, and graduate standing in biology; or permission of the instructor. Classification of the lower plants exclusive of the fungi. Lecture, laboratory, and field study.

**537. Morphology of the Vascular Plants. (3:2:3)**

Prerequisite: Biol. 141-142, Bot. 231, 232, and graduate standing in biology; or permission of the instructor. The form and reproduction of plant groups. Field trips required.

**5311. Morphogenesis and Plant Growth Regulators. (3:2:3)**

Prerequisite: Bot. 331. Chem. 353-354 or Chem. 341 and Chem. 436 or 432 recommended. Study of environmental and chemical control of plant morphogenesis, growth and development. Photoperiodism, thermal regulation, naturally occurring hormones and synthetic growth regulators.

**630. Master's Report. (3)****631. Master's Thesis. (3)**

Enrollment required at least twice.

**731. Research. (3)**

Prerequisite: Admission to doctoral study and consent of the instructor. May be repeated for credit. Research in areas of current interest.

**831. Doctor's Dissertation. (3)**

Enrollment required at least four times.

## Courses in Entomology

## FOR UNDERGRADUATES AND GRADUATES

**4311. Medical Entomology. (3:2:3)**

Prerequisite: Advanced standing in zoology, pre-med, or agriculture. Insects, mites, and ticks as vectors of human disease and as pests.

**4312. Acarology. (3:2:3)**

Prerequisite: Advanced standing in zoology, pre-med, or agriculture. Systematics, life histories, and control of mites affecting man, animals, and plants. Spring semester only.

## Courses in Microbiology

## FOR UNDERGRADUATES

**231. Bacteriology. (3:2:3)**

Prerequisite: 3 semester hours in the Biology Department. Morphology, physiology, and activities of bacteria and molds. Primarily for students of agriculture, home economics, and nursing.

## FOR UNDERGRADUATES AND GRADUATES

**331. General Bacteriology. (3:2:3)**

Prerequisite: 12 semester hours in the Department of Biology, Chemistry, Geology, or Physics; prerequisite or parallel: 6 semester hours in chemistry. Morphology, physiology, classification of microorganisms and their relation to soils, food, water, disease, and the problems of immunity.

MICROBIOLOGY CURRICULUM  
Bachelor of Science

FRESHMAN AND SOPHOMORE YEARS			SEMESTER	1st	2nd
Biol.	141	Botany		4	
Chem.	141	Gen. Chem.		4	
Mathematics				3	
Eng.	131	Col. Rhet.		3	
Eng.	231	Mast. of Lit.		3	
Foreign Language				7	
Zool.	235	Anat., Physiol. & Hyg., or			
Zool.	241	Comp. Vert. Anat.		3-4	
*Chem.	241	Anal. Chem. or			
Chem.	341	Intro. Org. Chem.		4	
P.E., Band, or Basic ROTC				2-3	
Biol.	142	Zoology			4
Chem.	142	Gen. Chem.			4
Mathematics					3
Eng.	132	Col. Rhet.			3
Eng.	232	Mast. of Lit.			3
Foreign Language					7
Zool.	236	Anat., Physiol. & Hyg., (continuation of			
		Zool. 235)			3
*Chem.	342	Physiol. Chem., or Science elective			4
P.E., Band, or Basic ROTC					2-3
Total credit hours				33-35	30-34
JUNIOR AND SENIOR YEARS			SEMESTER	1st	2nd
Mbio.	331	Gen. Bact.		3	
Mbio.	432	Immunol. & Serol.		3	
Microbiology (junior or senior)				3	
Mbio., Biol., Bot., or Zool. (junior or senior)				3	
*Chem. (junior or senior) or science minor				5-6	
Hist.	231	Hist. of U.S. to 1865		3	
Elective				2	
Govt.	231	Amer. Govt., Org.		3	
Biol.	331	Heredity		3	
Science electives				6	
Mbio.	430	Adv. Gen. Bact.			3
Mbio.	433	Physiol. of Bact.			3
Mbio., Biol., Bot., or Zool. (junior or senior)					3
*Chemistry (junior or senior) or science minor					5-6
Hist.	232	Hist. of U.S. since 1865			3
Electives					9
Govt.	232	Amer. Govt., Func.			3
Biol.	411	Seminar			1
Science elective					2
Total credit hours				34-35	32-33

\*See chemistry requirement options.

**333. Communicable Diseases. (3:3:0)**

Prerequisite: 3 semester hours in microbiology; junior standing. History, prevalence, etiology, sources and modes of infection, laboratory diagnosis, and methods of control of the principal human diseases.

**334. Bacteriology of Foods and Food Sanitation. (3:2:3)**

Prerequisite: 3 semester hours in microbiology; junior standing. Bacteria and molds in their relation to food spoilage and food sanitation.

**430. Advanced General Bacteriology. (3:2:3)**

Prerequisite: 12 semester hours in the Department of Biology or Chemistry, and Mbio. 231 or Mbio. 331; prerequisite or parallel: 6 semester hours in chemistry. Advanced and detailed study of microbial morphology, composition, growth, cultivation, variation, and classification. Preparation for advanced studies in microbiology.

**431. Problems in Bacteriology. (3:0:9)**

Prerequisite: 6 semester hours of microbiology. Selected problems in the various fields of microbiology, according to the needs or interests of the student. May be repeated or taken parallel for full credit in another field or with new materials in the same field.

**432. Immunology and Serology. (3:2:3)**

Prerequisite: 6 semester hours of microbiology; 10 semester hours of chemistry. Theories of infection and resistance, the production and demonstration of antibodies as well as the action of antigens and the various diagnostic tests.

**433. Physiology of Bacteria. (3:2:3)**

Prerequisite: 6 semester hours of microbiology; 12 semester hours of chemistry. Chemistry and physiology of bacteria and related microorganisms; the influence of environment on bacterial metabolism, growth, and reproduction.

**434. Pathogenic Bacteriology. (3:2:3)**

Prerequisite: Mbio. 430 or Mbio. 333. Principles of diagnostic microbiology relating to the etiological agents of infectious disease. Laboratory procedures in the isolation, identification, and drug susceptibilities of these agents.

**435. Taxonomic and Determinative Bacteriology. (3:2:3)**

Prerequisite: Mbio. 430 or consent of the instructor. Identification, classification, and nomenclature of bacteria.

## FOR GRADUATES

**521. Instrumental Methods of Microbiology. (2:0:6)**

Prerequisite: Graduate standing and consent of the instructor. Application of instrumental methods to the analysis of physiological phenomena at the cell and cell-free level.

**531. Research in Microbiology. (3:0:9)**

Prerequisite: Mbio. 331, 430, graduate standing, and consent of the instructor. Research problems in selected areas in microbiology. May be taken more than once for credit.

**532. Selected Topics in Microbiology. (3:3:0)**

Prerequisite: Mbio. 331, 430, graduate standing, and the consent of the instructor. Study of advanced concepts of microbiology. Topics to include genetics, virology, applied microbiology, morphology, and/or other selected topics of current interest. May be taken more than once for credit.

**631. Master's Thesis. (3)**

Enrollment required at least twice.

## Courses in Zoology

## FOR UNDERGRADUATES

**137. Anatomy and Physiology. (3:2:3)**

Gross anatomy and physiology of the human body. The digestive and reproduction systems are emphasized. Only open to students of home economics and those with a biology teaching major on a B.S. in Education Degree.

**235-236. Anatomy, Physiology, and Hygiene. (3:2:3 each)**

Prerequisite: Chem. 133-134 or 141-142 or sophomore standing in biology. Gross anatomy of the mammalian body; the various physiological processes; fundamental prin-

ZOOLOGY CURRICULUM  
Bachelor of Science

FRESHMAN AND SOPHOMORE YEARS			SEMESTER	1st	2nd
Biol.	142	Zoology		4	
*Chem., Geol., or Phys.		(beginning course)		8	
Mathematics				3	
Eng.	131	Col. Rhet.		3	
Eng.	231	Mast. of Lit.		3	
Foreign Language				4	
Zool.	241	Comp. Vert. Anat.		4	
**Bot.	231	Survey Plant Groups		3	
P.E., Band, or Basic ROTC				2-3	
Biol.	141	Botany			4
Chem., Geol., or Phys.		(beginning course)			8
Mathematics					3
Eng.	132	Col. Rhet.			3
Eng.	232	Mast. of Lit.			3
Foreign Language					4
**Bot.	232	Taxonomy			3
P.E., Band, or Basic ROTC					2-3
Total credit hours				34-35	30-31
JUNIOR AND SENIOR YEARS			SEMESTER	1st	2nd
Zool.	331	Anim. Histol. or			
Zool.	336	Comp. Vert. Zool.		3	
Mbio., Biol., or Zool.		(junior or senior)		6	
Chem., Geol., or Phys.		(beginning course)		4	
Science or Mathematics minor				6	
Foreign Language				3	
Hist.	231	Hist. of U.S. to 1865		3	
Govt.	231	Amer. Govt., Org.		3	
Elective				2	
Biol.	331	Heredity		3	
Zool.	332	Comp. Vert. Embry. or			
Zool.	333	Parasitology			3
Mbio., Biol., or Zool.		(junior or senior)		3	
Chem., Geol., or Phys.		(beginning course)		4	
Science electives				9	
Foreign Language				3	
Hist.	232	Hist. of U.S. since 1865		3	
Govt.	232	Amer. Govt., Func.		3	
Biol.	411	Seminar		1	
Science or Mathematics minor				6	
Total credit hours				33	35

\*This curriculum requires the completion of the freshman year in chemistry, geology, and physics, with the exception that pre-medical and pre-dental students may substitute additional courses in chemistry for the beginning courses in geology.

\*\*With the consent of the Head of the Department a pre-medical or a pre-dental student may substitute another course offered in the Department of Biology.

ciples of hygiene and sanitation; fundamentals of heredity. May not be used as a part of the requirements for a major in zoology, but may be used as a part of a major in microbiology.

**241. Comparative Vertebrate Anatomy. (4:3:3)**

Prerequisite: Biol. 141-142. Structure and evolution of the vertebrates. Laboratory study of the anatomy of representative vertebrate types.

FOR UNDERGRADUATES AND GRADUATES

**331. Animal Histology. (3:2:4)**

Prerequisite: Zool. 241. The study of normal animal tissues. Laboratory assignments are to be completed in the laboratory.

**332. Comparative Vertebrate Embryology. (3:2:4)**

Prerequisite: Zool. 241. The embryological development of different vertebrates, with emphasis on the chick and the pig. Laboratory assignments are to be completed in the laboratory.

**333. Parasitology. (3:2:3)**

Prerequisite: Zool. 241 or Zool. 336. Internal and external parasites, with emphasis on the helminths. Life histories and host relationships.

**336. Comparative Invertebrate Zoology. (3:2:3)**

Prerequisite: Geol. 335-336 or junior standing in biology. Open also to pre-veterinary medicine students and to agriculture students majoring in entomology. Structure, life history, and evolution of the invertebrates. Field trips and assigned readings are an integral part of the course.

**435. Cytology. (3:2:3)**

Prerequisite: Biol. 331 or Zool. 331 or Zool. 332, or junior standing in botany. The cell in evolution and heredity.

**437. Natural History of the Vertebrates. (3:2:3)**

Prerequisite: Biol. 141-142, senior standing or above; or consent of the instructor. Intended to acquaint the student with the fish, amphibians, reptiles, birds, and mammals, with emphasis upon their habits, life history, and ecology; emphasis on the local fauna with which the student will be expected to become familiar. Local and overnight field trips.

**438. Cellular Physiology. (3:2:3)**

Prerequisite: 6 semester hours of chemistry and 6 semester hours of biology; or consent of instructor. The basic physiological phenomena common to all living organisms and a more detailed study, at the cellular level, of the principal functions (nutrition, metabolism, movement, and neural integration) of animals.

**439. Comparative Animal Physiology. (3:2:3)**

Prerequisite: Zool. 241; Chem. 141-142; senior standing in zoology or chemistry; or consent of instructor. A comparison of physiological mechanisms in various animal groups and a consideration of how they have evolved. Stress will be placed upon such major physiological mechanisms as excretion, digestion, hormonal control, and how these have been modified in various animal groups to fit their adaptive needs.

FOR GRADUATES

**531. Problems in Zoology. (3:0:9)**

Prerequisite: Graduate standing in zoology. Selected problems in morphology, anatomy, ecology, taxonomy, or possibly others. May be repeated for full credit in another field or with new materials in the same field. An acceptable written report of the semester's work required.

**532. Principles and Methods of Systematic Zoology. (3:2:3)**

Prerequisite: Graduate standing and consent of instructor. Aspects of biology related to an understanding of animal relationships. Stress will be placed on procedures useful in taxonomic and ecological studies of natural populations.

**533. Herpetology. (3:2:3)**

Prerequisite: Graduate standing in zoology. The course will be concerned with the biology of amphibians and reptiles. Stress will be placed on classification, evolution, ecology, and anatomy of the various groups. Emphasis will be on the utilization of amphibians and reptiles to approach major biological problems.

**535. Field Zoology. (3:3:0)**

Prerequisite: Graduate standing in zoology. Readings, reports, and field work on assigned problems. May be repeated for full credit with new materials. An acceptable written report of the semester's work required.

**536. Mammalogy. (3:2:3)**

Prerequisite: Biol. 141-142, Zool. 241, 437, and graduate standing; or consent of the instructor. Classification, distribution, life history, evolution, and the identification of mammals. Field work will be stressed.

**5313. Ornithology. (3:2:3)**

Prerequisite: Graduate standing in biology. A survey of the birds of the world, with emphasis on Southwestern U.S. species. Avian systematics, migration, physiology, ecology and comparative behavior. Field trips which will be substituted for some laboratory periods may include one overnight trip.

**5314. Zoogeography. (3:3:0)**

Prerequisite: Graduate standing. Zoology 533 and 536 recommended. Study of the geographical distribution of vertebrate animals with special reference to North America. Faunal regions, barriers, dispersal, and the relationship of distribution to the origin of species and intraspecific groups.

**5318. Comparative Endocrinology. (3:2:3)**

Prerequisite: Zool. 241, 331, 438, and consent of the instructor. Study of hormones as chemical coordinators of bodily functions, with special references to integrated control of growth. Several animal groups will be considered but emphasis will be placed on mammals, crustaceans, and insects.

**5319. Ichthyology. (3:2:3)**

Prerequisite: Graduate standing in biology. The classification, evolution, distribution and ecology of fish.

**630. Master's Report. (3)****631. Master's Thesis. (3)**

Enrollment required at least twice.

**731. Research. (3)**

Prerequisite: Admission to doctoral study and consent of the instructor. May be repeated for credit. Research in areas of current interest.

**831. Doctor's Dissertation. (3)**

Enrollment required at least four times.

## Department of Chemistry

Joe Dennis, *Head of the Department*

Office: Chem. 213

*Professors:* Joe Dennis, Samuel Hunt Lee, Jr., Henry Joseph Shine, Morris Frank Stubbs, Wesley William Wendlandt

*Associate Professors:* Joe Alfred Adamcik, Arthur Lincoln Draper, Robert George Rekers, Margaret Russell Stuart

*Assistant Professors:* John Arthur Anderson, Harry George Hecht,\* Clinton Marsud McPherson, Donald Ray Scott, Pill-Soon Song, Richard John Thompson, Richard Edward Wilde, Jr.

*Instructors:* Charles Edward Wilson, Sr., Frederick Henry Wolfe

\* Leave of absence, 1965-1966.

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: CHEMISTRY, *Bachelor of Arts* or *Bachelor of Science*, *Master of Science*, and *Doctor of Philosophy*.

As explained in Part I of this Catalog, the undergraduate student may take courses leading to a Bachelor of Arts or a Bachelor of Science Degree. The program leading to a Bachelor of Arts Degree offers the greater flexibility in curriculum; a specific curriculum for the Bachelor of Science Degree is set forth in the accompanying table.

It is highly desirable that the student's accomplishments be of the best quality. Grades of D will not be accepted in more than 20 percent of the hours counted in a major in this department. Not more than one D will be accepted in any two-semester course.

### Advanced Standing

The Chemistry Department will permit a student to bypass any course in the curriculum if the student can demonstrate his proficiency in that area by examination. It will be the responsibility of the student to petition the department head for such examination(s) well ahead of the time when the student would normally enroll in such course.

### Teacher Education

Students seeking a provisional certificate with chemistry as a teaching field may satisfy the requirement in chemistry through any one of four degree plans. The courses needed for a B.A. or B.S. major in chemistry provide much more than the minimum of 24 semester hours with at least 12 hours at the advanced level. However, for the B.A. with a major other than chemistry, and for the B.S. in Education, either of the following sequences of courses will be adequate to meet this requirement, since training in four fields of chemistry and 12-14 advanced hours in a total of 24-26 semester hours are provided:

Chemistry 141-142, 241, 341,\* and 347-348

or

Chemistry 141-142, 241, 343,\* and 353-354.

In both sequences, calculus and 8 hours of physics are prerequisite to the physical chemistry courses. Additional requirements for teaching certificates will be found in Part I of this Catalog.

### Courses in Chemistry

#### FOR UNDERGRADUATES

#### 133-134. Elementary Chemistry. (3:2:3 each)

Some of the principles and applications of inorganic, organic, and biochemistry. Only for home economics students and applicable only to degrees with such majors.

#### 141-142. General Chemistry. (4:3:3 each)

Prerequisite for all courses in chemistry except 133-134. A general course in chemistry. Available to all students of the College.

#### 241, 242. Analytical Chemistry. (4:2:6 each)

Prerequisite: Chem. 141-142. Basic course in the theories and techniques of analytical chemical methods. The qualitative separation, detection, and confirmation of selected cations and anions. The quantitative gravimetric and volumetric methods are considered. Instrumental methods of analysis are introduced. Prerequisite for all higher numbered courses in analytical chemistry.

\* NOTE to all majors and minors in this department. Attention is directed to the fact that the following special purpose courses do not serve as adequate background for graduate majors and minors in chemistry: Chemistry 133-134, 341, 342, and 343.



CHEMISTRY CURRICULUM  
Bachelor of Science

FRESHMAN YEAR			SEMESTER	1st	2nd
Chem.	141	Gen. Chem.		4	
*Math.	139	Anal. Geom. and Calc. I		3	
Math.	231	Anal. Geom. and Calc. II		3	
Eng.	131	Col. Rhet. or			
Eng.	133	Adv. Comp.		3	
**Phys.	143	Prin. of Phys. I, or science elective		4	
P.E., Band, or Basic ROTC				1	
Chem.	142	Gen. Chem.			4
*Math.	232	Anal. Geom. and Calc. III			3
*Free elective or mathematics					3
Eng.	132	Col. Rhet. or			
Eng.	134	Adv. Comp.			3
**Phys.	241	Prin. of Phys. II or science elective			4
P.E., Band, or Basic ROTC					1-2
Total credit hours				18	18-19
SOPHOMORE YEAR			SEMESTER	1st	2nd
Chem.	241	Anal. Chem.		4	
*Free elective or mathematics				3	
Ger.	141	Begin. German		4	
Hist.	231	Hist. of U.S. to 1865		3	
Science elective, or					
Phys.	143	Prin. of Phys. I		4	
P.E., Band, or Basic ROTC				1-2	
Chem.	242	Anal. Chem.			4
Eng.	233	Tech. Writing			3
Ger.	142	Begin. German			4
Hist.	232	Hist. of U.S. since 1865			3
**Science elective, or					
Phys.	241	Prin. of Phys. II			4
P.E., Band, or Basic ROTC					1-2
Total credit hours				19-20	19-20
JUNIOR YEAR			SEMESTER	1st	2nd
Chem.	353	Org. Chem.		5	
Chem.	347	Phys. Chem.		4	
Ger.	233	Scien. German		3	
*Minor				3	
Eco.	235	Prin. of Eco.		3	
Chem.	354	Org. Chem.			5
Chem.	348	Phys. Chem.			4
Ger.	234	Scien. German			3
*Minor					3
Free elective					3
Total credit hours				18	18
SENIOR YEAR			SEMESTER	1st	2nd
Chem.	420	Chem. Lit. & Sem.		2	
Eng.	231	Mast. of Lit.		3	
Chem.	445	Inorg. Chem.		4	
*Minor				3	
Govt.	231	Amer. Govt., Org.		3	
** Senior Chem.				3	
Free elective					3
Eng.	232	Mast. of Lit.			3
Chem.	4312				3
**Senior Chem.					3
*Minor					3
Govt.	232	Amer. Govt., Punc.			3
Total credit hours				18	18

\*Adequate training in algebra and trigonometry is prerequisite for analytic geometry and calculus. If the student is in doubt about which mathematics courses to take in his first year, he must consult with an adviser in the Chemistry Department.

\*\* "Science electives" are Biology 141-142 and Geology 143-144. Physics 143 and 241 are required in this curriculum.

\*The minor will be chosen in biology, geosciences, mathematics, or physics. If mathematics be chosen, 3 of these hours become free electives.

\*\*Senior chemistry courses to be chosen from the following list:

Chem. 431 or Chem. 432      Chem. 438  
Chem. 436 or Chem. 437

**341. Introductory Organic Chemistry. (4:3:3)**

Prerequisite: Chem. 141-142. A brief study of the compounds of carbon for students in agriculture, home economics, and other fields who require an introduction to the subject. Not open to majors in chemistry for credit. Does not prepare for graduate work in chemistry, either major or minor.

**342. Physiological Chemistry. (4:3:3)**

Prerequisite: Chem. 341. An elementary course in physiological chemistry. Not open to majors in chemistry for credit. Does not prepare for graduate work in chemistry, either major or minor.

**343. Introductory Physical Chemistry. (4:3:3)**

Prerequisite: Chem. 141-142, 8 hours of physics, and Math. 231-232. A selection of general fundamentals in physical chemistry, for all students who require an introduction to the subject. Not open to majors in chemistry and chemical engineering for credit. Does not prepare for graduate work in chemistry, either major or minor.

**\*347-348. Physical Chemistry. (4:3:3 each)**

Prerequisite: Chem. 141-142, Phys. 143, 241, and Math. 231-232. A thorough foundation course in physical chemistry, for chemistry majors and other students. Prerequisite for all higher numbered courses in physical and inorganic chemistry.

**\*353-354. Organic Chemistry. (5:3:6 each)**

Prerequisite: Chem. 141-142. A thorough foundation course in organic chemistry for chemical engineering majors, chemistry majors, pre-medical, and other students. Prerequisite for all higher numbered courses in organic chemistry.

**FOR UNDERGRADUATES AND GRADUATES\*\*****420. Chemical Literature. (2:2:0)**

Prerequisite: Senior standing. Chemical literature, the methods of using it, and the study of and reports on specific literature topics.

**431. Qualitative Organic Analysis. (3:1:6)**

Prerequisite: Chem. 353-354. Identification of unknowns and the separation and identification of the components of mixtures of organic substances.

**432. Structure and Mechanisms in Organic Chemistry. (3:3:0)**

Prerequisite: Chem. 353-354. Organic chemistry at an advanced level. Emphasis on developments in theoretical organic chemistry.

**445. Inorganic Chemistry. (4:3:3)**

Prerequisite: Chem. 347-348. A survey of modern topics in organic chemistry, including coordination compounds, non-aqueous solvents and the chemistry of the transition elements.

**436. Biological Chemistry I. (3:2:3)**

Prerequisite: Chem. 241-242; 353-354. Chemistry of carbohydrates, proteins, lipids, enzymes, and other constituents of living systems.

**437. Biological Chemistry II. (3:2:3)**

Prerequisite: Chem. 241-242; 353-354. Biochemical processes and their regulation.

**438. Valency and Molecular Structure. (3:3:0)**

Prerequisite: Chem. 347-348. An introduction to the current theories of atomic and molecular structure and the nature of chemical bonding.

**4312. Instrumental Analytical Methods. (3:2:3)**

Prerequisite: Chem. 241-242; 347-348. Theories and applications of instrumental methods of chemical analysis. The major instruments of the research and industrial laboratory are considered.

**FOR GRADUATES****511, 512. Seminar. (1:1:0 each)**

Prerequisite: Graduate standing in chemistry. Seminar for graduate students and staff members. Required of all graduate students majoring in this department. May be taken more than once for credit.

\* Can be used for graduate students for minor credit only.

\*\* Normally for graduate minor credit only.

**5117. Selected Topics in Analytical Chemistry. (1:1:0)**

Prerequisite: Consent of instructor. Variable credit is achieved by multiple registrations. May be repeated for additional credit.

**531, 532. Individual Research Problems. (3 each)**

May be repeated for additional credit.

**5301. Advanced Inorganic Chemistry I. (3:3:0)**

Prerequisite: Chem. 435. Principles of coordination chemistry. Structure, bonding, properties, and reactions of complex compounds.

**5302. Advanced Inorganic Chemistry II. (3:3:0)**

Prerequisite: Chem. 5301. Reaction mechanisms of inorganic compounds.

**5304. Selected Topics in Inorganic Chemistry. (3:3:0)**

Prerequisite: Consent of instructor. Special areas of inorganic chemistry not commonly included in other courses. May be repeated for additional credit.

**5314. Advanced Analytical Chemistry. (3)**

Prerequisite: Chem. 241-242. General principles and special methods of analytical chemistry.

**5315. Spectrographic Analysis I. Emission Spectra. (3:2:3)**

Prerequisite: Consent of instructor. Phys. 331 is recommended. Qualitative and quantitative analysis using emission spectra.

**5316. Spectrographic Analysis II. Absorption Spectra. (3:2:3)**

Identification of compounds and analysis of mixtures by means of their absorption spectra.

**5321. Advanced Organic Chemistry I. (3:3:0)**

Prerequisite: Chem. 353-354. Principles and reactions of organic chemistry, with emphasis on the most recent developments from the current literature.

**5322. Advanced Organic Chemistry II. (3:3:0)**

Prerequisite: Chem. 5321. Continuation of Chem. 5321.

**5325. Selected Topics in Organic Chemistry. (3:3:0)**

Prerequisite: Chem. 5321. May be repeated for additional credit.

**5327. Physical Organic Chemistry I. (3:3:0)**

Prerequisite: Chem. 5321. Properties and reactions of organic compounds and the mechanisms of organic reactions considered from the standpoint of the principles of physical chemistry.

**5328. Physical Organic Chemistry II. (3:3:0)**

Prerequisite: Chem. 5327. Continuation of Chem. 5327.

**5334. Selected Topics in Biological Chemistry. (3:3:0)**

May be repeated for additional credit.

**5335. Physical Biochemistry. (3:3:0)**

Prerequisite: Chem. 347-348, 436, 437. Application of the principles of physical chemistry to membrane permeabilities, membrane potentials, energy metabolism, properties of large molecules and other such problems.

**5342. Advanced Physical Chemistry. (3:3:0)**

Prerequisite: Chem. 347-348. Modern physical chemistry, primarily from the molecular approach, with numerical problems.

**5343. Quantum Chemistry. (3:3:0)**

Prerequisite: Chem. 5342. The application of non-relativistic wave mechanics to problem of chemical structure and reactivity.

**5344. Kinetics of Chemical Reactions. (3:3:0)**

Prerequisite: Chem. 347-348. Kinetics and mechanisms of chemical reactions in homogeneous and heterogeneous systems.

**5345. X-Rays and Crystal Structure. (3:3:0)**

Prerequisite: Chem. 347-348. The determination of crystal structure, chemical properties, and physical properties by X-ray methods.

**5346. Statistical Mechanics for Chemists. (3:3:0)**

Prerequisite: Chem. 5342. Statistical mechanics in chemistry applied to both closed and open systems, including thermodynamics, lattices, surfaces, and non-equilibrium conditions.

**5347. Chemical Thermodynamics. (3:3:0)**

Prerequisite: Chem. 347-348. Equilibrium thermodynamics in chemical systems influenced by various physical variables, with an introduction to irreversible thermodynamics.

**5348. Selected Topics in Physical Chemistry. (3:3:0)**

Prerequisite: Chem. 347-348. May be repeated for additional credit.

**631. Master's Thesis. (3)**

Enrollment required at least twice.

**831. Doctor's Dissertation. (3)**

Enrollment required at least four times.

## Department of Education

Morris S. Wallace, *Head of the Department and  
Director of Teacher Education and Certification*

Office: Ad. 259

*Professors:* Floyd D. Boze,\* Owen Laverne Caskey, Raymond Leon Davidson, Laura Katherine Evans, Berlie Joseph Fallon, Raymond Ernest Garlin,\* Thomas Brooks Livingston, Donald McDonald, George Peyton Mecham, Levi Marshall Nagle, Jr., Joe Wayne Tidrow, Morris Sheppard Wallace, Holmes Andrew Webb

*Associate Professors:* Neville Hasso Bremer, James Rankin Gammill, Bruce Douglas Mattson, Olive Boone Wheeler

*Assistant Professors:* Weldon Earnest Beckner, Mildred Lucile Bettencourt, Nancy Smith Boze, Bessie M. Spain Cowan, Alex Belcher Crowder, Jr., William Wayne Dumas, Billy Cotton Everton, Dorothy Jane Filgo, Panze Butler Kimmel, Robert Thomas Pate, Fannie Ernestine Pillow, Zenobia Christine Brown Verner, Welborn Kiefer Willingham.

*Instructors:* James Rex Douglas,\* R. C. Whitmill\*

\* Part-time.

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: EDUCATION (ELEMENTARY), and EDUCATION (SECONDARY), *Bachelor of Arts or Bachelor of Science in Education*; EDUCATION, *Master of Education*, *Doctor of Education*.

The primary mission of the Department of Education is to provide professional education courses for those planning teaching or administrative careers in the public schools of Texas.

The Head of the Department of Education coordinates the College's program of teacher preparation in which most academic departments participate. Guidance and information for those seeking careers in teaching and in related activities in the elementary and secondary schools, instruc-

ELEMENTARY EDUCATION CURRICULUM  
Bachelor of Science in Education

Students preparing to teach in the elementary school are advised to follow the four-year sequence outlined below:

## FRESHMAN YEAR

			SEMESTER	1st	2nd
Eng.	131	Col. Rhet.		3	
Biol.	141	Botany or			
Biol.	142	Zoology		4	
Math.	135	Intro. Col. Math. or			
Soc.	230	Intro. to Soc.		3	
Hist.	231	Hist. of U.S. to 1865		3	
*Academic specialization or					
P.E.	233	P.E. for Elem. Sch. Tchrs.		3	
P.E., Band, or Basic ROTC				1-2	
Eng.	132	Col. Rhet.			3
Biol.	141	Botany or			
Biol.	142	Zoology			4
Hist.	232	Hist. of U.S. since 1865			3
Math.	135	Intro. Col. Math. or			
Soc.	230	Intro. to Soc.			3
*Academic specialization or					
P.E.	233	P.E. for Elem. Sch. Tchrs.			3
P.E., Band, or Basic ROTC					1-2
Total credit hours				17-18	17-18

## SOPHOMORE YEAR

			SEMESTER	1st	2nd
Eng.	231	Mast. of Lit.		3	
Govt.	231	Amer. Govt., Org.		3	
Chem.	141	Gen. Chem. or			
Geol.	143	Physical Geol. or			
Phys.	141	Gen. Phys.		4	
**Mus. Ed.	231	Mus. for Classroom Tchrs. and/or		3	
*Academic specialization or					
Spch.	239	Spch. for Personal Devel.		3	
P.E., Band, or Basic ROTC				1-2	
Eng.	232	Mast. of Lit.			3
Govt.	232	Amer. Govt., Func.			3
Chem.	142	Gen. Chem. or			
Geol.	144	Physical Geol. or			
Phys.	142	Gen. Phys.			4
**Mus. Ed.	232	Elem. Mus. Prac. Prin. and/or			3
*Academic specialization or					
Spch.	239	Spch. for Personal Devel.			3
P.E., Band, or Basic ROTC					1-2
Total Credit hours				17-18	17-18

## JUNIOR YEAR

			SEMESTER	1st	2nd
Educ.	332	Educ. Psy.		3	
Educ.	3331	Child Develop., & Elem. Sch. Curric.		3	
*Academic specialization or					
Anthro.	232	Cult. Anthro.		3	
P.E.	230	P.E. for Elem. & Second. Schools		3	
Ap. A.	337	Art in Elem. Educ.		3	
Educ.	3344	Lang. Arts in Elem. School Curric.			3
Educ.	3345	Soc. Stu. in Elem. School Curric.			3
*Academic specialization or					
Anthro.	232	Cult. Anthro.			3
**Ap. A.	338	Art in Elem Educ. and/or			3
*Academic specialization					3
Total credit hours				15	15

## SENIOR YEAR

			SEMESTER	1st	2nd
Educ.	461	Student Teaching in Elem. School		6	
		(may be taken fall or spring)			
Educ.	4342	Teaching Reading in Elem. School		3	
*Academic specialization				3	
Eco.	237	Eco. Geography or			
Phil.	230	Intro. to Phil.		3	
Educ.	4344	Children's Lit.			3
Educ.	4341	Teaching Arith. in Elem. School			3
Educ.	4343	Teaching Science in Elem. School			3
*Academic specialization					3
Phil.	230	Intro. to Phil. or			
Eco.	237	Eco. Geography			3
Total credit hours				15	15

\*See fields of academic specialization.

\*\*Depends upon which plan of academic specialization is followed.

tion in professional education courses, and the supervision of student teaching are functions of the department.

Regulations covering the teacher certification program are discussed in detail in Part I of this Catalog. Requirements for the Bachelor of Science in Education Degree are discussed in the section for the School of Arts and Sciences in Part I. Specific curricula are set forth in the accompanying tables.

## Courses in Education

### FOR UNDERGRADUATES

#### 330. Foundations of Secondary Education. (3:3:0)

Prerequisite: Junior classification. Eligibility for or admission to the Teacher Education Program. Introduction to secondary education; basic principles underlying the secondary school program.

#### 332. Educational Psychology. (3:3:0)

Prerequisite: Junior classification. Eligibility for or admission to the Teacher Education Program. Educational and psychological principles as basic knowledge in professional education and in teaching.

#### 334. Curriculum Development in Secondary Education. (3:3:0)

Prerequisite: Junior classification, Educ. 332 and 330 or equivalent. Foundations of curriculum development, patterns of organization, principles and procedures, curriculum resource units, and issues in curriculum development. Observation required.

#### 3331. Child Development and the Elementary School Curriculum. (3:3:0)

Prerequisite: Junior classification. Eligibility for or admission to the Teacher Education Program. Principles of child development as they apply to the elementary school curriculum. Observation required.

#### 3344. Language Arts in the Elementary School Curriculum. (3:3:0)

Prerequisite: Junior classification; enrollment in or completion of Educ. 3331 or equivalent. Bases for programs, methods, and materials.

#### 3345. Social Studies in the Elementary Curriculum. (3:3:0)

Prerequisite: Junior classification; enrollment in or completion of Educ. 3331, or equivalent. Bases for programs, methods, and materials.

#### 431. Student Observation and Teaching in the Elementary School. (3)

Prerequisite: Attainment of admission standards to student teaching; completion of approximately 90 hours of work, Educ. 332, 3331, 3345, or equivalent, plus a major portion of the work in the content courses.

#### 432. Student Observation and Teaching in the Secondary School. (3)

Prerequisite: Attainment of admission standards to student teaching; completion of approximately 90 hours of work, 15 hours of education, including Educ. 330, 332, and 334, plus a major portion of the course work in each of the teaching fields.

#### 436. Teaching in Secondary Schools. (3:3:0)

Prerequisite: Senior classification; Educ. 330, 332, 344, or equivalents. Foundations of teaching, methods and techniques, evaluation, management problems related to teaching.

#### 461. Student Teaching in the Elementary School. (6)

Prerequisite: Attainment of admission standards to student teaching; completion of approximately 90 hours of work, Educ. 332, 3331, 3344, 3345 or equivalents, plus a major portion of the work in the academic specialization courses.

#### 462. Student Teaching in the Secondary School. (6)

Prerequisite: Attainment of admission standards to student teaching; completion of approximately 90 hours of work, 9 hours of education, including Educ. 330, 332, and 334, plus 18 hours of the course work in each of the teaching fields, or 30-36 hours on the 48-hour program.

#### 4341. Teaching Arithmetic in the Elementary School. (3:3:0)

Prerequisite: Educ. 332 and 3331, or equivalents. Bases for programs, methods, and materials.

SECONDARY EDUCATION CURRICULUM  
Bachelor of Science in Education

Students preparing to teach in the secondary school are advised to follow the four-year schedule outlined in the following. Special attention should be given to the selection of teaching fields, since completion of most of the work in these fields is required as a prerequisite to student teaching.

**FRESHMAN YEAR**

			SEMESTER	1st	2nd
Eng.	131	Col. Rhet.		3	
Math.	135	Intro. Col. Math. or			
Math.	133	Col. Alg. or			
Foreign language				3-4	
Hist.	231	Hist. of U.S. to 1865 or			
Govt.	231	Amer. Govt., Org.		3	
Teaching field or elective				3-4	
Psy.	230	Gen. Psy. or			
*P.E.	230	Health Educ. in Elem. & Sec. Schools or		3	
Fine arts					
P.E., Band, or Basic ROTC				1-2	
Eng.	132	Col. Rhet.			3
Hist.	232	Hist. of U.S. since 1865 or			
Govt.	232	Amer. Govt., Func.			3
Math.	131	Trigonometry or			
Math.	136	Elem. or Math. Sys. or			
Foreign language					3-4
Teaching field or elective					3-4
Soc.	230	Intro. to Soc.			3
P.E., Band, or Basic ROTC					1-2
Total credit hours				16-19	16-19

**SOPHOMORE YEAR**

			SEMESTER	1st	2nd
Eng.	231	Mast. of Lit.		3	
**Spch.	239	Spch. Devel. or			
**Phil.	230	Intro. to Phil.		3	
Science--Biol., Chem., Geol., or Phys.				4	
Hist.	231	Hist. of U.S. to 1865 or			
Govt.	231	Amer. Govt., Org.		3	
Teaching field				3	
P.E., Band, or Basic ROTC				1-2	
Eng.	232	Mast. of Lit.			3
Science--Biol., Chem., Geol., or Phys.					4
Hist.	232	Hist. of U.S. since 1865 or			
Govt.	232	Amer. Govt., Func.			3
Teaching field					3
**Phil.	230	Intro. to Phil. or			
**Spch.	239	Spch. Devel.			3
P.E., Band, or Basic ROTC					1-2
Total credit hours				17-18	17-18

**JUNIOR YEAR**

			SEMESTER	1st	2nd
Educ.	330	Found. of Sec. Ed.		3	
Educ.	332	Educ. Psy.		3	
Teaching field				6	
Teaching field				3-6	
Psy.	335	Adol. Psy.			3
Educ.	334	Curric. Devel. in Secon. Educ.			3
Teaching field					6
Teaching field					3-6
Total credit hours				15-18	15-18

**SENIOR YEAR**

			SEMESTER	1st	2nd
Educ.	436	Teach. in Sec. Schools		3	
Educ.	462	Stud. Teaching in Secon. School			
		(may be taken spring or fall)		6	
Teaching field				3	
Teaching field					3
Teaching field					3-6
Educ. electives--Educ. 430, 4315, 438, or 4331					6
Free electives					6
Total credit hours				15	15-18

\*Only one required--if P.E. 230 chosen, should be scheduled at later time.

\*\*Student should take Speech 239 one semester of sophomore year, and Philosophy 230 the other semester.

**4342. Teaching Reading in the Elementary School. (3:3:0)**

Prerequisite: Senior classification; Educ. 332 and 3331, or equivalents; enrollment in, or completion of, Educ. 461. Bases for programs, methods, and materials.

**4343. Teaching Science in the Elementary School. (3:3:0)**

Prerequisite: Educ. 332 and 3331, or equivalents. Bases for programs, methods, and materials.

**FOR UNDERGRADUATES AND GRADUATES****430. History and Philosophy of Education. (3:3:0)**

Prerequisite: Senior classification and 9 hours of education. Influences of historical developments and philosophical concepts upon education as the foundation of our American democracy.

**438. Educational Measurement and Evaluation. (3:3:0)**

Prerequisite: Senior classification and 9 hours in education. A foundation course in problems of measurement and evaluation by the classroom teacher in the public schools.

**4315. Audio-Visual Education. (3:3:1)**

Prerequisite: 9 hours of education. A general course with emphasis on operation and care of equipment; methods and techniques in using communicative materials in teaching-learning; and adaptation of equipment and materials to elementary and secondary teaching levels. \$3 service fee. Lab one hour per week required.

**4331. Foundations of Educational Sociology. (3:3:0)**

Prerequisite: Senior classification and 9 hours in education. Principles of educational sociology essential to an understanding of the social, economic, civic, and cultural functions of education in our democratic society.

**4338. Foundations of Special Education. (3:3:0)**

Prerequisite: Senior classification, 12 hours in education, and Psy. 331. Education for exceptional children, including major developments in special education.

**4339. Teaching the Exceptional Child. (3:3:0)**

Prerequisite: Senior classification, 12 hours in education, including educational psychology, and Psy. 331. Curriculum, materials, and methods of teaching the exceptional child—deaf, orthopedic, educable and trainable mentally retarded.

**4344. Children's Literature. (3:3:0)**

Prose and poetry for children under 12, including standards for judging and criteria for selecting children's books.

**FOR GRADUATES****5139. Advanced Education Workshops in Teaching and Administration.**

(1)

Prerequisite: 18 hours in education and educational psychology, and experience as a teacher or administrator. Workshops on guidance, budgeting, school business services, audio-visual education, curriculum, special education, etc.

**530. Advanced Educational Psychology. (3:3:0)**

Prerequisite: 18 hours of education and educational psychology. Emphasis on the application of educational psychological principles to teaching at all levels.

**532. Philosophy of Education. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology. Major social philosophies and their application to the field of education in the United States.

**533. General Public School Administration. (3:3:0)**

Prerequisite: 18 hours of education and educational psychology. Principles and problems involved in the organization and administration of the public schools.

**534. Advanced Educational Sociology. (3:3:0)**

Prerequisite: 18 hours in education, including 3 hours in educational sociology. Sociological principles as basic knowledge in professional education.

**536. Elementary School Administration. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology. Elementary school organization, personnel, curriculum development, details of modern administration and supervision.



**537. Secondary School Administration. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology. Curriculum function of administration, developing the master schedule, personnel guidance, finance, and related aspects of organization.

**538. Administration of Audio-Visual Services. (3:3:0)**

Prerequisite: 18 hours in education, including Educ. 4315 or 5311 or equivalent. State, regional, and local audio-visual programs; procedures in budgeting, selection, procurement, accounting, distribution, and care of audio-visual materials and equipment, preparation of personnel, and facilities for audio-visual centers.

**539. Administration of School Business Services. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology, including Educ. 533, or equivalent. Internal business management of schools, including activity funds, teacher welfare, special services, lunchroom, transportation, and purchasing and accounting of supplies and materials.

**5311. Audio-Visual Education. (3:3:1)**

A general course with emphasis on methods and materials of educational technology. Laboratory, one hour per week, required. Not acceptable for credit in addition to Educ. 4315. \$3 service fee.

**5312. Supervision in the Elementary School. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology including Ed. 5371. Supervision in the elementary school with emphasis on problems and procedures.

**5313. Supervision in the Secondary School. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology including Ed. 5371. Problems and procedures of supervision in the secondary school.

**5316. The Junior College. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology. The junior college in terms of terminal education and senior college preparation. Development of junior college programs.

**5317. The Junior High School. (3:3:0)**

Prerequisite: 18 hours of education and educational psychology. The philosophy, organization, program, special problems, and emerging role of the junior high school.

**5318. Selection and Evaluation of Audio-Visual Materials. (3:3:0)**

Prerequisite: 18 hours in education, including Educ. 4315 or 5311 or equivalent. Commercially prepared audio-visual materials for use in teaching the various subject areas. Special emphasis given to selection, classification of educational motion picture film and filmstrip, and to preparation of study guides.

**5319. Audio-Visual Production. (3:3:0)**

Prerequisite: 18 hours in education, including Educ. 4315 or 5311 or equivalent. Production, application, and integration of photographic, graphic, three-dimensional, and recorded materials in school programs.

**5321. Individual Study in Education. (3:3:0)**

Prerequisite: Advanced graduate classification, educational psychology, and approval of advisory committee. Individual study on special aspects of professional education. May be repeated once for credit.

**5322. Foundations of Educational Research. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology. Methods of educational research; methods of obtaining, processing, interpreting, and utilizing significant educational data.

**5323. Advanced Educational Statistics. (3:3:0)**

Prerequisite: 3 hours in educational statistics. Application of statistical analysis to educational data; use of certain statistical procedures to interpret the values of research, and the numerical and pictographic presentation of attributes and variables.

**5325. Legal Bases of Education. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology, and Educ. 533. Legal structure of education in America, with emphasis on school laws in Texas.

**5326. Reading Development in the Elementary School. (3:3:0)**

Prerequisite: Graduate classification in education. Nature of the reading process; methods and materials for developing this process.

**5331. Human Development in Education. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology. Biological, social, and psychological interrelationships and implications for classroom teaching and learning at all levels.

**5334. Teaching Reading in the Secondary School. (3:3:0)**

Prerequisite: 12 hours in education and educational psychology. The reading process, methods of teaching reading; emphasis on the development of reading skills in content fields, and implementation and evaluation of a reading program.

**5341. Developing Arithmetic Programs in Elementary Education (3:3:0)**

Prerequisite: 18 hours in education and educational psychology. The development of arithmetic and its educative function in the elementary school curriculum.

**5342. Developing Reading Programs in Elementary Education. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology and a course in the teaching of reading. Psychological and research bases for developing reading programs in the elementary school.

**5343. Developing Natural and Physical Environment Concepts in Elementary Education. (3:3:0)**

Prerequisite: 18 hours of education, and 6 hours of science. Methods and materials for helping children develop an understanding of their natural and physical environment.

**5344. Developing Language Arts Programs in Elementary Education (3:3:0)**

Prerequisite: 12 hours of English and/or speech, including 6 hours of English composition; 18 hours of education. Practical applications of research findings and modern theory as related to teaching and organizing the language arts in the elementary school.

**5345. Developing Social Studies Programs in Elementary Education. (3:3:0)**

Prerequisite: 18 hours of education. Objective, patterns, and principles of organization of social studies in the elementary schools, including teaching materials and procedures.

**5346. Advanced Curriculum Development. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology. Fundamental bases for curriculum development growing out of the knowledge of human growth and development, nature of the learning process, school-community relationships, and current social and economic problems.

**5349. Organizing and Administering the Instructional Improvement Program. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology, and Educ. 5346, or equivalent. Principles and procedures of organizing programs of system-wide curriculum and instructional improvement.

**5351. General Education Seminar. (3:3:0)**

Prerequisite: 24 hours of education, and approval of admissions committee of the Department of Education. Survey of the whole field of professional education. Basic course required on the advanced graduate program in education.

**5353. Comparative Education. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology. Educational systems of the major countries in recent and current times; individual attention to problems of special concern.

**5354. Seminar in Education Sociology. (3:3:0)**

Prerequisite: 24 hours in education and educational psychology. Educational sociology; current sociological problems as related to the field of professional education.

**5355. Seminar in Elementary Education. (3:3:0)**

Prerequisite: Advanced graduate classification, 24 hours in education and educational psychology, and consent of advisory committee. Trends in modern elementary education.

**5356. Seminar in Secondary Education. (3:3:0)**

Prerequisite: 24 hours in education and educational psychology. Trends in modern secondary education.

**5357. The Administration of the Junior College. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology, including 3 hours in educational administration or supervision. Major principles, organizations, problems, techniques, and trends in the administration of the junior college.

**5359. Seminar in Supervision. (3:3:0)**

Prerequisite: 24 hours in education, including Ed. 5312 and Ed. 5313. Principles and current practices in the field of supervision.

**5363. Problems in Audio-Visual Education. (3:3:0)**

Prerequisite: 24 hours in education, including Educ. 4315 and two advanced courses in audio-visual education. Practical problems in planning audio-visual education programs for a variety of school systems and intermediate service agencies; research in the field of audio-visual education.

**5364. Seminar in Education Psychology. (3:3:0)**

Prerequisite: Graduate classification, 24 hours of education, including advanced educational psychology, and consent of instructor. An intensive study, research analysis, and synthesis in the field of educational psychology.

**5366. The Administration of School Staff Personnel. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology, including Educ. 533. Principles and procedures in selection, organization, and administration of school personnel; evaluation of teaching efficiency, merit rating and in-service education.

**5367. School Finance. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology, including Educ. 533, 539, or equivalent. Basic theories, principles, and problems in school finance as applied to taxation, budgeting, school construction, operation, and maintenance.

**5368. School Housing. (3:3:0)**

Prerequisite: Limited to majors in educational administration, completion of at least 15 hours of advanced education, including Educ. 533, 536, and 537, and consent of the instructor. Determination of school building needs based upon the school program and nature of the community; essential educational and architectural services; evaluation of existing school facilities; developing the school building master plan; the financial plan; contracting and construction; utilization; operation and maintenance.

**5369. School Public Relations. (3:3:0)**

Prerequisite: 18 hours of education, including Educ. 533. Cooperative development of school-community relationship and mutual understanding of the school's purposes, functions, achievements, and needs; emphasis on problems of organization, use of media, processes, citizen advisory committees, and evaluation.

**5371. General Supervision. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology. Principles, planning, organizations, and processes of supervision in both elementary and secondary schools.

**5372. Developing the School Guidance Program. (3:3:0)**

Prerequisite: 12 hours in education and educational psychology. Designed to acquaint the classroom teacher, principal, and counselor with the understanding and knowledge needed in organizing a school guidance program to serve the needs of students for both the elementary and secondary levels.

**5373. Educational Evaluation. (3:3:0)**

Prerequisite: 18 hours in education and educational psychology. Bases and techniques of appraisal, tests, polls, measurement, data treatment, and interpretation. Utilization of individual and group processes and action in continuing programs of educational evaluation.

**5382. Guidance and the Classroom Teacher. (3:3:0)**

Prerequisite: Graduate classification and 18 hours in education. Philosophy and principles of guidance emphasizing the role of the teacher. Role playing and case study approaches including individual and group techniques. Test interpretation for the classroom teacher. Individualized program planning for teachers at all educational levels.

**630. Master's Report. (3)****631. Master's Thesis. (3)**

Enrollment required at least twice.

**635. Internship in Educational Administration. (3)****636. Internship in Educational Administration. (3)****731-732. Research. (3 each)****831. Doctor's Dissertation. (3)**

Enrollment required at least four times.

## Department of English

Everett A. Gillis, *Head of the Department*

Office: B.A. 125

*Professors:* James George Allen, Roger Leon Brooks, Andrew Scott Cairncross,\* Truman Wildes Camp, Berthold Claudio Friedl,\* Alan Murray Finlay Gunn, Joseph Thomas McCullen, Kline Allen Nall, Warren Stanley Walker

*Associate Professors:* Mary Sue Carlock, Kenneth Waldron Davis, Floyd Eugene Eddleman, Lola Beth Green, William Durward Norwood, Jac Lyndon Tharpe

*Assistant Professors:* Joe Wilkes Berry, Mary Louise Brewer, Clyde Leroy Grimm, Ruth Donald Jackson, Merton Pruett King, Quanah Belle Lewis, Marie Agnes Miles, Ruth Wilson Russell, Henry Eli Speck, Grace Pleasant Wellborn

*Instructors:* Meredith Eugene Aker,\*\* Beverly Dianne Brian,\*\* Myrtle Louise Browne,\*\*\* Leona Ford Dale, Henry Wilton Gautreau, John Everett Godfrey, Jack Octa Hazlerig, Carol Anne Hilton,\*\*\*\* Alan Kent Jones, Thomas Alexander Langford, Florence Manley McNeill, Mary Lou Rawlings, Emma Barrett Reeves, James Arthur Rushing, Stella Prude Smith, Jeri Tanner,\*\*\*\*\* Dahlia Jewell Terrell,\*\*\*\* Lenore Mickey Tunnell

\* Visiting, 1965-1966.

\*\* Part-time, 1965-1966.

\*\*\* Fall Semester, 1965.

\*\*\*\* On leave, 1965-1966.

\*\*\*\*\* Spring Semester, 1966.

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: ENGLISH, *Bachelor of Arts*, *Master of Arts*, *Doctor of Philosophy*.

The English Department has, by appointing as visiting professors outstanding scholars in the field of English studies, both enriched its program and offered its faculty and students stimulating and challenging association with such eminent individuals as Jay B. Hubbell, noted American literature specialist, James Holly Hanford, distinguished Milton scholar, and Karl Reuning, specialist in Linguistics.

Continuing its efforts to enrich both the advanced undergraduate and the graduate courses offered to students of English, the Department has appointed Andrew S. Cairncross, Renaissance specialist, and Berthold C. Friedl, specialist in Linguistics.

Through the sponsorship of the local chapter of Sigma Tau Delta, national English honorary, and the Graduate English Club, awards are presented annually for the best freshman essay, for the highest scholastic average in English of a graduating senior English major, and for the most outstanding master's thesis. In addition, prizes in creative writing are offered, and the winning entries published in *The Harbinger*, Department literary magazine.

English majors should report to the Department Head or the chairman of undergraduate studies in English to be assigned a major professor for academic advisement. English 131-132 or 133-134 (see "Special Provisions for Entering Freshmen," below) and 231, 232, are prerequisites for all English major or minor programs for the B.A. Degree. Majors must offer for graduation a minimum of 21 hours in English above the freshman-sophomore level. The program will include:

A. At least one course from each of the following:

- I. English literature before 1700: 333, 330, 3314, 335, 433, 434, 4331, 336H, 431H
- II. English literature after 1700: 338, 339, 3315, 3322, 3327, 4337
- III. American literature: 3323, 3324, 3325, 3326, 3329, 3341, 4341, 4343, 337H, 432H
- IV. Comparative literature, language, linguistics: 331, 332, 334, 3337, 3338, 438, 439, 4332, 4333, 4336, 4343, 4344, 4345, 4349, 4355

B. A concentration of two additional courses in one of the four groups listed above.

C. One additional course selected from the four groups.

English minors must offer 18 hours, including at least 6 hours of advanced work.

For electives, students who have completed their degree requirements in English may select any 300- or 400-level course.

To receive credit toward graduation, a student who is an English major or minor must receive at least a C on all advanced courses.

## Special Provisions for Entering Freshmen

Six hours of freshman English (131-132 or 133-134) are prerequisites for all sophomore courses (231, 232, 233) except under conditions described below.

Early in his senior year in high school, a student planning to take either the Advanced Placement or the Achievement Examination should make arrangements with the College Board Advanced Placement Examinations, Box 592, Princeton, New Jersey. If he chooses to take the Achievement Examination for purposes of receiving credit for a course (or courses) not taken, he should submit a writing sample as a part of the examination.

Entering freshmen who receive a rank of 4 or 5 on the CEEB Advanced Placement Examination or make a score of 650 or above on the Achievement Examination and submit a writing sample judged superior will receive credit for 6 hours of freshman English.

Entering freshmen who take the CEEB Advanced Placement Examination and are awarded a rank of 3 or who take the Achievement Examination and make a score of 575 or above and submit a writing sample judged superior, may elect either (1) to receive credit without grade for English 133 and enroll in English 134 to complete their requirements in freshman English, or (2) to enroll in proficiency sections of sophomore English in lieu of freshman English and complete their required hours of English in advanced courses.

Entering freshmen scoring 450 or above on the Achievement Examination or 575 or above on the verbal portion of the Scholastic Aptitude Test (SAT) are eligible for English 133, Advanced Composition and Literature. If a student receives a C or better in English 133, he is eligible to take English 134. A student taking English 133 and making D will enroll in English 132. A student failing English 133 will take English 131, and is not eligible to take English 133 again. A student who takes English 131 and makes an A in the course is eligible to take English 134 to complete his freshman English.

## Honors Work in English

The Department of English fully participates in the Honors Program in the School of Arts and Sciences, and offers, in addition to English 133-134, special Honors sections of English 231 and 232; English 336H, 337H (Junior Honors Seminar); and English 431H, 432H (Senior Honors Seminar). The Senior Honors Seminar includes an oral comprehensive examination and the writing of an Honors thesis.

## Teacher Certification

The Department of English offers programs leading to teacher certification on the secondary and elementary levels for students seeking the degrees of Bachelor of Arts or Bachelor of Science in Education. The grade of C on all advanced courses is a minimum requirement. Students seeking certification with the Degree of Bachelor of Arts will consult with the chairman of undergraduate studies; students seeking certification with the Bachelor of Science in Education will consult with the chairman of Teacher Certification in English.

For the English major seeking the Degree of Bachelor of Arts and teacher certification on the secondary level, the program will include 7 advanced courses as follows:

- A. At least one course from each of the following:
  - I. English literature before 1700: 330, 331, 333, 335, 336H, 433, 434, 4331, 431H
  - II. English literature after 1700: 338, 339, 3315, 3322, 3327, 4337
  - III. Comparative literature, literary criticism, methods: 331, 332, 334, 4332, 4333, 4344, 4336, 4349, 4355
  - IV. Language: 3337, 3338, 438, 439
- B. At least two courses from the following: 3323, 3324, 3325, 3326, 3329, 3341, 4341, 4343, 337H, 432H
- C. One additional course from the groups listed under A or B above.

For students seeking the Degree of Bachelor of Arts with a major other than English but who wishes to be certified to teach English on the secondary level, the program will include 6 advanced courses as follows:

- A. At least one course from each of the following:
  - I. English literature before 1700: 330, 333, 331, 335, 336H 433, 434, 4331, 431H
  - II. English literature after 1700: 338, 339, 3315, 3322, 3327, 4337
  - III. Comparative literature, linguistics, methods: 331, 332, 334, 4332, 4333, 4336, 4344, 4345, 4349, 4355

IV. Language: 3337, 3338, 438, 439

- B. Two courses from the following: 3323, 3324, 3325, 3326, 3329, 3341, 4341, 4343, 337H, 432H

For the student seeking the Degree of Bachelor of Science in Education with certification to teach English on the secondary level, the program will include 6 advanced courses as follows:

- A. At least one course from each of the following:

I. English literature before 1700: 330, 333, 3314, 335

II. English literature after 1700: 338, 339, 3315, 3322

III. Language: 3337, 3338, 438, 439

IV. Comparative literature, literary criticism, methods: 331, 332, 4332, 4333, 4336, 4344, 4345, 4349, 4355

- B. One course from the following: 3323, 3324

- C. One course from the following (a student may elect to take both courses under B above and omit C): 3325, 3326, 3329, 3341, 4341, 4343, 337H, 432H

For students seeking the Degree of Bachelor of Arts with a major in English and with certification to teach on the elementary level, the program will include the following:

- A. Completion of the requirements for the Degree of Bachelor of Arts with a major in English.

- B. Completion of courses and requirements in professional education as described in the section on Teacher Education in Part I of this Catalog.

- C. Completion of specific courses (selected from those contained in the program for an English major) as follows:

Plan I. English Specialization. One course required from each of the following groups:

1. 3323, 3324
2. 3337, 3338, 438, 439
3. 4337

Plan II. English Specialization. One course required from each of the following groups:

1. 335
2. 3323, 3324
3. 3337, 3338, 438, 439
4. 4337

Students seeking the Degree of Bachelor of Science in Education with elementary certification in English may elect either Plan I or Plan II as follows:

Plan I. English Specialization. One course required from each of the following groups:

1. 3323, 3324
2. 3337, 3338, 438, 439
3. 4337

**Plan II. English Specialization.** One course required from each of the following groups:

1. 335
2. 3323, 3324
3. 3337, 3338, 438, 439
4. 4337

**NOTE:** Substitutions of English courses in any certification plan described above may be made only with the permission of the Department of English.

## Courses in English

### FOR UNDERGRADUATES

#### 131-132. College Rhetoric. (3:3:0 each)

Training in correct and effective writing and in efficient, accurate reading.

#### 133-134. Advanced Composition and Literature for Freshmen. (3:3:0 each)

An honors-level course designed for those who demonstrate competence in English composition as measured by the College Board Examination.

#### 231, 232. Masterpieces of Literature. (3:3:0 each)

231: Representative works of Greek dramatists, Chaucer, Shakespeare, and Milton.

232: Six or eight masterpieces selected from the works of writers of the eighteenth, nineteenth, and twentieth centuries.

#### 233. Technical Writing. (3:3:0)

Preparation of oral and written reports in scientific and technical fields.

#### 330. Early English Literature: "Beowulf" through Malory. (3:3:0)

#### 331. Short Story. (3:3:0)

The short story as a literary form.

#### 332. Introduction to Literary Criticism. (3:3:0)

Theories and traditions of literary criticism.

#### 333. English Literature of the Seventeenth Century. (3:3:0)

#### 334. Creative and Professional Writing. (3:3:0)

Prerequisite: B or better in freshman English.

#### 335. Shakespeare. (3:3:0)

Offered each semester of long session. The content in the second semester will in no way duplicate that of the first. May be repeated once for credit with the permission of department.

#### 336H. Junior Honors Seminar. (3:3:0)

Honors Studies in English literature.

#### 337H. Junior Honors Seminar. (3:3:0)

Honors studies in American literature.

#### 338. English Literature of the Eighteenth Century. (3:3:0)

#### 339. English Romanticism. (3:3:0)

#### 3314. Literature of the English Renaissance. (3:3:0)

Poetry and prose from 1500 to 1603.

#### 3315. The Victorians. (3:3:0)

English poetry and prose of the Victorian era.

#### 3322. British Literature of the Twentieth Century. (3:3:0)



**3323. American Literature and its Backgrounds. (3:3:0)**

American literature from its beginnings through Whitman.

**3324. American Literature and its Backgrounds. (3:3:0)**

American literature from the advent of realism to the present.

**3325. American Novel. (3:3:0)**

Representative works of major American novelists.

**3326. American Literature of the Twentieth Century. (3:3:0)****3327. English Novel. (3:3:0)**

Representative works of major English novelists.

**3329. Major American Poets. (3:3:0)**

Introduction to American poetic traditions through a study of representative works of major American poets.

**3337. Advanced Grammar. (3:3:0)****3338. Introduction to Linguistic Science. (3:3:0)****3341. Survey of American Folklore. (3:3:0)****431H, 432H. Senior Honors Seminar. (3:3:0 each)****FOR UNDERGRADUATES AND GRADUATES\*****433. Chaucer. (3:3:0)**

Chaucer's works and career, with emphasis upon "The Canterbury Tales," "Troilus and Criseyde," and selected minor poems.

**434. Milton and His Age. (3:3:0)**

Milton's poetry and prose.

**438. History of the English Language. (3:3:0)**

An historical and descriptive survey of the English language, in the context of the cultural development of the English-speaking peoples.

**439. American English. (3:3:0)**

History, characteristics, and dialects of the English language in America.

**4331. Pre-Shakespearean Drama. (3:3:0)**

From the beginnings of English drama through Marlowe.

**4332. History of Literary Criticism. (3:3:0)****4333. Philosophical Ideas in Literature. (3:3:0)**

The evolution of philosophical ideas in English and American literature. May be repeated once for credit with permission of department.

**4336. Teaching English in Secondary Schools. (3:3:0)****4337. English Literary History: A Synthesis. (3:3:0)**

A comprehensive view of English literature from beginnings to the present.

**4341. Regional Literature of the United States. (3:3:0)**

Topics: Southwestern, Southern, and other regional literatures of the United States.

**4343. Modern American and European Drama. (3:3:0)**

Representative modern plays. Topics: continental and British drama from Ibsen, Wilde, and Shaw to the present; American drama of the twentieth century. May be repeated once for credit with permission of department as topics vary.

**4344. Comparative Literature. (3:3:0)**

Comparative themes and motifs in the history of ideas.

**4345. Comparative Literature. (3:3:0)**

Comparative studies in types and genres.

\* Normally credit for graduate minors only.

**4349. Ancient and Medieval Literature. (3:3:0)**

Representative literature, ancient and medieval, in English translations.

**4355. Modern Continental Literature. (3:3:0)**

Representative literature of continental Europe from fourteenth through the twentieth centuries, in English translations.

**FOR GRADUATES\*****530. Studies in Medieval Literature. (3:3:0)****531. Studies in Comparative Literature. (3:3:0)****532. Teaching of College English. (3:3:0)****533. Studies In Renaissance Literature. (3:3:0)****534. Old English. (3:3:0)****535. Studies in Early Victorian Literature. (3:3:0)****538. Studies in Early English Romantics. (3:3:0)****539. Studies in the Neo-Classical Age. (3:3:0)****5311. Studies in Seventeenth Century Literature. (3:3:0)****5312. Studies in Drama. (3:3:0)****5313. Studies in Modern European Literature. (3:3:0)****5314. Studies in Literary Criticism. (3:3:0)****5315. Studies in Folklore. (3:3:0)****5318. Studies in Eighteenth Century American Literature. (3:3:0)****5319. Studies in Shakespeare. (3:3:0)****5322. Studies in Modern British Literature. (3:3:0)****5323. Studies in Nineteenth Century American Literature. (3:3:0)****5324. Studies in Twentieth Century American Literature. (3:3:0)****5325. American Novel to 1900. (3:3:0)****5326. American Novel since 1900. (3:3:0)****5329. Studies in Modern Poetry. (3:3:0)****5335. Principles of Language. (3:3:0)****5337. Studies in Linguistics. (3:3:0)****5351. Studies in Later Victorian Literature. (3:3:0)****5381. Studies in Later English Romantics. (3:3:0)****5391. Studies in the Age of Johnson. (3:3:0)****630. Master's Report. (3)****631. Master's Thesis. (3)**

Enrollment required at least twice.

**731, 732. Research. (3 each)****831. Doctor's Dissertation. (3)**

Enrollment required at least four times.

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\* Graduate courses may be repeated for credit with permission of department as topics vary.

## Department of Foreign Languages

Harley D. Oberhelman, *Head of the Department*  
Office: Ad. 212

*Professors:* Faye Laverne Bumpass, Thomas Earle Hamilton, Carl Hammer, Jr., Ferdinando Dante Maurino, Harley Dean Oberhelman, Harold Lester Simpson, Alfred Bell Strehli, Scotti Mae Tucker

*Associate Professors:* Theodor Walter Alexander, Peder George Christiansen, Arren Maynor Hardee, Alexander Pope Hull, Jr., Henry James Maxwell

*Assistant Professors:* Beatrice Witte Alexander, Peter Drago Bublesko, Alice Maria Kent Collins, Louis Thomas Jardine, Leonid Aurelijs Jirgensons, Sheldon Charles Klock, Jr.,\* William Taylor Patterson,\* Frank Doster Wetherill, Wolodymyr Taras Zyla

*Instructors:* Laura Ballew, Victor Fabri Diaz,\*\* Frank Dietze, Jr.,\*\*\* Evelyn Lucille Forrest,\*\*\* Jean Henri Artois Pieraerts,\*\*\* Antoinette Marie Tejada, Lisbeth Eva Esslinger Zahawi\*\*\*

\* On leave, 1965-1966.

\*\* Spring Semester, 1966.

\*\*\* Part-time.

This department supervises the *Bachelor of Arts* degree programs described in Part I of this Catalog in FRENCH, GERMAN, LATIN, and SPANISH, and the *Master of Arts* programs described in the *Graduate Catalog* in FRENCH, GERMAN, and SPANISH. The department also participates in the BILINGUAL SECRETARIAL and LATIN AMERICAN AREA STUDIES programs leading to the *Bachelor of Arts* degrees.

An undergraduate major in French, German, Latin, or Spanish consists of 33 hours in one language. In the case of Latin, 6 hours of Greek are required as part of the 33 hours. A minor may be obtained in French, German, Greek, Italian, Latin, Portuguese, or Spanish. Normally, a minimum of 18 hours in one language is required, including at least 3 hours at the 400 level; however, students who present three or four units of a single foreign language from high school may enter courses numbered 331 in the same language and complete a 12-hour minor by offering 6 hours of 300 courses and 6 of 400 courses. This 12-hour minor also fulfills the foreign language requirement for the Bachelor of Arts Degree.

Students who wish to major or minor in a foreign language should consult the Head of the Department. At least a C average in all language courses is required of both majors and minors. For majors, a grade of at least C in courses numbered 400 or above is required.

Courses numbered 131 or 141 suppose no previous study in the language. Students who have had two years (i.e., two units) of one language in high school, and who wish to continue the same language, should enroll for the 231 course. Those who have had three or four years of one language in high school and who wish to continue the same language should enroll for the 331 course.

Students must complete 12-14 semester hours in the same language. Courses at the 100 level may not be taken for credit if a student has studied the language offered for two or more years in high school. A foreign student who graduated from a secondary school in his native country may not receive credit for a course in his native language which is numbered below 400.

## Teacher Education

For purposes of certification, teaching fields are offered in French, German, Latin, and Spanish. The minimum standard program requires 24 hours of courses numbered 200 and above which must include 9 hours of 400 courses and Methods 4311.

## Advanced Placement

Students who satisfactorily complete a high school program of advanced study in French, German, Latin, or Spanish under the Advanced Placement Program of the College Entrance Examination Board may be eligible for the CEEB advanced placement examination which could give them 3 to 6 hours of college credit. Such students should request that the results of their examination be sent to the Department of Foreign Languages where they will be reviewed and where credit will be granted according to the following criteria: Students making scores of 2 and 3 will receive 3 hours of credit equivalent to the 331 courses in the language presented. Students making scores of 4 and 5 will receive 6 hours of credit equivalent to the 331 and 332 courses in the language presented.

## Methods of Instruction

In courses in the modern languages, the language studied is used in the classroom as much as possible. Extensive use is made of a variety of audio-visual resources, and two language laboratories are available to provide an opportunity for individual practice and drill.

## Special Note

All courses numbered 100 through 200, except Latin 133, require the completion of the second semester in order to receive credit for the first.

## Courses in French

### FOR UNDERGRADUATES

#### 141-142. A Beginning Course in French. (4:3:2 each)

Oral practice, elementary reading, and grammar.

#### 231-232. A Second Course in French. (3:3:0 each)

Prerequisite: Fren. 141-142, or two units of high school French. Reading, cultural background, conversation, and composition.

#### 331, 332. Introduction to French Life and Literature. (3:3:0 each)

Prerequisite: Fren. 231-232, or the equivalent. A survey of French literature and culture. Conversation, composition, and grammar review. Conducted in French.

## FOR UNDERGRADUATES AND GRADUATES

**430. Advanced Grammar, Composition, and Conversation. (3:3:0)**

Prerequisite: Fren. 331 and 332, or the equivalent, or taken concurrently with 331 or 332. A review of important grammatical constructions and idioms, with both oral and written practice. Required of French majors. Conducted in French.

**433. The Literature of the Nineteenth Century. (3:3:0)**

Prerequisite: Fren. 331 and 332, or the equivalent. Literature of the nineteenth century exclusive of the drama, from the Romantic to the Naturalistic Movement. Conducted in French.

**434. The Literature of the Nineteenth Century. (3:3:0)**

Prerequisite: Fren. 331 and 332, or the equivalent. Literature from Naturalism to 1914. Conducted in French.

**435. Readings in French Language and Literature I. (3:3:0)**

Prerequisite: Fren. 331 and 332, or the equivalent. Readings in sixteenth century French literature. May be repeated for credit with consent of instructor. Conducted in French.

**436. Readings in French Language and Literature II. (3:3:0)**

Prerequisite: Fren. 331 and 332, or the equivalent. This course is designed to cover readings in French poetry as a genre. Conducted in French.

**437. Twentieth Century Novel. (3:3:0)**

Prerequisite: Fren. 331 and 332, or the equivalent. A survey of the novel from Proust to Robbe-Grillet. Conducted in French.

**438. Twentieth Century Drama and Poetry. (3:3:0)**

Prerequisite: Fren. 331 and 332, or the equivalent. A survey of poetry from Baudelaire to Char and a survey of drama from Cocteau to Ionesco. Conducted in French.

**4311. The Classical Theater. (3:3:0)**

Prerequisite: Fren. 331 and 332, or the equivalent. A study of the drama from 1636 to 1700. Conducted in French.

**4312. Eighteenth Century Literature. (3:3:0)**

Prerequisite: Fren. 331 and 332, or the equivalent. A survey of eighteenth century French literature, especially the works of Montesquieu, Diderot, Voltaire, and Rousseau. Conducted in French.

**4315. A Survey of French Classics I. (3:3:0)**

Prerequisite: Fren. 331 and 332, or the equivalent. Drama of the eighteenth and nineteenth centuries. Conducted in French.

**4316. A Survey of French Classics II. (3:3:0)**

Prerequisite: Fren. 331 and 332, or the equivalent. A survey of French seventeenth century prose and poetry. Conducted in French.

**4321. Phonetics and Diction. (3:3:0)**

Prerequisite: Fren. 331 and 332, or the equivalent. Theory and practice of the principles of pronunciation; intensive training in phrasing and intonation; individual laboratory exercises. Conducted in French.

## FOR GRADUATES

**5312. Studies in French Language and Literature I. (3:3:0)**

Prerequisite: Consent of Department Head. The contents of this course, through concentration on a literary genre, school, or linguistic topic, will vary to meet the needs of the particular group of students. May be repeated for credit.

**5313. Studies in French Language and Literature II. (3:3:0)**

Prerequisite: Consent of Department Head. The contents of this course, through concentration on a literary genre, school, or linguistic topic, will vary to meet the needs of the particular group of students. May be repeated for credit.

**630. Master's Report. (3)****631. Master's Thesis. (3)**

Enrollment required at least twice.

## Courses in German

## FOR UNDERGRADUATES

**141-142. A Beginning Course in German. (4:3:2 each).**

Oral practice, elementary reading, and grammar.

**231-232. A Second Course in German. (3:3:0 each)**

Prerequisite: Ger. 141-142, or two units of high school German. Reading, cultural background, conversation, and composition. Ger. 231-232 and 233-234. may not both be counted toward a degree.

**233-234. Scientific German. (3:3:0 each)**

Prerequisite: Ger. 141-142, or two units of high school German. Reading of specially prepared scientific texts with grammar review to assist in the interpretations. For pre-medical and science students. Ger. 231-232 and 233-234 may not both be counted toward a degree.

**331, 332. Introduction to German Life, Literature, and Science. (3:3:0 each)**

Prerequisite: Ger. 231-232 or 233-234, or equivalent. Representative short stories, novels, dramas, and lyrics. Composition and conversation based on readings. Conducted in German.

## FOR UNDERGRADUATES AND GRADUATES

**431. Advanced Grammar, Composition, and Conversation. (3:3:0)**

Prerequisite: Ger. 331 and 332, or the equivalent, or taken concurrently with 331 or 332. A review of important grammatical constructions and phonetic structure. Practice in pronunciation, composition, and conversation. Required of German majors. Conducted in German.

**432. Structure of the German Language. (3:3:0)**

Prerequisite: Ger. 331 and 332, or the equivalent. Phonology, morphology, and syntax of the present standard language.

**433. Nineteenth Century Drama. (3:3:0)**

Prerequisite: Ger. 331 and 332, or the equivalent. Readings in drama from Romanticism to Naturalism, beginning with Tieck and including Hauptmann. Conducted in German.

**434. Nineteenth Century Prose and Poetry. (3:3:0)**

Prerequisite: Ger. 331 and 332, or the equivalent. Readings in narrative prose and lyric poetry from Romanticism through Realism to Impressionism. Conducted in German.

**435. Readings in German Language and Literature I. (3:3:0)**

Prerequisite: Ger. 331 and 332, or the equivalent. Readings in a field of language or literature: Classical Period, Romanticism, Contemporary Period, development of the language. May be repeated for credit with the consent of the instructor. Conducted in German.

**436. Readings in German Language and Literature II. (3:3:0)**

Prerequisite: Ger. 331 and 332, or the equivalent. Readings in a field of language or literature: Classical Period, Romanticism, Contemporary Period, development of the language. May be repeated for credit with the consent of the instructor. Conducted in German.

**4311. Eighteenth Century Literature. (3:3:0)**

Prerequisite: Ger. 331 and 332, or the equivalent. Extensive reading in the literature of the eighteenth century from Rationalism through Classicism, emphasizing Lessing, Goethe, and Schiller. Conducted in German.

**4312. Goethe. (3:3:0)**

Prerequisite: Ger. 331 and 332, or the equivalent. Intensive study of certain works of Goethe, especially his masterpiece, *Faust*. Conducted in German.

**4315. A Survey of German Literature I. (3:3:0)**

Prerequisite: Ger. 331 and 332, or the equivalent. History of German literature from its beginnings through the Classical Age, with representative readings. Conducted in German.

**4316. A Survey of German Literature II. (3:3:0)**

Prerequisite: Ger. 331 and 332, or the equivalent. History of German literature (including that of Austria and German-Switzerland) from Romanticism to the present, with representative readings. Conducted in German.

## FOR GRADUATES

**5312. Studies in German Language and Literature I. (3:3:0)**

Prerequisite: Consent of Department Head. The contents of this course, through concentration on a literary genre, school, or linguistic topic, will vary to meet the needs of the particular group of students. May be repeated for credit.

**5313. Studies in German Language and Literature II. (3:3:0)**

Prerequisite: Consent of Department Head. The contents of this course, through concentration on a literary genre, school, or linguistic topic, will vary to meet the needs of the particular group of students. May be repeated for credit.

**630. Master's Report. (3)****631. Master's Thesis. (3)**

Enrollment required at least twice.

**Courses in Greek**

## FOR UNDERGRADUATES

**131-132. A Beginning Course in Greek. (3:3:0 each)**

Essentials of grammar, reading of easy prose (including selections from the New Testament), Greek mythology and civilization, and building of English vocabulary derived from Greek.

**231-232. A Second Course in Greek. (3:3:0 each)**

Prerequisite: Greek 131-132, or the equivalent. One dialogue of Plato and selections from the *Iliad* or the *Odyssey*. This course begins with a review of Greek grammar.

## FOR UNDERGRADUATES AND GRADUATES

**430. Individual Problems in Greek. (3)**

Prerequisite: Greek 231-232, or the equivalent. Contents will vary to meet the needs of students. May be repeated for credit with the consent of the instructor. Independent reading of Greek literature under the individual guidance of a staff member.

**Courses in Italian**

## FOR UNDERGRADUATES

**131-132. A Beginning Course in Italian. (3:3:0)**

Oral practice, elementary reading, and grammar.

**231-232. A Second Course in Italian. (3:3:0)**

Prerequisite: Ital. 131-132, or the equivalent. Reading, cultural background, conversation, and composition.

## FOR UNDERGRADUATES AND GRADUATES

**430. Individual Problems in Italian. (3)**

Prerequisite: Ital. 231-232, or the equivalent. Contents will vary to meet the needs of the student. May be repeated for credit with the consent of the instructor. Independent work under the individual guidance of a staff member.

**435. Readings in Italian Language and Literature I. (3:3:0)**

Prerequisite: Ital. 231-232, or the equivalent. Contents will vary to meet the needs of students. May be repeated for credit with the consent of the instructor. Major works of selected Italian writers will be read and their importance discussed. Conducted in Italian.

**436. Readings in Italian Language and Literature II. (3:3:0)**

Prerequisite: Ital. 231-232, or the equivalent. Contents will vary to meet the needs of students. May be repeated for credit with the consent of the instructor. Major works of selected Italian writers will be read and their importance discussed. Conducted in Italian.

## Courses in Latin

### FOR UNDERGRADUATES

#### 131-132. A Beginning Course in Latin. (3:3:0 each)

The fundamentals of grammar, easy reading, cultural background, and building of English vocabulary derived from Latin.

#### 133. Latin and Greek Terminology. (3:3:0)

Minimum essentials of Latin and Greek grammar. Analysis of English words by study of Latin and Greek roots, prefixes, and suffixes. Word lists, charts, and myths relating to special subjects. No previous courses in Latin or Greek required. May not be counted in meeting foreign language requirements.

#### 231-232. A Second Course in Latin. (3:3:0 each)

Prerequisite: Lat. 131-132, or two units of high school Latin. Prose selections and Vergil. Begins with a review of Latin grammar.

#### 331, 332. Introduction to Latin Life and Literature. (3:3:0 each)

Prerequisite: Lat. 231-232, or three or four units of high school Latin. Readings in Cicero and Ovid or Vergil. Some elementary prose composition.

### FOR UNDERGRADUATES AND GRADUATES

#### 431. Advanced Composition and Grammar Review. (3:3:0)

Prerequisite: Lat. 331 and 332, or the equivalent, or taken concurrently with 331 or 332. Practice in Latin prose composition. Application of the principles of idiom and advanced grammar. Required of Latin majors.

#### 435. Readings in Latin Literature I. (3:3:0)

Prerequisite: Lat. 331 and 332, or the equivalent. Contents will vary to meet the needs of students. May be repeated for credit with the consent of the instructor. Major works of selected Latin historians will be read and their importance discussed. Sight translation.

#### 436. Readings in Latin Literature II. (3:3:0)

Prerequisite: Lat. 331 and 332, or the equivalent. Contents will vary to meet the needs of students. May be repeated for credit with the consent of the instructor. Major works of selected Latin dramatists and poets will be read and their importance discussed. Sight translation.

## Courses in Portuguese

### FOR UNDERGRADUATES

#### 131-132. A Beginning Course in Portuguese. (3:3:0 each)

Oral practice, elementary reading, and grammar.

#### 231-232. A Second Course in Portuguese. (3:3:0 each)

Prerequisite: Port. 131-132, or the equivalent. Reading, cultural background, conversation, and composition.

### FOR UNDERGRADUATES AND GRADUATES

#### 430. Individual Problems in Portuguese. (3)

Prerequisite: Port. 231-232, or the equivalent. Contents will vary to meet the needs of students. May be repeated for credit with the consent of the instructor. Independent work under the individual guidance of a staff member.

#### 435. Readings in Portuguese and Brazilian Language and Literature I. (3:3:0)

Prerequisite: Port. 231-232, or the equivalent. Contents will vary to meet the needs of students. May be repeated for credit with the consent of the instructor. Major works of selected Portuguese and Brazilian writers will be read and their importance discussed. Conducted in Portuguese.

#### 436. Readings in Portuguese and Brazilian Language and Literature II. (3:3:0)

Prerequisite: Port. 231-232, or the equivalent. Contents will vary to meet the needs of students. May be repeated for credit with the consent of the instructor. Major works of selected Portuguese and Brazilian writers will be read and their importance discussed. Conducted in Portuguese.



## Courses in Russian

### FOR UNDERGRADUATES

#### 141-142. A Beginning Course in Russian. (4:3:2 each)

Oral practice, elementary reading, and grammar.

#### 233-234. A Second Course in Russian. (3:3:0 each)

Prerequisite: Russ. 141-142, or two units of high school Russian. Continued study of grammar, oral practice, composition, and reading.

## Courses in Spanish

### FOR UNDERGRADUATES

#### 141-142. A Beginning Course in Spanish. (4:3:2 each)

Oral practice, elementary reading, and grammar.

#### 231-232. A Second Course in Spanish. (3:3:0 each)

Prerequisite: Span. 141-142, or two units of high school Spanish. Reading, cultural background, conversation, and composition.

#### 331, 332. Masterpieces of the Hispanic World. (3:3:0 each)

History, geography, literary masterpieces, and customs of Spain and Spanish America. Grammar review, composition, and conversation based on readings. Conducted in Spanish.

### FOR UNDERGRADUATES AND GRADUATES

#### 431. Nineteenth Century Prose. (3:3:0)

Prerequisite: Span. 331 and 332, or the equivalent. The novel and the essay of the periods of Romanticism and of Realism. Conducted in Spanish.

#### 432. Nineteenth Century Prose. (3:3:0)

Prerequisite: Span. 331 and 332, or the equivalent. The novel and the short story from the Naturalistic Movement to and including the Generation of 1898. Conducted in Spanish.

#### 433. Modern Drama and Poetry. (3:3:0)

Prerequisite: Span. 331 and 332, or the equivalent. The romantic and social drama, some of the poetry of García Gutiérrez, Duque de Rivas, and Zorrilla. Conducted in Spanish.

#### 434. Modern Drama and Poetry. (3:3:0)

Prerequisite: Span. 331 and 332, or the equivalent. The Realistic Movement in the drama from Benavente to World War I. Conducted in Spanish.

#### 436. Advanced Composition and Conversation. (3:3:0)

Prerequisite: Span. 331 and 332, or the equivalent, or taken concurrently with 331 or 332. Written and oral Spanish, with special attention to accurate and idiomatic expression and practical phonetics. Review of important grammatical constructions. Required of Spanish majors. Conducted in Spanish.

#### 4312. The Prose of the Golden Age. (3:3:0)

Prerequisite: Span. 331 and 332, or the equivalent. The important prose writers from 1499 to 1650. Conducted in Spanish.

#### 4313. The Prose of the Golden Age. (3:3:0)

Prerequisite: Span. 331 and 332, or the equivalent. Cervantes and his "Don Quixote." Conducted in Spanish.

#### 4314. The Drama of the Golden Age. (3:3:0)

Prerequisite: Span. 331 and 332, or the equivalent. Reading of representative plays of the seventeenth century, including works of Lope de Vega, Tirso de Molina, Guillén de Castro, and Mira de Amescua. Conducted in Spanish.

#### 4315. The Drama of the Golden Age. (3:3:0)

Prerequisite: Span. 331 and 332, or the equivalent, and Span. 4314. Reading of representative plays of the seventeenth century, including works of Ruiz de Alarcón, Calderón, Rojas Zorrilla, and Moreto. Conducted in Spanish.

**4316. A Survey of Spanish Literature. (3:3:0)**

Prerequisite: Span. 331 and 332, or the equivalent. The history of Spanish literature in the Middle Ages and Renaissance. Recommended for majors in Spanish. Conducted in Spanish.

**4317. A Survey of Spanish Literature. (3:3:0)**

Prerequisite: Span. 331 and 332, or the equivalent. The history of Spanish literature in the Golden Age and the eighteenth century. Recommended for majors in Spanish. Conducted in Spanish.

**4318. Readings in Contemporary Spanish Literature. (3:3:0)**

Prerequisite: Span. 331 and 332, or the equivalent. A survey of the literary scene in Spain from 1898 to the present. Reading of representative dramatists and poets. Conducted in Spanish.

**4319. Readings in Contemporary Spanish Literature. (3:3:0)**

Prerequisite: Span. 331 and 332, or the equivalent. A survey of the literary scene in Spain from 1898 to the present. Reading of representative prose writers and poets. Conducted in Spanish.

**4321. The Latin American Novel I. (3:3:0)**

Prerequisite: Span. 331 and 332, or the equivalent. A survey of the novel of Latin America from the *Periquillo Sarniento* to the end of the nineteenth century. Reading of representative novels of the Romantic and Modernist movements. Conducted in Spanish.

**4322. The Latin American Novel II. (3:3:0)**

Prerequisite: Span. 331 and 332, or the equivalent. A survey of the novel of Latin America from the period of the Mexican Revolution to the present. Reading of representative novels describing Indian problems, city life, and life on the pampa as well as the psychological novel of contemporary Hispanic America. Conducted in Spanish.

**4323. The Latin American Short Story. (3:3:0)**

Prerequisite: Span. 331 and 332, or the equivalent. The rise and development of the Latin American short story from the period of Independence to the present. Reading of representative short stories of various authors from different regions of Latin America with special emphasis on the works of Ricardo Palma and Horacio Quiroga. Conducted in Spanish.

**4324. Readings in Spanish American Literature and Civilization. (3:3:0)**

Prerequisite: Span. 331 and 332, or the equivalent. The content of this course will vary to meet the needs of the students. May be repeated for credit with the consent of the instructor. Conducted in Spanish.

**4325. Readings in Spanish American Literature and Civilization. (3:3:0)**

Prerequisite: Span. 331 and 332, or the equivalent. The content of this course will vary to meet the needs of the students. May be repeated for credit with the consent of the instructor. Conducted in Spanish.

**4326. Survey of Spanish American Literature. (3:3:0)**

Prerequisite: Span. 331 and 332, or the equivalent. The history of Spanish American literature from colonial days to the Modernist Movement. Conducted in Spanish.

**4327. Survey of Spanish American Literature. (3:3:0)**

Prerequisite: Span. 331 and 332, or the equivalent. The history of Spanish American literature from the Modernist Movement to the present. Conducted in Spanish.

**4328-4329. Spanish Civilization. (3:3:0 each)**

Prerequisite: Span. 331 and 332, or the equivalent, and consent of the instructor. A study of the various phases of pre-Hispanic and Spanish civilizations in Mexico: history, arts, language, literature, and customs. Offered in alternate summers in Mexico.

**FOR GRADUATES****5312. Studies in Spanish and Spanish American Literature. (3:3:0)**

Prerequisite: Consent of Department Head. The nature and content of this course will vary to meet the needs of individual students. Credit given as often as course is repeated.

**5313. Studies in Spanish and Spanish American Literature. (3:3:0)**

Prerequisite: Consent of Department Head. The nature and content of this course will vary to meet the needs of individual students. Credit given as often as course is repeated.

**541-542. Summer Language Institute. (4:21:25 each)**

Prerequisite: Graduate standing, permission of the director, and selection on a competitive basis. Advanced study of the area, civilization, language, and culture. Applied linguistics and methodology. Investigations, field work, reports.

**630. Master's Report. (3)**

**631. Master's Thesis. (3)**

Enrollment required at least twice.

**Courses in Methods**

**FOR UNDERGRADUATES AND GRADUATES**

**4311. Teachers' Course in Methods of Teaching Foreign Languages. (3:3:0)**

Prerequisite: Fren., Ger., or Span. 331 and 332, and 6 semester hours of education. Instruction in linguistic analysis as related to the teaching of foreign languages, with as much practice work as possible. Required of majors and minors seeking teacher certification.

**FOR GRADUATES**

**5311. Techniques in Foreign Language Teaching. (3:3:0)**

Prerequisite: Consent of Department Head. Study of language teaching materials. Linguistic analysis and preparation of drills based on current texts.

**5335. Spanish for the Elementary School. (3:3:0)**

Prerequisite: As a part of the composite minor or for credit in education, no prerequisites are necessary; a student who wishes to apply this course toward a major or minor in Spanish must have completed Span. 331 and 332 or the equivalent. Spanish language and culture for elementary school children. Songs, games, dances, and children's literature.

**Department of Geosciences**

Richard Benjamin Mattox, *Head of the Department*  
Office. Sci. 154-B

*Professors:* William Burnside Arper, John Paul Brand,  
Dan E. Feray, Richard Benjamin Mattox, Grover  
E. Murray, Deskin Hunt Shurbet, Jr., Franklin  
Alton Wade

*Associate Professors:* Rae Lawrence Harris, Jr., Alonzo  
David Jacka, Karl Walter Klement, William  
Donald Miller, William Thomas Parry

*Assistant Professors:* Corwin C. Reeves, Jr., T. Karl  
H. Wuerschling, Vestal Liarly Yeats

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: *GEOCHEMISTRY, Bachelor of Science*; *GEOLOGY, Bachelor of Arts or Bachelor of Science, Master of Science, Doctor of Philosophy*; *GEOPHYSICS, Bachelor of Science*. In the undergraduate geology program options for specialization are as follows: General Geology Option, Paleontology Option, and Ground Water Option.

The program leading to the Bachelor of Arts Degree in General Geology is designed to provide a broad liberal arts background and basic training in the principles of geology, while the programs leading to the Degree of Bachelor of Science provide more extensive training in the geosciences and related disciplines.

Geology 143, 144, 241, 242, 331, 332, 335-336, 363 and Chemistry 141-142 are required courses in the Bachelor of Arts program. Specific requirements for the Bachelor of Science programs are given in the curri-

culum tables. A two-year course of study in a foreign language is required in all degree programs.

A minor is required in each of the programs. The minor field for the Bachelor of Arts program may be selected from a wide range of disciplines; the minor for a Bachelor of Science program must be in biology, chemistry, mathematics, or physics.

Grades below C in required courses of either the major or minor of a geoscience degree program are not accepted by the department in fulfillment of the degree requirements. Grades below C are not accepted in fulfillment of a minor in the geosciences.

A broad range of courses is available in the field of geography. Final approval of a degree curriculum has not been granted, but application has been made for a program leading to the Bachelor of Arts Degree in geography.

## Courses in Geology

### FOR UNDERGRADUATES

#### 143. Physical Geology. (4:3:2)

An introductory study of geologic features and processes.

#### 144. Historical Geology. (4:3:2)

Prerequisite: Geol. 143. An introductory study of the earth's geologic history.

#### 145. Physical Geoscience. (4:3:2)

Prerequisite: Geol. 143. A continuation of Geol. 143; basic theories and problems of physical geology and geophysics are discussed in greater detail than in the introductory course.

#### 233. General Geology for Engineers. (3:2:3)

A general introduction to the principles of geology and their application to the field of engineering other than petroleum engineering. Not applicable to a degree in geology.

#### 241. Mineralogy and Petrography I. (4:2:6)

Prerequisite: Geol. 143 and Chem. 141-142. Geometric and chemical crystallography; introduction to mineral identification.

#### 242. Mineralogy and Petrography II. (4:2:6)

Prerequisite: Geol. 241. Classification and identification of minerals by their chemical and physical properties; introduction to the field of petrography.

#### 331. Geomorphology. (3:2:3)

Prerequisite: Geol. 143, 144 or 145 and approval of the instructor. Origin and classification of land forms; detailed consideration of geologic processes, stages of development, and structural control of land form development. Graduate credit in minor programs only.

#### 332. Structural Geology. (3:2:3)

Prerequisite: Geol. 143, 144 or 145 and approval of the instructor. Systematic analysis of the earth's structural features and the deformational processes that produced them. Graduate credit for minor programs only.

#### 335-336. General Paleontology. (3:2:3 each)

Prerequisite: Geol. 143, 144 and approval of instructor. Detailed consideration of the characteristic features, classification and geologic history of the various groups of invertebrates; an introduction to paleoecology also is given. Graduate credit for minor programs only.

#### 337. Ground Water. (3:3:0)

Prerequisite: Geol. 241, 242, 331 and approval of the instructor. Principles of occurrence, recharge, movement and discharge of subsurface water. Graduate credit with approval of Department Head and Graduate Dean.

GEOLOGY CURRICULUM  
Bachelor of Science

FRESHMAN YEAR				SEMESTER	1st	2nd
Eng.	131	Col. Rhet.			3	
Geol.	143	Phys. Geol.			4	
Chem.	141	Gen. Chem.			4	
Math.	133	Col. Alg.			3	
P.E., Band, or Basic ROTC					1-2	
Eng.	132	Col. Rhet.				3
Geol.	144	Hist. Geol.				4
Chem.	142	Gen. Chem.				4
Math.	131	Trigon.				3
P.E., Band, or Basic ROTC						1-2
Total credit hours					15-16	15-16
SOPHOMORE YEAR				SEMESTER	1st	2nd
Eng.	231	Mast. of Lit.			3	
Phys.	141	Gen. Phys.			4	
Geol.	241	Mineralogy & Petrography			4	
Math.	139	Anal. Geom. & Calc. I			3	
For. Lang.	141				4	
P.E., Band, or Basic ROTC					1	
Eng.	232	Mast. of Lit.				3
Phys.	142	Gen. Phys.				4
Geol.	242	Mineralogy & Petrography				4
Math.	231	Anal. Geom. and Calc. II				3
For. Lang.	142					4
P.E., Band, or Basic ROTC						1
Total credit hours					19	19
JUNIOR YEAR				SEMESTER	1st	2nd
Geol.	331	Geomorphology			3	
Geol.	335	Paleontology			3	
Govt.	231	Amer. Govt., Org.			3	
Math.	232	Anal. Geom., Calc. III			3	
For. Lang.	231				3	
Elective					3	
Geol.	332	Struct. Geol.				3
Geol.	336	Paleontology				3
Govt.	232	Amer. Govt., Func.				3
For. Lang.	232					3
Elective						6
Total credit hours					18	18
SUMMER FOLLOWING JUNIOR YEAR						
Geol.	363	Field Geol.				6
SENIOR YEAR				SEMESTER	1st	2nd
Geol.	4314	Stratigraphy			3	
Geol.	431	Opt. Mineralogy & Petrography			3	
Hist.	231	Hist. of U.S. to 1865			3	
Elective					6	
Geol.	432	Opt. Mineralogy & Petrography				3
Geol.	4315	Stratigraphy				3
Hist.	232	Hist. of U.S. since 1865				3
Elective						6
Total credit hours					15	15

GEOLOGY MAJOR, PALEONTOLOGY CURRICULUM  
Bachelor of Science

FRESHMAN YEAR			SEMESTER	1st	2nd
Eng.	131	Col. Rhet.		3	
Geol.	143	Phys. Geol.		4	
Chem.	141	Gen. Chem.		4	
Math.	133	Col. Alg.		3	
P.E., Band, or Basic ROTC				1	
Eng.	132	Col. Rhet.			3
Geol.	144	Hist. Geol.			4
Chem.	142	Gen. Chem.			4
Math.	131	Trigonometry			3
P.E., Band, or Basic ROTC					1-2
Total credit hours				15	15-16
SOPHOMORE YEAR			SEMESTER	1st	2nd
Eng.	231	Mast. of Lit.		3	
Biol.	141	Botany		4	
Geol.	241	Mineralogy & Petrography		4	
Math.	139	Anal. Geom. and Calc. I		3	
For. Lang.	141			3	
P.E., Band, or Basic ROTC				1-2	
Eng.	232	Mast. of Lit.			3
Biol.	142	Zoology			4
Geol.	242	Mineralogy & Petrography			4
Elective					3
For. Lang.	142				4
P.E., Band, or Basic ROTC					1-2
Total credit hours				19-20	19-20
JUNIOR YEAR			SEMESTER	1st	2nd
Geol.	331	Geomorphology		3	
Geol.	335	Paleontology		3	
Biol.	333	Bio-ecology		3	
For. Lang.	231			3	
Govt.	231	Amer. Govt., Org.		3	
Elective				3	
Geol.	332	Struct. Geol.			3
Geol.	336	Paleontology			3
Zoology	336	Comp. Invert. Zool.			3
For. Lang.	232				3
Govt.	232	Amer. Govt., Func.			3
Total credit hours				18	18
SUMMER FOLLOWING JUNIOR YEAR					
Geol.	363	Field Geology			6
SENIOR YEAR			SEMESTER	1st	2nd
Geol.	4314	Stratigraphy		3	
Geol.	436	Micropaleontology		3	
Biol. or Zool.				3	
Hist.	231	Hist. of U.S. to 1865		3	
Elective				3	
Geol.	4315	Stratigraphy			3
Geol.	435	Stratigraphic Paleontology			3
Biol. or Zool.					3
Hist.	232	Hist. of U.S. since 1865			3
Elective					3
Total credit hours				15	15

GEOLOGY MAJOR, GROUND WATER CURRICULUM  
Bachelor of Science

FRESHMAN YEAR			SEMESTER	1st	2nd
Eng.	131	Col. Rhet.		3	
Geol.	143	Phys. Geol.		4	
Chem.	141	Gen. Chem.		4	
Math.	133	Col. Alg.		3	
P.E., Band, or Basic ROTC				1	
Eng.	132	Col. Rhet.			3
Geol.	144	Hist. Geol.			4
Chem.	142	Gen. Chem.			4
Math.	131	Trigon.			3
P.E., Band, or Basic ROTC					1-2
Total credit hours			15		15-16
SOPHOMORE YEAR			SEMESTER	1st	2nd
Eng.	231	Mast. of Lit.		3	
Phys.	141	Gen. Phys.		4	
Geol.	241	Mineralogy & Petrography		4	
Math.	139	Anal. Geom. & Calc. I		3	
For. Lang.	141			4	
P.E., Band, or Basic ROTC				1-2	
Eng.	232	Mast. of Lit.			3
Phys.	142	Gen. Phys.			4
Geol.	242	Mineralogy & Petrography			4
Math.	231	Anal. Geom. & Calc. II			3
For. Lang.	142				4
P.E., Band, or Basic ROTC					1-2
Total credit hours			19-20		19-20
JUNIOR YEAR			SEMESTER	1st	2nd
Geol.	331	Geomorphology		3	
Geol.	335	Paleontology		3	
C.E.	233	Statics		3	
Math.	232	Anal. Geom. and Calc. III		3	
For. Lang.	231			3	
Govt.	231	Amer. Govt., Org.		3	
Geol.	332	Struct. Geol.			3
Geol.	336	Paleontology			3
C.E.	3351	Mech. of Fluids			3
Geol.	337	Ground Water			3
For. Lang.	232				3
Govt.	232	Amer. Govt., Func.			3
Total credit hours			18		18
SUMMER FOLLOWING JUNIOR YEAR					
Geol.	363	Field Geology			6
SENIOR YEAR			SEMESTER	1st	2nd
Geol.	4314	Stratigraphy		3	
Geol.	431	Opt. Mineralogy & Petrography		3	
C.E.	4355	Gr. Water Hydrol.		3	
Hist.	231	Hist. of U.S. to 1865		3	
Math.	331	Anal. Geom. & Calc. IV		3	
Geol.	4315	Stratigraphy			3
Geol.	432	Opt. Mineralogy & Petrography			3
Hist.	232	Hist. of U.S. since 1865			3
Math.	332	Diff. Equat. I			3
Elective					3
Total credit hours			15		15

**363. Field Geology. (6)**

Prerequisite: Geol. 143, 144, 241, 242, 331, 332, and approval of instructor. Application of geologic principles to field problems. Required of all persons majoring in the department. Summer sessions only. Graduate credit in minor programs only.

**FOR UNDERGRADUATES AND GRADUATES****431-432. Optical Mineralogy and Petrology. (3:1:6 each)**

Prerequisite: Geol. 241, 242 and approval of instructor. Identification of minerals through use of petrographic microscope; classification, origin and history of igneous, metamorphic and sedimentary rocks.

**433. Petroleum Geology I. (3:3:0)**

Prerequisite: Geol. 332, Phys. 141-142 or 235-236 and approval of instructor. Origin, migration and accumulation of oil and gas; petroliferous provinces.

**434. Petroleum Geology II. (3:2:3)**

Prerequisite: Geol. 433 and approval of instructor. Subsurface methods; advanced principles.

**435. Stratigraphic Paleontology. (3:2:3)**

Prerequisite: Geol. 335-336, 4314 and approval of the instructor. Detailed taxonomic and paleoecologic studies of selected elements of fauna from various geologic systems.

**436. Micropaleontology. (3:1:6)**

Prerequisite: Geol. 335-336 and approval of instructor. Morphology, classification and distribution of foraminifera, ostracods, conodonts and other microscopic forms; methods of collection and preparation.

**437. Sedimentation. (3:2:3)**

Prerequisite: Geol. 241, 242, 331, 332 and approval of the instructor. Sedimentary processes and environments.

**438. Sedimentation. (3:2:3)**

Prerequisite: Geol. 437 and approval of instructor. Analytical techniques for the study of sedimentary rocks.

**439. Vertebrate Paleontology. (3:2:3)**

Prerequisite: Advanced standing in a natural science and approval of the instructor. A general survey of the history and development of the vertebrata, with special emphasis on the fossil record. Basic principles of paleontologic methods, including techniques of collecting, preservation, identification and interpretation.

**4314. Principles of Stratigraphy. (3:3:0)**

Prerequisite: Geol. 241, 242, 335-336 and approval of the instructor. Stratigraphic methods, nomenclature, maps; geochronology, paleoecology, correlation methods, sedimentary facies and tectonics.

**4315. Paleozoic, Mesozoic, Cenozoic Stratigraphy. (3:3:0)**

Prerequisite: Geol. 4314 and approval of the instructor. Advanced historical geology of North America; emphasis is placed on the application of stratigraphic principles in the development of the course.

**4316. Aerial Photo Interpretation. (3:2:3)**

Prerequisite: Geol. 331, 332 and consent of the instructor. Geomorphic, structural and stratigraphic interpretations of aerial photographs; use of stereoscopes and vertical control instruments; conversion of aerial photographs to maps.

**FOR GRADUATES****511. Seminar. (1:1:0)**

Required of all graduate students majoring in this department. May be repeated for credit.

**521. Clay Mineralogy. (2:1:3)**

Prerequisite: Graduate standing and consent of the instructor. Classification, origin and occurrences of clay minerals. Use of differential thermal analysis and x-ray in identification.

**531. Advanced Physical Geology. (3:3:0)**

Prerequisite: Graduate standing. Detailed consideration of specific problems in the field of physical geology. A field trip of several days' duration constitutes a requirement of the course.



GEOCHEMISTRY CURRICULUM  
Bachelor of Science

FRESHMAN YEAR			SEMESTER	1st	2nd
Eng.	131	Col. Rhet.		3	
Geol.	143	Phys. Geol.		4	
Chem.	141	Gen. Chem.		4	
Math.	133	Col. Alg.		3	
Ger.	141	Begin. German		4	
P.E., Band, or Basic ROTC				1	
Eng.	132	Col. Rhet.			3
Geol.	144	Hist. Geol.			4
Chem.	142	Gen. Chem.			4
Math.	232	Trigon.			3
Ger.	142	Begin. German			4
P.E., Band, or Basic ROTC					1-2
Total credit hours				19	19-20
SOPHOMORE YEAR			SEMESTER	1st	2nd
Eng.	231	Mast. of Lit.		3	
Chem.	241	Anal. Chem.		4	
Geol.	241	Mineralogy & Petrography		4	
Math.	139	Anal. Geom. & Calc. I		3	
Ger.	233	Scien. German		3	
P.E., Band, or Basic ROTC				1-2	
Eng.	232	Mast. of Lit.			3
Chem.	242	Anal. Chem.			4
Geol.	242	Mineralogy & Petrography			4
Math.	231	Anal. Geom. & Calc. II			3
Ger.	234	Scien. German			3
P.E., Band, or Basic ROTC					1-2
Total credit hours				18-19	18-19
JUNIOR YEAR			SEMESTER	1st	2nd
Geol.	331	Geomorphology		3	
Chem.	347	Phys. Chem.		4	
Phys.	141	Gen. Phys.		4	
Govt.	233	Amer. Govt., Org.		3	
Math.	232	Anal. Geom. & Calc. III		3	
Geol.	332	Struct. Geol.			3
Chem.	348	Phys. Chem.			4
Phys.	142	Gen. Phys.			4
Govt.	232	Amer. Govt., Func.			3
Elective					3
Total credit hours				17	17
SUMMER FOLLOWING JUNIOR YEAR					
Geol.	363	Field Geology			6
SENIOR YEAR			SEMESTER	1st	2nd
Geol.	431	Opt. Mineralogy & Petrography		3	
Geochem.	4331	Geochemistry I		3	
Hist.	231	Hist. of U.S. to 1865		3	
Science elective				3	
Elective				3	
Geol.	432	Opt. Mineralogy & Petrography			3
Geochem.	4332	Geochemistry II			3
Hist.	232	Hist. of U.S. since 1865			3
Science elective					3
Elective					3
Total credit hours				15	15

**532. Advanced Historical Geology. (3:3:0)**

Prerequisite: Graduate standing. Detailed consideration of specific problems in the field of historical geology. An extended field trip constitutes a requirement of the course.

**533. Petrology of Igneous Rocks. (3:3:0)**

Prerequisite: Geol. 431-432 and a minimum of two years of chemistry. Consideration and evaluation of the leading ideas concerning the origins of igneous rocks and of the mechanics of emplacement.

**534. Petrology of Metamorphic Rocks. (3:3:0)**

Prerequisite: Geol. 431-432 and a minimum of two years of chemistry. Review of the basic concepts of metamorphism and consideration of the recent developments in the field.

**535, 536. Advanced Work in Specific Fields. (3 each)**

Prerequisite: Consent of Department Head. Conference or research courses based on subject matter that is selected to fit the interests of each student. May be repeated for credit.

**538. Geology of the Southwest. (3:3:0)**

Prerequisite: Graduate standing and approval of the instructor. Stratigraphy and structural geology of the Southwest.

**5311. Stratigraphic Micropaleontology. (3:2:3)**

Prerequisite: Geol. 436 and approval of instructor. Morphology and stratigraphic ranges of foraminifera, bryozoa, conodonts and ostracods.

**5312. Economic Geology. (3:2:3)**

Prerequisite: Geol. 431-432 and approval of instructor. Origins, occurrences and economic aspects of metallic and nonmetallic mineral resources, exclusive of petroleum.

**5324. Advanced Sedimentation. (3:2:3)**

Prerequisite: Geol. 437 or approval of instructor. Advanced principles of sedimentary petrography and petrology.

**5327. Problems in Paleontology. (3:2:3)**

Prerequisite: Geol. 335-336 and 4314.

**5328. Advanced Structural Geology. (3:2:3)**

Prerequisite: Geol. 332.

**541. X-Ray Diffraction and Analysis. (4:3:3)**

Prerequisite: Advanced standing in a physical science or engineering. Principles of x-ray crystallography; powder method of analysis and single crystal determinations.

**542. X-Ray Crystallography. (4:3:3)**

Prerequisite: Geol. 541. Continuation of Geol. 541.

**563. Advanced Field Geology. (6)**

Prerequisite: Geol. 363. Solution of advanced field problems.

**631. Master's Thesis. (3)**

Two enrollments required for completion of master's degree.

**731-732. Research. (3 each)**

Required of all doctoral candidates.

**831. Doctor's Dissertation. (3)**

A minimum of four enrollments is required.

## Courses in Geochemistry

### FOR UNDERGRADUATES AND GRADUATES

**4331. Geochemistry I. (3:3:0)**

Prerequisite: Geol. 241, 242 and Chem. 347-348. Consideration of the principles of geochemistry and of the distribution of the elements in the earth.

**4332. Geochemistry II. (3:3:0)**

Prerequisite: Geochem. I. Continuation of Geochem. I.

GEOPHYSICS CURRICULUM  
Bachelor of Science

FRESHMAN YEAR			SEMESTER	1st	2nd
Eng.	131	Col. Rhet.		3	
Geol.	143	Phys. Geol.		4	
Math.	133	Col. Alg.		3	
Hist.	231	Hist. of U.S. to 1865		3	
Govt.	231	Amer. Govt., Org.		3	
P.E., Band, or Basic ROTC				1	
Eng.	132	Col. Rhet.			3
Geol.	145	Phys. Geosci.			4
Math.	131	Trigon.			3
Phys.	143	Prin. of Phys.			4
P.E., Band, or Basic ROTC					1-2
			Total credit hours	17	15-16
SOPHOMORE YEAR			SEMESTER	1st	2nd
Eng.	231	Mast. of Lit.		3	
Hist.	232	Hist. of U.S. since 1865		3	
Math.	139	Anal. Geom. & Calc. I		3	
Math.	231	Anal. Geom & Calc. II		3	
Phys.	241	Prin. of Phys.		4	
P.E., Band, or Basic ROTC				1-2	
Eng.	232	Mast. of Lit.			3
Geol.	332	Struct. Geol.			3
Math.	232	Anal. Geom. & Calc. III			3
Govt.	232	Amer. Govt., Func.			3
Phys.	242	Prin. of Phys.			4
P.E., Band, or Basic ROTC					1-2
			Total credit hours	17-18	17-18
JUNIOR YEAR			SEMESTER	1st	2nd
Math.	331	Anal. Geom. & Calc. IV		3	
Phys.	335	Elec. & Magnetism		3	
Chem.	141	Gen. Chem.		4	
For. Lang.	141			4	
Elective				3	
Phys.	341	Electronics			4
Phys.	336	Elec. and Magnetism			3
Chem.	142	Gen. Chem.			4
For. Lang.	142				4
Elective					3
			Total credit hours	17	18
SUMMER FOLLOWING JUNIOR YEAR					
Geol.	363	Field Geology			6
SENIOR YEAR			SEMESTER	1st	2nd
Math.	335	Math. for Engrs. and Scientists I		3	
Phys.	434	Mechanics		3	
For. Lang.	231			3	
Geophys.	3321	Geophysical Meth.		3	
Geophys.	4321	Earth Seis.		3	
Math.	336	Math. for Engrs. and Scientists II			3
Phys.	435	Mechanics			3
For. Lang.	232				3
Geophys.	3322	Geophysical Meth.			3
Geophys.	4322	Earth's Gravity Field			3
Geophys.	4323	Applic. of Geophysics			3
			Total credit hours	15	18

## FOR GRADUATES

### 533. Selected Topics in Geochemistry. (3:3:0)

Prerequisite: Geochem. 4331 and 4332. Topics selected by the instructor to fit the needs or interests of the class. May be repeated for credit.

### 534. Advanced Problems in Geochemistry. (3:1:6)

Prerequisite: Geochem. 4331 and 4332. Individual research on selected problems. A formal scientific report is required. May be repeated for credit.

## Courses in Geophysics

### FOR UNDERGRADUATES

#### 3321. Geophysical Methods, Gravity and Magnetic. (3:3:0)

Prerequisite: Geol. 143, 144 or 145, 332, Math. 231-232, Phys. 141-142 and approval of instructor.

#### 3322. Geophysical Methods, Seismic and Electrical. (3:3:0)

Prerequisite: Geol. 143, 144 or 145, 332, Math. 231-232, and Phys. 141-142; approval of instructor.

### FOR UNDERGRADUATES AND GRADUATES

#### 4321. Earthquake Seismology. (3:2:3)

Prerequisite: Geophys. 3322. Observatory functions. Interpretations of earth structures from earthquake seismological data.

#### 4322. The Earth's Gravity Field. (3:3:0)

Prerequisite: Consent of instructor. Study of the earth's gravity field in relation to isostasy, geology and earth structure.

#### 4323. Applications in Geophysics. (3:1:6)

Prerequisite: Consent of instructor. Geophysical methods applied to the solution of selected field problems.

#### 531. Wave Propagation in Layered Media. (3:3:0)

Prerequisite: Working knowledge of advanced calculus and consent of the instructor. Study of wave propagation in the atmosphere, hydrosphere and lithosphere.

#### 533. Selected Topics in Geophysics. (3:3:0)

Prerequisite: Consent of instructor. Topics, based on the student's requirements and interests, will be selected by the instructor.

#### 534. Advanced Problems in Geophysics. (3:1:6)

Prerequisite: Consent of the instructor. Individual research into selected topics of geophysics. A formal scientific report is required. May be repeated for credit.

## Courses in Geography

### FOR UNDERGRADUATES

#### 1451. Introduction to Geography. (4:3:2)

Consideration of the land-man relationship; effects of landforms, climates, soils, and the biotic environment upon human activities are considered.

#### 1452. Weather and Climate. (4:3:2)

Prerequisite: Geog. 1451 or permission of geography adviser. Study of the elements of weather and climate; extensive consideration of climatic types.

#### 2351. Regional Geography of the World. (3:3:0)

Prerequisite: Geog. 1451 and 1452 or permission of the geography adviser. An introduction to the world's geographic regions.

#### 2352. Geography of the United States and Canada. (3:3:0)

Prerequisite: Geog. 1451 and 1452 or permission of the geography adviser. Geography of Anglo-America; emphasis on physiographic and industrial regions.

#### 3251. Cartography and Graphics. (2:1:3)

Prerequisite: Junior standing or higher and permission of the geography adviser. Study and construction of maps; graphic presentations of statistical data.

**3355. Field Methods. (3:2:3)**

Prerequisite: Junior standing or higher and permission of the geography adviser.  
The study of geographical patterns; use of basic statistical methods in their classification.

**FOR UNDERGRADUATES AND GRADUATES****4351. Land Use Planning. (3:3:0)**

Prerequisite: Junior standing or higher and permission of the geography adviser.  
Study of environmental controls in the dominant land uses.

**4352. Urban Geography. (3:3:0)**

Prerequisite: Junior standing or higher and permission of the geography adviser.  
Study of spatial distribution of urban centers, their internal structures and external ties.

**4353. Conservation of Natural Resources. (3:3:0)**

Prerequisite: Junior standing or higher and permission of the geography adviser.  
Evaluation of the nation's natural resources and study of methods for their utilization and conservation.

**4355. Geography of Texas. (3:3:0)**

Prerequisite: Junior standing or higher and permission of the geography adviser.  
The physical and cultural geography of Texas.

**4356. Geography of the American Southwest. (3:3:0)**

Prerequisite: Junior standing or higher and permission of the geography adviser.  
Physical and cultural geography of the Southwest.

**4361. Geography of Europe. (3:3:0)**

Prerequisite: Junior standing or higher and permission of the geography adviser.  
Regional study of Europe and intensive study of selected economic and political areas.

**4362. Geography of the U.S.S.R. (3:3:0)**

Prerequisite: Junior standing or higher and permission of the geography adviser.  
Analysis of the entire Soviet realm.

**4363. Geography of South America. (3:3:0)**

Prerequisite: Junior standing or higher and permission of the geography adviser.  
Regional study of South America.

**4364. Geography of Mexico and the Caribbean Lands. (3:3:0)**

Prerequisite: Junior standing or higher and permission of the geography adviser.  
Regional study of Mexico, Central America and the islands of the Caribbean.

**Department of Government**

J. W. Jackson, *Acting Head of the Department*

Office: S.Sci. 201

*Professors:* James William Davis, J. W. Jackson,  
Ralph Gray Jones, Sabe McClain Kennedy, Wil-  
liam Eugene Oden

*Associate Professors:* Martin Theodore Kyre, Robert  
Malcolm Lawrence, Raymond DeElmont Mack,  
Metin Tamkoc

*Assistant Professors:* Wesley Morale Butler, Shirley  
Chapman, Roy Lee Meek, William D. Muller

*Instructors:* Tod Atkins Baker, Pearlene Vestal Glas-  
rud, Robert Lee Holbert, Ruth Cowart Wright

*Part-time Instructors:* James Warren Bowman, Hor-  
ace Ernest Griffith, Jerry Madison Sowder

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*; GOVERNMENT, Bachelor of Arts, Master of Arts, Doctor of Philosophy. The department also

participates in the LATIN AMERICAN AREA STUDIES program leading to the *Bachelor of Arts Degree*.

Students interested in a major or minor in government are invited to visit the office of the Department of Government to examine sample curricula. Such curricula are intended as guides, and a great deal of flexibility is permitted so that each student may take courses in line with his own particular interests.

A government major or minor can be shaped to serve as vocational preparation in any of at least seven different fields:

1. Careers in public administration on the national, state, or local level.
2. Preparation for entry into law school.
3. Training for the foreign service.
4. The teaching of government or social science.
5. Journalistic, radio, or television careers in collecting, evaluating, reporting, or commenting upon news of a political nature.
6. Research in public affairs for private industrial or commercial firms, labor unions, or endowed research institutes.
7. Preparation for a political career.

The requirement for a minor in government is 18 semester hours, including the required courses, Government 231 and 232. The requirement for a major is 30 semester hours, including Government 231 and 232. Students majoring in government should take certain basic courses in all fields of government. Generally, at the beginning of the junior year, several alternative fields of emphasis are offered from which the student may choose. These fields are:

- American Government and Politics (National, State, and Local)
- Comparative Government (British, Russian, Latin American, Far Eastern, Middle Eastern, and African)
- International Relations (Organization, Politics, and Law)
- Public Administration (Organization, Procedure, and Administrative Law)
- Political Theory (European, American, and Modern)
- Public Law (Constitutional, Administrative, and International)

The Department of Government serves in an advisory capacity for pre-law students. Each student having such interest is guided carefully toward fulfilling the entrance requirements for law school and is given the best possible preparatory background for his future work.

A student interested in preparing for government service may take advanced courses in all levels of American government, with emphasis upon the field of his special interest.

The Department of Government also cooperates in the Latin American Area Studies program.

The Department of Government offers a special program at the graduate level for students interested in city manager training or work in municipal government. The course work is of an interdepartmental nature and includes courses with special emphasis on problems of municipal government. After graduation, a student may be placed as an intern in some Texas city.

## Teacher Education

The Department of Government participates in the teacher education program of the College. Students seeking certification to teach in the secondary or elementary schools of Texas may qualify for such certification in the course of completing requirements for either the Bachelor of Arts or the Bachelor of Science in Education Degree.

The student of government may qualify for teacher certification under a variety of plans. Students wishing to teach in the secondary schools may offer government as a teaching field. Such students must have completed at least 24 hours in government, including Government 231 and 232 and other courses broadly divided into fields of American government and politics, international relations, comparative government, and political theory. Those students seeking certification to teach in secondary schools in the related fields of social sciences may qualify by completing 12 hours of government, including Government 231 and 232, 3 hours of government from the field of American government and politics, and 3 hours from the field of international relations and comparative government. There is an additional requirement providing for courses in economics, sociology, and history. (See the discussion of teacher education in Part I of this Catalog.)

Students preparing to teach in the elementary schools may offer government as an area of academic specialization. There are two plans of academic specialization open to the prospective elementary school teacher. Under one of these plans the student must complete 18 hours of government, including Government 231 and 232, and courses in the fields of American government and politics, international relations, and comparative government. Under the second plan, the student must complete 24 hours in government, including Government 231 and 232, and courses in the fields of American government and politics, international relations and comparative government, and political theory. For details on either of these plans or degree programs, the student should consult the Head of the Department of Government.

## Courses in Government

### FOR UNDERGRADUATES

**231. American Government, Organization. (3:3:0)**

**232. American Government, Functions. (3:3:0)**

Government 231 and 232 or the equivalent thereof are required of all candidates for a degree and are prerequisites to all advanced courses.

**3321. The Political Process. (3:3:0)**

**3331. Great Political Thinkers. (3:3:0)**

**3341. The Administrative Process. (3:3:0)**

**3351. The Judicial Process. (3:3:0)**

**3361. International Politics. (3:3:0)**

**3371. Comparative Government. (3:3:0)**

FOR UNDERGRADUATES AND GRADUATES

- 4321. Local Government. (3:3:0)
- 4322. State Government. (3:3:0)
- 4323. Legislation. (3:3:0)
- 4324. Government and the Economy. (3:3:0)
- 4325. Political Parties. (3:3:0)
- 4326. Intergovernmental Relations. (3:3:0)
- 4331. Ancient and Medieval Political Theory. (3:3:0)
- 4332. Modern Political Theory. (3:3:0)
- 4333. Contemporary Political Theory. (3:3:0)
- 4334. American Political Theory. (3:3:0)
- 4341. Fiscal Administration. (3:3:0)
- 4342. Personnel Administration. (3:3:0)
- 4343. Local Administration. (3:3:0)
- 4344. The Government of Metropolitan Areas. (3:3:0)
- 4345. Administrative Organization and Management. (3:3:0)
- 4346. Policy and Administration. (3:3:0)
- 4351. Constitutional Law-Powers. (3:3:0)
- 4352. Constitutional Law-Limitations. (3:3:0)
- 4353. Administrative Law and Regulations. (3:3:0)
- 4354. Jurisprudence. (3:3:0)
- 4361. United States Foreign Policy. (3:3:0)
- 4362. Political Geography. (3:3:0)
- 4363. International Organization. (3:3:0)
- 4364. International Law. (3:3:0)
- 4365. Problems in National Security. (3:3:0)
- 4372. Government of the Union of Soviet Socialist Republics. (3:3:0)
- 4373. Governments of Western Europe. (3:3:0)
- 4374. Government of Mexico and the Carribean. (3:3:0)
- 4375. Major South American Governments. (3:3:0)
- 4376. Major Governments of Asia. (3:3:0)
- 4377. African Governments and Politics. (3:3:0)
- 4378. Middle Eastern Governments and Politics. (3:3:0)
- 4379. British Government. (3:3:0)
- 4381. Teaching Social Science in the High School. (3:3:0)



# FOR GRADUATES

531. **Readings and Research—Individual Study.** (3:3:0)  
May be repeated for credit.
5321. **Advanced American Government and Politics.** (3:3:0)
5331. **Advanced Political Theory.** (3:3:0)
5341. **Advanced Public Administration.** (3:3:0)
5351. **Advanced Constitutional Law.** (3:3:0)
5361. **Advanced International Relations.** (3:3:0)
5371. **Advanced Comparative Government and Politics.** (3:3:0)
532. **Seminar in American Government and Politics.** (3:3:0)
533. **Seminar in Political Theory.** (3:3:0)
534. **Seminar in Public Administration.** (3:3:0)
535. **Seminar in Public Law.** (3:3:0)
536. **Seminar in International Relations.** (3:3:0)
537. **Seminar in Comparative Government and Institutions.** (3:3:0)
538. **Seminar in Parties and Politics.** (3:3:0)
539. **Seminar in National Security Affairs.** (3:3:0)
631. **Master's Thesis.** (3)  
Enrollment required at least twice.
- 731, 732. **Research.** (3 each)
831. **Doctoral Dissertation.** (3)  
Enrollment required at least four times.

## Department of Health, Physical Education, and Recreation for Men

R. W. Kireilis, *Head of the Department*  
Office: Men's Gym 190 and 205-A

*Professors:* John W. Cobb, Ramon W. Kireilis, George Philbrick, Herman B. Segrest

*Associate Professors:* Richard A. Berger, Polk F. Robison\*

*Assistant Professors:* Henry E. Buchanan,\* James F. McNally

*Instructors:* William M. Holsberry,\* Danny R. Mason, Kal H. Segrist, Don L. Sparks,\* Edward D. Strickland

\* Part-time.

This department supervises a basic physical education program for all men students in the College as well as the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: *Bachelor of Arts* degrees in PHYSICAL EDUCATION or RECREATION; *Bachelor of Sci-*

*ence in Education* degrees in ELEMENTARY or SECONDARY EDUCATION; and *Master of Education* degrees in PHYSICAL EDUCATION.

The undergraduate degree programs are designed to permit the student to work toward either a Bachelor of Arts Degree in physical education or in recreation, or a Bachelor of Science in Education Degree.

During the first year, students majoring or minoring in the department must file a physical examination form in the office of the head of the department. The form for this examination should be secured from this department. Physical education majors are allowed to take elective work in physical education. Physical education courses recommended as electives are: 131, 434, 437, or 438.

### **Basic Physical Education Program**

All male students who are required to complete satisfactorily four semesters of work in physical education activities for graduation will complete work in P.E. 1111, Introduction to Physical Education Activities, during the first semester of their freshman year. Transfer students taking work in physical education will also be required to complete work in P.E. 1111 during their first semester if they have transferred less than 2 semester hours of credit in physical education. After a student has satisfactorily completed work in P.E. 1111, a three-semester program of physical education activities will be recommended to him. It is the purpose of the Department of Health, Physical Education, and Recreation for Men to give each student the opportunity to develop physically, socially, and mentally by providing a wide variety of physical education activities.

### **Bachelor of Science in Education**

The student who desires to teach physical education should elect this degree. The curriculum is designed specifically to meet the legal requirements for certification in Texas. The earning of this degree qualifies the student to teach physical education on either the elementary or the secondary level, or to earn an all-level certificate as indicated below. The student should follow the curriculum outlined on the accompanying table for secondary certification and should become familiar with the teacher education program as discussed in Part I of this Catalog.

The student who wishes to obtain a provisional certificate to teach at the elementary level may take either of the sequences of courses listed below, depending on his interests, in partially satisfying the requirement for 36 hours of academic specialization courses:

Sequence A: 133, 230, 233, 332, 437, 438.

Sequence B: 131, 133, 230, 233, 332, 436, 437, 438.

### **All-Level Provisional Certificate**

The physical education major who plans to teach in the public schools can also secure an All-Level Provisional Certificate by earning a bachelor's degree and completing work in the following programs:

Physical Education: 133, 230, 233, 332, 3311, 433, 436, 437.

Required Physical Education: 221, 222, 321, and 322.

SECONDARY EDUCATION CURRICULUM, PHYSICAL EDUCATION, MEN  
Bachelor of Science in Education

FRESHMAN YEAR				SEMESTER	1st	2nd
Biol.	141	Botany or				
Chem.	141	Gen. Chem.			4	
Eng.	131	Col. Rhet.			3	
Math.	133	Col. Alg. or				
Math.	135	Intro. Col. Math. or				
Foreign language					3-4	
Hist.	231	Hist. of U.S. to 1865 or				
Govt.	231	Amer. Govt., Org.			3	
P.E.	133	Pers. & Com. Health			3	
*P.E.	1111	Intro. to P.E. Act.			1	
**P.E.	221	Theory and Practice of Indiv. Sports			2	
Biol.	142	Zoology or				
Chem.	142	Gen. Chem.				4
Eng.	132	Col. Rhet.				3
Math.	131	Trigonometry or				
Math.	136	Elem. of Math. Sys. or				
Foreign language						3-4
Hist.	232	Hist. of U.S. since 1865 or				
Govt.	232	Amer. Govt., Func.				3
P.E.	230	Health Educ. in the Elem. & Sec. Schools				3
**P.E.	222	Theory and Practice of Team Sports				2
				Total credit hours	19-20	18-19
SOPHOMORE YEAR				SEMESTER	1st	2nd
Eng.	231	Mast. of Lit.			3	
Govt.	231	Amer. Govt., Org. or				
Hist.	231	Hist. of U.S. to 1865			3	
Soc.	230	Intro. to Soc.			3	
Teaching field II					3	
Elective					3	
**P.E.	321	Theory & Fund. of Gym. & Wrest.			2	
Eng.	232	Mast. of Lit.				3
Govt.	232	Amer. Govt., Func. or				
Hist.	232	Hist. of U.S. since 1865				3
Spch.	239	Spch. Devel. for Teacher Competence				3
Teaching field II						3
Psy.	335	Adol. Psy.				2
**P.E.	322	Elem. Aquatics				2
				Total credit hours	17	17
JUNIOR YEAR				SEMESTER	1st	2nd
Educ.	330	Foun. of Secon. Educ.			3	
Educ.	332	Educ. Psy.			3	
P.E.	332	First Aid; Care & Prev. Of Ath. Inj.			3	
P.E.	323	Sports Officiating			2	
Teaching field II					6	
P.E.	431	Kinesiology				3
Educ.	334	Curric. Devel. in Secon. Educ.				3
P.E.	3311	Meth. of Teaching P.E. in High School				3
Elective						3
Teaching field II						6
				Total credit hours	17	18
SENIOR YEAR				SEMESTER	1st	2nd
Educ.	462	Stud. Obs. & Teaching in Sec. Sch.			6	
P.E.	422	Theory & Fund. of Baseball & Basketball				2
P.E.	433	Admin. of Health, P.E., & Rec. Prog.			3	
Teaching field II					3	
P.E.	436	Phys. Exam. & Correc. P.E.				3
P.E.	423	Theory & Fund. of Football & Track				2
Educ.	436	Teaching in Sec. Schools				3
P.E.	437	Meas. in P.E.				3
Teaching field II						3
Elective						3
				Total credit hours	14	17

\*Department requirement. Must complete work in this course, but one semester hour credit will not count.

\*\*Required physical education.

Appropriate course substitutions will be made when necessary.

## **Bachelor of Arts—Major in Physical Education**

Students working toward a B.A. Degree with a major in physical education will meet all the general requirements for a B.A. Degree. Academic specialization courses for students seeking an All-Level Provisional Certificate are: 133, 221,\* 222,\* 230, 233, 321,\* 322,\* 332, 3311, 433, 436, 437, and 438. Academic specialization courses for students seeking a Provisional Certificate—Secondary are: Physical Education 133, 230, 323, 332, 3311, 422, 423, 431, 433, 436, 437, 221,\* 222,\* 321,\* and 322.\*

B.A. students with a major in physical education who wish to earn a teaching certificate must also complete work in an acceptable second teaching field. Some recommended fields are listed below, but specific courses must be approved by the head of the department concerned:

Biology, English, foreign language (including two 400-level courses), government, history, or mathematics. The student must complete 24 semester hours in the fields he chooses.

A 2.25 average must be maintained in the major.

## **Minor in Physical Education**

Students seeking a minor in the department will complete work in one of the following programs:

Physical Education: 131, 133, 230, 323, 332, 3311, 422, 423, 431, 433, 436, 437, and 438 (18 semester hours from the courses listed).

The required physical education courses are: 221, 222, 321, and 322.

Health Education: Physical Education 133, 230, 332, 431, 433, 436, and 437 (18 semester hours from the courses listed).

Recreation: 331, 332, 433, 439, 4323 and 3 hours of electives. The required physical education courses are: Physical Education 221, 222, 321, and 322.

Students who are interested in recreation and follow the recreation minor program will not receive a teaching certificate but will be qualified for positions in the various types of recreation programs offered by many institutions.

## **Bachelor of Arts—Major in Recreation**

The Department of Health, Physical Education, and Recreation for Men offers students a program leading to the B.A. Degree with a major in recreation, which qualifies them for positions in the various types of recreation programs offered by numerous groups and agencies. The general requirement for the Bachelor of Arts Degree will be met. All students majoring in recreation take a core program consisting of the following courses: Physical Education 133, 331, 332, 439; Speech 133 or 235; Education 330; Psychology 230 and 332.

At the present time the following areas of emphasis are available to students majoring in recreation: sports, arts and crafts, music, dramatics, and park administration. All recreation majors must complete the following courses in the sports area: Physical Education 131, 221, 222, 321, 322, 323, 422, and 433. In addition, the student must select one area from the following: arts and crafts, music, dramatics, or park administration. He

\* Also fulfills physical education requirement.

must also take an introductory course in each area in which he does not minor. A student desiring further information concerning the recreation major should consult the Head of the Department of Health, Physical Education, and Recreation for Men.

Required courses in arts and crafts are: Applied Arts 131, 133, 232; also 12 semester hours of the following: Applied Arts 332, 336, 337, 338, 3311, 431, 432, 434, 435, 436, or 439; Allied Arts 238, 239.

Required courses in music are: Music Literature 131, 132; Applied Music 1113, 1114, 1123, 1124; Music Education 327; also 6 hours of electives.

Required courses in drama are: Speech 319 (may be taken three times) 231, 232, 333, 334, 431, and 4311.

Required courses in park administration are: Horticulture 131, 232, 233, 338; Park Administration 339, 3311, 422, and 423.

When necessary the Department Head will make appropriate substitutions for courses listed in the above programs.

## **Courses in Basic Physical Education Program**

### **1111. Introduction to Physical Education Activities. (1:1:1)**

Basic course, taken by men students in the program of required physical education. Physical conditioning, standardized physical efficiency tests and medical reports; lectures, class observations, and expert demonstrations introduce the student to activities offered by the department.

### **1112. Adapted Physical Activities. (1:0:2)**

### **1113. Individual Activities. (1:0:2)**

### **1114. Dual Activities. (1:0:2)**

### **1115. Team Activities. (1:0:2)**

Students who pass any course may not repeat the same course for additional credit. These are all laboratory courses involving individual instruction.

## **Courses in Health, Physical Education, and Recreation for Men**

### **FOR UNDERGRADUATES**

### **131. Introduction to Physical Education. (3:3:0)**

Philosophy, aims, objectives, principles, and potential values of physical education.

### **133. Personal and Community Health. (3:3:0)**

Fundamentals of health and personal hygiene; community health problems, causes and prevention of disease in the family as related to individual and community health.

### **221. Theory and Practice of Individual Sports. (2:2:2)**

Rules and fundamentals of tennis, handball, and badminton.

### **222. Theory and Practice of Team Sports. (2:2:2)**

Continuation of P.E. 221. Rules and Fundamentals of volleyball, softball, speedball, and soccer.

### **230. Methods of Teaching Health in the Elementary and Secondary School. (3:3:0)**

Basic principles and procedures of health education and their application to the total school health program.

### **233. Methods of Teaching Physical Education in the Elementary School. (3:3:0)**

Method and content course dealing with the theory and practice of physical education.

**310. Health Education Workshop. (1)**

Prerequisite: Junior standing. One week workshop devoted to the study of problems in health education with emphasis on the coordination of federal, state, and local resources in health.

**321. Theory and Fundamentals of Gymnastics and Wrestling. (2:2:2)**

Practice in fundamental gymnastic and wrestling skills; theory, rules, and history of gymnastics and wrestling.

**\*322. Elementary Aquatics. (2:2:2)**

Prerequisite: Must know how to swim. Swimming fundamentals from beginner's swimming through lifesaving; principles, methods of teaching, leading to water safety instructor's certificate; principles of pool management, theory of coaching swimming, and introduction to synchronized swimming.

**323. Sports Officiating. (2:2:2)**

Prerequisite: Consent of instructor. Designed to prepare qualified teachers as officials of interscholastic sports; covers the ethics, rules, and mechanics involved.

**331. Recreational Methods. (3:3:0)**

Material appropriate for small and large groups, different age levels, and various situations; philosophy and methods; practice in planning and leading recreation.

**332. First Aid: Care and Prevention of Athletic Injuries. (3:3:2)**

American Red Cross First Aid Course leading to standard first aid certificate, including athletic training and common athletic injuries, their care and prevention.

**331. Methods of Teaching Physical Education in High School. (3:3:0)**

Aims and methods of teaching physical education in junior and senior high school.

**422. Theory and Fundamentals of Baseball and Basketball. (2:2:2)**

Offensive and defensive fundamentals of baseball and basketball; offensive and defensive systems, strategies, scouting methods, public relations, and professional ethics. Approximately two-fifths of the semester will be devoted to baseball and three-fifths to basketball.

**423. Theory and Fundamentals of Football and Track. (2:2:2)**

Individual offensive and defensive fundamentals in football and individual skills in track and field events. Offensive and defensive systems and strategies, scouting methods, public relations, and professional ethics in football. Approximately three-fifths of the semester will be devoted to football and two-fifths to track.

**433. Administration of Health, Physical Education, and Recreation Programs. (3:3:0)****FOR UNDERGRADUATES AND GRADUATES****431. Kinesiology. (3:3:0)**

Principles of human motion. Anatomical and mechanical analysis of everyday and physical education activities for promoting normal physical development and improvement of performance.

**432. Physiology of Exercise. (3:3:0)**

Effect of muscular activity on body processes.

**434. Principle of Physical Education. (3:3:0)**

Prerequisite: Junior standing. This course sets forth the aims and objectives of physical education in the light of historical development of the subject matter area and its relationship to the general field of education. Included also is an analysis of the objectives and methods utilized in the present day programs. Also emphasized are trends in the field of physical education.

**436. Physical Examinations and Corrective Physical Education. (3:3:0)**

Practice in administering screening tests with interpretation of findings; organization of programs in physical education for the physically handicapped.

**437. Measurements in Physical Education. (3:3:0)**

Techniques in physical education; survey of tests used in physical education and methods of administering tests and using data.

**438. Curriculum Development in Physical Education. (3:3:0)**

\* Course fee, \$5.

**439. Organization and Administration of Recreational Programs. (3:3:0)**

Community recreation, its significance, leadership, facilities, and organization of programs; special consideration of the contribution of physical education.

**\*\*4321. Methods and Techniques of Driver Instruction. (3:3:2)**

Preparation of high school teachers in driver education; classroom and behind-the-wheel techniques. All prospective teachers will have the opportunity to teach beginners.

**4323. Organization and Administration of Camps. (3:3:0)**

This course covers the organization and administration of various sizes, types and kinds of camps. The objectives of camping are emphasized along with routine administration details, procedures for staff selection, and methods of evaluation. This course is taught in a regular camp setting when possible.

**4326. Safety Education. (3:3:2)**

Prevention of accidents in home, industry, and recreation. Includes American Red Cross standard, advanced, and instructor's safety courses.

**4331. Teacher Training in Gymnastics. (3:3:0)**

Prerequisite: Junior standing. Physical Education 4331 is a teacher-training workshop in gymnastics for elementary and secondary levels. The course is offered through the Division of Extension.

## FOR GRADUATES

**531. Administration of Physical Education. (3:3:0)**

Principles, problems, relationships, and procedures in the supervision of elementary and high school physical education programs.

**532. Supervision of Physical Education. (3:3:0)**

Principles, problems, relationships, and procedures in the supervision of elementary and high school physical education programs.

**533. Facilities for Physical Education. (3:3:0)**

Principles, terminology, and standards for planning, constructing, using, and maintaining facilities.

**534. Administration of the School Health Program. (3:3:0)**

For teachers, coaches, and school administrators who desire an understanding of a well-balanced health program.

**535. Techniques of Research in Health, Physical Education, and Recreation. (3:3:0)**

Research methods, research design, treatment, and interpretation of data.

**536. Problems in Health, Physical Education, and Recreation. (3:3:0)**

Individual study of problems relating to health, physical education, and recreation. May be repeated three times for credit.

**5322. Organization and Administration of Interscholastic and Intercollegiate Athletic Programs. (3:3:0)**

Methods in organizing and administering the interscholastic and intercollegiate athletic programs. Study of: staff, program, budget, health and safety, facilities, publicity, history, duties of an athletic director, and national, state, and local controls.

**5324. Organization and Administration of Intramural Sports. (3:3:0)**

Administrative procedures connected with organization, records, equipment, program, and staff duties; intramural sports, officiating; ethics, rules, mechanics, and practice.

**630. Master's Report. (3)****631. Master's Thesis. (3)**

Enrollment required at least twice.

\*\* Course fee, \$12.50.

## Department of Health, Physical Education, and Recreation for Women

Mary Burwell Dabney, *Head of the Department*  
Office: Women's Gymnasium 121

*Professors:* Mary Burwell Dabney, Sue Ava Rainey,  
Margaret Eileen Wilson

*Associate Professor:* Dorothy Beatrice Hoyle

*Assistant Professors:* Suzanne deVerse Aker, Mary  
Ann Cobb, Colleen Mary O'Connor,\* Margot  
Marie Purdy, Anne Harris Simmons, Betty Wert-  
heimer Tevis, Peggy Jean Williams

*Instructor:* Ann Crocker Miller

\* On leave, 1966-1967.

This department supervises a basic physical education program for all women students in the College as well as the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: *Bachelor of Arts* degrees in PHYSICAL EDUCATION or RECREATION; *Bachelor of Science* degrees in ELEMENTARY or SECONDARY EDUCATION; and *Master of Education* degrees in PHYSICAL EDUCATION.

The main purpose of the basic program is to give an opportunity to all women students to acquire the skills and knowledge which will enable them to maintain total fitness not only during their college years but also throughout their lives. The professional programs offer curricula which will enable students to obtain a deeper knowledge, appreciation, and understanding of health, physical education, and recreation. The undergraduate degree programs are designed to permit the student to work toward either a Bachelor of Arts Degree in physical education or in recreation, or a Bachelor of Science in Education Degree.

Each student who plans to major or minor in physical education or recreation, or minor in health, must present annually from her family physician a report of a complete physical examination. Forms for this examination should be secured from the Department of Health, Physical Education, and Recreation for Women.

### Basic Physical Education Program

To satisfy the all-college requirement of four semesters of physical education, each student is required to take P.E. 111. This course is designed to give the student appreciation of and practice in the skills of body control and effective movement. Emphasis is placed on conditioning exercises and posture.

The remaining three semesters she may select from P.E. 112, 113, 114, or 115. These courses are designed to give the student opportunity to continue the practice and understanding of good body mechanics and total fitness through a variety of physical activities.

Students who are majoring or minoring in physical education should enroll for P.E. 123, 124, 125, and 126 in the place of the above nonprofessional courses.



SECONDARY EDUCATION CURRICULUM, PHYSICAL EDUCATION, WOMEN\*  
Bachelor of Science in Education

FRESHMAN YEAR			SEMESTER	1st	2nd
Biol.	141	Botany or			
Chem.	141	Gen. Chem.		4	
Eng.	131	Col. Rhet.		3	
Mathematics or foreign language				3-4	
P.E.	131	Intro. to P.E.		3	
P.E.	111	Body Cond.		1	
**P.E.	123	Indiv. Sports		2	
Biol.	142	Zoology or			
Chem.	142	Gen. Chem.			4
Eng.	132	Col. Rhet.			3
Mathematics or foreign language					3-4
P.E.	133	Pers. & Com. Health			3
**P.E.	124	Indiv. Sports			2
			Total credit hours	16-17	15-16
SOPHOMORE YEAR			SEMESTER	1st	2nd
Zool.	235	Anat., Phys., & Hyg.		3	
Eng.	231	Mast. of Lit.		3	
Govt.	231	Amer. Govt., Org.		3	
Hist.	231	Hist. of U.S. to 1865		3	
P.E.	230	Health Educ.		3	
**P.E.	125	Team Sports		2	
Zool.	236	Anat., Phys., & Hyg.			3
Eng.	232	Mast. of Lit.			3
Govt.	232	Amer. Govt., Func.			3
Hist.	232	Hist. of U.S. since 1865			3
Soc.	230	Intro. to Soc., or Spch. 239, or Phil. 230			3
**P.E.	126	Team Sports			2
			Total credit hours	17	17
JUNIOR YEAR			SEMESTER	1st	2nd
Educ.	330	Prin. of Secun. Educ.		3	
Psy.	335	Adol. Psy.		3	
P.E.	4311	P.E. for Jr. & Sr. High School		3	
P.E.	328	Tech. of Sports		2	
Teaching field II or electives				6	
Educ.	332	Educ. Psy.			3
Educ.	334	Curric. Devel. in Secun. Educ.			3
P.E.	3313	Hist. of the Dance			3
P.E.	329	Tech. of Sports			2
Teaching field II or electives					6
			Total credit hours	17	17
SENIOR YEAR			SEMESTER	1st	2nd
Educ.	436	Tchg. in Sec. Schls.		3	
Educ.	462	Stud. Obs. & Teaching in Sec. Sch.		6	
P.E.	431	Kinesiology		3	
Teaching field II or electives				3	
P.E.	436	Phys. Exam. & Correc. P.E.			3
P.E.	437	Meas. in P.E.			3
Teaching field II or electives					9
			Total credit hours	15	15

\*Students wishing to qualify to teach in both elementary and secondary schools should consult the Head of the Department of Health, Physical Education, and Recreation for Women.

\*\*Satisfies one semester of the College physical education requirement.

\*\*\*Each student who plans to major in physical education or recreation must present annually a complete physical examination report from her family physician. Forms may be secured from the Department of Health, Physical Education, and Recreation for Women.

## Major in Physical Education

Students may major or minor in physical education in the Bachelor of Arts degree program or select physical education as a teaching field for certification in the Bachelor of Arts or Bachelor of Science in Education programs. The courses in physical education required for the major in the Bachelor of Arts Degree are the same as those listed for the teaching field in the Bachelor of Science in Education Degree below. In earning the elementary, secondary, or all-level certificate, the physical education student following the Bachelor of Arts Degree must fulfill the same requirements for certification as those outlined for the Bachelor of Science in Education Degree.

## Bachelor of Science in Education

The curriculum for this degree is designed specifically to meet the requirements for certification in Texas. The earning of this degree qualifies the student to teach physical education on either the elementary or the secondary level or to earn an all-level certificate. The student enrolled in any one of these levels should become familiar with the teacher education program.

The student who desires to teach on the secondary level should follow the curriculum outlined in the accompanying table.

Students who wish to obtain an all-level certificate in order to qualify to teach physical education at the elementary and secondary levels should also follow this curriculum. In addition to the courses listed in this curriculum, the student must take Physical Education 233 and meet other requirements as outlined by the Department of Education.

The student who selects physical education as an area of specialization on the elementary level may follow one of the following plans:

Plan I. Physical Education: 131, 230, 233, 328, 329, 436, 437.

Plan II. Physical Education: 131, 230, 233, 328, 329, 436, 437, 438, 4326.

## Bachelor of Arts—Major in Recreation

The student who is interested in positions of leadership in recreation, rather than in teaching, should select this major. The general requirements of the Bachelor of Arts Degree will be met.

The core program includes the following courses: Physical Education 133, 331, 439, and 4326; Speech 133 or 235; Education 330; Psychology 230 and 332.

Recreation majors must complete the following courses in the area of sports: Physical Education 123, 124, 125, 126, 131, 328, 329, and 433.

In addition, the student must select a minor from the following: arts and crafts, dramatics, music, or park administration. She must also take an introductory course in each area in which she does not minor. Required courses in these areas follow:

Arts and Crafts: Applied Arts 131, 133, 232; also 12 semester hours from the following: Applied Arts 332, 336, 337, 338, 3311, 431, 432, 434, 435, 436, or 439; Allied Arts 238, 239.

Drama: Speech 319 (May be taken three times), 231, 232, 333, 334, 431, and 4311.

Music: Music Literature 131, 132; Applied Music 1113, 1114, 1123, 1124; Music Education 327; also 6 hours of electives.

Park Administration: Horticulture 131, 232, 233, 338; Park Administration 339, 3311, 422, and 423.

## **Minor in Health, Physical Education, and Recreation**

Students seeking a minor in the department will complete work in one of the following programs:

Health Education: Physical Education: 133, 230, 436, 431, or 437, 4326 and 3 hours of an advanced elective.

Physical Education: 131, 230, 233 or 4311, 328, 329, 436, 431 or 437.

Recreation: 131, 133, 331, 433, 439, and 4326.

Minors in physical education and recreation must meet the all-college requirement of 4 semesters of physical education by taking 123, 124, 125, and 126 or equivalent courses.

## **Courses in Health, Physical Education, and Recreation for Women**

### **FOR UNDERGRADUATES**

111. **Body Conditioning.** (1:0:2)
112. **Aquatics.** (1:0:2)
113. **Rhythmic Activities.** (1:0:2)
114. **Individual and Dual Activities.** (1:0:2)
115. **Team Activities.** (1:0:2)
123. **Individual Sports.** (2:0:4)  
Skills, tactics, and rules in tennis and badminton.
124. **Individual Sports.** (2:0:4)  
Skills, tactics, and rules in archery and golf.
125. **Team Sports.** (2:0:4)  
Skills, tactics, and rules in hockey, speedball, and soccer.
126. **Team Sports.** (2:0:4)  
Skills, tactics, and rules in volleyball, basketball, and softball.
131. **Introduction to Physical Education.** (3:3:0)  
Philosophy, aims, objectives, principles, and potential values of physical education.
133. **Personal and Community Health.** (3:3:0)  
Fundamentals of health and personal hygiene; community health problems; causes and prevention of disease in the family as related to individual and community health.
230. **Methods of Teaching Health in the Elementary and Secondary Schools.** (3:3:0)  
Basic principles and procedures of health education and their application to the total school health program.
233. **Methods of Teaching Physical Education in the Elementary School.** (3:3:0)  
A method and content course dealing with the theory and practice of physical education.

**328. Technique of Sports. (2:1:2)**

Prerequisite: P.E. 123, 124, 125, 126. Emphasis on skills, skill analysis, and officiating.

**329. Technique of Sports. (2:1:2)**

A continuation of P.E. 328.

**331. Recreational Methods. (3:3:0)**

Material appropriate for small and large groups, different age levels, and various situations; philosophy and method; practice in planning and leading recreation.

**3313. History of the Dance. (3:3:0)**

History and philosophy of dance and the relationship of dance to allied arts.

FOR UNDERGRADUATES AND GRADUATES

**431. Kinesiology. (3:3:0)**

Principles of human motion. Anatomical and mechanical analysis of everyday and physical education activities for promoting normal physical development and improvement of performance.

**432. Physiology of Exercise. (3:3:0)**

Effect of muscular activity on body processes.

**433. Administration of Health, Physical Education, and Recreation Programs. (3:3:0)**

**436. Physical Examinations and Corrective Physical Education. (3:3:0)**

Practice in administering screening tests with interpretation of findings; organization of programs in physical education for the physically handicapped.

**437. Measurements in Physical Education. (3:3:0)**

Techniques in physical education and methods of administering tests and using data.

**438. Curriculum Development in Physical Education. (3:3:0)**

**439. Organization and Administration of Recreational Programs. (3:3:0)**

Community recreation, its significance, leadership, facilities, and organization of programs; special consideration of the contribution of physical education.

**4311. Physical Education for the Junior and Senior High School. (3:3:0)**

Prerequisite: Junior standing in physical education. Methods and materials for physical education in the secondary school.

**4326. Safety Education. (3:3:2)**

Prevention of accidents in home, industry, and recreation. Includes American Red Cross standard, advanced, and instructor's safety courses.

FOR GRADUATES

**531. Administration of Physical Education. (3:3:0)**

Principles, problems, and procedures for administering physical education programs; for school administrators, athletic directors, physical education directors, and city recreation directors.

**532. Supervision of Physical Education. (3:3:0)**

Principles, problems, relationships, and procedures in the supervision of elementary and high school physical education programs.

**533. Facilities for Physical Education. (3:3:0)**

Principles, terminology, and standards for planning, construction, use, and maintenance of facilities.

**534. Administration of the School Health Program. (3:3:0)**

For teachers, coaches, and school administrators who desire an understanding of a well-balanced health program.

**535. Techniques of Research in Health, Physical Education and Recreation. (3:3:0)**

Research methods, research design, treatment and interpretation of data.

**536. Problems in Health, Physical Education, and Recreation. (3:3:0)**

Individual study of problems relating to health, physical education, and recreation. May be repeated three times for credit.

**630. Master's Report. (3)****631. Master's Thesis. (3)**

Enrollment required at least twice.

## Department of History

David M. Vigness, *Head of the Department*

Office: S.Sc. 119

*Professors:* Lowell Lawrence Blaisdell, Seymour V. Connor, Lawrence Lester Graves, William Curry Holden, Thomas Green Manning, William Martin Pearce, David Martell Vigness, Ernest Wallace

*Associate Professors:* Timothy Paul Donovan, Van Mitchell Smith, Paul Joseph Woods

*Assistant Professors:* Jacquelin Collins, George Roswell Hull, William Rudolph Johnson, Otto Millard Nelson, Benjamin Havelock Newcomb, James Verdo Reese, George Steigler Robbert, Louise Buenger Robbert (Mrs. George S.),\* Idris Rhea Traylor, Jr.

\* Part-time.

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: HISTORY, *Bachelor of Arts, Master of Arts, Doctor of Philosophy*. The department also participates in the LATIN AMERICAN AREA STUDIES program leading to the *Bachelor of Arts Degree*.

A history student may consider a career in teaching in colleges and universities or in the public schools; in regional and local historical society work; in archives and records management; and in business and industry in positions where a broad liberal arts foundation is required. In addition, career opportunities in historical park administration may be developed in conjunction with the Department of Park Administration, Horticulture, and Entomology in the School of Agriculture.

The courses recommended for the undergraduate degree program are History 131, 132, (or 133, 134), 231, 232, and 18 semester hours in advanced history. For a minor program in history the recommended courses are History 131, 132, 231, 232, and 6 semester hours in advanced history.

All courses numbered above 300 are advanced courses; junior classification or higher is prerequisite to enrollment in advanced courses. A student must receive at least a C in an advanced course in history if he wishes to have it count toward his major, minor, or teaching field requirements.

## Teacher Education

In the teacher certification programs described in Part I of this Catalog, history may be used as a teaching field at the secondary level, as an area of specialization at the elementary level, and as a part of the broad field of social sciences. Certification is possible through either the Bachelor of Science in Education Degree or the Bachelor of Arts Degree route.

For all three certification programs the department requires History 131, 132, 231, 232, and 6 advanced hours in American History. In addition, 3 more advanced hours in history are required to fulfill the Plan I elementary program, and 6 more advanced hours are needed to fulfill the 24-hour requirements of the Plan II elementary program and the teaching field of the secondary program.

## Courses in History

### FOR UNDERGRADUATES

- 131, 132. Development of Civilizations. (3:3:0 each)
- 133, 134. History of England. (3:3:0 each)
- 231. History of the United States to 1865. (3:3:0)
- 232. History of the United States since 1865. (3:3:0)
- 330. History of Texas. (3:3:0)
- 336. Background to Afro-Asian History. (3:3:0)
- 338. England in the Eighteenth and Nineteenth Centuries. (3:3:0)
- 3317. History of Military Affairs. (3:3:0)

### FOR UNDERGRADUATES AND GRADUATES

- 430. English Colonial America to 1763. (3:3:0)
- 431. English Colonial America after 1763. (3:3:0)
- 432. Constitutional History of the United States to 1865. (3:3:0)
- 433. Constitutional History of the United States since 1865. (3:3:0)
- 434. Early National Period in the United States. (3:3:0)
- 435. The Jacksonian Era. (3:3:0)
- 436. Social and Cultural History of the United States to 1865. (3:3:0)
- 437. Social and Cultural History of the United States since 1865. (3:3:0)
- 4311. The Old South. (3:3:0)
- 4312. The South since the Civil War. (3:3:0)
- 4313. Social and Cultural History of the Southwest. (3:3:0)
- 4321. South America before Independence. (3:3:0)
- 4322. South America since Independence. (3:3:0)
- 4323. Spanish North America. (3:3:0)
- 4324. Mexico since Independence. (3:3:0)

- 4327. **The American Frontier to 1803. (3:3:0)**
- 4328. **The Trans-Mississippi West from 1803. (3:3:0)**
- 4329. **The Plains Indians. (3:3:0)**
- 4331. **History and Ideas of American Science and Scientists. (3:3:0)**
- 4332. **History of Theology in America. (3:3:0)**
- 4334. **Economic History of the United States to 1865. (3:3:0)**
- 4335. **Economic History of the United States since 1865. (3:3:0)**
- 4336. **The United States, 1900-1932. (3:3:0)**
- 4337. **The United States since 1932. (3:3:0)**
- 4338. **Diplomatic History of the U.S. to 1900. (3:3:0)**
- 4339. **Diplomatic History of the U.S. since 1900. (3:3:0)**
- 4341. **Modern Germany. (3:3:0)**
- 4342. **Central Europe to 1871. (3:3:0)**
- 4343. **Central and Southeastern Europe since 1871. (3:3:0)**
- 4344. **Tudor England. (3:3:0)**
- 4345. **Stuart England. (3:3:0)**
- 4346. **Twentieth Century Britain. (3:3:0)**
- 4347. **Constitutional History of England. (3:3:0)**
- 4349. **The British Empire. (3:3:0)**
- 4351. **The Near East in Modern Times. (3:3:0)**
- 4354. **The Far East. (3:3:0)**
- 4355. **Africa. (3:3:0)**
- 4359. **Czarist Russia. (3:3:0)**
- 4361. **Classical Civilizations: Greece and Rome. (3:3:0)**
- 4362. **Medieval Civilization. (3:3:0)**
- 4363. **The Renaissance. (3:3:0)**
- 4364. **Europe, The Age of Absolutism and the Old Regime. (3:3:0)**
- 4365. **The French Revolution and Napoleon. (3:3:0)**
- 4366. **Europe, 1815-1870. (3:3:0)**
- 4367. **Europe, 1870-1918. (3:3:0)**
- 4368. **Europe between World Wars I and II. (3:3:0)**
- 4369. **Europe since 1939. (3:3:0)**
- 4371. **Teaching Social Studies in the High School. (3:3:0)**
- 4372. **The Reformation. (3:3:0)**
- 4374. **Modern Russia. (3:3:0)**
- 4376. **European Intellectual History in the 19th and 20th Centuries. (3:3:0)**
- 4379. **Senior Honors. (3:3:0)**

Prerequisite: Participate in the Honors Program and 24 hours of history.

## FOR GRADUATES

Graduate courses may be repeated with departmental consent.

- 531. **Proseminar in Texas History.** (3:3:0)
- 534. **Historical Methods and Historiography.** (3:3:0)
- 535. **Historians and Historical Literature.** (3:3:0)
- 5311. **Studies in Southern History.** (3:3:0)
- 5312. **Studies in Recent United States History.** (3:3:0)
- 5313. **Studies in United States Social and Cultural History.** (3:3:0)
- 5314. **Studies in the Frontier & Western American History.** (3:3:0)
- 5315. **Problems in American History.** (3:3:0)
- 5316. **Studies in Modern European History.** (3:3:0)
- 5317. **Studies in Medieval History.** (3:3:0)
- 5318. **Studies in Renaissance and Reformation History.** (3:3:0)
- 5319. **Studies in Afro-Asian History.** (3:3:0)
- 5321. **Studies in British History.** (3:3:0)
- 5322. **Studies in United States Diplomatic History.** (3:3:0)
- 5323. **Studies in American Constitutional History.** (3:3:0)
- 5324. **Studies in English Colonial American History.** (3:3:0)
- 5325. **Studies in American Economic History.** (3:3:0)
- 5335. **History Appreciation for Teachers.** (3:3:0)
- 631. **Master's Thesis.** (3)  
Enrollment required at least twice.
- 633. **Seminar in Southwestern History.** (3:3:0)
- 634. **Seminar in American History.** (3:3:0)
- 635. **Seminar in European History.** (3:3:0)
- 636. **Seminar in Latin American History.** (3:3:0)
- 731, 732. **Research.** (3 each)
- 831. **Doctor's Dissertation.** (3)  
Enrollment required at least four times.



## Department of Journalism

Wallace Earl Garets, *Head of the Department*

Office: J. 103

*Professor:* Wallace Earl Garets

*Associate Professor:* Ralph Louis Sellmeyer

*Assistant Professor:* Robert Alan Rooker

The Department of Journalism directs the *Bachelor of Arts* Degree program in JOURNALISM described in Part I of this Catalog.

A journalism major or minor can be shaped to serve as vocational preparation in any of at least five different fields:

1. Service on a newspaper, large or small.
2. Work on a magazine, house organ, trade journal, or professional publication.
3. Careers in newspaper advertising and public relations.
4. Employment in radio and television news and advertising.
5. Teaching in the secondary school.

Majors or minors must have an overall C average in required courses; however, one D will be accepted in a required course, provided the cumulative average equals C or better. More than one D will result in the student's repeating the course. To enroll in Journalism 231 which is a basic prerequisite for advanced work in journalism, a student must be able to type.

A student minoring in journalism must present Journalism 130, 231 and 338 in the minimum of 18 required hours.

Students majoring in journalism are required to complete 33 semester hours, with a minimum of 21 hours in required courses. By the time the student reaches his junior year, he should consider one of the several fields of emphasis which the department offers and choose his courses accordingly.

The following are the required courses for all majors.

- |   |                              |
|---|------------------------------|
| <b>130. Introduction to Mass Communications</b> | <b>338. Editing</b>          |
| <b>231-232. Newspaper Reporting</b>             | <b>430. Law of the Press</b> |
| <b>336. Advanced Reporting</b>                  | <b>4314. Seminar</b>         |

In addition, the student will elect two courses from BLOCK A and one course each from BLOCKS B and C.

### BLOCK A

- 131. Introduction to News Analysis**
- 335. History of Journalism**
- 3325. Principles of Promotion and Public Relations**
- 433. Public Opinion and Propaganda**
- 436. Public Opinion and Public Issues**
- 4311. The Press In A Democratic Society**

### BLOCK B

- 233. Feature Writing**
- 3312. Nonfiction Writing**
- 3318. Writing for Radio and Television**
- 3321, 3322. Magazine Writing and Editing**

**BLOCK C**

- 320. Typography**
- 333. Elements of Newspaper Management**
- 339. Editing**
- 3313. Photojournalism**
- 3315. Advanced Photojournalism**
- 3351. Advertising Media**

Economics 133-134 and Psychology 230 or Philosophy 230 or Sociology 230 are also required for a major in journalism.

The following journalism courses may be counted as satisfying the School of Arts and Sciences requirement of six hours of social science above the freshman level other than major or minor.

- 335. History of Journalism**
- 430. Law of the Press**
- 433. Public Opinion and Propaganda**
- 436. Public Opinion and Public Issues**
- 4311. The Press in a Democratic Society**

**Teacher Education**

In the teacher education program of the College the department offers work in a teaching field (Plan I) for those planning careers in the secondary schools, and is approved as one of the social sciences in the broad field (Plan II) program for secondary teachers. For details of the teacher education program, see Part I of this Catalog.

The following Journalism courses constitute the required courses for the secondary teaching field (Plan I) :

- 130. Introduction to Mass Communications**
- 231. Newspaper Reporting**
- 233. Feature Writing**
- 335. History of Journalism**
- 338. Editing**
- 3313. Photojournalism**
- 430. Law of the Press**
- 432. Journalism for the High School Teacher**

**Courses in Journalism****FOR UNDERGRADUATES****130. Introduction to Mass Communications. (3:3:0)**

A broad survey of communications agencies in modern life, with particular emphasis on newspapers, magazines, radio, television, and the motion picture.

**131. Introduction to News Analysis. (3:3:0)**

A study of major news stories of the day and the function of mass communications media in American life. An introduction for both journalism and non-journalism majors to an intelligent following of current events as presented in the newspaper, news magazines, radio, and television.

**231, 232. Newspaper Reporting. (3:2:3 each)**

Practice in gathering and writing news; Journ. 231 is a prerequisite to all higher journalism courses for both majors and minors. Majors and minors enrolled in this course are required to work on *The Daily Toreador*.

**233. Feature Writing. (3:3:0)**

Special feature stories; sources for subjects; collection of facts; practice in writing the news feature, side feature, color story. Special feature stories for newspapers, radio, television, wire services.

**320. Typography. (2:1:3)**

Brief history and evolution of typography; choice of types and their arrangement; type harmony and readability; mechanics of printing and publishing; engraving, printing processes, and presses.

**333. Elements of Newspaper Management. (3:3:0)**

Organization field of service, personnel, equipment, production, community relations, labor relations, accounting, field trips, investigative projects.

**335. History of American Journalism. (3:3:0)**

Study of the development of journalism in America from its European roots to the present and of its interrelation with society.

**336. Advanced Reporting. (3:2:3)**

Prerequisite: Journ. 231, 232. A course in the interrelation and writing of news on social, political, and economic topics. Instruction in techniques of specialized reporting will be given through off-campus laboratory assignments.

**3312. Nonfiction Writing. (3:3:0)**

For non-journalism majors wishing to do research in their own fields. Students will write features and articles for possible inclusion in professional publications in their individual specialties.

**3313. Photojournalism. (3:1:6)**

Varied assignments of news and feature picture coverage, stressing use of the press camera. Lecture and laboratory course covering picture processing, and practice and study of picture editing.

**3315. Advanced Photojournalism. (3:1:6)**

Individual or group investigation into student selected areas of the photographic field; instruction and use of 16 mm movie cameras in news filming techniques; lectures in color photography, portraiture, advanced techniques with various types of cameras. For students interested in newspaper, magazine, television news, and advertising photography.

**3318. Writing for Radio and Television. (3:2:3)**

Training in writing news, continuity and public affairs for broadcast by radio or television; interviews, and other multiple voice news shows. Speech 335 recommended.

**3321, 3322. Magazine Writing and Editing. (3:2:3 each)**

A study of the scope, influence, and responsibilities of the magazine as a cultural and social force. Survey of editorial problems; intensive writing practice; market study; laboratory problems in copy preparation, picture editing, page layout and typographical display of the magazine. Members of the class are encouraged to work on *La Ventana*.

**3325. Principles of Promotion and Public Relations. (3:3:0)**

Study of current practices and problems in the field of public relations, with emphasis on various public relations functions, communication, and publicity techniques. Planning public relations programs for such institutions as schools, colleges, churches, civic organizations.

**3351. Advertising Media. (3:3:0)**

A study of the various advertising media to provide journalism, advertising and advertising art students with a knowledge of the use of advertising media, methods of selection, and the skills and background required for media buying. Course will also cover methods of testing media effectiveness in newspapers, radio, television and magazines, in addition to miscellaneous media, i.e., transient, outdoor, direct mail etc. Field trips will be taken.

**FOR UNDERGRADUATES AND GRADUATES****338, 339. Editing. (3:2:3 each)**

Prerequisite: Journ. 231 or equivalent. Intensive study and practice of editing principles, plus basic problems involved in the design and makeup of the newspaper. Includes practice in makeup, layout, copyfitting, and selection of types. Members of the class are required to work on *The Daily Toreador* copy desk.

**411. Special Problems in Journalism. (1)**

Prerequisite: Senior or graduate classification, juniors only with consent of Department Head. Individual research on approved problems in one of the following journalistic fields: news-editorial, radio-television, photography, magazine, public relations, and advertising. May be repeated for credit.

**430. Law of the Press. (3:3:0)**

A study of the laws which guarantee and protect the privileges and define the duties and responsibilities of the press. The course deals with freedom of information and the legal aspects of newspapers, radio, television, and advertising.

**432. Journalism for the High School Teacher. (3:3:0)**

Study and practice with the problems met by a publication supervisor in organizing and directing high school newspapers and yearbooks, functions of high school publications, organization and training of the staff; editorial and business problems; problems with printers. May be counted as an education elective by secondary education students.

**433. Public Opinion and Propaganda. (3:3:0)**

The nature of public opinion; the role of the press in its formation and how the press in turn is influenced by public opinion. Propaganda analysis; the purpose, devices, and effects of propaganda and censorship.

**436. Public Opinion and Public Issues. (3:3:0)**

A broad synthesis course of both the social and natural sciences. A study of some of the great problems that face the citizen; the major mass media of communications and public opinion; how the mass media deal with great problems.

**431. The Press in a Democratic Society. (3:3:0)**

A study of the newsman's role in analyzing major and continuing issues for the public. Special emphasis will be on state and local government, civil rights, labor, business, and religion.

**434. Seminar. (3:3:0)**

A seminar in problems of American journalism. Prerequisite: senior standing.

## Department of Mathematics

Patrick L. Odell, *Head of the Department\**

Office: Ad 301

*Professors:* John Willard Ault, Mohammad Ali Al-Bassam,\*\* Gordon Fuller\*\*\*, Emmett Allen Hazlewood, Ellis Richard Heineman, Ali R. Amir-Moez, Patrick L. Odell, Fred Durnford Rigby, Charles Lathan Riggs, Waleed Abdulla Al-Salam.\*\*

*Associate Professors:* Thomas Andrew Atchison, Earl Howard Gilmore, Anthony Alfred Gioia, Shelby Keith Hildebrand, Muhammed Afzal Kazi,\*\* Robert Marshall Parker, Eugene Francis Steiner, John Thomas White, Horace Eugene Woodward.

*Assistant Professors:* Ronald Myles Anderson, Henry Luther Gray, Lillian Etta McGlothlin, Korandattle Venugapalan Menon, Robert A. Moreland,\*\* Elwyn Wade Morton, Virginia Bowman Roberts, Gerald Lynn Shurbet, Burnett T. Smith, Anne Kerchival Steiner, Mary Ruth Strandtmann, Carl Hammel Willingham.

*Instructors:* GERALINE PATTERSON CARAWAY, Ila Mae Carpenter, Joseph Norwood Hilton, Lee Henry Kennedy, Sarah Ann Kennedy, Howard Barrow Lambert, Travis Ray Langehennig\*\*\*, Ruby Stewart Power, Shirley Kathryn Rekers, Hannah Low Rickman, John Ralph Rollans, Charles Dale Scott, Mary Jane Shipley, Paul Edward Thompson, Georgia Terhune Waldron, Vera Berg Young.

\* Effective September 1, 1966.

\*\* Leave of absence, 1965-66.

\*\*\* Part-time.

This department supervises the following degree program described in Part I of this Catalog or in the *Graduate Catalog*: MATHEMATICS, Bache-

*lor of Arts or Bachelor of Science, Master of Arts or Master of Science, Doctor of Philosophy.*

A minimum of 33 semester hours is required for the Bachelor of Arts in mathematics, while 36 hours are required for the Bachelor of Science. For the recommended curriculum in mathematics leading to the Degree of Bachelor of Science, see the accompanying table. For curriculum leading to the Bachelor of Arts, follows the general pattern for that degree presented in Part I of this Catalog. Math 434 and 4321 are required for all degrees in mathematics.

The department adviser must approve the 6 hours of advanced work (courses numbered 300 and above) required of all minors. In order to claim a major or minor in mathematics, a student must have a grade average of C or better overall, and also on the advanced mathematics courses listed on his degree plan.

Beginning science, mathematics, and engineering students will be allowed to enroll directly in Math 139 (Analytic Geometry and Calculus I) only if their test scores on the advanced Achievement Test in Mathematics, or other suitable placement tests scores, indicate reasonable proficiency in algebra and trigonometry. Those students not qualifying for Math 139 will be advised to take Math 133 and/or 131. Mathematics majors who are required to take either or both of these courses still will be required to take the normal 18 hours of advanced mathematics needed for the completion of the undergraduate degree in mathematics. All beginning science, mathematics, and engineering students who cannot qualify for direct admission to Math 139 are encouraged to take Math 133 and/or 131 in summer school.

Arts and Sciences students, exclusive of science and mathematics majors, may use any combination of mathematics courses to satisfy general degree requirements if they qualify for enrollment in these courses. The Math 135, 136 sequence is particularly recommended for students needing 6 hours of mathematics. For students needing only 3 hours, Math 136 is recommended as a terminal course for the student with a good background in high school mathematics; Math 135 is an excellent terminal course for the average student.

## Teacher Education

The Department of Mathematics offers teacher training programs at both the elementary and secondary levels. Students preparing to teach mathematics at the elementary level should consult the head of the department. Beginning freshmen who plan a teaching field in mathematics at the secondary level should also consult their mathematics adviser regarding their course needs; semester hour requirements and normal course options are as follows:

1. 6 semester hours selected from Math 131, 133, 135, 136, 233.
2. 9 hours of Math 139, 231, 232.
3. 12 hours of approved junior and senior level courses, including 431.

## Courses in Mathematics

## FOR UNDERGRADUATES

**181. Trigonometry. (3:3:0)**

Prerequisite: One year of high school plane geometry and two years of high school algebra or the equivalent. Trigonometric functions: radians; logarithms and exponential equations; solutions of triangles; functions of composite angles; identities; trigonometric equations; complex numbers; De Moivre's Theorem.

**182. Analytic Geometry. (3:3:0)**

Prerequisite: Satisfactory placement test scores, or Math. 133, or Math. 131. The straight line and conic sections; transformations of coordinates; polar coordinates; parametric equations; introduction to solid analytic geometry.

**183. College Algebra. (3:3:0)**

Admission granted on the basis of placement test scores. Inequalities; determinants of order 3 and higher; elementary theory of equations; binomial theorem; progressions; mathematical induction.

**185. Introductory College Mathematics. (3:3:0)**

Basic concepts in elementary mathematics. Number sets and operations; algebraic structures; elementary functions. Required of elementary education majors and recommended for other students needing 3 hours of mathematics to satisfy general degree requirements.

**186. Elements of Mathematical Systems. (3:3:0)**

Prerequisite: Consent of instructor or one semester of college mathematics. The logic of mathematics; proof; set theory; selected mathematical structures; axiom systems; all presented from the elementary viewpoint. Recommended for students in the biological and social sciences as well as for students majoring in mathematics and the physical sciences.

**187, 188. Introductory Mathematical Analysis. (3:3:0 each)**

Prerequisite: Two units of high school mathematics. Introductory logic and set theory; real number properties; inequalities and equations; relations and functions; vectors and matrices; linear programming; probability; progressions; survey of analytic geometry and elementary calculus. Primarily for business majors, but may be used as 3 to 6 hours of mathematics to satisfy general degree requirements.

**189. Analytic Geometry and Calculus I. (3:3:0)**

Prerequisite: Satisfactory placement test scores, or Math. 133. Introduction to analytic geometry; functions; limits; derivatives.

**151. Mathematics for Engineers I. (5:5:0)**

Prerequisite: Satisfactory placement test scores or Math 133, or Math 131. Inequalities; determinants, elementary theory of equations; mathematical induction. Introduction to analytical geometry; the straight line and conic sections. Introduction of the calculus, limits; the derivative, and rates.

**152. Mathematics for Engineers II. (5:5:0)**

Prerequisite: Math 151. Identities, composite angles; logarithms; polar coordinates; parametric equations; differentiation, maxima and minima; rectilinear and curvilinear motion; formal integration; definite integrals; applications.

**231. Analytic Geometry and Calculus II. (3:3:0)**

Prerequisite: Math. 139. Additional topics in analytic geometry; integration; transcendental functions.

**232. Analytic Geometry and Calculus III. (3:3:0)**

Prerequisite: Math 231. Additional topics in analytic geometry; applications of the calculus; infinite series; vectors.

**233. Linear Algebra. (3:3:0)**

Prerequisite: Math. 133, or the equivalent. Finite-dimensional vector spaces, linear transformations and matrices, linear equations, quadratic forms, eigenvalues and eigenvectors, and vector spaces over the complex numbers.

**235. Mathematics for Engineers III. (3:3:0)**

Prerequisite: Math 152. Partial differentiation; infinite series; indeterminate forms; surfaces; hyperbolic functions; multiple integrals.

**238. Statistics. (3:3:0)**

Prerequisite: Math. 133, or 135, or the equivalent. Collection and tabulation of data; bar charts; graphs; sampling, averages; dispersion; correlation index number; normal curve; probability, application to various fields. Credit for the course may not be used toward a degree in mathematics.

MATHEMATICS CURRICULUM  
Bachelor of Science

FRESHMAN YEAR			SEMESTER	1st	2nd
Math.	139	Anal. Geom. and Calc. I		3	
Math.	136	Elem. of Math. Sys.		3	
Eng.	131	Col. Rhet.		3	
Foreign language				3-4	
Science elective				4	
P.E., Band, or Basic ROTC				1	
Math.	233	Linear Alg.			3
Math.	231	Anal. Geom. and Calc. II			3
Eng.	132	Col. Rhet.			3
Foreign language					3-4
Science elective					4
P.E., Band, or Basic ROTC					1
Total credit hours			17-18		17-18
SOPHOMORE YEAR			SEMESTER	1st	2nd
Math.	232	Anal. Geom. and Calc. III		3	
Eng.	231	Mast. of Lit.		3	
Foreign language				3	
Science (for minor)				3-4	
Science elective				4	
P.E., Band, or Basic ROTC				1-2	
Math.	331	Anal. Geom. and Calc. IV			3
Eng.	232	Mast. of Lit.			3
Foreign language					3
Science (for minor)					3-4
Science elective					4
P.E., Band, or Basic ROTC					1-2
Total credit hours			17-19		17-19
JUNIOR AND SENIOR YEARS			SEMESTER	1st	2nd
Math.	332	Diff. Equat. I		3	
Math.	434	Adv. Calc.		3	
Govt.	231	Amer. Govt., Org.		3	
Hist.	231	Hist. of U.S. to 1865		3	
Science (for minor)				6	
Approved electives				12	
Math.	4321	Elem. Mod. Alg.			3
Govt.	232	Amer. Govt., Func.			3
Hist.	232	Hist. of U.S. since 1865			3
Math. electives					9
Science (for minor)					6
Approved elective					3
Total credit hours				30	27

The Department of Mathematics section of this Catalog should be consulted regarding admission requirements for Math. 139. If a student is required to take Math. 131 and 133 prior to enrollment in Math. 139, the result will be an increase of 6 hours of mathematics in his major requirements.

Science electives must be chosen from courses offered in biology, chemistry, physics, or geosciences. Courses are required in at least one field outside the minor.

Languages recommended for mathematics majors are French, German, and Russian. The use of any other language to satisfy degree requirements must be approved by the Department Head or his authorized representative.

**331. Analytic Geometry and Calculus IV. (3:3:0)**

Prerequisite: Math 152 or 232. Three-dimensional analytic geometry; functions of several variables; multiple integration; line and surface integrals.

**332. Differential Equations I. (3:3:0)**

Prerequisite: Math. 235 or 331 or concurrent registration. Solutions of ordinary differential equations; geometric and physical applications.

**334. History of Mathematics. (3:3:0)**

Prerequisite: Math 235 or 331 or consent of the instructor. Historical development of mathematics from the earliest records to current results; history of the application of mathematics to science and social science; impact of mathematics on the development of our culture and civilization.

**335. Higher Mathematics for Engineers and Scientists I. (3:3:0)**

Prerequisite: Math 235 or 331 or concurrent registration. Ordinary differential equations; Laplace transforms.

**336. Higher Mathematics for Engineers and Scientists II. (3:3:0)**

Prerequisite: Math. 332 or 335. Fourier series; partial differential equations.

**337. College Geometry. (3:3:0)**

Prerequisite: Math. 132 or Math. 139. Directed segments and angles; similitude; inversion; geometry of the triangle, quadrilateral, and circle. Recommended for teachers of geometry in high school.

**338. Finite Mathematical Structure. (3:3:0)**

Prerequisite: Math 151 or 231. Logical development of modern mathematical structures with applications of principles to physical sciences; compound statements and truth tables; sets and functions; probability theory and Markov chains, linear algebra and vector spaces.

FOR UNDERGRADUATES AND GRADUATES

**430. Synthetic Projective Geometry. (3:3:0)**

Prerequisite: Math. 337 or consent of the instructor. Fundamental theorems of projective geometry treated synthetically.

**431. Teaching of Mathematics in the Secondary Schools. (3:3:0)**

Prerequisite: 12 semester hours of college mathematics and consent of instructor. Particularly for those students who are within one semester of their student teaching. Only those students working toward teacher certification may use credit in this course toward satisfying minimum requirements for the mathematics major.

**432. Differential Equations II. (3:3:0)**

Prerequisite: Math. 332. Existence theorems; systems of differential equations.

**434, 435. Advanced Calculus. (3:3:0 each)**

Prerequisite: Math 235 or 331. Sets; functions; vector fields; partial derivatives; power series; theory of integration; line, surface, and multiple integrals.

**437. Theory of Numbers. (3:3:0)**

Prerequisite: Math 152 or 232. Prime numbers; congruences; theorems of Fermat, Euler, and Wilson; residues, reciprocity law; Diophantine Equations.

**438. Solid Analytic Geometry. (3:3:0)**

Prerequisite: Math 132 or Math. 139. Direction angles and cosines; equations of space curves, lines and surfaces; canonical forms.

**4312. Numerical Mathematical Analysis. (3:3:0)**

Prerequisite: Math 332 or 335 or concurrent registration. Finite differences; interpolation, numerical solutions of algebraic, transcendental, and difference equations; empirical equations.

**4313. Probability. (3:3:0)**

Prerequisite: Math 152 or 232. Permutations and combinations; additive and multiplicative laws of probability; expectation; Bayes' theorem; continuous and discontinuous distribution functions; applications.

**4314, 4315. Mathematical Statistics. (3:3:0 each)**

Prerequisite: Math 235 or 331. Frequency functions; moments; probability; correlation and regression; testing hypotheses; small sample distributions; analysis of variance; non-parametric methods; sequential analysis.



**4316. Introductory Point-Set Topology. (3:3:0)**

Prerequisite: Consent of the instructor. An axiomatic treatment of linearly ordered spaces, including properties of closed sets, connected sets, and convergent sequences of points.

**4317. Actuarial Mathematics. (3:3:0)**

Prerequisite: Math 151 or 232. Theory of mortality tables; life annuities, premiums; terminal reserves; joint-life annuities and insurance; selected topics in actuarial practice.

**4319. Elementary Functions of Complex Variables. (3:3:0)**

Prerequisite: Math 235 or 331. The complex number system, functions of a complex variable, differentiation, elementary functions, and contour integration.

**4321. Elementary Modern Algebra. (3:3:0)**

Prerequisite: Math. 233 or consent of instructor. The number system; mathematical induction; integral domains; determinants and matrices; rings and fields.

**4324. Matrix Theory. (3:3:0)**

Prerequisite: Math 152 or 232. Matrices and determinants; rank; equivalence; transformations, vector spaces, characteristic equation of a matrix.

**4327. Mathematical Programming. (3:3:0)**

Prerequisite: College Algebra and Math. 152 or 232. Linear inequalities, linear programming theory and algorithms, elementary graph theory and networks; applications of linear programming, parametric and discrete linear programming, non-linear and dynamic programming; optimal decision techniques.

**4331. Introduction to Difference Equations. (3:3:0)**

Prerequisite: Math 235 or 331. The calculus of finite differences; solutions of difference equations; Bernoulli and Euler numbers and polynomials.

**4332. Selected Topics. (3:3:0)**

Prerequisite: Consent of instructor. Selected topics in upper division mathematics. Continued study in senior level mathematics course. Exact content will be determined by existent needs and interests of the student.

**4391. Vector Analysis. (3:3:0)**

Prerequisite: Math 235 or 331. Scalar and vector products; gradient; divergence; curl; curvilinear coordinates; applications.

**4392. Tensor Analysis. (3:3:0)**

Prerequisite: Vector analysis or consent of instructor. An analytical treatment of the theory of tensors and extensors and their properties, including Riemann-Christoffel Tensor and applications related to special relativity.

**FOR GRADUATES****511, 512. Seminar. (1:1:0 each)**

Prerequisite: Graduate standing in mathematics. For graduate students and staff members. Required of all graduate students majoring in mathematics. May be repeated for credit.

**531. Advanced Problems. (3:3:0)**

Prerequisite: Math. 435 and graduate standing. May be used in an individual study or as a seminar. May be repeated in such different areas as algebra, geometry, statistics, and analysis.

**534. Theory of Numbers I. (3:3:0)**

Prerequisite: Math. 437. Diophantine equations; binary quadratic forms; algebraic numbers.

**535. Theory of Numbers II. (3:3:0)**

Prerequisite: Math 534. Theory of number-theoretic functions; partitions; the Prime Number Theorem.

**536, 537. Modern Algebra I, II. (3:3:0 each)**

Prerequisite: 4321 or consent of instructor. Groups; rings; fields; linear algebra; Galois theory.

**538. Foundations of Mathematics. (3:3:0)**

Prerequisite: Graduate standing, with undergraduate major or minor in mathematics. Selected topics in algebra; the number system; the axiomatic approach to mathematics.

**5312, 5313. Functions of a Complex Variable I, II. (3:3:0 each)**

Prerequisite: Math. 434 or Math. 4319. The extended complex plane, elementary transformations, power series, and complex integration; Taylor and Laurent expansions, meromorphic and entire functions, and the calculus of residues.

**5314, 5315. Functions of a Real Variable I, II. (3:3:0 each)**

Prerequisite: Math. 435. The real number system; set and measure theory; properties of Riemann and Lebesgue integrals.

**5316, 5317. Topology I, II. (3:3:0 each)**

Prerequisite: Math. 4316 and either Math. 4321 or Math. 434. Point set theory. Introduction to combinatorial topology.

**5318. Operational Calculus. (3:3:0)**

Prerequisite: Math. 434 or consent of instructor. The convolution of continuous functions, extension to operators and the operational calculus, the Laplace transform and the convolution transform.

**5319. Fourier Analysis. (3:3:0)**

Prerequisite: 5315 or consent of instructor. Orthogonal series, convergence and summability of Fourier series, Fourier transforms.

**5321, 5322. Methods of Applied Mathematics I, II. (3:3:0 each)**

Prerequisite: Math. 4319 or its equivalent. Theory of congruence, special functions; Fourier series; Laplace transforms; boundary value problems; topics in functional analysis.

**5323, 5324. Theory of Ordinary Differential Equations I, II. (3:3:0 each)**

Prerequisite: Math. 432, 435, or consent of instructor.

**5325, 5326. Partial Differential Equations I, II. (3:3:0 each)**

Prerequisite: Math. 432, 435, or consent of instructor.

**5331, 5332. Advanced Topics in Analysis I, II. (3:3:0 each)**

Prerequisite: Consent of instructor.

**5333, 5334. Functional Analysis I, II. (3:3:0 each)**

Prerequisite: 5314 or concurrent enrollment with 5314. Normal linear spaces and their abstract completions. Topological and metric properties. Closed graph theorem. Theorem of uniform boundedness. Hahn-Banach theorems. Weak topologies, adjoints, resolvents, convex sets and related topics.

**5335, 5336. Advanced Mathematics for Teachers I, II. (3:3:0 each)**

Prerequisite: Graduate standing with undergraduate major or minor in mathematics or its equivalent. Axiomatic approach to selected topics in mathematics.

**5341, 5342. Advanced Topics in Algebra I, II. (3:3:0 each)**

Prerequisite: Consent of instructor.

**5351. Advanced Topics in Geometry. (3:3:0)**

Prerequisite: Consent of instructor.

**5361, 5362. Advanced Topics in Topology I, II. (3:3:0 each)**

Prerequisite: Math. 5317 and consent of instructor.

**5371. Design of Experiments. (3:3:0)**

Prerequisite: Math 4315. Principles of design and analysis of experiments; Latin squares; split plots; incomplete block designs; efficiency.

**5372. Theory of Linear Statistical Models. (3:3:0)**

Prerequisite: Math 4315. Multivariate normal; covariance matrix and operations; distribution of quadratic forms; the general linear hypothesis of full and non-full rank; specific linear models.

**5373. Stochastic Processes. (3:3:0)**

Prerequisite: Math. 4313. Study of processes which develop in time according to probabilistic laws; Brownian motion; life and death processes; stochastic models; Markov processes; Ergodic theorems.

**5374, 5375. Advanced Mathematical Statistics I, II. (3:3:0 each)**

Prerequisite: Math. 4315 and consent of instructor. Topics selected from analysis of variance and design of experiments; multivariate analysis; sampling from finite populations; non-parametric methods; sequential analysis.

**630. Master's Report. (3)**

**631. Master's Thesis. (3)****831. Doctor's Dissertation. (3)**

Enrollment required at least four times.

**Courses in Astronomy****FOR UNDERGRADUATES****111. Survey of Astronomy. (1:1:0)**

The main features of the known universe and the principles involved in their discovery. A non-mathematical survey recommended for all students except those planning to take Astron. 231-232.

**231, 232. General Astronomy. (3:3:0 each)**

Prerequisite: One course in college mathematics with a grade of C or better. The solar, stellar, and galactic systems, studied with attention to technical details.

**Department of Music**Gene L. Hemmle, *Head of the Department*

Office: Music 101

*Professors:* Raymond Elliott, Gene Hemmle, Dean Killion, Kurt Overhoff\*\*

*Associate Professors:* Paul Ellsworth, Gene Kenney, Charles Lawrie, Keith McCarty, Charles Post, Mary Jeanne van Appledorn

*Assistant Professors:* Louis Catuogno, Lise Elson,\*\* Robert Deahl, Ben Smith, Richard Tolley, Tom Mastroianni, Judson Maynard

*Instructors:* June Ackroyd, Frank Bowen, Anthony Brittin, Georgette Gettel, John Gilbert,\* Kent Hill, Mary Alice Hongen, Virginia Kellogg,\* Joel Leach, Richard Meek, Martha Palmer, Charles Roe, Heather Woodall, Ben Woodruff

*Part-time Instructors:* Virginia Casey, Hope Cassidy, Sue Lovett, Betsy Roe

\* On leave, 1965-1966.

\*\* Visiting, 1965-1966.

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: APPLIED MUSIC, *Bachelor of Music, Master of Music*; MUSIC EDUCATION, *Bachelor of Music Education, Master of Music Education*; MUSIC THEORY, *Bachelor of Music*.

The curricula of the Department of Music offers the undergraduate student a choice of three degrees: Bachelor of Arts, Bachelor of Music, and Bachelor of Music Education. The general requirements for these degrees are described in Part I of this Catalog. The Bachelor of Arts curriculum is flexible; the recommended curricula for the Bachelor of Music (both Applied Music and Music Theory) and Bachelor of Music Education are set forth in the accompanying tables.

The following general regulations govern all work in the Department of Music.

Nonmusic majors may elect class or private instruction in voice or in any instrument. Each student enrolled in applied music is carried

at his maximum level of achievement, and the nonmusic major is not examined in competition with the music major. Courses designed to serve all students enrolled in the College are: Applied Music (vocal or instrumental, class or private instruction; Applied Music all levels); Music Literature 238, 239, 431, 432, Music Ensemble 010-1 (Tech Choir), 010-2 (Women's Chorus), 011-2 (Piano Ensemble), 010-4 (Tech Opera Theater), 010-5 (Tech Singers), 011-1 (Orchestra), 013-A (Tech Concert Band), 313-B (Tech Symphonic Winds), 313-C (Tech Stage Band).

Entering freshman music majors should have studied previously and should have attained technical proficiency in applied music sufficient to qualify for a course numbered 125 or above. Classification as to course will be made during orientation week.

Students transferring from other approved institutions will be administered placement examinations in applied music and music theory. Music majors enrolled in the College are expected to study applied music with College faculty. Students who do not qualify for courses above the 125 level must register for Applied Music 125 until the deficiency is removed. Students following a plan for a major in music education will study the principal instrument for six semesters. Satisfying all requirements for the professional degree in music education may require more than eight semesters. Students following a plan for a major in applied music will study the principal instrument for eight semesters.

The applied music major is required to attain a higher performance proficiency than is required of the music education major concentrating in the same field. Upon request, the Department of Music will supply specific requirements for entrance into Applied Music 125. Additional credit for applied music may apply toward the Bachelor of Music Degree only when carried as secondary instruments.

The student must earn a minimum grade of C to qualify for successive levels of freshman and sophomore music theory.

Students may receive credit for college-level work accomplished prior to entrance into the College. This may be done through advanced standing examinations administered by the faculty of the Department of Music, after the student has obtained permission from the Dean of Arts and Sciences during the first semester of the freshman year. Advanced standing examinations will be administered only in the fields of applied music and music theory. In order to receive credit by an advanced standing examination, the student must achieve a grade of not less than B on such examinations.

At the end of their sophomore year, all applied music students who wish to enter advanced classes will have their work reviewed by the faculty. Each music major will be required to present a joint recital during the junior year. Applied music majors will be required to present a full recital during the senior year. Permission to present each recital must be obtained from an examining jury during the semester preceding the recital presentation.

The student must meet a proficiency level in required secondary subjects and in sight-singing by examination or course of study.

Attendance at 20 of the student recitals, faculty recitals, and performances by major organizations is required of all music majors each semester. Failure to meet this requirement may result in an increase in the

MUSIC EDUCATION CURRICULUM  
(Secondary Certificate;\* Voice, Piano, Orchestra, or Band Instrument)  
Bachelor of Music Education

FRESHMAN YEAR			SEMESTER	1st	2nd
Ap. Mus.	125	Prin. Instrum.		2	
Ap. Mus.	**	Secon. Instrum.		1	
Mus. Lit.	131	Intro. to Mus. Lit.		3	
Mus. Th.	133	Elem. Theory		3	
Eng.	131	Col. Rhet.		3	
Math. or science				3-4	
Ensemble				1	
P.E., Band, or Basic ROTC				1-2	
Ap. Mus.	126	Prin. Instrum.			2
Ap. Mus.	**	Secon. Instrum.			1
Mus. Lit.	132	Intro. to Mus. Lit.			3
Mus. Th.	134	Elem. Theory			3
Eng.	132	Col. Rhet.			3
Math. or science					3-4
Ensemble					1
P.E., Band, or Basic ROTC					1-2
			Total credit hours	17-19	17-19
SOPHOMORE YEAR			SEMESTER	1st	2nd
Ap. Mus.	225	Prin. Instrum.		2	
Ap. Mus.	**	Secon. Instrum.		1	
Mus. Th.	233	Intermed. Theory		3	
Eng.	231	Mast. of Lit.		3	
Foreign language				4	
Govt.	231	Amer. Govt., Org.		3	
Ensemble				1	
P.E., Band, or Basic ROTC				1-2	
Ap. Mus.	226	Prin. Instrum.			2
Ap. Mus.	**	Secon. Instrument			1
Mus. Th.	234	Intermed. Theory			3
Eng.	232	Mast. of Lit.			3
Foreign Language					4
Govt.	232	Amer. Govt., Func.			3
Ensemble					1
P.E., Band, or Basic ROTC					1-2
			Total credit hours	18-19	18-19
JUNIOR YEAR			SEMESTER	1st	2nd
Ap. Mus.	325	Prin. Instrum.		2	
Ap. Mus.	**	Secon. Instrum.		1	
Ap. Mus.	**	Secon. Instrum.		1	
Mus. Th.	333	Form & Comp.		3	
Mus. Ed.	328	Instrum. Conduc.		2	
Mus. Ed.	338	Secon. Teaching of Mus.		3	
Educ.	332	Educ. Psy.		3	
Educ.	330	Found. of Secon. Educ.*		3	
Ensemble				1	
Ap. Mus.	326	Prin. Instrum.			2
Ap. Mus.	**	Secon. Instrum.			1
Ap. Mus.	**	Secon. Instrum.			1
Mus. Th.	334	Form & Comp.			3
Mus. Ed.	327	Choral Conduc.			2
Mus. Ed.	336	Secon. Instrum. Meth.*			3
Hist.	231	Hist. of U.S. to '865			3
Educ.	334	Curric. Dev. in Sec. Ed.			3
Ensemble					1
			Total credit hours	19	19
SENIOR YEAR			SEMESTER	1st	2nd
Mus. Lit.	431	Hist. of Mus.		3	
Educ.	436	Tchg. in Sec. Schls.*		3	
Educ.	462	Stud. Obs. & Tchn. in Sec. Sch.*		6	
Hist.	232	Hist. of U.S. since 1865		3	
Ensemble				1	
Mus. Lit.	432	Hist. of Mus.			3
Mus. Th.	427	Instrumentation			2
Academic electives					6
Free electives					2-4
Ensemble					1
			Total credit hours	16	14-16

\*For an All-Level (Music) Certificate the student should substitute Mus. Ed. 337 for Mus. Ed. 336; Educ. 430 for Educ. 330; Educ. 3345 or 3346 for Educ. 436; Educ. 431, 432 for Educ. 462.

\*\*Choice of secondary instrument is dependent upon the student's principal instrument.

number of hours satisfying degree requirements. Practical experience in accompanying, not to exceed one clock hour per week, is required of students enrolled with piano as principal instrument.

## Courses in Applied Music

Additional fees for applied music are shown in Part I of this Catalog under "Miscellaneous Special Fees." Laboratory hours shown for applied music courses are student-teacher contact hours. Applied music students are required to practice a minimum of three clock hours per week for each semester-hour credit.

### FOR UNDERGRADUATES

#### 113, 114. Percussion. (1:0:3 each)

Beginning and intermediate experience on the snare drum; introduction to timpani, mallet instrument, dance drums, Latin American instruments, and accessories with emphasis on teaching techniques. Laboratory ensemble experience.

#### 1113, 1114. Voice. (1:0:3 each)

Correct posture and studies for breath control; development of resonance; study of vowel formation; vocalization. Simple songs. Laboratory ensemble experience.

#### 1123, 1124. Piano. (1:0:3 each)

Sight reading and repertoire of simple piano materials. Harmonization and transposition of easy compositions. Laboratory ensemble experience.

#### 213, 214. Strings. (1:0:3 each)

Ability to play scales on violin, viola, cello, and bass. Laboratory ensemble experience.

#### 2113, 2114. Voice. (1:0:3 each)

Continuation of Ap. Mus. 113, 114. Laboratory ensemble experience.

#### 2123, 2124. Piano. (1:0:3 each)

Continuation of Ap. Mus. 1123, 1124. Laboratory ensemble experience.

#### 313, 314. Brass Instruments. (1:0:3 each)

Prerequisite: Ap. Mus. 115. Ability to play scales on trumpet, French horn, trombone, and tuba. Laboratory ensemble experience.

#### 413, 414. Woodwinds. (1:0:3 each)

Prerequisite: Ap. Mus. 115. Ability to play scales on flute, oboe, clarinet, and bassoon. Laboratory ensemble experience.

#### Applied Music. 115, 116, 215, 216, 315, 316. Instrument or Voice. (1:0:½ each)

#### Applied Music. 125, 126, 225, 226, 235, 236, 325, 326, 345, 346, 425, 426, 435, 436, 445, 446, 535, 545. Instrument or Voice. (2:0:1; 3:0:1; 4:0:1)

### FOR GRADUATES

#### 530. Pedagogy of Applied Music. (3:3:0)

Advanced study in the pedagogy of applied instrumental or vocal masterworks from easy-moderate to difficult. Emphasis in the pedagogy of interpretation, technique, and memorization.

#### 660. Master's Recital and Report. (6)

Master of Music Recital: full length program of standard works from the concert repertoire, encompassing several styles of periods of musical composition.

Master's Report: a paper of research or documentation of the works performed on the Master of Music Recital.

APPLIED MUSIC CURRICULUM  
Bachelor of Music (Applied Music)  
Department of Music

Applied Field	Applied Music (Principal Instrument)	Applied Music (Secondary Instrument)	Music Theory	Music Literature	Music Education	Music Ensemble	Academic Courses	Electives
<u>Piano</u> 123 sem. hrs. + Band, P.E., or ROTC	125,126,235, 236,345,346, 445,446	Proficiency	133,134,233, 234,333,334, 427,435	131,132,332, 431,432	327 or 328 433		Hist. 231,232 Govt. 231,232 Eng. 131,132,231,232 + Band, P.E., ROTC	
Total sem. hrs.	26		23	15	5	8	24	22
<u>Organ</u> 123 sem. hrs. + Band, P.E., or ROTC	See above	Proficiency	See above	131,132,431, 432	327,328		See above	
Total sem. hrs.	26		23	12	4	8	24	27
<u>Voice</u> 126 sem. hrs. + Band, P.E., or ROTC	See above	Proficiency in piano	See above	131,132,330, 431,432	327,437		See above +It. 131,132 French 141,142 Germ. 141,142	
Total sem. hrs.	26		23	15	5	8	46	3
<u>Winds</u> 123 sem. hrs. + Band, P.E., or ROTC	See above	Proficiency in piano	See above	131,132,431, 432	328		Hist. 231,232 Govt. 231,232 Eng. 131,132,231,232 + Band, P.E., ROTC	
Total sem hrs.	26		23	12	2	8	24	28
<u>Strings</u> 123 sem. hrs. + Band, P.E., or ROTC	See above +213,214	Proficiency in piano	See above	131,132,431, 432	328		See above	
Total sem. hrs.	28		23	12	2	8	24	26

## PIANO (Sections 7, 8, 9, 10, 25) FOR UNDERGRADUATES

### Secondary Piano

Technical work and repertoire recommended by the State Department of Education in Bulletin 449, Pages 64 to 72.

### Freshman Piano.

Major and minor scales, arpeggios, broken chords, Bach, two-part inventions; sonatas; Haydn, Mozart and Beethoven; romantic and modern compositions.

### Sophomore Piano.

Major and minor scales, arpeggios, broken chords, 18th notes at MM 100 to 120. Bach, two and three-part inventions, Well-Tempered Clavichord; sonatas; Mozart, Beethoven, Op. 10; romantic and modern compositions.

### Junior Piano.

Prerequisite: Faculty approval of performance proficiency. Bach, Well-Tempered Clavichord, Czerny, Op. 740, or studies of similar difficulty; sonatas; Scarlatti, Haydn, Mozart, Beethoven, Concerto No. 1 or 2; romantic and modern compositions.

## FOR UNDERGRADUATES AND GRADUATES

### Senior and Graduate Piano.

Bach, Well-Tempered Clavichord; Beethoven, sonatas equivalent in difficulty to Op. 31; Chopin; ballades, etudes, scherzi; romantic and modern compositions.

## FOR GRADUATES

### Graduate Piano.

Artistic level of performance of works equivalent in content to Bach: Italian Concerto; Beethoven: Op. 110; Chopin: Sonatas; Prokofieff: Concerti.

## VOICE (Sections 15, 16, 17, 18, 27)

## FOR UNDERGRADUATES

### Secondary Voice.

Technical studies and repertoire for the non-vocal major.

### Freshman Voice.

Studies in diatonic and chromatic scales: staccato and legato tones; emphasis on the latter. Simpler early Italian and English classics and repertoire for general use.

### Sophomore Voice.

More advanced technique; songs by Handel, Mozart, Schubert, Schumann, and other composers of the Classic and Romantic periods. Repertoire for general use.

### Junior Voice.

Advanced vocal techniques; studies in style appropriate to various periods. Selections from operas and oratorios of Bach, Handel, Mozart, Gluck, and Haydn. Romantic and modern songs.

## FOR UNDERGRADUATES AND GRADUATES

### Senior and Graduate Voice.

Summary of previous technical exercises; more difficult songs of classic, romantic, and modern composers. Performance in German, French, and Italian languages.

## FOR GRADUATES

### Graduate Voice.

Advanced technical studies as needed. Difficult songs of various styles for all periods. Selections from opera and oratorios of Donizetti, Gounod, Saint-Saens, Rossini, Verdi, Puccini, Britten, Hindemith, Honegger, Stravinsky, and Poulence.

## ORGAN (Sections 6, 26)

## FOR UNDERGRADUATES

### Secondary Organ.

For non-music majors or music majors failing to qualify for Organ 125 or 126. Repertoires are similar to those for Organ 125, 126, or 225, 226.



MUSIC THEORY CURRICULUM  
Bachelor of Music

FRESHMAN YEAR			SEMESTER	1st	2nd
Ap. Mus.	125	Prin. Instr.		2	
Ap. Mus.		Secon. Instrum.		1	
Mus. Lit.	131	Intro. to Mus. Lit.		3	
Mus. Th.	133	Elem. Theory		3	
Eng.	131	Col. Rhet.		3	
Foreign language (Fr., Germ., It.)				4	
Ensemble				1	
Band or ROTC				1-2	
Ap. Mus.	126	Prin. Instrum.			2
Ap. Mus.		Second. Instrum.			1
Mus. Lit.	132	Intro. to Mus. Lit.			3
Mus. Th.	134	Elem. Theory			3
Eng.	132	Col. Rhet.			3
Foreign language (Fr., Germ., It.)					4
Ensemble					1
Band or ROTC					1-2
			Total credit hours	18-19	18-19
SOPHOMORE YEAR			SEMESTER	1st	2nd
Ap. Mus.	225	Prin. Instrum.		2	
Ap. Mus.		Secon. Instrum.		1	
Mus. Th.	233	Intermed. Theory		3	
Eng.	231	Mast. of Lit.		3	
Foreign language (Fr., Germ., It.)				3	
Govt.	231	Amer. Govt., Org.		3	
Ensemble				1	
Band or ROTC				1-2	
Ap. Mus.	226	Prin. Instrum.			2
Ap. Mus.		Secon. Instrum.			1
Mus. Th.	234	Intermed. Theory			3
Eng.	232	Mast. of Lit.			3
Foreign language (Fr., Germ., It.)					3
Govt.	232	Amer. Govt., Func.			3
Ensemble					1
Band or ROTC					1-2
			Total credit hours	17-18	17-18
JUNIOR YEAR			SEMESTER	1st	2nd
Ap. Mus.	325	Prin. Instrum.		2	
Mus. Th.	333	Form and Comp.		3	
Mus. Ed.	327	Choral Conduc.		2	
Mus. Th.	435	Counterpoint		3	
Hist.	231	Hist. of U.S. to 1865		3	
Ensemble				1	
Mus. Th. Elective				2-3	
Ap. Mus.	326	Prin. Instrum.			2
Mus. Th.	334	Form and Comp.			3
Mus. Ed.	328	Instrum. Conduc.			2
Mus. Th.	436	Counterpoint			3
History	232	History of U.S. since 1865			3
Ensemble					1
Mus. Th. Elective					2-3
			Total credit hours	16-17	16-17
SENIOR YEAR			SEMESTER	1st	2nd
Ap. Mus.	425	Prin. Instrum.		2	
Mus. Lit.	431	Hist. of Mus.		3	
Academic Elective				3	
Mus. Th.	427	Instrumentation		2	
Mus. Th.	432	Fund. of Comp.		3	
Mus. Th.	430	Ped. of Theory (elementary)		3	
Ensemble				1	
Ap. Mus.	426	Prin. Instrum.			2
Mus. Lit.	432	Hist. of Mus.			3
Academic Elective					3
Mus. Th.	428	Orchestration			2
Mus. Th.	433	Fund. of Comp.			3
Mus. Th.	431	Ped. of Theory (intermed.)			3
Ensemble					1
			Total credit hours	17	17

Piano may be the principal or secondary emphasis, but must be taken 4 years. Also the student must complete one semester each in the study of 3 orchestral instruments: string, woodwind, brass. This should begin in Freshman year.

### **Freshman Organ.**

Prerequisite: Piano 125, 126, or equivalent. Dickinson, *The Art and Technique of Organ Playing*, or Gleason, *Method of Organ Playing*; Bach, *Eight Little Preludes and Fugues*, *Little Organ Book*; Dupre, *79 Chorale Preludes*; hymn and anthem accompaniments.

### **Sophomore Organ.**

Selected works from pre-Bach composers; Bach, shorter preludes and fugues; sonatas of Mendelssohn and Widor; smaller works of Franck; works of American composers; church service playing and transcribing.

### **Junior Organ.**

Bach, preludes, toccatas, fantasies, fugues, concertos, and concert trio sonatas; selected romantic and modern repertoire. Elementary improvisation.

## **FOR UNDERGRADUATES AND GRADUATES**

### **Senior or Graduate Organ.**

Bach, major works; representative major works of pre-Bach, romantic, and modern composers. Improvisation.

## **FOR GRADUATES**

### **Graduate Organ.**

Selected major works of Bach; movements from symphonies and sonatas of Reger, Widor, Sowerby, Reubke; major works of Liszt, Dupre, Langlais, Messiaen, Hindemith, and others. Improvisation.

## **VIOLIN (Section 21)**

### **FOR UNDERGRADUATES**

### **Secondary Violin.**

Technical work and literature outlined in Bulletin 449 of the State Department of Education, or work of equal difficulty.

### **Freshman Violin.**

Two- and three-octave scales, selected scales in thirds, sixths, and octaves; Kreutzer or Mazas etudes as needed. Handel or Mozart sonatas, Viotti or De Bériot concertos; representative solos.

### **Sophomore Violin.**

Two- and three-octave scales and arpeggios; Kreutzer, Fiorillo etudes; Mozart Concerto No. 4 or equivalent; Beethoven sonata; representative solos.

### **Junior Violin.**

Two- and three-octave scales and arpeggios; Fiorillo and Rode etudes; Bach sonatas; Bruch and Mendelssohn concertos; representative solos.

## **FOR UNDERGRADUATES AND GRADUATES**

### **Senior and Graduate Violin.**

Two- and three-octave scales and arpeggios, selected in thirds, octaves, and tenths; Rode and Dont etudes; concertos by Mendelssohn, Bruch, Beethoven, Lalo, according to the degree of advancement; solo repertoire.

## **FOR GRADUATES**

### **Graduate Violin.**

Study of major violin repertoire. Prerequisite: 3 octave scales and arpeggios, 3rds, 6ths, octaves, performance of repertoire comparable to junior undergraduate level.

## **VIOLONCELLO (Section 22)**

### **FOR UNDERGRADUATES**

### **Secondary Violoncello.**

Technical work and literature outlined in Bulletin 589 of the State Department of Education, or work of equal difficulty.

### **Freshman Violoncello.**

Scales and arpeggios; studies of Grutzmacher, Lee, and Klengel; representative solos.

### **Sophomore Violoncello.**

Scales and arpeggios; studies as needed. Studies of Vol.1, Schlemmiller, Dotzauer, Sevcik, and Romberg Concerto; representative solos.

### **Junior Violoncello.**

Scales and arpeggios; studies as needed; studies of Schroeder, Lee Op. 31, Kreutzer studies; representative solos.

## **FOR UNDERGRADUATES AND GRADUATES**

### **Senior and Graduate Violoncello.**

Scales and arpeggios; concertos and sonatas by Boccherini, Lalo, Brahms, and others; solo repertoire.

## **FOR GRADUATES**

### **Graduate Violoncello.**

A high degree of artistry will be demonstrated in the study and performance of works from the standard 'cello literature, including concertos by Schumann, Dvorak, and Lalo; sonatas by Francoeur, Tassarini, Brahms, and Rachmaninoff; and solo suites by Bach and Reger.

## **VIOLA (Section 14)**

### **FOR UNDERGRADUATES**

#### **Secondary Viola.**

Technical work and literature outlined in Bulletin 589 of the State Department of Education, or work of equal difficulty.

#### **Freshman Viola.**

Scales and arpeggios; studies and exercises by Lifschey, Sitt, Wolfahrt; representative solos.

#### **Sophomore Viola.**

Scales and arpeggios as needed; studies by Campagnoli, Lifschey, Kreutzer; representative solos.

#### **Junior Viola.**

Scales and arpeggios as needed; studies by Kreutzer, Mezas; Bach suites; representative solos; sonatas and concertos by Telemann, Haydn.

## **FOR UNDERGRADUATES AND GRADUATES**

### **Senior and Graduate Viola.**

Studies as needed; advanced repertoire sonatas by Brahms, Bach, Hindemith; concertos by Handel, Mozart; orchestral studies.

## **FOR GRADUATES**

### **Graduate Viola.**

Advanced repertoire: sonatas by Hindemith, Brahms; concertos by Walton, or equivalent, as indicated by advancement of student.

## **DOUBLE BASS (Section 23)**

### **FOR UNDERGRADUATES**

#### **Secondary Double Bass.**

Scales and intervals and selected compositions as needed.

#### **Freshman Double Bass.**

Scales and arpeggios; studies from Simandl, Book 1; appropriate solos.

#### **Sophomore Double Bass.**

Scales and arpeggios; studies from Simandl, Books I and II; orchestral studies; tenor clef and scales in three octaves using thumb position; representative solos and concertos.

#### **Junior Double Bass.**

Scales and arpeggios. Studies from Bille New Method Book II, emphasizing thumb position; representative solos, including concerti by Capuzzi and Dittersdorf.

## FOR UNDERGRADUATES AND GRADUATES

**Senior and Graduate Double Bass.**

Scales and arpeggios, studies in degree of advancement equivalent to Simandl and Kreutzer Etudes; orchestral studies of an advanced type; concert repertoire.

## FOR GRADUATES

**Graduate Double Bass.**

A high degree of artistry will be demonstrated in the study and performance of work and studies from the standard string bass literature, including advanced studies by Simandl and Bille, concertos by Dittersdorf, and sonatas by Hindemith and Eccles.

**FLUTE (Section 4)**

## FOR UNDERGRADUATES

**Secondary Flute.**

Development of embouchure, breath control, tone, and articulation; major, minor, chromatic scales in simple articulations; simple melodies; broken arpeggios; representative solos.

**Freshman Flute.**

Continuation of scales, arpeggios, simple melodies; Popp-Soussmann, Complete Method for Flute, Book I; Studies by Kohler, Book II; Soussmann, Part II; representative solos, including at least one pre-classical sonata.

**Sophomore Flute.**

Popp-Soussmann; Duets, Part II; Studies by DeLorenzo; Endresen, Supplementary Studies for Flute; Boehm, Studies; representative solos, including at least one Bach sonata and one Handel sonata.

**Junior Flute.**

Studies by Boehm continued; Popp-Soussmann, Part II; Roodenburg, Scale. Interval, and Arpeggio Studies for Flute; Studies by Briccialdi; representative solos, including at least one Mozart concerto and one contemporary sonata.

## FOR UNDERGRADUATES AND GRADUATES

**Senior and Graduate Flute.**

Studies by Soussmann and Briccialdi continued; representative solos, including Bach, B Minor Suite, and at least one contemporary sonata or concerto.

## FOR GRADUATES

**Graduate Flute.**

Study of advanced etudes (such as Bozza and Marcel Bitsch); Orchestral studies (Richard Strauss, etc.); such advanced solo literature as Bach Sonatas, Mozart Concerti; contemporary solos and chamber music.

**OBOE (Section 20)**

## FOR UNDERGRADUATES

**Secondary Oboe.**

Development of embouchure, tone, breath control, articulation; Gekeler Method for Oboe; Barrett's Standard Oboe Tutor; studies for development of control in scale, arpeggio, and interval progressions; representative solos.

**Freshman Oboe.**

All major and minor scales and arpeggios in fluent legato and staccato; Pares, Daily Technical Studies for Oboe; Barrett, Exercises in Articulation and Progressive Methods; representative solos, including Handel, B flat Concerto.

**Sophomore Oboe.**

Barrett Studies continued; Sellner, Etudes of Oboe, Part II; studies for intervals, broken chords, and alternate fingering; representative solos, including at least two pre-classical sonatas; beginning reed making.

**Junior Oboe.**

Studies by Barrett and Sellner continued; representative solos, including the Hindemith Sonata.

## FOR UNDERGRADUATES AND GRADUATES

### Senior and Graduate Oboe.

Studies by Barrett, Sellner, and Andraud; Bassi, Twenty-seven Virtuoso Studies for Oboe; representative solos, including the Goossens Concerto.

## FOR GRADUATES

### Graduate Oboe.

Summary of previous technical exercises; study of representative concerti and sonatas of each period.

## CLARINET (Section 2)

## FOR UNDERGRADUATES

### Secondary Clarinet

Development of embouchure, breath control, tone production, and fingering. Klose, Method, Part I; Lazarus, Method, Part III; representative solos.

### Freshman Clarinet.

Lazarus, Method, Part II; Baermann, Book II; Klose, characteristic studies; representative solos.

### Sophomore Clarinet

Baermann, Book III; Rose, Forty Studies; Langenus, Scale Studies; representative solos.

### Junior Clarinet.

Labanchi Method, Book II; Saint-Saens, Sonata Op. 167; representative solos, including one sonata or concerto.

## FOR UNDERGRADUATES AND GRADUATES

### Senior and Graduate Clarinet

Langenus, Virtuoso Studies and Duets; Jeanjean, Twenty-five Technical and Melodic Studies; representative solos, including concertos, sonatas, and shorter solos.

## FOR GRADUATES

### Graduate Clarinet.

Summary of previous technical exercises; study of representative concerti and sonatas of each period.

## BASSOON (Section 19)

## FOR UNDERGRADUATES

### Secondary Bassoon.

Development of embouchure, breath control, attack and production of tone; representative solos.

### Freshman Bassoon.

Weissenborn Studies, Book I, Op. 8; Milde, Studies; alternate fingerings; reed making, exercises in tenor clef; Jancourt, Progressive Sonatas, Book II; representative solos.

### Sophomore Bassoon.

F. Oubradous, Daily Scales and Exercises, Books I, II; Weissenborn Studies, Book II; representative solos.

### Junior Bassoon.

Weissenborn Studies, Book II continued; Milde, Concert Studies; A. Giampieri, Sixteen Daily Studies; representative solos.

## FOR UNDERGRADUATES AND GRADUATES

### Senior and Graduate Bassoon.

Weissenborn, Milde, and A. Giampieri Studies continued; Almenrader, Book II; clef studies, representative solos.

## FOR GRADUATES

### **Graduate Bassoon.**

Summary of previous technical exercises; study of representative concerti and sonatas of each period.

## **SAXOPHONE (Section 11)**

### FOR UNDERGRADUATES

#### **Secondary Saxophone.**

Development of embouchure, breath control, tone, and articulation. Cailliet, Method, Books I and II; representative solos.

#### **Freshman Saxophone.**

All major and minor scales and arpeggios in fluent legato and staccato articulations; Vivian Scale Exercises; Brooke Method; representative solos.

#### **Sophomore Saxophone.**

Brooke Method continued; Eby Method; Bassi-Iasilli, Twenty-seven Virtuoso Studies; representative solos.

#### **Junior Saxophone.**

Brooke and Eby Methods continued; special studies for intervals, broken chords, alternate fingerings, and high note register; studies by Sigurd Rascher; Virtuoso Studies by Traxler, representative solos.

## FOR UNDERGRADUATES AND GRADUATES

### **Senior and Graduate Saxophone.**

Cinq Virtuoso Caprices by Pantaleo; Iasilli and technical exercises by Calicchio; representative solos.

## FOR GRADUATES

### **Graduate Saxophone.**

Summary of previous technical exercises; study of representative concerti and sonatas of each period.

## **CORNET or TRUMPET (Section 3)**

### FOR UNDERGRADUATES

#### **Secondary Cornet or Trumpet.**

Development of embouchure; breathing; attack; scale studies; representative solos.

#### **Freshman Cornet or Trumpet.**

Arban, Method; Williams, Book II; Pares, Daily Technical Studies; Rubank (Advanced); Kopprasch, Etudes; Clarke; Bellstedt; Gatti, World's Method of Cornet, Part II; emphasis on breath control, attack, and articulation; solos selected from Class II, Interscholastic League Solo List.

#### **Sophomore Cornet or Trumpet**

Williams, Book II; Arban, Gatti Studies; Clarke, Technical Studies for Cornet; Scholssbert Drills; studies in double and triple tonguing; clef reading (Sachse, Vol. 1); representative solos.

#### **Junior Cornet or Trumpet.**

Williams, Book III; Guilbaut, Conservatory Studies; Clarke, Characteristic Studies; Etudes by Laurent and St. Jacome; clef reading; representative solos, including one sonata or concerto, arias, lieder, and other solos.

## FOR UNDERGRADUATES AND GRADUATES

### **Senior and Graduate Cornet or Trumpet.**

Smith, Top Tones for Trumpet; Williams and St. Jacome Studies; Paudert, Twenty-four Modern Virtuoso Studies; Etudes by Petit and Balay; representative solos, including concertos, sonatas, and shorter solos.

## FOR GRADUATES

### **Graduate Cornet or Trumpet.**

Preparation of literature suitable for Graduate Recital (such as Hindemith Sonata, etc.), including work on the D trumpet. Emphasis will be placed on the highest grade of literature for trumpet solo and trumpet in chamber music.

## FRENCH HORN (Section 5)

### FOR UNDERGRADUATES

#### Secondary French Horn.

Development of embouchure, breath control, articulation, and tone; Pottag-Hovv, Book II, or studies of similar difficulty; solos from Interscholastic Solo List, Class I.

#### Freshman French Horn.

Continuation of Kopprasch, Book I; begin Book II, studies for transposition clef reading extension of range of all major and minor scales and arpeggios; representative solos, including arias, sonatas, and selections from Interscholastic League Solo List, Class II.

#### Sophomore French Horn.

Continuation of Kopprasch, Book II; Franz Studies; Pottag, French Horn Passages; representative solos.

#### Junior French Horn.

Continuation of Kopprasch; Franz Studies; Alphonse Etudes, Book III; Gallay, Thirty Etudes, Op. 13; representative solos, including one sonata or concerto, arias, lieder, and other solos.

### FOR UNDERGRADUATES AND GRADUATES

#### Senior and Graduate French Horn.

Continuation of Kopprasch; Franz studies; Alphonse Etudes, Book IV; Michiels Twenty-four Etudes; continued study of transposition, clef reading; representative solos, including concertos and shorter solos.

### FOR GRADUATES

#### Graduate French Horn.

Study of advanced etudes (such as Gallay, Thirty Studies, Opus 13). Study of all major advanced solo literature, including R. Strauss Concerto No. 2, Brahms horn trio, Gilliers horn concerto, and Hindemith concerto. Study of orchestral excerpts and transposition.

## TROMBONE (Section 12)

### FOR UNDERGRADUATES

#### Secondary Trombone.

Tone production development of embouchure, breath control, articulation. Use of material appropriate to the student, with expectation of playing from Vol. I of Blume, 36 Studies; Vobaron, 34 Etudes; and Vol. I of Bordogni-Rochut, Melodious Etudes, by the end of the first year of study. Solos of appropriate difficulty.

#### Freshman Trombone.

Development of embouchure, breath control, tone, and articulation. Use of material appropriate to the student, but minimum proficiency level for material approximating that of Vobaron, 34 Etudes; Blume, 36 Etudes (Vol. I); Bordogni-Rochut, Melodious Etudes (Vol. I), in difficulty. Pares, Daily Exercises and Scales. Representative solos: Gagnebin, Sarabande; Galliard, Sonatas; Guilmant, Morceau Symphonique; Saint-Saens, Cavatine.

#### Sophomore Trombone.

Representative studies: Blazeovich, Clef Studies; Bieger, 10 Caprices; Blume, 36 Etudes; Couillaud, 20 Etudes de perfectionnement; Kopprasch, 60 Selected Studies; Ostrander, F. Attachment and Bass Trombone; Pares, Daily Exercises and Scales; Bordogni-Rochut, Melodious Etudes, Vol. I and 2. Representative solos: Barat, Andante and Allegro; Bozza, Ballade; the sonatas (transcribed) of Galliard, Handel; Sanders, Sonata.

#### Junior Trombone.

Representative studies: Blazeovich; Couillaud, 30 Etudes modernes; LaFosse; Pares; Bordogni-Rochut, Melodious Etudes (Vol. 3). Orchestral studies. Representative solos: Busser, 12 Etudes melodiques; Duclos, Sa Majeste le Trombone; transcriptions of baroque sonatas (Bach, Corelli, Galliard, Handel, Marcello, Vivaldi); Lepetit, Piece de Concert; Milhaud, Concertino d'Hiver.

### FOR UNDERGRADUATES AND GRADUATES

#### Senior and Graduate Trombone.

Studies: Blazeovich, Couillaud, LaFosse. Orchestral studies. Representative solos: transcription of Bach unaccompanied cello suites; Dutilleux, Choral, Cadenze et Fugato; Hindemith, Sonata; Jacob, Concerto; McKay, Sonata.

## FOR GRADUATES

### Graduate Trombone.

Excellence of performance. Studies: Couillaud, LaFosse, Masson. Orchestral studies. Solos: transcription of Bach unaccompanied cello suites; Berghmans, Concertino; Creston, Fantasy; Defay, Deux Danses; etc.

## BARITONE (Section 1)

### FOR UNDERGRADUATES

#### Secondary Baritone.

Development of the embouchure, breathing, attack; all major scales, articulation, arpeggio exercises; solos from Interscholastic League Solo List, Class I.

#### Freshman Baritone.

Continuation of studies for development of embouchure, breath control, attack; all major and minor scales, double and triple tonguing, arpeggio exercises; studies in treble and bass clefs; Rubank, Arban, Tyrrell; solos from Interscholastic League Solo List, Class II.

#### Sophomore Baritone.

Studies in arpeggios continued, original scale forms, transpositions; representative solos.

#### Junior Baritone.

Continuation of technical studies; Clarke, Characteristic Studies; double and triple tonguing, clef reading, Arban, Tyrrell, St. Jacome, and Smith, Top Tones; representative solos, including one sonata or concerto, arias, and lieder.

## FOR UNDERGRADUATES AND GRADUATES

### Senior and Graduate Baritone.

Continuation of all technical studies, clef reading, representative solos, including concertos, sonatas, and shorter solos.

## FOR GRADUATES

### Graduate Baritone.

Study of advanced etudes (Rochut Book III); clef studies (Blazevich); Study of advanced solo literature; Study of excerpts from band and orchestral literature.

## TUBA (Section 13)

### FOR UNDERGRADUATES

#### Secondary Tuba.

Required technique; representative solos; Langey. Method for Tuba; Klose-Vanasek, 270 Tone and Technique Exercises for Tuba.

#### Freshman Tuba.

Required technique; Eby, Method for Tuba; Hering, Thirty-two Etudes; transposition studies; representative solos.

#### Sophomore Tuba.

Required technique; Eby, Method for Tuba; Rochut, Etudes, Volume I. Transposition studies continued; representative solos.

#### Junior Tuba.

Required technique; Rochut, Etudes, Volume I; Eby, Method for Tuba. Transposition studies continued; studies from band and orchestra literature.

## FOR UNDERGRADUATES AND GRADUATES

### Senior and Graduate Tuba.

Special studies selected from Eby, Rochut, LaFosse, Blazevich; studies from band and orchestra literature; representative solos.

## FOR GRADUATES

### Graduate Tuba.

Excellence of performance. Selected technical studies; orchestral studies; solo and ensemble material.



## HARPSICHORD (Section 27)

### FOR UNDERGRADUATES AND GRADUATES

#### Junior Harpsichord.

Prerequisite: Piano 125, 126, or equivalent. Instruction from Couperin: *L'Arte de Toucher le Clavecin*. Selections from *Little Preludes and Well Tempered Clavier*, Bach; pieces from *The Evolution of Piano Music*. Introduction to elements of continue playing.

## HARP (Section 29)

### FOR UNDERGRADUATES

#### Secondary Harp.

Basic hand position, use of pedals, tuning of instrument. Salzedo Method for the Harp, Betty Paret *First Harp Book*, Milligan *Fun from the First*.

#### Freshman Harp.

Etudes of Pozzoli and Bochs. Solos of the difficulty of Grandjany French Folk Songs, Dussek *Sonata*, Handel *Passacaglia*; Salzedo *Eight Dances*.

#### Sophomore Harp.

Etudes and studies as needed. Transcriptions such as Haydn-Salzedo Theme and Variations, Kirchoff-Grandjany *Aria and Rigaudon*.

#### Junior Harp.

Etudes and studies as needed. Representative solos such as Faure *Impromptu*, Handel *Concerto in B Flat*, Ravel *Introduction and Allegro*.

### FOR UNDERGRADUATES AND GRADUATES

#### Senior and Graduate Harp.

Etudes and studies as needed. Solos of the difficulty of Grandjany *Children's Hour Suite*, Debussy *Dances*. Contemporary sonatas.

### FOR GRADUATES

#### Graduate Harp.

Etudes and studies as needed. Solos of the difficulty of Grandjany *Children's Hour Suite*, Debussy *Dances*. Contemporary sonatas.

## PERCUSSION (Section 24)

### FOR UNDERGRADUATES

#### Secondary Percussion.

Development of rudimental snare drumming techniques; Burns, Ludwig methods or two mallet instruction on the marimba; scales, arpeggios, Goldenberg method.

#### Freshman Percussion.

Development of snare drum technique in rudimental and concert styles; Ludwig, Wilcoxon, Podemski methods. Development of two mallet marimba technique; Goldenberg method and supplementary materials. Instruction on concert traps. Exact curriculum dictated by individual's needs.

#### Sophomore Percussion.

Continuation of snare drum studies; Goldenberg, Bellson methods. Introduction of three and four mallet marimba techniques; Rubank, Kraus methods. Introduction of timpani techniques; Goodman method. Exact curriculum dictated by individual's needs.

#### Junior Percussion.

Continuation of snare drum studies with addition of dance/stage band drumming; Schinstine, Albright, Cusatis methods. Use of solo literature for all mallet instruments. Continuation of timpani studies; Friese-Lepak, Firth methods. Exact curriculum dictated by individual's needs.

### FOR GRADUATES

#### Graduate Percussion.

Graduate studies designed to strengthen weak areas of student's percussion techniques.

## Courses in Music Literature

### FOR UNDERGRADUATES

#### 131, 132. Introduction to Music Literature. (3:3:0 each)

Through directed listening, music of various forms and styles is considered. Introduction to music history showing relationship of music studied to that preceding and following it.

#### 238, 239. Heritage of Music. (3:3:0 each)

For students not majoring in music. Selected compositions will be studied through an interpretation of their historical, functional, and cultural significance.

### FOR UNDERGRADUATES AND GRADUATES

#### 330. Voice Repertoire. (3:3:0)

Prerequisite: Ap. Mus. 226 or 236 (Voice). Survey of song repertoire for all voices. Class performance and listening.

#### 332. Piano Repertoire. (3:3:0)

Prerequisite: Ap. Mus. 226 or 236 (Piano). Survey of literature for piano. Class performance and listening.

#### 431, 432. History of Music. (3:3:0 each)

Prerequisite: Junior standing. A stylistic and biographical study of the major periods, medieval to modern, through records, scores, and bibliography. Performance practices, aesthetics. Relationships to art, literature, and philosophy, and to social and political history.

### FOR GRADUATES

#### 531. Seminar in Music Literature. (3:3:0)

The study of music as an academic discipline. Musicological orientations: systematic vs. historical. Scholarly principles applied to selected topics within the fields of music literature, history, aesthetics, and criticism.

#### 532. Choral Repertoire. (3:3:0)

Analysis of choral works of all periods of composition suitable for both small and large ensembles.

## Courses in Music Education

### FOR UNDERGRADUATES

#### 231. Music for Classroom Teachers. (3:3:0)

Prerequisite: Sophomore standing. For elementary education majors. Not open to music majors. Rudiments of music, elementary music reading, ear training based upon elementary school music material.

#### 232. Elementary Music Principles, Practices, and Materials. (3:3:0)

Prerequisite: Mus. Ed. 231 or equivalent. For elementary education majors. Not open to music majors. Music for elementary school children. Emphasis upon various music activities at this level.

#### 327. Choral Methods and Techniques. (2:2:0)

Prerequisite: 4 semester hours of voice or equivalent. Conducting technique; procedures in development of choral organizations. Rehearsal techniques for preparation of choral works for public performance.

#### 328. Instrumental Conducting. (2:2:0)

Prerequisite: Th. 234 or equivalent. Detailed study of baton techniques, score reading, tone production, interpretation. Conducting laboratory ensemble required.

#### 336. Secondary Instruments and Methods. (3:3:0)

Prerequisite: Junior standing and Ap. Mus. 226. Study of instruments other than student's principal instrument. Study of repertoire for and the organization and administration of public school instrumental groups.

#### 337. Elementary School Teaching and Supervision of Music. (3:3:0)

Prerequisite: Junior standing. For music majors and minors. Procedures in teaching music in first six grades; selection and presentation of materials; the child voice in singing, its care and development; introduction and development of music reading; rhythmic development; creative music; the listening lesson.

**338. Secondary School Teaching and Supervision of Music. (3:3:0)**

Prerequisite: Junior standing or permission of the instructor. For music majors. Study of procedures in teaching music in upper level grades and in high school. General treatment of choral and instrumental music; instruction in theory and general music.

**FOR UNDERGRADUATES AND GRADUATES****433. Piano Pedagogy. (3:3:0)**

Prerequisite: Ap. Mus. 326 or 346 (Piano). For prospective piano teachers. Teaching methods for beginners and succeeding levels. Correct presentation of rudiments of music, principles of technique, and teaching materials.

**437. Voice Pedagogy. (3:3:0)**

Prerequisite: Ap. Mus. 326 or 346 (Voice). Comparison of known systems of voice teaching; evaluation of the individual voice, various vocal exercises, singing styles, student teaching.

**4317. Choral Conducting. (3:2:2)**

Prerequisite: Senior classification in music education. Study and performances of representative choral works of all periods. Participation in a major choral organization required. This is an individual study course.

**4318. Instrumental Conducting. (3:2:2)**

Prerequisite: Senior classification in music education. Study and performance of instrumental works of all periods. Participation in a major instrumental group required. An individual study course.

**FOR GRADUATES****530, 531. Seminar in Music Education. (3:3:0 each)**

Prerequisite: Open to any interested graduate student upon approval of the Music Department. Review of current educational philosophy in America. Special reference to the place of music in the curriculum. Review and criticism of music curricula. Evaluation of music education principles, practices, and materials. General aspect of course as adaptable to interests of all music teachers and educators interested in music. Special studies allow concentration in the field of the student's major activity.

**532. Choral Music Workshop. (3:3:0)**

Prerequisite: 18 semester hours of music, 6 of which are advanced hours, including Mus. Ed. 327 or equivalent. Emphasis in the organization and development of choral organization in the public schools, including tone production, rhythmic precision, balance, blend, diction. Individual and group project required.

**533. Instrumental Music Workshop. (3:3:0)**

Prerequisite: 18 semester hours of music, 6 of which are advanced hours, including Mus. Ed. 328 or equivalent. Emphasis in the organization and development of instrumental groups in the public schools, including tone production.

**534. Marching Band Direction. (3:3:0)**

Rehearsal routine, instrumentation of and scoring for the marching band. Planning, charting, and producing marching band shows. Preparation for marching band contests and festivals. Study of contrasting marching band styles.

**537. Instrumental Repertoire. (3:3:0)**

Literature for small and large instrumental ensembles.

**5335. Music for Children. (3:3:0)**

Prerequisite: 6 semester hours in music education or two years' experience in elementary teaching. Emphasis upon development of musical expressions of children through rhythmic activities, song repertoire, dramatic interpretation, creative expression, and appreciative listening to music. Study of material adapted to normal social and musical interests of children. Enrollment limited to graduate students majoring in elementary education.

**630. Master's Report. (3)****631. Master's Thesis. (3)**

Enrollment required at least twice.

**Courses in Theory****FOR UNDERGRADUATES****131. Introduction to Music Theory. (3:3:0)**

Emphasis on melody, rhythm, harmony, and sight-singing.

**133, 134. Elementary Theory. (3:3:1 each)**

Properties of sound; introduction to the keyboard; elementary time and rhythmic reading; triad study and introduction of four-voice chords; key feeling and tonality; sight-singing; harmonic and melodic dictation in major and minor. Alto and tenor clef reading introduced.

**233, 234. Intermediate Theory. (3:3:1 each)**

Prerequisite: Th. 134 or equivalent. Study of eighteenth century style, including non-harmonic tones, chorale harmonizations, and harmonic dictation. Melodic dictation and sight-singing involving simple and compound meters; keyboard practices, including faked bass and figured bass. Analysis and original work in the contrapuntal forms; writing of two- and three-part inventions; seventh chords and altered chords.

**FOR UNDERGRADUATES AND GRADUATES**

**321. Score-Reading. (2:2:0)**

Designed especially for the Theory and Applied Music Major, although not a required course, it emphasizes the development of the skill of reading open score (from the string quartet and octavo scores to full orchestra scores) at the piano. Comprehension of the various clefs and instrumental transpositions are involved.

**331. Arranging. (3:3:0)**

A course designed specifically for the music major who desires to learn the techniques of band arranging, jazz idioms, small combo arranging, as differentiated from orchestral techniques. Arrangements will be written for stage band, and live performances of the arrangements will be conducted.

**333, 334. Form and Composition. (3:3:0 each)**

Prerequisite: Th. 234 or equivalent. Study of homophonic forms of musical composition with respect to Viennese classical style; creative writing, augmented sixth chords. Analysis of phrase construction, and larger forms, including the symphony. Study of the basic form and style principles of the impressionistic and contemporary periods, with analysis performance projects, and application of these styles including ninth, eleventh, and thirteenth chord harmonies and dissonant contrapuntal writing in original compositions.

**427. Instrumentation. (2:2:0)**

Prerequisite: Th. 334 or equivalent. Study of properties of wind instruments. Emphasis on devices, techniques, mechanics of band scoring.

**428. Orchestration. (2:2:0)**

Studies of properties of wind, string, and brass instruments. Emphasis on devices, techniques, and mechanics of scoring.

**430, 431. Pedagogy of Theory. (3:3:0 each)**

Designed especially for the theory major, a course which develops the methods for teaching theory from the elementary grades to the senior high school levels. The correlative approach of aural keyboard, written and singing skills are explored, suitable texts are reviewed, and specific goals are outlined.

**432, 433. Fundamentals of Composition. (3:3:0 each)**

Designed especially for the theory major, a course for beginning composition study; original writing in the smaller forms for piano and for voice; solo instrument with piano accompaniment, with emphasis on contemporary techniques. Selection of compositions for performance at the Festival of Contemporary Music will be made by the Festival Committee.

**435, 436. Modal Counterpoint.**

Prerequisite: Th. 234 or equivalent. A direct approach to the study of vocal counterpoint of the sixteenth century: the Mass and the motet. Primary emphasis upon the techniques in common practice in the works of Palestrina and other representative composers using modal counterpoint. Original synthesis in 2 and 3 voice texture prefaced by solo vocal writing in the modes. Emphasis on class vocal reading of the music of the motet and Mass, with examples drawn from the works of Palestrina, Lassus, Ingegneri, and others. The second semester completes study of vocal counterpoint of the sixteenth century, up to and including 6 voice texture. The Madrigal, or secular counterpoint of the sixteenth century, introduced, with representative music drawn from the works of Italian, French, and English madrigalists.

**531. Seminar in Music Theory. (3:3:0)**

Intensive study of various theoretical texts. Theoretical materials and techniques illustrated by comprehensive search and analysis of selected instrumental and vocal scores from the Baroque through the contemporary periods.

**Courses in Ensemble**

Each ensemble except 313 may be taken for four successive years, since the literature studied will cover a cycle of that period of time. Ensemble 313 may be taken for two successive years. Four semester hours of Ensemble 013 may be substituted for required physical education.

**FOR UNDERGRADUATES**

- 010. Sec. 1. Tech Choir. (1:0:5)**  
Prerequisite: Audition.
- 010. Sec. 2. Women's Chorus. (1:0:2)**  
Prerequisite: Audition.
- 010. Sec. 4. Opera Theater. (1:0:5)**  
Prerequisite: Audition.
- 010. Sec. 5. Tech Singers. (1:0:5)**  
Prerequisite: Audition.
- 011. Sec. 1. Symphony Orchestra. (1:0:5)**  
Prerequisite: Audition.
- 011. Sec. 2. Piano Ensemble. (1:0:2)**  
Prerequisite: Permission of instructor. Restricted to duet performance.
- 011. Sec. 3. String Ensemble. (1:0:2)**  
Restricted to duet, trio, or quartet ensemble.
- 013. Sec. A. Tech Band. (1:0:5)**  
Prerequisite: Audition. Four semester hours may be substituted for required physical education.
- 313. Sec. A. Tech Band. (1:0:5)**  
Open to junior and senior students.
- 313. Sec. B. Symphonic Winds. (1:0:2)**  
Open to junior and senior students.
- 313. Sec. C. Stage Band. (1:0:3)**  
Open to junior and senior students.

**FOR GRADUATES**

- 510. Graduate Ensemble. (1:0:5)**  
Instruction and demonstration of ensemble technic in performance situations. Preparation of and participation in performed material is required.

**Sec. 1. Chorus**

**Sec. 2. Orchestra**

**Sec. 3. Band**

**Sec. 4. Opera**

**Sec. 5. String Ensemble**

**Military Band**

Part of Basic ROTC. For particulars, inquire of the officer in command.

## Department of Philosophy

Ivan L. Little, *Acting Head of the Department*  
Office: Ad. 206

*Professor:* Ivan L. Little

*Associate Professor:* Thomas Bruce Waters

*Assistant Professors:* Mohamed Zuhdi Taji Faruki,  
Charles Sidney Hardwick

The Department of Philosophy directs the *Bachelor of Arts* Degree program in PHILOSOPHY described in Part I of this Catalog.

The primary aim of the Department of Philosophy is to enable students to gain insights into the most significant writers of the philosophical traditions of Western culture. These insights are encouraged by careful reading of the major works of such thinkers as Plato, Aristotle, Augustine, Aquinas, Descartes, Locke, Berkeley, Hume, Kant, and the modern and recent philosophers who are shaping contemporary thinking. In spite of the fact that primary emphasis is placed upon Western philosophy, an effort is made to introduce students to major non-Western systems of philosophy.

Students are encouraged to inquire independently into metaphysics, epistemology, and value theory. They are also given the opportunity to develop skills in logical analysis and to gain critical insights into the philosophies of science, history, and religion.

Students majoring in philosophy must complete 30 semester hours in philosophy, including Philosophy 231 and 338. Minors are required to complete 18 semester hours in philosophy. A grade of C or better must be earned by majors or minors in each course in philosophy at the 300 level or above.

A maximum of 6 semester hours of credit toward a major in philosophy may be allowed for advanced courses in certain other departments provided the heads of the departments concerned approve the student's program.

### Courses in Philosophy

#### FOR UNDERGRADUATES

#### 230. Introduction to Philosophy. (3:3:0)

Prerequisite: Sophomore classification. Problems in interpretation of the nature of knowledge, reality, and value.

#### 231. Introduction to Logic. (3:3:0)

Prerequisite: Sophomore classification. Introduction to deductive and inductive methods, including a supplementation of Aristotelian principles with Boolean techniques and the rudiments of the propositional and functional calculi.

#### 238. Ethics (3:3:0)

Prerequisite: Sophomore classification. Problems of individual and social conduct.

#### FOR UNDERGRADUATES AND GRADUATES

#### 331. History of Ancient and Medieval Philosophy. (3:3:0)

Prerequisite: Junior classification. Philosophical thought from Thales to the Scholastics, with emphasis upon Plato, Aristotle, Augustine, and Aquinas.

**332. History of Modern Philosophy. (3:3:0)**

Prerequisite: Junior classification. Philosophical thought from Descartes through Hegel. Continental rationalism, British empiricism, and German idealism examined carefully.

**333. Development of American Philosophy. (3:3:0)**

Prerequisite: Junior classification. American philosophy from colonial times to the present.

**334. Contemporary Philosophy. (3:3:0)**

Prerequisite: Junior classification. Philosophical thought of the neo-Kantians, vitalists, neo-Hegelians, pragmatists, neo-realists, and positivists.

**335. Oriental Philosophies. (3:3:0)**

Prerequisite: Junior classification. Views of important philosophic thinkers of the Orient; emphasis upon those of China and India.

**336. Philosophy of Science. (3:3:0)**

Prerequisite: Junior classification. Investigation of selected concepts of the natural sciences and of their relations to empirical observation and confirmation.

**338. Intermediate Logic. (3:3:0)**

Prerequisite: Philosophy 231 or Math. 136 or its equivalent and junior classification. A continuation of Philosophy 231, with special emphasis on functional calculus, set theory, and postulational technique.

**431. Aesthetics. (3:3:0)**

Prerequisite: Senior classification or consent of instructor. The nature of beauty; analysis of the aesthetic experience.

**432. Philosophy of Value. (3:3:0)**

Prerequisite: Senior classification or consent of instructor. The nature and validity of values; exploration of the possibility of an integrated value system.

**433. Theories of Knowledge. (3:3:0)**

Prerequisite: Six hours of philosophy and senior classification or consent of instructor. Examination of the presuppositions for reliable knowledge.

**434. Metaphysics. (3:3:0)**

Prerequisite: Six hours of philosophy and senior classification or consent of instructor. Studies in rival ontologies, their logical compatibility, interrelations and disparities, and their relevance to current inquiry.

**436. Philosophy of Religion. (3:3:0)**

Prerequisite: Senior classification or consent of instructor. Historical and contemporary religious movements.

**438. Seminar in Philosophical Problems. (3:3:0)**

Prerequisite: Senior classification and major or minor in philosophy. Readings on selected topics, reports, and conferences.

## FOR GRADUATES

**531. Studies in Philosophical Classics. (3:3:0)**

Prerequisite: Graduate classification or consent of instructor. Special studies in philosophical classics. Independent work under individual guidance of a staff member with his prior permission. May be repeated for credit.

**535. Basic Issues in Contemporary Philosophy. (3:3:0)**

Prerequisite: Consent of instructor. Certain paired topics around which philosophical controversies continually emerge: rational knowledge and empirical knowledge; science and value; individual freedom and social control; secular belief and religious faith; and others; each controversy is studied historically. Designed for graduate education students (elementary education, supervision, and administration), but open to others.

## Department of Physics

Henry Coffman Thomas, *Head of the Department*  
Office: Sc. 109-B

*Professors:* James Wendell Day, Kamalasksha Das  
Gupta, Henry Coffman Thomas

*Associate Professors:* Preston Frazier Gott, Young  
Nok Kim, Glen Alan Mann, Billy Jack Marshall,  
Billy Joe Sandlin

*Assistant Professors:* David Allen Howe, Mohammad  
Arfin Khan Lodhi, Raymond William Mires,  
Charles Richard Quade

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: ENGINEERING PHYSICS, *Bachelor of Science in Engineering Physics* (offered in conjunction with the School of Engineering); PHYSICS, *Bachelor of Arts* or *Bachelor of Science*, *Master of Science*, *Doctor of Philosophy*.

The undergraduate curricula in physics may lead to either a Bachelor of Arts Degree or Bachelor of Science Degree; the curricula in Engineering Physics, offered in conjunction with the School of Engineering, leads to a Bachelor of Science in Engineering Physics Degree. The curriculum for the Bachelor of Science Degree is set forth in the accompanying table; that for the Bachelor of Science in Engineering Physics appears in the appropriate section of the School of Engineering.

In fulfilling degree requirements, majors in this department must have a grade average of 2.00 in physics courses, with at least 36 semester hours of physics in which a grade of C or better was received, and must meet the general requirements of the degree they are seeking, as described in Part I of this Catalog.

### Teacher Education

For those planning to teach physics and other sciences, the following physics courses are required:

I. For students following Plan I (two teaching fields of 24 semester hours each): Physics 143, 241, 242, 314, 315, 335, 336, plus 6 hours from the following: Physics 331, 337, 338, 341, 432, 434, 435, 439.

II. Science option: Students may elect a science teaching option (Plan II). Work must be distributed in at least three of the science departments—Biology, Chemistry, Geosciences, and Physics. Not more than 8 hours may be in geosciences. The student electing this option should consult the Head of the Physics Department and should become familiar with the discussion of teacher education in the section of this Catalog entitled "Interdepartmental Programs."

### Courses in Physics

#### FOR GRADUATES

#### 141-142. General Physics. (4:3:3: each)

A general course in beginning physics covering mechanics, heat, sound, electricity and magnetism, light, and modern physics.



PHYSICS CURRICULUM  
Bachelor of Science

FRESHMAN YEAR				SEMESTER	1st	2nd
Eng.	131	Col. Rhet.			3	
Math.	139	Anal. Geom. and Calc. I			3	
Math.	231	Anal. Geom. and Calc. II			3	
Chem.	141	Gen. Chem.			4	
Phys.	143	Prin. of Phys.			4	
P.E., Band, or Basic ROTC					1	
Eng.	132	Col. Rhet.				3
Math.	232	Anal. Geom. and Calc. III				3
Math.	331	Anal. Geom. and Calc. IV				3
Chem.	142	Gen. Chem.				4
Phys.	241	Prin. of Phys.				4
P.E., Band, or Basic ROTC						1
				Total credit hours	18	18
SOPHOMORE YEAR				SEMESTER	1st	2nd
Phys.	242	Prin. of Phys.			4	
Math.	335	Math. for Engrs. & Scientists I			3	
Eng.	231	Mast. of Lit.			3	
Science elective					3-4	
Ger.	141	or				
Fren.	141	(beginning course)			4	
P.E., Band, or Basic ROTC					1	
Phys.	331	Optics				3
Math.	336	Math. for Engrs. & Scientists II				3
Eng.	232	Mast. of Lit.				3
Science elective						3-4
Ger.	142	or				
Fren.	142	(beginning course)				4
P.E., Band, or Basic ROTC						1
				Total credit hours	18-19	17-18
JUNIOR YEAR				SEMESTER	1st	2nd
Phys.	314	Intermed. Lab.			1	
Phys.	335	Elec. & Magnetism			3	
Phys.	434	Mechanics			3	
Govt.	231	Amer. Govt., Org.			3	
Ger.	233	Scientific German or				
Fren.	231	Sec. course in French			3	
Social Science elective					3	
Phys.	315	Intermed. Lab.				1
Phys.	336	Elec. & Magnetism				3
Phys.	435	Mechanics				3
Govt.	232	Amer. Govt., Func.				3
Ger.	234	Scientific German or				
Fren.	232	Sec. course in French				3
Social Science elective						3
				Total credit hours	16	16
SENIOR YEAR				SEMESTER	1st	2nd
Phys.	432	Thermodynamics			3	
Phys.	437	Quantum Mech.			3	
Math.	434	Adv. Calculus			3	
Hist.	231	Hist. of U.S. to 1865			3	
Humanities elective					3	
Free elective						3
Phys.	338	Nuc. Phys.				3
Math.	435	Adv. Calculus				3
Hist.	232	Hist. of U.S. since 1865				3
Humanities elective						3
				Total credit hours	15	15

Science electives to be chosen from courses offered in biology, chemistry, or geosciences department.

See approved list of social sciences and humanities electives in the departmental office.

Any deviations from prescribed course requirements must be approved by Department Head.

**143. Principles of Physics I. (4:3:3)**

Prerequisite: Parallel enrollment in Math. 231. Kinematics, dynamics, conservation laws, wave motion, fluids, kinetic theory, and thermodynamics.

**237. Techniques of Photography. (3:2:3)**

Prerequisite: Sophomore standing and approval of instructor. A course in fundamental processes and techniques of photography for those who will later need photography as a scientific tool. May be taken by majors and minors, but will not apply toward physics requirements. Additional time needed for darkroom processing to be arranged.

**241. Principles of Physics II. (4:3:3)**

Prerequisite: Phys. 143 and parallel enrollment in Math. 232. Electric and magnetic fields, dielectrics, magnetic properties of materials, electromagnetism, geometrical and physical optics.

**242. Principles of Physics III. (4:3:3)**

Prerequisite: Phys. 241. Study of atomic and nuclear phenomena.

**312, 313. Atomic and Nuclear Physics Laboratory. (1:0:3 each)**

Prerequisite: Phys. 242 or parallel enrollment in Phys. 337, 338. Approval of instructor. Credit for either or both semesters.

**314, 315. Intermediate Laboratory. (1:0:3 each)**

Prerequisite: Phys. 143, 241, 242 or equivalent and junior standing. Laboratory course in basic physical principles.

**331. Optics. (3:2:3)**

Prerequisite: Phys. 143, 241, 242. Major emphasis on physical optics.

**335, 336. Electricity and Magnetism. (3:3:0 each)**

Prerequisite: One year of physics and junior standing. Electrostatics, dielectric theory, Laplace's equation, transient and A.C. circuits, magnetic fields, vector potential, magnetic materials, and electromagnetic theory.

**337. Introduction to Atomic Physics. (3:3:0)**

Prerequisite: One year of physics and junior standing.

**338. Introduction to Nuclear Physics. (3:3:0)**

Prerequisite: One year of physics and junior standing.

**341. Electronics. (4:3:3)**

Prerequisite: Phys. 335. General course in electronics stressing the fundamentals of electron behavior in areas of primary importance in the physical sciences.

**FOR UNDERGRADUATES AND GRADUATES**

**422. Selected Topics. (2:2:0)**

Prerequisite: Approval of Department Head. Lecture course in topics selected either by student request or departmental recommendation and given when deemed necessary. May be repeated in different areas.

**432. Thermodynamics. (3:3:0)**

Prerequisite: Phys. 143, 241, and 242, or equivalent, and differential equations. First and second laws of thermodynamics, entropy, equations of state, thermodynamics functions.

**434, 435. Mechanics. (3:3:0 each)**

Prerequisite: Phys. 143, 241, and 242, or equivalent, and differential equations. Statics, kinematics, and dynamics of rigid bodies, including Euler's equations damped and forced vibrations, Lagrange's equations, Hamilton's equations, special relativity.

**436. Individual Study of Specified Fields. (3:1:4)**

Prerequisite: Approval of department. Individual student study of theoretical or experimental projects under the guidance of a member of the staff. May be repeated in different areas.

**437, 438. Quantum Mechanics. (3:3:0 each)**

Prerequisite: Differential equations. The Schrodinger equation, matrix representations, approximation methods, and scattering with applications in contemporary physics.

**439. Solid-State Physics. (3:3:0)**

Prerequisite: Phys. 335, 336, and differential equations or consent of Department Head. Specific heats of solids, ionic conductivity, ferro-electronics, band theory of solids, semiconductors and transistors, ferro-magnetism.

**4121. Engineering Physics Seminar. (1:1:0)**

Prerequisite: Approval of department. Investigation and study of engineering problems of special interest and value to the student. May be repeated for credit.

**FOR GRADUATES****511, 512. Seminar. (1:1:0 each)**

Required of all graduate students.

**513. Techniques of Experimental Physics. (1:0:3)**

Prerequisite: Graduate standing in physics. The use and development of experimental apparatus, design of experiments, treatment of data.

**530. Advanced Topics. (3:3:0)**

Prerequisite: Graduate standing and approval of Department Head. Advanced topics selected by departmental recommendation. May be repeated in different areas.

**535. Introduction to Statistical Physics. (3:3:0)**

Prerequisite: Phys. 432, 437, and 438; enrollment in Phys. 438 may be parallel. Elements of probability theory and statistics; conceptual foundation of kinetic theory. Gibbs' statistical mechanics, the method of Darwin and Fowler, derivation of the laws of macroscopic thermodynamics from statistical considerations; other selected applications in both classical and quantum physics.

**536. Advanced Dynamics. (3:3:0)**

Prerequisite: Phys. 541 or consent of instructor.

**541, 542. Theoretical Physics. (4:4:0 each)**

Prerequisite: Working knowledge of advanced calculus, vector analysis, intermediate mechanics, intermediate electricity and magnetism, and contemporary physics. Introduction to contemporary methods of mathematical physics and the theoretical framework of selected areas of present-day physics. Classical vectorial and analytical mechanics, special theory of relativity, classical field theory, partial differential equations of physics, boundary value problems and elementary quantum mechanics. Theoretical foundations of current departmental research fields are developed.

**631. Master's Thesis. (3)**

Enrollment required at least twice.

**633, 634. Quantum Mechanics. (3:3:0 each)**

Prerequisite: Phys. 437, 438, 541, and 542. Review of formal theory of quantum mechanics; quantum theory of angular momentum; relativistic wave equations, formal theory of scattering, including S-Matrix theory; quantum theory of fields, including quantum electrodynamics theory of weak interactions, theory of strong interactions, and dispersion relations.

**635, 636. Electromagnetic Theory. (3:3:0 each)**

Prerequisite: Math. 434, 435, Physics 335, 336. Advanced treatment of Maxwell's theory, including electrostatics, magnetostatics, theory of radiation, and application of the theory to selected contemporary problems.

**637, 638. Structure of Matter. (3:3:0 each)**

Prerequisite: Departmental approval. Contemporary concepts of the structure of material and the empirical evidence supporting these concepts. Atomic structure, molecular structure, nuclear structure, sub-nuclear particles; the gaseous, liquid, and solid states; transitions between states. A mature mathematical treatment.

**639. Advanced Statistical Physics. (3:3:0)**

Prerequisite: Phys. 535. Advanced application of statistical methods to problems of transport phenomena, non-equilibrium thermodynamics, imperfect gases, phase transitions, and quantum fluids.

**733, 734. Advanced Solid State Physics. (3:3:0 each)**

Prerequisite: Departmental approval. A professional level course covering both experimental and theoretical aspects of solid state physics.

**735, 736. Atomic and Molecular Spectra. (3:3:0 each)**

Prerequisite: Departmental approval. A professional level course covering both experimental and theoretical aspects of atomic and molecular structure.

**737, 738. Advanced Topics in Theoretical Physics. (3:3:0 each)**

Prerequisite: Departmental approval. Current topics in theoretical physics, which may include application of group theory, quantum mechanics of many-body systems, theory of elementary particles, general relativity, and theory of plasmas.

**739. Individual Study. (3:1:4)**

Prerequisite: Departmental approval. Theoretical or experimental study in problems of current interest. May be repeated for credit.

**7311, 7312. Advanced Nuclear Physics. (3:3:0 each)**

Prerequisite: Phys. 437, 438. A professional level course covering both experimental and theoretical aspects of nuclear physics.

**831. Doctor's Dissertation. (3)**

Enrollment required at least four times.

## Department of Psychology

Theodore Andreychuk, *Head of the Department*

Office: Psy. 111

*Professors:* Robert Anderson, Theodore Andreychuk,  
Beatrix Cobb, Murray Kovnar, James Kuntz, Florence Phillips, Joseph Ray, Paschal Strong

*Associate Professors:* Sam Campbell, Deore Cannon,  
Henry Cross, Charles Mahone, Arthur Sweney

*Assistant Professors:* Elmer Davidson, Charles Halcomb

*Instructors:* Dixie Boyd, Jean Davidson

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: **PSYCHOLOGY, Bachelor of Arts, Master of Arts, Doctor of Philosophy.**

The advanced degrees encompass a number of different areas in counseling, clinical, and experimental psychology. In addition, the departments of Psychology and Education jointly offer a graduate program for those wishing to earn a professional certificate in school counseling and guidance.

All undergraduate majors in psychology are required to take a core program of six courses plus an additional four on an optional basis. The required courses are: 230, 240, 343, 436, 437, and 4317. Of the optional courses, not more than one may be below the 400 level.

Psychology majors are expected to perform at a high academic level. Grades below C will not be acceptable for fulfillment of either major or minor requirements.

## Courses in Psychology

### FOR UNDERGRADUATES

**230. General Psychology I. (3:3:0)**

Introduction to selected fundamental concepts in psychology. Emphasis on heredity and environment, individual differences, personality dynamics, and group processes. For majors and non-majors.

**240. General Psychology II. (4:3:2)**

Emphasis on experimental psychology, learning theories, and the biological bases of behavior. Introduction to laboratory approaches in the study of behavior. For majors and experimentally oriented non-majors.

**330. Psychology in Business and Industry. (3:3:0)**

Prerequisite: Psy. 230 or 240. Basic psychological principles of behavior in the management of personnel.

**331. Child Psychology. (3:3:0)**

Prerequisite: Psy. 230 or 240, or Educ. 332, or Ch.D. & F.R. 131. Emphasis is placed upon the development of the child from 6 to 12. A study of the developmental processes and environmental factors which shape the personality and affect the achievement of the child. Oriented to teachers or child guidance workers.

**332. Mental Health. (3:3:0)**

Prerequisite: Psy. 230 or 240, or Educ. 332, or Ch.D. & F.R. 131. A study of the individual and social factors which contribute to the development of both healthy and unhealthy personalities.

**335. Adolescent Psychology. (3:3:0)**

Prerequisite: Psy. 230 or 240, or Educ. 332, or Ch.D. & F.R. 131. A general review of approaches to the understanding of social behavior and development of the adolescent. Physical, mental and emotional growth and adjustment are covered. Guidance emphasis. Oriented to public school certification program.

**343. Statistical Methods. (4:3:2)**

Prerequisite: Psy. 230 or 240, or Educ. 332. Introduction to descriptive and inferential statistics. Covers probability, frequency distributions and parameters, chi square, T test, F test, correlations, analysis of variance and non-parametric techniques. Practice on calculators and computers.

## FOR UNDERGRADUATES AND GRADUATES

**432. Personnel Testing. (3:2:3)**

Prerequisite: Psy. 330 or equivalent. The principles and methods of test construction and test administration. Survey of the practical fields of personnel measurement, including specific aptitudes and achievement, interest, and personality dimensions. Fee \$2.

**434. Introduction to Social Psychology. (3:3:0)**

Prerequisite: Psy. 230 or 240. Study of individual experience and behavior in relation to social stimulus situations. Survey of experimental work and reports on current problems.

**435. Abnormal Psychology. (3:3:0)**

Prerequisite: 6 semester hours in psychology. Personality deviations and maladjustments; emphasis on clinical descriptions of abnormal behavior, etiological factors, manifestations, interpretations, and treatments.

**436. Personality Development. (3:3:0)**

Prerequisite: 6 semester hours in psychology. Principles of normal personality structure. Designed to meet the practical needs of teachers, personnel workers, counselors, clinical psychologists, and others who are interested in guidance and the understanding of personality organization.

**437. Experimental Psychology. (3:2:3)**

Prerequisite: Psy. 230 or 240. Recommended: Psy. 343 completed or taken concurrently. A lecture-laboratory course considering (1) the problems of experimentation in clinical, social, and experimental psychology upon animals and human subjects, and (2) such content topics as transfer of training and psychophysics.

**439. Industrial Psychology. (3:3:0)**

Prerequisite: Psy. 230 or 330. Psychological principles and methods applied to industry.

**4314. The Human Element in Engineering. (3:3:0)**

Prerequisite: Psy. 230 or 330. Recommended: Psy. 343. Introduction to human factors and their function in man-machine systems. Emphasis is on the perceptual and work capacities of man in relation to various task situations.

**4316. History of Psychology. (3:3:0)**

Prerequisite: 6 semester hours of psychology. Recommended: senior standing. A survey of the history of psychology, with emphasis on the evolution of contemporary viewpoints and methods.

**4317. The Psychology of Learning. (3:3:0)**

Prerequisite: 6 semester hours of psychology. A critical survey of methods, results, and interpretations of human and animal studies with emphasis on understanding the basic concepts and terms employed in this area.

**4318. Industrial Training. (3:3:0)**

Prerequisite: Psy. 330. Principles of teaching and learning; selecting instructional staff; organization and coordination of training functions.

**4319. Human Learning. (3:3:0)**

Prerequisite: Psy. 230 or Educ. 332. An investigation of the research dealing with human learning, particularly in relation to education, training, and conditioning. Emphasis will be on higher types of problem solving, programmed instruction, retention, motor skills, and language skills. Applied emphasis.

**4321. Interviewing Principles and Practices. (3:3:0)**

Prerequisite: 6 semester hours of psychology and/or consent of instructor. Review of principles. Emphasis on skill which will apply directly to all interview situations, such as industrial, clinical, and vocational counseling. Demonstration, recordings, and discussion. Student participation stressed.

**4326. Individual Problems Course. (3)**

Prerequisite: Advanced undergraduate standing and high scholastic achievement. Readings and papers in selected fields of psychology. Independent work under the individual guidance of a staff member with his prior permission.

**4327. Physiological Psychology. (3:3:0)**

Prerequisite: 6 semester hours of psychology. Recommended: Biol. 142 or equivalent. Introduction to neuroanatomy, electro-physiological measuring techniques, and the mechanisms of receptor and effector systems. A study of the relationship between behavior and the physiological substrate.

FOR GRADUATES

**532. Problems in Psychology. (3)**

Prerequisite: 12 advanced semester hours in psychology. Readings and papers in selected fields of psychology. Independent work under individual guidance of a staff member with his prior permission.

**534. Practicum in Psychological Testing. (3:3:0)**

Prerequisite: Psy. 5314. Instruction and practice in giving intelligence, aptitude, interest, and/or personality tests. Emphasis on individual tests.

**539. Occupational Information. (3:3:0)**

Prerequisite: Graduate standing. Sources, techniques of collecting, classifying, and using educational and occupational information necessary in counseling.

**5311. Projective Techniques I. (3:3:0)**

Prerequisite: Psy. 435, 534, 5324. Psychological principles and theories of perception, motivation, and related topics as applied to projective methods. Study and administration of specific projective tests.

**5312. Projective Techniques II. (3:3:0)**

Prerequisite: Psy. 5311. Study and administration of selected projective techniques. Rorschach and TAT.

**5314. Tests and Measurements. (3:3:0)**

Prerequisite: Psy. 343 or equivalent. Instruction and supervised practice in planning a testing program; selection, administration, scoring, and interpretation of individual and group tests, including intelligence, achievement, aptitude, and personality tests.

**5316. Introduction to Adjustment Counseling and Psychotherapy. (3:3:0)**

Prerequisite: Psy. 435 or 436. Consideration of theories of adjustment counseling. Attitudes and orientation of the counselor in the counseling relationship, oral discussion, recordings, and role playing.

**5317. Techniques of Counseling: Career Guidance. (3:3:0)**

Prerequisite: Psy. 5314. Methods of vocational and educational counseling. Emphasis on relationships of personality development to career patterns. Consideration of techniques of evaluation counseling.

**5318. Practicum in Techniques of Counseling. (3:2:3)**

Prerequisite: Consent of instructor or adviser. Supervised experience in interviewing, adjustment counseling, vocational counseling and/or psychological evaluation. Student works with a limited number of clients through the psychology clinic.

**5323. Group Counseling and Psychotherapy. (3:3:0)**

Prerequisite: Consent of instructor. Designed to provide both theories of approaches to group work as well as a personal experience with group processes. Various points of view will be studied.

**5324. Seminar in Personality Theory. (3:3:0)**

Prerequisite: Psy. 436. A critical review of current theories of personality.

**5325. Case Studies in Vocational Rehabilitation. (3:3:0)**

Prerequisite: Consent of instructor. Critical analysis of actual cases derived from the files of the State Office of Rehabilitation. Study and review of cases of blind persons derived from case records of the State Commission for the Blind.

**5326. Medical Aspects of Rehabilitation. (3:3:0)**

Prerequisite: Consent of instructor. A joint medical-psychological seminar considering medical aspects and psychological components of disabling diseases and the interaction of these two factors as the individual reacts to the residual handicap. Rehabilitation emphasis. Cooperative endeavor, with medical specialists presenting medical aspects, and psychologists reviewing psychological components and integrating the two in a rehabilitation framework.

**5327. The Psychology of Disability. (3:3:0)**

Prerequisite: Consent of instructor. A medical psychological approach to rehabilitation of the disabled. Special emphasis upon attitudes toward disability, social and psychological implication of mental and physical disabilities as related to the client's self concept and attitudes of the community toward the client.

**5334. Advanced Counseling Psychology. (3:3:0)**

Prerequisite: Psy. 539 and 5318. Consideration of theories of vocational development and theories of counseling. Discussion of professional issues and problems related to the area of counseling psychology.

**5336. Advanced Child Psychology. (3:3:0)**

Prerequisite: Psy. 331, 435, 436. A course dealing with mental, motor, social, and emotional development of elementary school age children. Effects of environment in producing emotional disturbances.

**5337. Play Therapy. (3:3:0)**

Prerequisite: Psy. 5336. Study of theory and application of play techniques in doing diagnostic and therapeutic work with children; the child's symbolic communications through language, art, and play materials. Review of research.

**5338. Seminar in Psychopathology. (3:3:0)**

Prerequisite: Psy. 435. Advanced study in the area of abnormal or deviant forms of behavior, including both functional and organic conditions.

**5341. Experimental Design and Quantitative Methods in Psychology. (3:3:0)**

Prerequisite: Psy. 437, 5342. Logical principles governing sound experimentation; conventional designs utilizing analysis of variance, factor analysis, and multiple and partial correlation.

**5342. Advanced Statistical Methods. (3:3:0)**

Prerequisite: Psy. 343 or equivalent. Statistical inference, including probability, small sample theory, chi square, analysis of variance, and non-parametrics.

**5345. Research Seminar in Clinical and Counseling Psychology. (3:3:0)**

Prerequisite: Psy. 5341 and 5342. Survey of methods and approaches to research in these areas.

**5351. Advanced Experimental Psychology and Psychodynamics. (3:3:0)**

Prerequisite: Psy. 437, 5341, 5342. Advanced research techniques; each class member required to design, execute, and write up one or more original experiments, preferably with human subjects. Not a dissertation course. Fee \$3.

**5352. Seminar in Learning Theory. (3:3:0)**

Prerequisite: Psy. 4317. Current learning theories, including those of Hull, Tolman, Lashley, Spence, Lewin, Hebb, and others.

**5353. Seminar in Physiological Psychology. (3:3:0)**

Prerequisite: Psy. 4327 or equivalent. Open to graduate students in the biological sciences with credit for Psy. 230 or equivalent. Current trends in psycho-physiological research.

**5354. Seminar in Perception. (3:3:0)**

Prerequisite: Consent of instructor. Major problem areas in psychology of perception, such as the study of the psychophysiology of sensory processes; perception theory; implications for usage in social and clinical psychology. Topics may vary from year to year.

**5355. Seminar in Comparative Psychology. (3:3:0)**

Prerequisite: Consent of instructor. Study of the use of subhuman organisms in psychological research. Emphasis on modifiability of behavior as a function of phylogenetic level, social structure of animal groups, instincts, imprinting, and learning.

**5356. Motivation. (3:3:0)**

Prerequisite: Consent of instructor. Study of psychological, social, and physiological factors in motivation. The role of early experience and secondary motives will be emphasized. Human and animal.

**5358. Electrophysiological Techniques. (3:3:0)**

Prerequisite: Psy. 4327 or consent of instructor. Experimentation and methodology using polygraph and EEG equipment, and psycho-physiological measurement. Suitable for graduate majors in physiology or bio-physics.

**5359. Advanced General Psychology. (3:3:0)**

Prerequisite: Consent of instructor. Advanced study in general psychology. Review of relevant literature.

**5361. Advanced Practicum in Counseling and Clinical Psychology.**

**(3:3:0)**

Prerequisite: Psy. 5318. Supervised practice in psychodiagnostics and psychotherapy with selected cases. Emphasis on a wide variety of experience.

**5362-5363. Internship in Counseling and Clinical Psychology. (3 each)**

Prerequisite: By arrangement with Department Head. Full time supervised internship in an appropriate psychological facility.

**561. Proseminar I. (6:6:0)**

Prerequisite: Graduate standing. Intensive review and extension of knowledge in selected areas. Emphasis on developmental, personality, history, and learning. Professional aspects and ethics.

**562. Proseminar II. (6:6:0)**

Prerequisite: Graduate standing. Intensive review and extension of knowledge in selected areas. Emphasis on physiological, experimental, and social.

**630. Master's Report. (3)**

**631. Master's Thesis. (3)**

Enrollment required at least twice.

**731-732. Research. (3 each)**

**831. Doctoral Dissertation. (3)**

Enrollment required at least four times.

## Department of Sociology and Anthropology

W. G. Steglich, *Head of the Department*

Office: Ad. 201

*Professors:* Mhyra S. Minnis, W. G. Steglich

*Associate Professors:* Walter J. Cartwright, Lewis J. Davies, R. Sylvan Dunn,\* Richard O. Keslin

*Assistant Professors:* Evelyn I. Montgomery, Thomas E. Smith

*Instructors:* Mrs. Susanne Foster Allstrom, Richard H. Furlow, James T. Richardson, David R. Shepherd

\* Part-time.

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: ANTHROPOLOGY, *Bachelor of Arts*; SOCIOLOGY, *Bachelor of Arts*, *Master of Arts*. The de-



partment also participates in the LATIN AMERICAN AREA STUDIES program leading to the *Bachelor of Arts* Degree.

A student majoring in sociology must complete 30 semester hours in sociology, including the following courses: 230, 233, 436, 439, 4316. He must receive a grade of C or better in each advanced course in sociology (all courses having a 300 number or higher) if he wishes to have it count toward a major or minor in sociology.

A student majoring in anthropology must complete 30 semester hours in anthropology, including Anthropology 231, 232, 332, one course in pre-history and two courses in ethnology. Sociology 336, Philosophy 436, and History 4329 (Plains Indians) may be credited toward a major in anthropology. A grade of C or better must be received in each advanced anthropology course (all courses having a number of 300 or higher) by those working for a major or minor in the subject.

Sociology may be used as a social science in the broad field (Plan II) program for secondary teacher certification in the teacher education program. For specific courses consult the Department Head. See also the discussion of teacher education in Part I of this Catalog.

## Courses in Sociology

### FOR UNDERGRADUATES

#### 230. Introduction to Sociology. (3:3:0)

Introduction to the study of human group behavior, including the forms which group life takes, the relationships of groups to other groups, the influence of groups on the individual, and the relationships of individuals to each other as members of groups.

#### 233. Current Social Problems. (3:3:0)

Prerequisite: Sociology 230 or consent of instructor. The application of the principles of group behavior and organization (as learned in Sociology 230) to the analysis of problems in such basic social institutions as marriage and the family, the community, the economy, government, education, health and welfare, recreation, etc.

#### 235. The Sociology of Marriage (3:3:0)

History, present status, and current problems of the marriage institution.

#### 331. Rural Sociology (3:3:0)

#### 334. The Sociology of Work and Industrial Relations. (3:3:0)

An analysis of the social organization of industrial concerns, social relationships among employees, and problems of morale and efficiency; focus on occupational careers—in terms of their societal context and as personal techniques of social adaptation.

#### 336. Society and Culture of Mexico. (3:3:0)

#### 339. Sociology of Leisure. (3:3:0)

Prerequisite: Sociology 230 or consent of instructor. Sociological study of leisure. Attitudes and conceptions of leisure as developed in primitive and historical societies. Relation of leisure to other aspects of social life, such as work, art, morality, and other institutions. Current social and technological influences on American leisure patterns.

### FOR UNDERGRADUATES AND GRADUATES

#### 432. Introduction to Health and Welfare Services. (3:3:0)

Prerequisite: Sociology 230 or consent of instructor. The study of the development of social services in the United States as related to characteristics of the American culture.

#### 433. Criminology. (3:3:0)

Prerequisite: Sociology 230 or consent of instructor.

#### 435. Collective Behavior and Social Movements. (3:3:0)

Prerequisite: Sociology 230 or consent of instructor. Spontaneous group behavior—that which is not organized as a part of the culture and social organization of the group.

crowds and mobs, publics and public opinion, and mass behavior of all types (fads, fashions, crazes, panics, etc.); the organization of all of these in social movements.

**436. Contemporary Sociological Theories. (3:3:0)**

Prerequisite: Nine semester hours of sociology, including Sociology 230, or consent of instructor.

**437. Social Change. (3:3:0)**

Prerequisite: Sociology 230 or consent of instructor.

**438. Population Problems. (3:3:0)**

Prerequisite: Sociology 230 or consent of instructor.

**439. Methods of Sociological Research. (3:3:0)**

Prerequisite: Sociology 230 or consent of instructor. An introduction to methods of data collection and analysis; the interpretation of social data.

**4311. The Sociology of the Person. (3:3:0)**

Prerequisite: Sociology 230 or consent of instructor. Effects of group membership on individual behavior; emphasis on childhood and adolescent experiences in primary groups.

**4312. The Urban Community. (3:3:0)**

Prerequisite: Sociology 230 or consent of instructor. The community in its ecological, cultural, and social aspects.

**4313. American Minority Problems. (3:3:0)**

Prerequisite: Sociology 230 or consent of instructor.

**4314. Social Stratification. (3:3:0)**

Prerequisite: Sociology 230 or consent of instructor. Economic, political, and prestige structures in modern societies. Interrelationships of class, power, and status levels studied to determine their influence on social institutions and personality structure.

**4315. Sociology of Religion. (3:3:0)**

Prerequisite: Sociology 230 or consent of instructor. The sociological study of religious groups and religious systems. The social origin and the social consequences of religious beliefs. The patterns of social interaction in religious groups and their consequences for the participants. The reciprocal relationships between religious institutions and groups in the society.

**4316. Development of Sociological Theory. (3:3:0)**

Prerequisite: Sociology 230 and six hours of advanced sociology. The emergence of systematic sociological theory out of the social philosophy of the past. The evolution of sociology as a discipline in the late nineteenth and early twentieth centuries.

## FOR GRADUATES

**531. Sociological Theory. (3:3:0)**

Prerequisite: Consent of Department Head. Individual study. May be repeated once for credit.

**533. Seminar in Contemporary Sociological Theory. (3:3:0)**

Prerequisite: Nine hours of advanced credit in sociology, including Sociology 436, or consent of instructor.

**534. Seminar in Sociological Research Methods. (3:3:0)**

Prerequisite: Nine hours of advanced credit in sociology, including Sociology 439, or consent of instructor.

**535. Seminar in Social Disorganization. (3:3:0)**

Prerequisite: Sociology 230, 233, and six hours of advanced sociology, or consent of instructor.

**536. Seminar in Sociological Uses of Historical Data. (3:3:0)**

Prerequisite: Six hours of sociology and six hours of history, or consent of instructor. Analysis and use of documents, records, and other historical materials as they may be interpreted sociologically.

**537. Seminar in Demography. (3:3:0)**

Prerequisite: 12 hours of sociology, including Sociology 438, or consent of instructor.

**5335. Society and Its Institutions. (3:3:0)**

Prerequisite: Two or more years of teaching experience in the public schools, and consent of instructor. Study of society as a network of institutions, stressing the interdependence of institutions, with special reference to problems created in the contemporary American society by changes in some of the basic institutions.

**631. Master's Thesis (3)**

Enrollment required at least twice.

## Courses in Anthropology

### FOR UNDERGRADUATES

**231. The Origin and Nature of Man. (3:3:0)**

**232. Cultural Anthropology. (3:3:0)**

**332. Physical Anthropology. (3:3:0)**

**3311. Major Cultural Developments of the Old World. (3:3:0)**

### FOR UNDERGRADUATES AND GRADUATES

**430. Cultures and Peoples of the Southwest. (3:3:0)**

**431. Field Archaeology. (3:3:0)**

**432. Man and the Supernatural. (3:3:0)**

Prerequisite: Anthropology 232 or consent of instructor.

**438. Culture and Personality. (3:3:0)**

**439. Peoples and Cultures of Oceania. (3:3:0)**

**4311. Anthropological Linguistics. (3:3:0)**

**4313. Peoples of North America. (3:3:0)**

Prerequisite: Consent of instructor.

**4314. Prehistory of Meso and South America. (3:3:0)**

Prerequisite: Consent of instructor.

**4315. Prehistory of North America. (3:3:0)**

Prerequisite: Anthropology 231 or consent of instructor.

**4316. Peoples of Meso and South America. (3:3:0)**

Prerequisite: Consent of instructor.

**4321. Individual Problems in Anthropology. (3:3:0)**

Prerequisite: Anthropology 231 and 232 or consent of instructor. Individual studies. May be repeated once for credit.

**4322. Peoples of Africa. (3:3:0)**

Prerequisite: Consent of instructor. An ethnographic survey of the peoples and culture areas south of the Sahara.

**460. Introduction to Field Research in Prehistory. (6)**

Prerequisite: Anthropology 461 or consent of instructor. A field course.

**461. Archaeology of Mexico. (6)**

A field course.

### FOR GRADUATES

**531. Anthropological Theory. (3:3:0)**

Prerequisite: Nine hours of anthropology or consent of instructor. Individual studies. May be repeated once for credit.

**5335. Origins of Social Customs and Institutions. (3:3:0)**

## Department of Speech

P. Merville Larson, *Head of the Department*

Office: Sp. 3-A

*Professors:* P. Merville Larson, William K. Ickes

*Associate Professors:* Clifford C. Ashby, Ronald E. Schulz, Jamil I. Toubbeh

*Assistant Professors:* Alfred A. Funk, Helen A. Lindell, Vernon R. McGuire, Larry Lee Randolph

*Instructors:* James Robbins,\* William M. Shimer, Vera L. J. Simpson

\* On leave, 1965-1966.

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: *SPEECH, Bachelor of Arts, Master of Arts.*

In addition to the general requirements of the School of Arts and Sciences for the Bachelor of Arts Degree, the following are requirements for the major in speech. All courses in the general speech area listed below are required. A minimum of 3 semester hours is required in each of four of the six numbered groups listed below. A choice may also be made between 4351—History of Speech, and 4352—History of Theater, one of which is required. Additional hours may be elected to make the total from 36 to 42 semester hours of speech.

### GENERAL SPEECH

131. Fundamentals of Speech (or equivalent)

133. Voice and Diction

### I. ORAL INTERPRETATION

237. Oral Interpretation

432. Senior Projects in Speech

316. Oral Interpretation Activities

435. Interpretative Reading

### II. PUBLIC ADDRESS

235. Discussion and Debate

432. Senior Projects in Speech

311. Parliamentary Procedure

437. Persuasion

318. Forensic Activities

4351. History of Speech

430. Advanced Public Speaking

### III. RADIO-TELEVISION

233. Introduction to Radio and Television Broadcasting

432. Senior Projects in Speech

317. Radio-Television Activities

436. Radio and Television Program Planning and Management

335. Fundamentals of Radio and Television Broadcasting

4331. Television Program Direction

336. Radio Program Production

337. Television Program Production

**IV. SPEECH CORRECTION**

- |                                       |   |
|---------------------------------------|---|
| 236. Speech Science and Phonetics     | 4318. Speech Pathology  |
| 331. Speech Anatomy and Physiology    | 4319. Speech Correction Methods                                 |
| 432. Senior Projects in Speech        | 4321-4322. Supervised Clinical Practice in Speech Correction    |
| 433. Introduction to Hearing Problems | 4323-4324. Supervised Clinical Practice in Hearing and Deafness |
| 434. Principles of Audiometry         |   |

**V. SPEECH EDUCATION**

- |   |  |
|---|--|
| 432. Senior Projects in Speech              | 4325. Directing School Speech Activities |
| 439. Methods in Teaching Speech and Theater |  |

**VI. THEATER**

- |   |                                |
|---|--------------------------------|
| 211. Stage Makeup                       | 333. Stagecraft                |
| 231. Introduction to Theater and Cinema | 334. Stagecraft                |
| 232. Principles of Acting               | 431. Creative Dramatics        |
| 319. Theater Activities                 | 432. Senior Projects in Speech |
| 332. Advanced Acting                    | 4311. Stage Directing Methods  |
|   | 4352. History of Theater       |

**Teacher Education**

In the teacher certification program described in Part I of this Catalog, speech and/or drama may be used as a teaching field at the secondary level and as an area of specialization at the elementary level. It also is a separate area in the all-level certificate program and in the teaching exceptional children certificate program.

Persons interested should consult the Department of Speech for details as some modifications of these programs are in process as this Catalog goes to press.

**Courses in Speech****FOR UNDERGRADUATES****131. Fundamentals of Speech. (3:3:0)**

Training in the basic principles of speech, with emphasis on discussion and original speaking. May not be taken for credit by students having had Speech 338 previously.

**133. Voice and Diction. (3:3:0)**

Analysis of the characteristics of good voice and speech usage. Structure and functioning of the speech mechanism. The use of phonetics and phonetic symbols for ear training and transcription of speech. Practical exercises in developing adequate voice control and diction for effective speaking.

**211. Stage Makeup. (1:0:3)**

A laboratory course in the practice of makeup for the stage. Assigned readings in textbooks.

**231. Introduction to the Theater and Cinema. (3:3:0)**

A study of the modern theater and cinema as art forms, with attention to the historical background and traditions of each. Emphasis is placed on a better understanding of the social, cultural, and aesthetic significance of theater and cinema. Attendance, when it can be arranged, at representative plays and motion pictures.

**232. Principles of Acting. (3:2:3)**

Study and application of the theories and techniques of the art of acting. Character analysis and the use of the body and voice in creating a role. Materials for illustrative exercises chosen from classical and contemporary plays.

**235. Discussion and Debate. (3:3:0)**

Study of and practice in the essential tools of a democratic society; group problem-solving and methods of inquiry and advocacy.

**236. Speech Science and Phonetics**

A study of the way voice is produced and speech formed. Also included is a study of the instrumentation employed in the measurement of voice and speech and the phonetic alphabet employed to transcribe speech sounds to the printed page.

**237. Oral Interpretation. (3:3:0)**

Major emphasis is placed on the appreciation of good literature and its effective oral interpretation from the printed page.

**238. Introduction to Radio and Television Broadcasting. (3:3:0)**

A survey course in the origin, history, and development of radio and television: basic structure of the broadcasting industry and its social, political, economic, and cultural significance.

**239. Speech Development for Personal Competence. (3:3:0)**

The course deals with principles and practice of speech skills necessary for personal effectiveness.

**311. Parliamentary Procedure. (1:1:0)**

Principles and procedure governing deliberative groups, with practice in their usage.

**316. Oral Interpretation Activities. (1:0:3)**

Opportunity for the student participating extensively in oral interpretation activities to secure credit for this laboratory work. Limit: 4 semester hours for speech majors and minors, 2 semester hours for others.

**317. Radio-Television Activities. (1:0:3)**

Opportunity is offered the student who wishes to participate extensively in radio-television activities to secure credit for this laboratory work. Limit: 4 semester hours for speech majors and minors, 2 semester hours for others.

**318. Forensic Activities. (1:0:3)**

Opportunity is offered the student who wishes to participate extensively in forensic activities to secure credit for this laboratory work. Limit: 4 semester hours for speech majors and minors, 2 semester hours for others.

**319. Theater Activities. (1:0:3)**

Opportunity is offered the student who wishes to participate extensively in theater activities to secure credit for this laboratory work. Limit: 4 semester hours for speech majors and minors, 2 semester hours for others.

**331. Speech Anatomy and Physiology. (3:3:0)**

Study of the functioning of the speech mechanism basic to major study in speech. Primarily for speech majors, but equally valuable for prospective elementary school teachers.

**332. Advanced Acting. (3:2:3)**

Prerequisite: Speech 232. Continuation of the study and application of the theories and techniques of the art of acting, with emphasis upon characterization, analysis of roles, and techniques and types of performance; materials for illustrative exercises chosen from classical and contemporary plays.

**333. Stagecraft. (3:2:3)**

Prerequisite: Speech 231 or equivalent. The study of technical problems of play production. Design, construction, and painting of scenery and properties; and special effects.

**334. Stagecraft. (3:2:3)**

Prerequisite: Speech 231 or equivalent. Continuation of study of technical problems of play production. Stage lighting, costume design, and construction.

**335. Fundamentals of Radio and Television Broadcasting. (3:2:3)**

The basic principles and techniques for the operation of a radio or television control room, performance on radio and television. Practical experience under broadcast conditions. Leads to the 3rd class FCC license.

**336. Radio Program Production. (3:2:3)**

Prerequisite: Speech 238, or 335, or approval of instructor. A concentrated and practical course covering the multiple problems faced by the radio station manager. Opportunity to acquire professional facility and technique in direction and production of radio programs on the campus station KTXT-FM. Development of creative ingenuity and critical standards emphasized.

**337. Television Program Production. (3:2:3)**

Prerequisite: Speech 238, or 335, or approval of instructor. A concentrated and practical course on the theory and application of the principles of television production; emphasis on development of creative ingenuity and critical standards.

**338. Business and Professional Speech. (3:3:0)**

Prerequisite: Sophomore classification. Basic principles of speech applied to the speech needs of the professional man and woman. Practice in the construction and delivery of the various types of speeches and participation in group conferences, discussions, and interviews. For majors in other fields than speech.

**432. Senior Projects in Speech. (3)**

Prerequisite: Senior classification and 9 hours in the area in which the project is to be pursued. Individual study, under guidance of a member of the faculty, of a specific problem of student's choice in one of the areas of speech. Students required, in advance of registration, to consult with the instructor and secure the Department Head's approval of the specific project to be pursued. May be repeated only once for credit.

## FOR UNDERGRADUATES AND GRADUATES

**430. Advanced Public Speaking. (3:3:0)**

Prerequisite: 9 hours of speech, including 3 hours primarily in public speaking. Intensive study and practice in different kinds of public speaking. Audience analysis and adaptation given special emphasis.

**431. Creative Dramatics. (3:3:0)**

Studies in the principles and methods of developing original dramatizations with children.

**433. Introduction to Hearing Problems. (3:3:0)**

Anatomy of the ear. Definition and description of types of hearing loss and deafness. Principles and methods of clinical and classroom retraining of the hard-of-hearing through lip reading and speech correction.

**434. Principles of Audiometry. (3:3:0)**

Principles of testing hearing loss through use of the audiometer and psychometer. Use and interpretation of audiograms. The physics of sound as related to hearing. Psychological problems of hearing. Clinical observation and practice.

**435. Interpretative Reading. (3:3:0)**

Prerequisite: Junior classification and 12 hours of English. Students are advised to complete Speech 133 and/or 237 before taking this course. Consideration of the problems of transferring meaning from the printed page to the listener. Study of types of literature for oral interpretation.

**436. Radio and Television Program Planning and Management. (3:2:3)**

Prerequisite: Speech 336, or 337, or approval of instructor. Objectives and methods in planning commercial and educational programs for radio and television. Station staff organization and administration emphasized. Case studies and individual projects.

**437. Persuasion. (3:3:0)**

Prerequisite: 6 hours of public speaking and a course in psychology or permission of Department Head. A study of the psychological and rhetorical principles of motivation, suggestion, and other aspects of audience psychology as used in business, radio, and public affairs.

**439. Methods in Teaching Speech and Theater. (3:3:0)**

Prerequisite: 18 hours of speech and 9 hours of education. Review of the areas of speech. A survey of texts and their critical analysis. Preparation of syllabi.

**4311. Stage Directing Methods. (3:2:3)**

Prerequisite: Junior classification; Speech 231, 232, 333, and 334. Analysis of the function of the director as related to the principles of play production. Study and practice of fundamental techniques of directing, with attention to composition, picturization, movement, and stage business. Rehearsal organization, procedure, and techniques. Student direction of representative plays.

**4318. Speech Pathology. (3:3:0)**

Prerequisite: Speech 133, 236, 331 or the consent of the instructor. A survey of the speech pathology field with emphasis on etiological factors responsible for speech disorders and description of clinical types.

**4319. Speech Correction Methods. (3:3:0)**

Prerequisite: Speech 133, 236, 331, 4318, or the consent of the instructor. An introduction to methods of evaluating defective speech and the elementary aspects of therapy to alleviate defective speech.

**4321-4322. Supervised Clinical Practice in Speech Correction. (3 each)**

Thirty-five laboratory hours per credit hour. Prerequisite: Speech 4318, concurrent registration in Speech 4319, or permission of Department Head. Required of teachers desiring certification of approval for speech therapy.

**4323-4324. Supervised Clinical Practice in Hearing and Deafness.**

(3 each)

Prerequisite: Speech 433 and 434. Thirty-five laboratory hours per credit hour. Clinical work with deaf and hard-of-hearing cases under supervision. Required of students seeking certification for teaching the deaf and hard-of-hearing.

**4325. Directing School Speech Activities. (3:2:3)**

Prerequisite: 12 hours of speech or education, and/or teaching experience. Methods and principles involved in extracurricular speech activities, such as discussion, debate, dramatics, public speaking, and radio. Students will have an opportunity to work with individuals and projects in different activities.

**4331. Television Program Direction. (3:2:3)**

The preparation and directing of television programs, including television dramas, variety shows, documentaries, and educational programs, for use in commercial stations.

**4351. History of Speech. (3:3:0)**

Prerequisite: Junior classification. A study of the origin, history, and development of speech as a social function and force.

**4352. History of Theater. (3:3:0)**

Prerequisite: Junior classification and Speech 231 or consent of instructor. A study of the origin and history of the theater as a social and aesthetic force.

## FOR GRADUATES

**511. Studies and Problems in Speech. (1:1:0)**

May be repeated for credit.

**521. Studies and Problems in Speech. (2:2:0)**

May be repeated for credit.

**531. Studies and Problems in Speech. (3:3:0)**

May be repeated for credit.

**535. Seminar in Audiology: Psychophysics of Audition. (3:3:0)**

Prerequisite: An undergraduate major in audiology or speech pathology is required or the consent of the instructor. This course considers the basic correlates of the auditory stimulus, the mechanical properties of the ear, and the psychophysiology of hearing and deafness.

**536. Seminar in Speech Pathology: Articulation and Voice Disorders. (3:3:0)**

Prerequisite: An undergraduate major in speech pathology is required or the consent of the instructor. A study at the advanced level of articulation and voice problems. The course considers etiology, diagnosis, and therapy.

**538. Educational Television. (3:3:0)**

Graduate classification. The history, social impact, and effect that educational broadcasting has had upon the American way of life. Evaluation of in-school and general educational programs; the use of television in the classroom; the presentation of educational material on television.

**5311. Seminar in Speech Pathology: Organic Speech Disorders. (3:3:2)**

Graduate classification, limited to majors in speech correction and/or audiology who have had Speech 4318, 4319, and 331 or equivalent. A study of the anatomical malfunction of defect which results in such so called organic speech disorders as cleft palate,



cerebral palsy, and aphasia. Also includes a study of the sociological, psychological, and therapeutic implications of such speech defects.

**5312. Seminar in Speech Pathology: Stuttering. (3:3:2)**

Graduate classification, limited to speech correction and audiology majors, or other students who have obtained the consent of the instructor. A study of stuttering beyond the scope of introductory presentation. Stuttering theory and therapy studied from the view of learning theorists, psychoanalysts, and other disciplines which profess to treat stuttering.

**5313. Seminar in Audiology: Aural Rehabilitation. (3:3:2)**

Graduate classification. Open to speech correction and audiology majors, or other students who have completed Speech 433 and 434 or equivalent. A study of the language, social, and educational problems of the more severely hard-of-hearing or deaf individual and the current methods of dealing with these problems.

**5314. Seminar in Audiology: Clinical Audiology. (3:3:2)**

Graduate classification. Limited to students who have taken Speech 433 and 434 or equivalent. This course deals with special types of audiometry, such as aural over-load audiometry, electrodermal response (EDR) audiometry, tests for selection of hearing aids, and others.

**5315. Advanced Discussion, Debate and Conference Methods. (3:3:0)**

A study of the history and philosophy of discussion and debate and their application to specialized forms, with special emphasis on newer techniques in the business and educational conference, including consideration of group dynamics.

**5316. Dramatic Criticism. (3:3:0)**

Principles of dramatic criticism from Aristotle to the present day.

**5317. Studies in Modern Theater. (3:3:0)**

The principal developments in the European and American theater from 1870 to the present day.

**5318. Studies in the Production of Pre-Modern Drama. (3:3:0)**

A study of the problems of producing classical Elizabethan, French neo-classic, Restoration, and eighteenth-century drama for present-day audiences.

**5319. Theory and Practice of Scene Design. (3:2:3)**

Theory and practice of designing stage scenery.

**5321. Theater Costume Design. (3:2:3)**

Theory and practice of designing stage costumes.

**5322. Theory and Practice of Stage Lighting. (3:2:3)**

Theory and practice of stage lighting.

**5323. Classical Rhetoric and Public Address. (3:3:0)**

Prerequisite: Advanced Public Speaking and History of Speech. An historical and critical study of Greek and Roman rhetoric and public address in relation to theories and methods of public speaking.

**5324. British and American Public Address. (3:3:0)**

Prerequisite: Sophomore standing. A study of the history and development of British and American rhetoric and public address in relation to theories and methods of public speaking.

**5325. Contemporary Rhetorical Theory and Practice. (3:3:0)**

Prerequisite: 6 semester hours of senior or graduate level courses in public address. A study of modern rhetorical theories, their comparison with classical concepts and the impact of twentieth century research.

**5326. Graduate Clinical Practice—Speech. (3:0:9)**

Prerequisite: An adequate undergraduate background in speech therapy is required which includes 100 hours of undergraduate supervised clinical practice. Supervised clinical practice in diagnostic methodology used in speech pathology. Advanced therapy for difficult and/or complex clinic types. Thirty-five hours of lab required for each semester hour of credit.

**5327. Graduate Practice—Hearing. (3:0:3)**

Prerequisite: An adequate undergraduate background in audiology and aural rehabilitation is required which must include at least 100 hours of undergraduate supervised clinical practice in audiology. This course includes supervised clinical practice in audiology as well as supervision of such procedure as the teaching of lip-reading, auditory training, and speech and language for the deaf and hard-of-hearing. Students registering for this

course will be expected to participate in all areas which might be included in the habilitation of aurally handicapped children and the rehabilitation of aurally handicapped adults.

**5335. Basic Speech for Elementary Teachers. (3:3:0)**

A study of the basic characteristics of speech skills and abilities necessary for effective speech, and the use of speech in classroom activities.

**5341. Seminar in Speech Pathology: Language Problems in Children. (3:3:0)**

Prerequisite: An undergraduate major in speech pathology is required or the consent of the instructor. This course considers the nature of language disorders in children, the etiological factors responsible for language disorders in children and the therapeutic processes involved in the treatment of language disorders in children.

**5342. Seminar in Speech Pathology: Language Problems in Adults. (3:3:0)**

Prerequisite: An undergraduate major in speech pathology is required or the consent of the instructor. This course considers the nature of language disorders in adults, the etiological factors responsible for language disorders in adults and the therapeutic processes involved in the treatment of language disorders in adults.

**631. Master's Thesis. (3)**

Enrollment required at least twice.

## Department of Biblical Literature

James Houston Hodges, *Chairman of Department*  
Office: 2412 13th Street, PO 3-4392

- Jack Greever  
*Baptist General Convention of Texas*
- James Houston Hodges  
*Christian, Episcopal, Lutheran (N.L.C.)  
and Presbyterian Churches*
- Stanley Edward Hovatter  
*Christian, Episcopal, Lutheran (N.L.C.)  
and Presbyterian Churches*
- Lowell Dean McCoy  
*The Churches of Christ*
- Ralph Edward Macy  
*Christian, Episcopal, Lutheran (N.L.C.)  
and Presbyterian Churches*
- Cecil Raymond Matthews  
*The Methodist Church*
- Patrick O'Dwyer  
*Roman Catholic Church*
- James Weldon Thompson  
*The Churches of Christ*

The objective of this department is to provide sound academic courses in the literature found in the Bible, in order that students may better understand and appreciate this significant collection of documents. Courses are taught in five locations nearby the campus, under auspices of the Baptist, Churches of Christ, Methodist, Roman Catholic, and United Bible Chairs. Instructors are fully qualified and credit may be obtained for as many as 12 academic hours, which are counted as electives toward regular degree plans. This area of study is offered to students at no expense to the College, its cost being borne by the various supporting religious groups.

**Courses in Biblical Literature****110. Introduction to Biblical Studies. (1:1:0)**

An introduction to the history, geography, and people of Biblical lands and places and a survey of the tools, materials, and methods of Bible study.

**131. Introduction to the Old Testament. (3:3:0)**

A study of the history, literature, and significant teachings of the Old Testament.

**132. Introduction to the New Testament. (3:3:0)**

A study of the history, literature, and significant teachings of the New Testament.

**213. The Book of James. (1:1:0)**

A study of the background and content of the Book of James.

**235. The Old Testament Prophets. (3:3:0)**

The Hebrew prophets, their place in history, and their contribution to religious thought.

**236. The Life and Teachings of Jesus. (3:3:0)**

The life, teachings, and significance of Jesus as presented in the gospels.

**239. History of Christian Thought. (3:3:0)**

The development of Christian systems of thought, from New Testament times through the nineteenth century.

**2311. Social Teachings of the Bible. (3:3:0)**

Biblical ethics for the present day. Such subjects as marriage, capital punishment, war, slavery, race relations, and other modern social issues considered.

**2312. The Life and Letters of Paul. (3:3:0)**

A review of the life of the apostle Paul, with special emphasis upon his epistles and missionary work.

**321. Old Testament Poetry and Wisdom Literature. (2:2:0)**

Selected studies from the Psalms, Book of Job, and other poetic and wisdom literature in the Old Testament.

**323. The Letter to the Romans. (2:2:0)**

A study of the background and content of the Book of Romans.

**324. The Letter to the Hebrews. (2:2:0)**

A study of the background and content of the Book of Hebrews.

**331. The Gospel and Letters of John. (3:3:0)**

A study of the background and content of the Fourth Gospel and I, II, III John.

**332. Religions of the World. (3:3:0)**

A study of important features of various religions (e.g., Primitivism, Zoroastrianism, Hinduism, Buddhism, Confucianism, Taoism, Shinto, Zen, Islam, Judaism, Christianity, etc.)

**422. The Book of Revelation. (2:2:0)**

A study of the background and content of the Book of Revelation.

**431. Contemporary Christian Thought. (3:3:0)**

Christian theology as expressed in Neo-Thomism, Neo-orthodoxy, Christian Existentialism, Neo-liberalism, Contemporary evangelicalism, etc., European as well as American.

**432. Genesis and the Law. (3:3:0)**

The origin, history, and religious concepts of the Old Testament books of Law. Special attention given to problems of Genesis.

# School of Business Administration

George G. Heather, *Dean*  
 Germain Boer, *Assistant Dean*  
 Seldon C. Robinson, *Freshman Adviser*  
 Offices: BA 216

The School of Business Administration is divided into instructional departments which offer course work and supervise the degree programs described in Part I of this Catalog. The student should note carefully any particular requirements indicated by a department in which he plans to major as well as those special requirements indicated in Part I. Specific curricula have been designed for each program, which are presented in groups. Group I (nonprofessional courses) and Group II (basic professional courses) are common to all programs and are given below. Groups III, IV, and in some cases V, appear under the appropriate departmental heading, except for the interdepartmental programs of pre-law and public administration which appear in this section.

The courses taught in the School of Business Administration are listed on the following pages by departments. Each course is listed by name and number, and may include brief descriptions.

## General Curricula Requirements

### I. Nonprofessional courses (49 semester hours):

Eco. 133—The Development of American Business and Economic Institutions I

Eco. 231-232—Principles of Economics I and II

Eng. 131-132—College Rhetoric

Eng. 231 or 232—Masterpieces of Literature

Govt. 231—American Government, Organization

Govt. 232—American Government, Functions

Mgt. 110—Professional Careers in Business

Math. 137—Mathematical Analysis\*

Math. 138—Mathematical Analysis\*

Physical Education, Band, or Basic ROTC—four semesters\*\*

Science—6 semester hours\*\*\*

Speech 338—Business and Professional Speech

American History—6 semester hours

Humanities: approved by the major adviser\*\*\*\*

\* Industrial Management majors are to substitute Mathematics 131 and 133.

\*\* No degree credit.

\*\*\* Industrial Management majors are to take Chemistry 141-142 or Physics 141-142. or from the Office of the Dean of the School of Business Administration.

\*\*\*\* A list of the approved courses may be obtained from the student's major adviser

One course from the following fields—3 semester hours:

Allied Arts	Music Literature
Anthropology	Philosophy
English	Psychology
Foreign Language*	Sociology

- II. Basic professional courses (31 semester hours):  
 Acct. 232—Electronic Data Processing I  
 Acct. 234-235—Elementary Accounting I and II  
 Business Law 338-339—Business Law I and II\*\*  
 Fin. 331—Corporation Finance  
 Mgt. 331—Industrial Management  
 Mkt. 246—Introduction to Business Statistics  
 Mkt. 332—Principles of Marketing  
 Sec. Admin. 333—Business Correspondence
- III. Major professional courses as listed in departmental curricula\*\*\*
- IV. Electives. The American Association of Collegiate Schools of Business prescribes that not less than 40 percent of the total hours required for graduation must be in business and economic subjects, and not less than 40 percent must be in subjects other than business and economics. Freshman and sophomore physical education, band, and basic ROTC are excluded from this computation. Economics 133, 231, and 232 may be counted as nonbusiness courses. The student may need to use part of the Group IV electives to assure the required amount of nonbusiness work.

### **Bachelor of Business Administration—Pre-Law Major**

Mr. Dale, *Adviser*

- I. Nonprofessional courses (49 semester hours).  
 Pre-law students should elect a semester of sophomore literature as an elective humanity in addition to the 9 hours of required English in order to meet admission requirements of some law schools.
- II. Basic professional courses (25 semester hours).
- III. Major professional courses (13 semester hours):  
 Accounting elective, 3 semester hours  
 Eco. 326—Research in Economics and Business  
 Sec. Admin. 327—Report Writing  
 Electives—6 semester hours to be chosen from the following:  
   Anthro. 231—The Nature of Man  
     or Anthro. 232—Cultural Anthropology  
     or Anthro. 232—Cultural Anthropology  
   Hist. 133, 134—History of England  
   Psy. 230—General Psychology I

\* A student electing a foreign language should have free elective hours to cover the second course in any hyphenated series selected.

\*\* Not to be taken by pre-law majors.

\*\*\* The student who is given permission to substitute for a group III course should make certain that the permission from the adviser is at that time recorded on the proper School form made out in triplicate, the original copy to be placed on file in the Office of the Dean, the first carbon copy to be retained by the adviser, and the second carbon copy to be preserved carefully by the student. The school assumes no obligation for substitutions claimed by the student unless he can present when needed his copy of the substitution form.

Soc. 230—Introduction to Sociology  
 or Soc. 233—Current Social Problems  
 Advanced business administration courses

- IV. Electives in business administration to complete a total of 95 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC. Students should attempt to elect courses which will provide the most information concerning the areas of business activity in which it is anticipated legal practice will concentrate. It may be necessary to use a part of these electives to assure a required total of not less than 38 academic hours of course work outside the School of Business Administration.

### **Bachelor of Business Administration or Bachelor of Science—Public Administration Major**

Mr. Clover, *Adviser*

- I. Nonprofessional courses (49 semester hours).
- II. Basic professional courses (31 semester hours).
- III. Major professional courses (39 semester hours):
  - Acct. 432—Governmental Accounting
  - Arch. 337—Principles of City Planning
  - Eco. 326—Research in Economics and Business
  - Eco. 334—Taxation and Public Expenditures
  - Govt. 4321—Local Government
  - Govt. 4341—Fiscal Administration
  - Govt. 4353—Administrative Law and Regulations
  - Mgt. 334—Personnel Administration
  - Mgt. 335—Purchasing, Stores, and Inventory Control
  - Mgt. 435—Employee Supervision
  - Mkt. 321—Public Relations
  - Psy. 230—General Psychology I
  - Sec. Admin. 327—Report Writing
  - Sec. Admin. 431—Internship
- IV. Electives to complete a total of 130 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC. It may be necessary to use a part of these electives to assure a required total of not less than 52 academic hours of course work outside the School of Business Administration.

## Department of Accounting

Reginald Rushing, *Head of the Department*  
Office: BA 318-A

*Professors:* Fred Wayland Norwood, Arthur Theophile Roberts, Reginald Rushing, Haskell Grant Taylor, William Elmer Whittington

*Associate Professors:* Germain Boniface Boer, Wayne Ralph Chapin, Samuel Whitten Chisholm

*Assistant Professors:* Gilford William Cox, Luta Pelham Eaves, Raymond Ackerly Green, Doyle Zane Williams

*Instructor:* Marvin Autry Johnston

*Part-time Instructors:* Michael Robert Abbott, Elinor O'Brien Boer, Thomas Jefferson Edwards, Orrin Lee Gross, Robert Henry Hartman, Jimmie Lee Mason, Joe Edd New, A. B. Segars

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: ACCOUNTING, *Bachelor of Business Administration*, *Master of Business Administration*.

The objective of the Accounting Department is to prepare accounting students for entry into the fast-growing profession of accounting. The field of accounting has increased greatly as accountants have taken on management service activities, advising on mergers and reorganizations, and the solution of various complex business problems. As the field of accounting has broadened, so has the need grown for a broader educational college program for the future accountant.

The Accounting Department is meeting this need by offering a varied program to fulfill the varied interests of its students. Over one-half of the full-time faculty have doctors' degrees and most of the full-time faculty are Certified Public Accountants.

The department has two student organizations which provide the students with contacts with the accounting profession. The Beta Alpha Psi chapter is a national professional accounting fraternity. Membership in the Tech Accounting Society is open to anyone interested in accounting.

### **Bachelor of Business Administration—Accounting Major**

- I. Nonprofessional courses (49 semester hours).
- II. Basic professional courses (31 semester hours).
- III. Major professional courses (29 semester hours):
  - Acct. 334-335—Intermediate Accounting I and II
  - Acct. 336—Principles of Cost Accounting
  - Acct. 430—Income Tax Accounting
  - Acct. 434—Advanced Accounting I
  - Acct. 437—Principles of Auditing
  - Accounting electives—9 semester hours
  - Sec. Admin. 327—Report Writing

- IV. Electives to complete a total of 126 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC. It may be necessary to use a part of these electives to assure a required total of not less than 51 academic hours of course work outside the School of Business Administration.

## Courses in Accounting

### FOR UNDERGRADUATES

#### 121. Elementary Mechanical Coding. (2:2:2)

A beginning course to present the features and operation of the card punch and verifier, designed to develop proficiency in alphabetic and numeric keyboard drills, and in preparation and use of program cards.

#### 231. Industrial Accounting for Engineers. (3:3:0)

Fundamental principles and procedures of accounting; cost accounting systems and cost analysis. Primarily for the nonaccountant, to provide a working knowledge of accounting, both as a systematic approach to evaluation of the overall performance and status of the business firm and as an aid to management in making decisions, planning future activities, and maintaining operational control. Credit will not be given for both 231 and 234.

#### 232. Electronic Data Processing I. (3:3:0)

A study of electronic data processing with basic, general purpose, digital computers and the types of applications adaptable to automation. Computer fundamentals, flowcharts, programming, and systems are studied.

#### 233. Electronic Data Processing II. (3:3:0)

Prerequisite: Acct. 232. A study of electronic data processing with large scale tape controlled, general purpose, digital computers and the applications adaptable to automation. Computer and tape fundamentals flowcharts, programming, and systems are studied.

#### 234. Elementary Accounting I. (3:3:1)

Accounting for merchandise operations, proprietorships, partnerships, negotiable instruments, specialized books of original entry, and the voucher system. Credit will not be given for both 231 and 234.

#### 235. Elementary Accounting II. (3:3:1)

Second course in elementary accounting. Partnerships, corporations, cost accounting, assets, theory, and principles of accounting, and interpretation of financial statements.

#### 246. Machine Accounting. (4:3:3)

Punched card methods; card design and coding; organization and operation of tabulating machine departments; applications. Practice in wiring panel boards and in the operation of punch, verifier, sorter, and tabulator machines.

#### 247. Machine Accounting. (4:3:3)

Punched card methods for auxiliary machines as follows: printing punch, interpreter, collator, reproducing punch; procedure development; punched card accounting applications and systems for accounts payable, accounts receivable, payroll, inventory, billing, sales, management, and supervisor responsibility. Practice in wiring panel boards and in the operation of the interpreter, collator, and reproducing punch; practice with program cards.

#### 322. Payroll Accounting. (2:2:0)

Theory and application of federal and state laws pertaining to payroll, such as wage and hour, withholding, unemployment, workmen's compensation, and employment benefits.

#### 323. Introduction to Income Taxation for Individuals. (2:2:0)

A study of the origin, development, fundamental concepts and mechanics of individual income taxation. Involves the preparation of basic individual income tax returns which incorporate problems common to most individual and family situations. For non-accounting majors only.

#### 331. Managerial Accounting. (3:3:0)

Prerequisite: Acct. 235 and nonaccounting major. Accounting as a management aid in decision-making by analyzing financial statements, budget planning and control, internal control, cost control, and cost interpretation.



**332. Analysis of Financial Statements. (3:3:0)**

Prerequisite: Acct. 235 and nonaccounting major. Financial statement preparation and analysis; items on financial statements, including their derivation and financial significance; methods in interpreting financial statements.

**334. Intermediate Accounting I. (3:3:0)**

Prerequisite: Acct. 235. Review of elementary accounting, net income concepts corporations, current assets, investments.

**335. Intermediate Accounting II. (3:3:0)**

Fixed assets, liabilities and reserves, interpretation and analysis of financial statements, application of funds, cash flow statement, reorganizations, price level impact on financial statements.

**336. Principles of Cost Accounting. (3:3:0)**

Prerequisite: Acct. 235. Techniques of cost accounting, embracing methods of accounting for materials, labor, and factory burden in job order and process cost systems.

## FOR UNDERGRADUATES AND GRADUATES

**430. Income Tax Accounting. (3:3:0)**

Prerequisite: Acct. 234. Federal revenue acts with reference to taxation of the incomes of individuals; preparation of tax returns for individuals and partnerships.

**431. Advanced Income Tax Accounting. (3:3:0)**

Prerequisite: Acct. 430. Tax court and federal court cases and decisions. Procedure in practicing before the tax court. Study and preparation of returns for corporations and returns involving gift taxes, estate taxes, and inheritance taxes.

**432. Governmental Accounting. (3:3:0)**

Prerequisite: Acct. 235. Application of accounting principles and systems to the requirements of governmental units, municipal, county, state, and federal. Emphasis on budgetary and fund accounts.

**433. Petroleum Accounting. (3:3:0)**

Prerequisite: Acct. 235. Accounting for the production, refining, and distribution of oil, with emphasis upon production.

**434. Advanced Accounting I. (3:3:0)**

Prerequisite: Acct. 334-335. Partnerships, consignments, ventures, installment sales, insurance, bankruptcies and receiverships, compound interest and annuities, estates and trusts.

**435. Advanced Accounting II. (3:3:0)**

Branch accounting and consolidations.

**436. Accounting Systems. (3:3:0)**

Prerequisite: Acct. 235. Construction of accounting reports, application of principles of systems and design to the policies, organization, and operating methods of individual companies. Automation and accounting systems. Local field trips.

**437. Principles of Auditing. (3:3:0)**

Prerequisite: Acct. 335. Auditing objectives, procedures, internal control, and working papers pertaining to the various balance sheet and income statement accounts and the presentation of these in the financial statements.

**438. Advanced Auditing. (3:3:0)**

Prerequisite: Acct. 437. Review of auditing standards; case studies in auditing procedure. Completion of an audit practice case.

**439. Budgeting. (3:3:0)**

Prerequisite: Acct. 235. Coordination of various business activities by means of the budget. Procedure in obtaining and enforcing the budget.

**4313. Advanced Cost Accounting. (3:3:0)**

Prerequisite: Acct. 336. Advanced theory and techniques of process cost are more fully developed than in Acct. 336 and the scope of applicability broadened. Estimate and standard cost are comprehensively treated, with emphasis on cost control. Selected problems supplement the text material.

## FOR GRADUATES

**531. Controllership. (3:3:0)**

Role of the controller in business. Functions of the controllers. Use of accounting and budgeting in business planning.

**532. Internship. (3:3:0)**

A student is placed in an internship in accounting and upon completion writes a report of his internship.

**533. Current Accounting Theory. (3:3:0)**

Current accounting literature; accounting bulletins of the American Institute of Certified Public Accountants; S.E.C. accounting releases.

**535. Seminar in Accounting. (3:3:0)**

Comprehensive study of some phase of accounting, such as internal auditing, accounting for the federal government, auditing of specific enterprises, accounting for fiduciaries and estates, advanced cost problems, and advanced machine accounting.

**536. CPA Review I. (3:3:0)**

Emphasis on subject matter appearing in the practice part of the CPA examinations.

**537. CPA Review II. (3:3:0)**

Emphasis on subject matter appearing in the theory part of the CPA examinations.

**538. Advanced Corporation Accounting. (3:3:0)**

Prerequisite: 12 hours of advanced accounting or consent of instructor. Problems and theory; accounting for the equities of various interests; capital adjustments and reorganizations; financial statements; holding companies and accounting for minority interests; dissolution problems.

**539. Seminar in Federal Taxes. (3:3:0)**

Intensive tax research and planning through case studies of complex problems in areas of federal income, gift, and estate taxation. Study of the accounting aspect of adjudication of tax controversies, both the Internal Revenue Service and the federal court system.

**5311. Advanced Accounting Problems I. (3:3:0)**

A study of advanced accounting problems varying with the needs of the particular students. Individual instruction.

**5312. Advanced Accounting Problems II. (3:3:0)**

A study of advanced accounting problems varying with the needs of the particular students. Individual instruction.

**5314. Procedural Aspects of Federal Taxation. (3:3:0)**

Investigations into the enforcement area for all federal taxes, including organization and operation of the Internal Revenue Service as they influence the tax practitioner.

**5315. Estate, Trust and Gift Taxation. (3:3:0)**

Intensive study of federal income taxation of the estate and trust entities and the transfer of property rights through gifts.

**5316. Oil and Gas Taxation. (3:3:0)**

The principles, concepts and practices of income determination for the oil and gas producer, as contained in Federal income tax laws. Major emphasis is upon proper analysis of oil and gas transactions as they differ from generally encountered rules for other industries and assessment of the distinct income tax treatment usually afforded to them.

**5317. Accounting and Analytical Methods. (3:3:0)**

The role of modern measurement theory in accounting; formulation of accounting hypotheses; budget models for the firm; and the application of mathematical models to the accounting process.

**5531. Principles of Accounting. (5:5:1)**

Fundamental accounting principles. Records to be kept to provide business with information concerning its operations and financial position. Accounting for individuals, partnerships, and corporations. The use of accounting for control purposes and as aids to decision making. Special statements and their interpretations.

**5541. Managerial Accounting I. (3:3:0)**

Prerequisite: Acct. 235, and limited to nonaccounting majors. Uses of accounting to business and interpretation of financial statements and accounting reports.

**5541. Managerial Accounting II. (5:5:0)**

The routine record keeping aspects of accounting are considered only to the extent required to understand the subject. Emphasis is placed on modern accounting as a highly developed quantitative device for helping managers to select and reach their objectives.

**5351. Advanced Accounting Theory and Practice. (3:3:0)**

The evolution of accounting theory and practice in the business environment. Objectives and limitations of accounting and its relationship to other areas of business administration.

**Courses in Business Administration**

**FOR UNDERGRADUATES**

**441H. Seminar in Business Administration. (4:4:0)**

Prerequisite: Participation in the Business Administration Honors Plan and permission of the Honors Plan Director. Integrating course in policy formulation and administration. Student will draw on his knowledge of accounting, business education, economics, finance, management, marketing, and other fields in solving organization-wide problems. Primary aim is to develop skills of analysis and practice of judgement through a series of experiences with actual business situations.

**422H. Business Policy Research and Report. (2)**

Prerequisite: Business Administration 441H. Individual student investigation of some specific aspect of business decision making, such as a financial, marketing, or production problem to be resolved by policy makers, under the personal direction of a scholar in the specialized field. Written report required.

**FOR GRADUATES**

**5341. Research Methods in Business. (3:3:0)**

Prerequisite: Graduate standing; consent of instructor. A study of the scientific research methods in business.

**5342. Business Policy. (3:3:0)**

Prerequisite: Graduate standing; consent of the graduate adviser. Case studies drawn from diversified industry of varying sizes provide experience in the analysis of complex business problems. The course builds upon and integrates the acquired knowledge of the student from the several fields of business study and has as its objective the development of a general management viewpoint to the contrast of a departmental orientation.

**5351. Business and Its Environment. (3:3:0)**

Prerequisite: Graduate standing. A consideration of the position of today's business in the light of those concepts which are the foundations of our society.

**5352. Research Methods and Management. (3:3:0)**

Prerequisite: Graduate standing; permission of instructor. A study of scientific research methods. The social environment of invention and innovation are examined for principles that can guide management. Funding decisions, research decisions, choosing directions of technical support, the management of research activities, market-engineering analysis of proposed innovations, and human relations aspects of the management of research personnel.

**630. Master's Report. (3)**

**631. Master's Thesis. (3)**

Enrollment required at least twice.

**831. Doctoral Dissertation. (3)**

Enrollment required at least four times.

## Department of Business Education and Secretarial Administration

William R. Pasewark, *Head of the Department*  
Office: BA 318-C

*Professors:* Irol Whitmore Balsley, John Edward Binnion, William Robert Pasewark

*Associate Professors:* John Charles Gilliam, James Taggart Watt

*Assistant Professors:* Ervan John Holtmann, Ernestine Dolores Kilchenstein, Ettie Claire Quicksall

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: BUSINESS EDUCATION, *Bachelor of Business Administration, Master of Business Administration, Master of Education*; SECRETARIAL ADMINISTRATION, *Bachelor of Business Administration*. The department also participates in the LATIN AMERICAN AREA STUDIES program leading to a *Bachelor of Arts Degree*.

This department has two main objectives: (1) To prepare students to teach business subjects in secondary schools and colleges, (2) To prepare students for employment in administrative office positions.

A large segment of our population is employed in office occupations—one out of seven employed persons is a full-time office employee. Many people not classified as office employees, such as teachers, lawyers, engineers, and businessmen spend much of their time in office administration activities.

There is need for educational institutions in the United States to explore ways to minimize the cost and maximize the effectiveness of office activities. In the past, American business has concentrated on scientifically studying the production of goods. Now many business problems involve the distribution and accountability of goods.

Electronic computers are being utilized in office systems and scientific methods of research are being applied to office problems. These advancements indicate that office administration is becoming an important and expanding field of business.

### **Bachelor of Business Administration—Business Education Major**

- I. Nonprofessional courses\* (49 semester hours).
- II. Basic professional courses (31 semester hours).
- III. Major professional courses (43 semester hours):
  - Accounting elective—3 semester hours
  - Bus. Educ. 432—Teaching Business Subjects I
  - Bus. Educ. 433—Teaching Business Subjects II
  - Eco. 326—Research in Economics and Business
  - Educ. 330—Principles of Secondary Education
  - Educ. 332—Educational Psychology

\* Only biology, chemistry, geology, or physics may be used to meet the science requirement.

Educ. 334—Curriculum Development in Secondary Education

Educ. 436—Teaching in Secondary Schools

Educ. 462—Student Teaching

Sec. Admin. 122—Typewriting for Business

Sec. Admin. 131—Elementary Shorthand

Sec. Admin. 132—Intermediate Shorthand

Sec. Admin. 321—Office Machines I

Sec. Admin. 322—Office Machines II

Sec. Admin. 327—Report Writing

- IV. Electives to complete a total of 129 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC. It may be necessary to use a part of these electives to assure a required total of not less than 52 academic hours of course work outside the School of Business Administration.
- V. Evidence of at least eight weeks of continuous full-time business experience.

### **Bachelor of Business Administration—Secretarial Administration Major**

- I. Nonprofessional courses (49 semester hours).
- II. Basic professional courses (31 semester hours).
- III. Major professional courses (35 semester hours):
  - Acct. 246—Machine Accounting
  - Eco. 326—Research in Economics and Business
  - Mgt. 339—Office Management
  - Sec. Admin. 122—Typewriting for Business
  - Sec. Admin. 131—Elementary Shorthand
  - Sec. Admin. 132—Intermediate Shorthand
  - Sec. Admin. 235—Advanced Shorthand
  - Sec. Admin. 321—Office Machines I
  - Sec. Admin. 322—Office Machines II
  - Sec. Admin. 327—Report Writing
  - Sec. Admin. 331—Secretarial Practice
  - Sec. Admin. 332—Secretarial Procedures
  - Sec. Admin. 431—Internship
- IV. Electives to complete a total of 129 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC. It may be necessary to use a part of these electives to assure a required total of not less than 52 academic hours of course work outside the School of Business Administration.

### **Courses in Business Education**

#### **FOR UNDERGRADUATES AND GRADUATES**

#### **432. Methods of Teaching Business Subjects I. (3:3:0)**

Prerequisite: Acct. 235, Bus. Law 339, Econ. 232. Business Education as a profession. Methods, content, and materials to teach basic business subjects, bookkeeping, and office machines.

#### **433. Methods of Teaching Business Subjects II. (3:3:0)**

Prerequisite: At least a C grade in both Sec. Adm. 122 and Sec. Adm. 132 or equivalents. Methods, content, and materials to teach typewriting, shorthand, transcription, and secretarial procedures.

FOR GRADUATES

530. **Foundations of Business Education.** (3:3:0)  
An historical study of business education principles.
535. **Seminar in Business Education.** (3:3:0)  
Analysis of business education areas including curriculum, guidance, administration, supervision, evaluation, and economic education.
536. **Research and Improvement of Instruction in Bookkeeping.** (3:3:0)  
Prerequisite: Bus. Ed. 432. Study of content, methods, and research to improve the instruction of bookkeeping.
537. **Research and Improvement of Instruction in Office Procedures.** (3:3:0)  
Prerequisite: Bus. Ed. 432 and Management 331 or 339. Study of content, methods, and research to improve the instruction and performance in office procedures.
538. **Research and Improvement of Instruction in Shorthand.** (3:3:0)  
Prerequisite: Bus. Ed. 433. Study of content, methods, and research to improve the instruction of shorthand transcription.
539. **Research and Improvement of Instruction in Typewriting.** (3:3:0)  
Prerequisite: Bus. Ed. 433. Study of content, methods, and research to improve the instruction of typewriting.
5331. **Problems in Business Education.** (3:3:0)  
Identification and analysis of contemporary business education problems. May be repeated for credit.

**Courses in Secretarial Administration**

FOR UNDERGRADUATES

120. **Personal Typewriting.** (2:2:3)  
Introduction to touch typewriting. Application of typewriting to personal typewriting problems. Composing at the typewriter. For nonmajors. No credit for those with one year of previous typewriting instruction.
121. **Beginning Typewriting.** (2:2:3)  
Basic course in touch typewriting. Preparation of typescripts such as memoranda, letters, reports, and statistical presentations. Composing at the typewriter. No credit for those with one year of previous typewriting instruction.
122. **Typewriting for Business.** (2:2:3)  
Prerequisite: At least a C grade in Sec. Admin. 121 or equivalent. Development of ability on electric typewriter. Emphasis on efficient organization and preparation of materials to increase office production.
131. **Elementary Shorthand.** (3:3:2)  
Theory of Gregg shorthand; the alphabet, word beginnings, word endings; brief forms and abbreviations. Development of ability in reading and writing Gregg shorthand. Building recording speed from timed dictation. No credit for those with one year of previous shorthand instruction.
132. **Intermediate Shorthand.** (3:3:2)  
Prerequisite: At least a C grade in both Sec. Admin. 122 and Sec. Admin. 131 or equivalent. Building recording speed on new material from dictation and the development of fundamental transcription ability on the typewriter.
235. **Advanced Shorthand.** (3:3:2)  
Prerequisite: At least a C grade in both Sec. Admin. 122 and Sec. Admin. 132 or equivalents. Development of ability to transcribe mailably and rapidly business communications dictated at increasing rates of speed. Introduction to office-style dictation.
321. **Office Machines I.** (2:2:2)  
Prerequisite: Acct. 235. Numerical data processing machines and systems to decrease office expenses. Operation of calculating and accounting machines.
322. **Office Machines II.** (2:2:2)  
Prerequisite: Sec. Admin. 122. Communication and duplication machine processes and systems. Operation of dictating, transcribing, and duplicating machines.
327. **Report Writing.** (2:2:0)  
Prerequisite: Sec. Admin. 121 or typewriting ability; junior standing. Writing effective business reports. Emphasis on business reporting procedures and solving internal business reporting problems.

**331. Secretarial Practice. (3:3:0)**

Prerequisite: Sec. Admin. 235. Analysis of interpersonal relations in the office. Business ethics and etiquette. Transcription of office-style dictation.

**332. Secretarial Procedures. (3:3:0)**

Prerequisite: Sec. Admin. 122. Scope of the secretarial profession. Supervision of stenographic personnel. Preparation for Certified Professional Secretary examination.

**333. Business Correspondence. (3:3:0)**

Prerequisite: Sec. Admin. 121 or typewriting ability; junior standing. Writing effective business letters. Emphasis on solving business problems through effective content, mechanics, and format of the business letter.

**431. Internship. (3:1:5)**

Prerequisite: Senior classification and approval of instructor. Supervised business experience for minimum of 90 hours. Internship coordinated with lectures. Analysis and improvement of work operations.

## Department of Economics

Robert Lyle Rouse, *Head of the Department*

Office: B.A. 318-E

*Professors:* Vernon Thomas Clover, Robert Lyle Rouse

*Associate Professors:* Hugh Allen Anderson, William Scott Hendon, John Raymond Hildebrand, Thomas Kunhyuk Kim, John Wittman, Jr.

*Assistant Professors:* John Elzie Harding, Harry Stuart Walker

*Part-time Assistant Professor:* Jarvis Witt

*Instructors:* J. D. Avary, Frederick Landon Connell, Jr., Ewell Dwayne Key, Lewis Moore Stewart, Kenneth Jay Wallace

*Part-time Instructor:* Mrs. Susie Edna Maynard Gott

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: *ECONOMICS, Bachelor of Business Administration, Bachelor of Science, Bachelor of Arts, Master of Arts, Master of Business Administration; INTERNATIONAL TRADE, Bachelor of Business Administration, Bachelor of Science.*

The Department of Economics has designed its program to accomplish several objectives. First, the student of economics is prepared to take his place in society as a citizen well informed on current economic issues. Second, the student in economics can enhance his capacity to manage his own personal financial affairs. Finally, economic education enables the individual to perform productively in his society.

The Department of Economics offers programs leading to degrees of Bachelor of Business Administration or Bachelor of Science with a major either in economics or international trade in the School of Business Administration. In addition, a program leading to the Degree of Bachelor of Arts may be obtained in the School of Arts and Sciences.

At the graduate level the degrees of Master of Business Administration in economics and Master of Arts in economics may be earned. The

Department also participates in, and offers a field for, the doctorate in Business Administration and offers a minor for other doctorate programs.

### **Bachelor of Business Administration or Bachelor of Science—Economics Major**

- I. Nonprofessional courses (49 semester hours).
- II. Basic professional courses (31 semester hours).
- III. Major professional courses (36 semester hours):
  - Acct. 331—Managerial Accounting  
or Acct. 332—Analysis of Financial Statements
  - Eco. 3311—National Income Analysis
  - Eco. 3314—Intermediate Economic Theory
  - Eco. 430—Development of Economic Doctrines
  - Eco. 4311—Advanced Economic Theory
  - Eco. 4312—Macrodynamic Economics
  - Approved electives—18 semester hours
- IV. Electives to complete a total of 126 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC. It may be necessary to use a part of these electives to assure a required total of not less than 51 academic hours of course work outside the School of Business Administration.

### **Bachelor of Business Administration or Bachelor of Science—International Trade Major**

- I. Nonprofessional courses (49 semester hours).
- II. Basic professional courses (31 semester hours).
- III. Major professional courses (36 semester hours):
  - Acct. 331—Managerial Accounting  
or Acct. 332—Analysis of Financial Statements
  - Eco. 237—Economic Geography
  - Eco. 337—Economic Systems
  - Eco. 338—Foreign Trade
  - Eco. 339—Latin America and the United States
  - Eco. 430—Development of Economic Doctrines
  - Eco. 433—International Economic Relations
  - Eco. 437—Current Economic Problems
  - Govt. 4361—U.S. Foreign Policy
  - Govt. 4362—Political Geography
  - Govt. 4363—International Organization
  - Govt. 4364—International Law
- IV. Electives to complete a total of 126 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC. It may be necessary to use a part of these electives to assure a required total of not less than 51 academic hours of course work outside the School of Business Administration.



**Courses in Economics****FOR UNDERGRADUATES****133. The Development of American Business and Economic Institutions I. (3:3:0)**

An analysis of how the contemporary American economy has evolved. Emphasis on the use of scientific tools to dissect problems; comparisons of the characteristics of business institutions and the economic process in different eras; and concepts and a way of thinking that are employed extensively in advanced courses.

**134. The Development of American Business and Economic Institutions II. (3:3:0)**

Prerequisite: Eco. 133. A continuation of Eco. 133, with primary emphasis upon application of tools of analysis to problems associated with the development of American business and economic institutions most closely related to the contemporary environment.

**231. Principles of Economics I. (3:3:0)**

An introduction to modern economic society and theories of production and exchange. Emphasis upon monetary and fiscal policy and macroeconomics. Credit will not be given for both 231 and 235.

**232. Principles of Economics II. (3:3:0)**

Prerequisite: Eco. 231. A continuation of Eco. 231. Emphasis on theories of the firm, value and price determination, and functional distribution, with the application of these theories to the problems of particular firms, industries, and markets.

**235. Principles of Economics. (3:3:0)**

An abridged course for students not majoring in economics or business administration. Covers the most significant portions of Eco. 231 and Eco. 232, with emphasis upon monetary and fiscal policy. Credit will not be given for both 231 and 235.

**237. Economic Geography. (3:3:0)**

The characteristics and distribution of man's economic pursuits, his relation to natural conditions and resources, and his significance in the economics of the major regions of the world order.

**326. Research in Economics and Business. (2:2:0)**

Research methods used in the field. A definite problem undertaken for actual experience on the part of the student.

**331. Economics of Business Enterprise. (3:3:0)**

Prerequisite: Eco. 232. The application of economic theory to problems of business enterprise.

**334. Taxation and Public Expenditures. (3:3:0)**

Prerequisite: Eco. 232. Analysis of economic aspects of government finance; principles and problems of taxation, public expenditures, budgetary controls, and debt management.

**336. The Economics of Regulated Enterprise. (3:3:0)**

Prerequisite: Eco. 232 or consent of instructor. Analyses of the operations of industries supervised by government commissions. Emphasis placed on the rationale for such controls in terms of the legal and economic development of the "public utility" concept, and on the implications of government commission regulation of business.

**337. Economic Systems. (3:3:0)**

Prerequisite: Eco. 232. The control of economic institutions for the welfare of the general community. The main principles of a planned economy and existing economic systems.

**338. Foreign Trade. (3:3:0)**

Prerequisite: Eco. 232. Principles of international trade, balance of payments, trade policies, and agreements.

**339. Latin America and the United States. (3:3:0)**

Prerequisite: Eco. 232. The economics of Latin American countries and their economic relations with the United States.

**3311. National Income Analysis. (3:3:0)**

Prerequisite: Eco. 232. National income concept and measurement and an analysis of the requirements for high level employment; uses of income analysis for business decisions and public policy.

**3312. Economics of Labor. (3:3:0)**

Prerequisite: Eco. 232. The theory of wages, the problems of unemployment, economic insecurity, industrial disputes, industrial accidents, development, and aims of labor unions, and employers' associations.

**3313. Introduction to Quantitative Economic Analysis. (3:3:0)**

Prerequisite: Eco. 232 and Math. 137 or equivalent. Use of the basic concepts and symbolism of mathematics in the presentation of economic theory.

**3314. Intermediate Economic Theory. (3:3:0)**

Prerequisite: Eco. 232. Intermediate price theory and introduction to welfare theory. Includes theory of demand, theory of the firm, and welfare theory.

## FOR UNDERGRADUATES AND GRADUATES

**430. Development of Economic Doctrines. (3:3:0)**

Prerequisite: Eco. 232. The basis, nature, and effects of economic doctrines from ancient times through the nineteenth century.

**431. Contemporary Economic Doctrines. (3:3:0)**

Prerequisite: Eco. 430 or consent of instructor. The basis, nature, and effects of economic doctrines developed during the twentieth century.

**433. International Economic Relations. (3:3:0)**

Prerequisite: 12 hours in economics. Comparison of domestic and international economic relations. Political obstacles to international trade. The tariff and commercial treaties. International monetary problems. Financing foreign trade. Foreign loans.

**435. The Economics of Transportation. (3:3:0)**

Prerequisite: Eco. 232. A study of the economics and regulatory problems of the various forms of domestic transportation and the public policy related to each.

**437. Current Economic Problems. (3:3:0)**

Prerequisite: Eco. 232. Fundamental problems of economic life today and proposed solutions. Emphasis on monetary and fiscal problems and policies.

**4311. Advanced Economic Theory. (3:3:0)**

Prerequisite: Eco. 3314. Contemporary economic principles and thought concerning the production and distribution of goods and services.

**4312. Macrodynamic Economics. (3:3:0)**

Prerequisite: Eco. 3311. Historical survey of growth and development theory emphasizing cyclical, static macroeconomic models, formal macrodynamic economic models of growth and development.

**4321. Soviet Economics. (3:3:0)**

Prerequisite: Eco. 232. Soviet Economics. An examination and analysis of the operation of the economic system of the U.S.S.R. with special reference to planning.

**4322. Regional Economics. (3:3:0)**

Prerequisite: Eco. 232. A study on the techniques of economic analysis as applied to economic regions, with emphasis on special problems such as location of industry and regional development.

**4323. Monetary Theory. (3:3:0)**

Prerequisite: Eco. 3314 or 331 and Fin. 333 or consent of the instructor. An analysis of conceptual and theoretical consideration of the various doctrines of money, interest, and capital.

## FOR GRADUATES

**531. Economic Research. (3:3:0)**

Prerequisite: Eco. 232. Directed student research in selected areas, with written reports under the supervision of a qualified instructor.

**535. Seminar in Economic Policy. (3:3:0)**

Prerequisite: Eco. 430. An analysis of major economic goals and policies of government and industry.

**536. Advanced International Economics. (3:3:0)**

Prerequisite: Eco. 338 or consent of instructor. An analysis of basic principles, problems and policies in international economics. Special attention is given to theories and alternative policies for economic development.

**537. Seminar in Public Finance. (3:3:0)**

Prerequisite: Eco. 3314, 3311 or 534, or consent of instructor. Analysis of economic effects of taxation, governmental expenditures, debt management, and budgetary planning and administration.

**538. The Nature, Method and Scope of Economics. (3:3:0)**

An analysis of the subject matter of economics and the different approaches in acquiring knowledge in the field. Attention is paid to the relationship between the positive and normative aspects of economics.

**539. Classical Economic Thought. (3:3:0)**

Prerequisite: Eco. 430. A critical analysis of the contributions of the Mercantilists, Monetary Economists, Physiocrats and other pre-classical writers of economic thought. An intensive investigation of the body of classical and neo-classical thought as developed by Smith, Malthus, Ricardo, Say, Mill, Marshall and others.

**5331. Individual Study in Economics. (3:3:0)**

Prerequisite: Graduate standing and permission of instructor. Directed reading and research concerning a specific problem or subject field in economics.

**5331. The Economic Environment. (3:3:0)**

Prerequisite: Graduate standing. A rigorous study of microeconomic and macroeconomic theory with applications to the major problems of the economy.

**5335. Human Geography. (3:3:0)**

Enrollment limited to graduate students in elementary education. The geographic environment of mankind and his adjustments to the environment. Attention given to the geographic factor influencing the population: its characteristics, density, distribution, and economic and social activities.

**5341. Price and Income Theory. (3:3:0)**

Prerequisite: Eco. 5531 or 232. Designed for graduate students who need intensive study of intermediate economic price and income theory.

**5242. Managerial Economics. (2:2:0)**

Prerequisite: Eco. 5341 or equivalent. An advanced course in the application of economic theory and analysis to the problems of the firm. Emphasis on mathematical tools of analysis.

**5351. Advanced Micro-Economic Analysis. (3:3:0)**

Prerequisite: Eco. 3314 or Eco. 5341. Economic factors involved in the theory of the firm and determination of price. Special emphasis on the cases of monopoly, monopolistic competition and oligopoly.

**5352. Advanced Macro-Economic Analysis. (3:3:0)**

Prerequisite: Eco. 3311 or Eco. 5341. The aggregate approach to the economy and the tools of analysis used for the solving of aggregate economic problems.

## Department of Finance

Robert Lyle Rouse, *Head of the Department*  
Office: BA 318-E

*Professors:* Oswald Doniece Bowlin, Charles Edwin Dale, George Gail Heather, Robert Lyle Rouse  
*Associate Professors:* Burl Monroe Abel, George William Berry

*Assistant Professors:* William Frederick Russell, Charles Ernest Wade, Robert John Wade, Jr.

*Instructor:* Jerry Carter Green

*Part-time Instructors:* Dane Everton, William Joe Gillespie, Russell Briggs Irvin, Harold Dean Shuman

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: *FINANCE, Bachelor of Business Administration, Master of Business Administration.*

The Department of Finance offers the student a comprehensive education concerned with the study of the finance function in business and public enterprises. Since the field of finance is broad and encompasses such areas as money and banking, investments, financial administration, insurance and real estate, the objective of the Department is to provide the student with training that is correspondingly broad. Emphasis is placed upon providing the student with techniques of analysis, and aiding him in the development of his problem-solving and decision-making capabilities.

The three optional programs (Banking and Investments, Financial Administration, and Real Estate and Insurance) follow the same curriculum and differ through the selection of electives approved by the Head of the Department.

### **Bachelor of Business Administration—Finance Major** (Banking and Investments, Financial Administration, and Real Estate and Insurance)

- I. Nonprofessional courses (49 semester hours).
- II. Basic professional courses (31 semester hours).
- III. Major professional courses (32 to 35 semester hours):  
 Acct. 332—Analysis of Financial Statements  
 or Acct. 334—Intermediate Acct. I  
 Eco. 331—Economics of Business Enterprise  
 Fin. 333—Principles of Money, Banking, and Credit  
 Fin. 335—General Insurance  
 Fin. 434—Investments  
 Sec. Admin. 327—Report Writing  
 Approved electives—15 to 18 semester hours
- IV. Electives to complete a total of 126 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC. It may be necessary to use a part of these electives to assure a required total of not less than 51 academic hours of course work outside the School of Business Administration.

### **Courses in Finance**

#### **FOR UNDERGRADUATES**

#### **231. Personal Finance. (3:3:0)**

Introduction to financial problems of the home and of business. Particular emphasis on those elements that should be considered by the individual before investing in real estate, personal property, insurance, or securities.

#### **331. Corporation Finance. (3:3:0)**

Prerequisite: 60 semester hours, including Eco. 232 and Acct. 235. Fundamental aspects of modern business organization, with attention to the financial problems associated with promotion, capitalization, sale of securities, dividend policies, expansion, failure and reorganization, and the provision of working capital.

#### **333. Principles of Money, Banking, and Credit. (3:3:0)**

Prerequisite: Eco. 232. A basic course, including consideration of monetary standards, organization and functioning of commercial banking and the Federal Reserve System, problems of money, prices, and credit control. Recent monetary and banking trends are emphasized.

#### **334. Credits and Collections. (3:3:0)**

Prerequisite: Acct. 235. Types and analysis of financial statements, credit limits, collection procedures, legal remedies of the creditor, sources of credit information.

**335. General Insurance. (3:3:0)**

Prerequisite: Eco. 231. A survey of the entire field of private insurance and a foundation for more specialized courses. The history of insurance, the theory of risk, physical and moral hazards, loss prevention, types of insurance carriers, and the basic features of each of the principal kinds of insurance.

**336. Life Insurance. (3:3:0)**

Prerequisite: Fin. 335 or approval of instructor. The nature of life insurance; various ways of utilizing the protection it offers. Principal features of life insurance and annuity contracts. Group insurance, industrial insurance, disability protection, insurance company investments, and the taxation of policy proceeds.

**FOR UNDERGRADUATES AND GRADUATES****431. The Federal Reserve System. (3:3:0)**

Prerequisite: Fin. 333. Analysis of functions and services of the Federal Reserve System.

**432. Real Estate. (3:3:0)**

Real estate practice and finance from the standpoint of the broker, businessman, and property owner. Real estate office, organization, leasing and property management, valuation and taxation. Legal, financial, economic, and social aspects of the real estate field.

**433. Corporate Financial Problems and Cases. (3:3:0)**

Prerequisite: Fin. 331. An intensive analysis of selected financial problems concerned with the organization, operation, and dissolution of business organizations; special attention to the corporation.

**434. Investments. (3:3:0)**

Prerequisite: Fin. 331. Various types of investment media; major emphasis on basic principles of investment, construction of an investment portfolio, security analysis, sources of information, and the mechanism for investment.

**435. Property Insurance. (3:3:0)**

Prerequisite: Fin. 335 or approval of instructor. Fire insurance, marine insurance, and allied lines. Policy forms, underwriting and selection, rate-making, loss adjustments, the operations of agency and brokerage firms, and reinsurance.

**437. Casualty Insurance. (3:3:0)**

Prerequisite: Fin. 335 and 435. Various casualty lines of insurance, such as public liability, automobile, workmen's compensation, aviation, burglary and robbery, glass, power plant, and accident and health. Contracts and practices in the field of fidelity and surety bonding. Primarily for those desiring to specialize in insurance.

**438. Bank Administration. (3:3:0)**

Prerequisite: Fin. 333 and 431. Internal operations of a commercial bank; major emphasis on the organization of the bank, sources of bank funds, allocation of bank funds, and supervision and regulation of the commercial bank.

**439. Real Estate Appraisal. (3:3:0)**

Prerequisite: Fin. 432. Application of principle of property valuation to the various classes of realty. Emphasis on the character of land value, axioms of valuation, and application of valuation procedures by use of cost, market, and capitalization of income approach to real estate value. Individual problems and reports on independent property appraisals are required.

**4311. Security Analysis. (3:3:0)**

Prerequisite: Finance 434. Comprehensive study of the various methods of security selection and portfolio management are included. Intensive emphasis is placed upon valuation procedure of the various security types, particularly common stock.

**4312. International Finance. (3:3:0)**

Prerequisite: Finance 333 or consent of instructor. A study of the international monetary system in its theoretical and institutional setting. The flows of financial claims between countries both on current and capital account, and the function of the foreign exchange market in arbitrage and hedging. The position of an individual business firm in conducting international trade, the procedures and practices in financing international transactions.

**FOR GRADUATES****531. Current Financial Problems. (3:3:0)**

Solution and presentation of approved problems involving individual research in the field of finance.

**533. Seminar in Investment Analysis. (3:3:0)**

Prerequisite: Finance 434 or equivalent. Security analysis and selected problems in individual, and institutional portfolio analysis.

**535. Seminar in Current Banking Problems. (3:3:0)**

Prerequisite: Finance 438 or equivalent. Major problems affecting commercial, banks and the banking system at the present. Representative case problems used as a basis for analysis and decision.

**536. The Money and Capital Markets. (3:3:0)**

Prerequisite: Finance 431 and 433 or equivalent. A theoretical and empirical examination of saving and investment, financing and financial intermediaries, asset and portfolio structures, and interrelationship of financial and real variables of the economy.

**537. Risk Administration. (3:3:0)**

Prerequisite: Finance 335 or equivalent. A consideration of various methods of risk treatment including retention, prevention, reduction and transfer.

**5331. Business Finance. (3:3:0)**

Prerequisite: Accounting 5531 and Economics 5331 or equivalent. An introductory course in finance for graduate students designed to cover concepts in business finance and investment.

**5341. Current Business Financial Practices. (3:3:0)**

Prerequisite: Finance 331 or 5331. The general theory of financial administration with application to practical problems in business finance.

**5351. Financial Policies of Business. (3:3:0)**

Prerequisite: Finance 433 or 5341. The financial policy of business organization with emphasis on the organization of the financial function, evaluation of the financial performance and determination of the financial requirements.

**Courses in Business Law****FOR UNDERGRADUATES****338. Business Law I. (3:3:0)**

Prerequisite: 60 semester hours. Nature and source of law, courts and procedure, contracts, Texas law of separate and community property, agency.

**339. Business Law II. (3:3:0)**

Second course in business law. Law of negotiable instruments, business organizations, including partnerships and corporations, sales.

**3311. Real Estate Law. (3:3:0)**

Rights in land; classification of estates; acquisition and creation of property rights; titles; and common conveyances.

**3312. Insurance Law. (3:3:0)**

General principles of insurance law; the insurance contract; insurance agents and their powers; rights under fire, life, and accident policies; taxation affecting insurance policies; insurance and community property rights. Study of the rules and regulations administered by the Texas Insurance Commission and how they apply to companies.

**3313. Oil and Gas Law. (3:3:0)**

General contracts, oil and gas leases and their interpretation, titles, royalty, production and conservation of oil and gas, regulations governing drilling operations, government lands, cases on oil and gas.

**FOR UNDERGRADUATES AND GRADUATES****4311. CPA Law Review. (3:3:0)**

Review of business law, with emphasis on subject matter appearing frequently in the CPA law examinations.

**FOR GRADUATES****5331. Legal Environment of Business. (3:3:0)**

Prerequisite: Graduate standing. The meaning, nature and sources of the law, the factors which shape it, and substantive fields of law which affect business organizations.

## Department of Management

Freedis Lloyd Mize, *Head of the Department*  
Office: BA 318-D

*Professors:* William Gaston Cain, Freedis Lloyd Mize

*Associate Professors:* Vincent Peter Luchsinger, Carlton James Whitehead

*Assistant Professors:* Robert Sexton Adams, Chester Burl Hubbard, Seldon C. Robinson

*Instructor:* James Arthur Watkins

*Part-time Instructors:* George Kennett Hobbs, Robert Baldrige Reedy

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: INDUSTRIAL MANAGEMENT, *Bachelor of Business Administration*; MANAGEMENT, *Bachelor of Business Administration*, *Master of Business Administration*.

The program of study in management is designed to achieve two major objectives: (1) to give the student a broad perspective of the organization and operation of the modern business enterprise; and (2) to prepare the student, by specialized training and experience in analysis of typical problem situations, eventually to attain and hold a position of responsibility in business, government, or in teaching and research.

In general, courses in management parallel the chief problem areas faced by executives in organizing and operating their enterprises. Courses in industrial management and production are concerned with the proper allocation and use of materials, machines, manpower, methods, and standards in the production of goods and services. Courses in traffic management and transportation deal with efficient handling, movement, and storage of materials and the problems arising out of rate determination and the regulation of carriers. And, since effective management is accomplished through people, courses in industrial relations introduce the student to important types of problems which commonly arise in the management of personnel and in the relations between employers and unions.

The four optional programs (Administrative, Office, Personnel, and Traffic Management) follow the same core curriculum and differ through the selection of electives approved by the Head of the Department.

### **Bachelor of Business Administration—Industrial Management Major**

- I. Non-professional courses (51 semester hours).
- II. Basic professional courses (31 semester hours).
- III. Major professional courses (42 semester hours):
  - Acct. 336—Principles of Cost Accounting
  - Acct. 4313—Advanced Cost Accounting
  - Eco. 3314—Intermediate Economic Theory
  - I. E. 3331—Work Analysis and Design I
  - Mgt. 332—Quantitative Analysis for Management Decisions

- Mgt. 333—Collective Bargaining
- Mgt. 336—Behavioral Science in Business and Industry
- Mgt. 432—Administrative Policy
- Mgt. 435—Employee Supervision
- Mgt. 438—Production I
- Mgt. 439—Production II
- Math. 139—Analytic Geometry and Calculus I
- Math. 231-232—Differential and Integral Calculus

- IV. Electives to complete a total of 130 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC. It may be necessary to use a part of these electives to assure a required total of not less than 52 academic hours of course work outside the School of Business Administration.

### **Bachelor of Business Administration—Management Major**

- I. Nonprofessional courses (49 semester hours).
- II. Basic professional courses (31 semester hours).
- III. Major professional courses (39 to 42 semester hours):
  - Acct. 331—Managerial Accounting
  - or 334—Intermediate Accounting
  - Mgt. 333—Collective Bargaining
  - Mgt. 334—Personnel Administration
  - Mgt. 432—Administrative Policy
  - Mgt. 435—Employee Supervision
  - Additional approved electives—24-27 semester hours.
- IV. Electives to complete a total of 126 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC. It may be necessary to use a part of these electives to assure a required total of not less than 51 academic hours of course work outside the School of Business Administration.

### **Courses in Management**

#### **FOR UNDERGRADUATES**

#### **110. Professional Careers in Business. (1:1:1)**

Factors important for career preparation; behavioral factors in successful choice and pursuit of business occupation. Occupational information and labor market data related requirements, opportunities, and compensation features of business employment and preparation for those who aspire to successful careers in the business world.

#### **330. Organization and Management. (3:3:0)**

Prerequisite: Junior standing. The management function; basic principles, concepts, and practices in the operation of the firm. Emphasis on the decision process, authority and responsibility relationships, organization structures, leadership, coordination and control, and the activities necessary for effective operations.

#### **331. Industrial Management. (3:3:0)**

Prerequisite: Eco. 231. Principles and methods used in developing and operating industrial and business enterprises; principles of scientific management and their application to problems of organization, plant location, selection of physical properties, methods of control, and manpower utilization.

#### **332. Quantitative Analysis for Management Decisions. (3:3:0)**

Prerequisite: Acct. 234-235, Eco. 231-232, Math. 231, Mkt. 246. The applications of quantitative tools to business problems. Major emphasis on the utilization of analytical concepts in dealing with the decision process.



### **333. Collective Bargaining. (3:3:0)** **(formerly Labor Problems)**

Prerequisite: Junior standing in management or consent of the instructor. A study, from the management viewpoint, of labor union development, organization, leadership, and operational techniques. Consideration of collective bargaining issues and procedures. Problems of contract negotiation and administration, including grievance procedure and arbitration.

### **334. Personnel Administration. (3:3:0)**

Prerequisite: Junior standing in management or consent of instructor. Principles and methodology in general personnel management and work force maintenance. Employee recruitment, selection, placement and training, service rating, transfer, and promotion. Special attention to administration of employee services and fringe benefits and to wages and hours problems.

### **335. Purchasing, Stores, and Inventory Control. (3:3:0)**

Prerequisite: Mgt. 331. The organization and function of the purchasing department; study of problems of purchasing policies and procedures, sources of supply, prices, contract negotiation and adjustments, quality control, receiving, and stores control.

### **336. Behavioral Science in Business and Industry. (3:3:0)**

Prerequisite: Junior standing or consent of the instructor. Theory, methods, and demonstrations of behavioral science applied to problems of business, industrial, and engineering settings. An examination of the motivational, perceptual, attitudinal, social, and organizational factors shaping individual, group, and institutional dynamics that affect the management of the business enterprise.

### **339. Office Management. (3:3:0)**

Prerequisite: Eco. 231-232, Acct. 234-235. Standards of office practice, office methods, wage payment plans, selection and training of office workers, office planning techniques, and duties and responsibilities of the office manager.

### **3371. Industrial Traffic Management. (3:3:0)**

Prerequisite: Junior standing in Business Administration or consent of the instructor. The problems of commercial and industrial traffic management which arise in shipping and receiving commodities are studied, as well as the organization and administration of shipping, routing, expediting, receiving, and claim prevention. Attention is given to the functions of industrial and chamber of commerce traffic departments in interpretations of traffic regulations and procedures before regulatory commissions.

### **3381. The Theory of Transportation Ratemaking. (3:3:0)**

A study of the rules, rates, and charges governing the movement of goods in common carrier transportation. Includes tariff interpretations and actual practice in developing rates and charges from traffic publications.

### **430. Management of Small Business Enterprise. (3:3:0)**

Prerequisite: Mgt. 331 or senior standing and consent of the instructor. A problem course involving the application of principles of management to small-scale enterprise situations. Extensive use of case problems to develop analytical ability in decision, and introduction of elementary game theory and management decision simulation.

### **431. Job Evaluation and Wage Administration. (3:3:0)**

Prerequisite: Senior standing in management or consent of instructor. Applications of wage theory to wage problems of the firm, determination of proper wage differentials within the firm, investigation of financial incentives, and administration of the wage program. Includes a comprehensive semester project involving the organization of a company wage structure through use of job evaluation.

### **432. Administrative Policy. (3:3:0)**

Prerequisite: Senior standing in Business Administration or consent of instructor. Application of the case method to complex problems of policy formulation in the administration of the firm. The business organization viewed as a system of interrelated functions operating within the confines of the general economy. Primary emphasis on the use of appropriate analytical tools in the investigation and evaluation of comprehensive business situations. Intended as a capstone course in Business Administration.

### **433. Recent Labor Legislation. (3:3:0)**

Prerequisite: Mgt. 333. Study of permissive areas of activity in labor relations, with particular emphasis on major federal laws, including Federal Anti-Injunction Act, National Labor Relations Act, Fair Labor Standards Act, and the Labor-Management Reporting and Disclosure Act. General state labor legislation, with emphasis on Texas laws, is included.

### **434. Employee Performance Appraisal and Training. (3:3:0)**

Prerequisite: Mgt. 334. A study of principles involved and techniques employed in determining quantitative and qualitative measurements of worker efficiency and ratings. Applications of learning theory, communications, teaching devices, interviewing and simulators, and administration of employee training programs.

**435. Employee Supervision. (3:3:0)**

Prerequisite: Mgt. 331. The relation of the supervisor to his subordinates and to higher management, leadership, planning of group work, and the use of the tools of supervision. Particular attention to introducing and training new employees, rating, discipline, problems of absenteeism and maintenance of morale.

**436. Office Systems and Procedures. (3:3:0)**

Prerequisite: Mgt. 339 or consent of the instructor. Development and standardization of office practices and procedures, work analysis and job simplification, and planning of systems and controls for the administrative services of the business.

**438. Production I. (3:3:0)**

Prerequisite: Mgt. 331, Math. 231, Mkt. 246, and Eco. 3314. A critical examination of management decision-making techniques, with major emphasis on the practical applications of scientific methods to analysis of production activities. Topics treated include resource allocation through linear and dynamic programming, plant location, plant facilities, inventory control, statistical quality and process control, simulation techniques, and methods of industrial experimentation.

**439. Production II. (3:3:0)**

Prerequisite: Mgt. 438 and Math. 232. An extension of Production I, with a rigorous application of schematic, statistical, and mathematical tools to problems of systems design and resource allocation within the firm.

**4371. Regulation of Transportation. (3:3:0)**

Prerequisite: Mgt. 3371. Study of the Interstate Commerce Act, its interpretation, and its applications to the operations of motor carriers, railroads, water carriers, and freight forwarders.

**4381. Advanced Traffic Management. (3:3:0)**

Prerequisite: Mgt. 3371. A study of the major problems faced by industry and by carriers in the movement of goods. Includes carrier operational problems, shipper problems, cost analysis, warehousing, rate negotiation, carrier competition, and shipper competition.

**442. Industrial Management Problems. (4:3:2)**

Prerequisite: Mgt. 331 or equivalent background. A problem and field course involving study of location, organization, production facilities and planning, and operation of industrial enterprises. The student is required to make plant inspection tours to observe industrial organization at work.

FOR GRADUATES

**511. Individual Problems. (1:1:0)**

**531. Current Problems in Management. (3:3:0)**

**533. Quantitative Analysis for Business. (3:3:0)**

Prerequisite: Math. 232 and Mgt. 5342. The course presents the philosophy of operations research, introduces the mathematical tools and the techniques employed, and provides experiences in the solution of practical problems, utilizing computer aid for the more complex situations.

**535. Human Behavior in Business. (3:3:0)**

Prerequisite: Mgt. 331 or 5331 and Mgt. 334. The course examines theories of social and behavioral sciences and will emphasize research and the analysis of problems involving the role and contributions of people in the business environment.

**536. Management of Human Resources. (3:3:0)**

Prerequisite: Mgt. 334 and Mgt. 431. The course considers, at an advanced level, factors involved in the selection, development, adjustment, and motivation of individual employees with emphasis on independent investigations and preparations by students.

**537. Seminar in Personnel Administration. (3:3:0)**

Prerequisite: Mgt. 5352 and Mgt. 536. The course is a reading and research seminar, utilizing advanced study methods and top management viewpoint, involving individual research and papers and reflective group discussion emphasizing evaluation of personnel policies and design of model personnel organizations.

**538. Advanced Production Management. (3:3:0)**

Prerequisite: Mgt. 533. A course designed to develop skill in analyzing the more complex problems encountered in managing production operations. It stresses the use of modern analytical techniques such as those of management science, operations research, and simulation.

**539. Seminar in Operations Management. (3:3:0)**

Prerequisite: Mgt. 5352 and Mgt. 538. The course will involve readings, individual research and reports, and group studies of comprehensive cases and real situations of operations policy and production problems. Complex problems requiring programming to computers will be included.

**5331. Organization and Human Behavior. (3:3:0)**

Prerequisite: Graduate standing. An introduction to the decision-making process and the principles of organization and administration as basic social techniques. A study and evaluation of recent theoretical and empirical contributions of the behavioral scientists to the fields of organization theory and business administration. Limited to majors in fields other than management.

**5341. Systems Management. (3:3:0)**

Prerequisite: Mgt. 331 or Mgt. 5331. The course involves the study of management of operations from a systematic integrated viewpoint. Major emphasis will be placed on an operative theory of management utilizing systems theory, management science, operations research, and integrated data processing.

**5342. Production Management. (3:3:0)**

Prerequisite: Mgt. 331 or Mgt. 5331. Credit not permitted for both Mgt. 5342 and Mgt. 438. The course is concerned with the fundamentals of the production function and the evaluation of traditional methods of function organization. It includes development, measurement, and analysis of work, linear programming, sequential analysis, and basic analytical methods of factor allocation.

**5351. Decision Theory and Quantitative Methods. (3:3:0)**

Prerequisite: Mgt. 331 or Mgt. 5331. This course presents an operative theory of decisions for business, including foundations in philosophy, logic, economics and management thought. Extensions into operational activities will utilize quantitative techniques in decision-making for business graduates regardless of special fields of interest.

**5352. Administrative Organization. (3:3:0)**

Prerequisite: Mgt. 331 or Mgt. 5331. The course deals with development of organization theory and applications in the analysis of organization design and the measuring of its effectiveness, attention given to the relationships of organization to planning, leadership, and current management problems.

## Department of Marketing

John Allen Ryan, *Head of the Department*

Office: BA 318-B

*Professors:* Howard Lloyd Balsley, Howard Eldon Golden, John Allen Ryan

*Associate Professors:* Robert Daniel Amason, Billy Irvan Ross

*Assistant Professor:* Laura Louise Luchsinger

*Instructors:* Lotus Berry Blackwell, Wendell Clark Hewett, Robert Donald McWilliams, Charles Bernard Riter

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: *ADVERTISING, Bachelor of Business Administration*; *MARKETING, Bachelor of Business Administration, Master of Business Administration*; *RETAILING, Bachelor of Business Administration*.

Marketing, a major economic activity, is the revenue-generating function of any business. It includes everything from product research to pricing and consumer use and involves the distribution of products to wholesalers, retailers, or consumers. Through a concentration in one of the majors offered by the Department—advertising, marketing, retail-

ing—a degree of specialization is attained that opens up wide career opportunities.

The primary objective of the Department is to prepare the individual student for a personally rewarding position of responsibility in marketing. It is the purpose of the Department to provide instruction that will enable the student to achieve managerial positions; and since effective decision-making is the most important executive activity, the development of this ability is essential. The problem-solving and decision-making capabilities of the student are developed through instruction, practical applications, and student involvement.

The broad cultural education resulting from courses taken in the arts, sciences, and humanities, increases the student's awareness and appreciation of all aspects of life.

### **Bachelor of Business Administration—Advertising Major**

- I. Nonprofessional courses (49 semester hours).
- II. Basic professional courses (31 semester hours).
- III. Major professional courses (29 semester hours):
  - Acct. 331—Managerial Accounting
  - Al. A. 321—Problems in Visual Communications
  - Journ. 3351—Advertising Media
  - Mkt. 334—Principles of Advertising
  - Mkt. 4311—Advertising Practices
  - Mkt. 4312—Advertising Campaigns
  - Mkt. 4316—Advertising Administration
  - Mkt. 433—Marketing Problems
  - Mkt. 335—Principles of Retailing
  - Mkt. 436—Marketing Research and Analysis
- IV. Electives to complete a total of 126 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC. It may be necessary to use a part of these electives to assure a required total of not less than 51 academic hours of course work outside the School of Business Administration.

### **Bachelor of Business Administration—Marketing Major**

- I. Nonprofessional courses (49 semester hours).
- II. Basic professional courses (31 semester hours).
- III. Major professional courses (33 semester hours):
  - Acct. 332—Analysis of Financial Statements
  - or Acct. 336—Principles of Cost Accounting
  - Mgt. 432—Administrative Policy
  - Mkt. 334—Principles of Advertising
  - Mkt. 335—Principles of Retailing
  - Mkt. 339—Principles of Salesmanship
  - Mkt. 433—Marketing Problems
  - Mkt. 434—Wholesaling
  - Mkt. 435—Business Cycles and Forecasts
  - Mkt. 436—Marketing Research and Analysis

Mkt. 439—Sales Management  
 Psy. 230—General Psychology I

- IV. Electives to complete a total of 126 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC. It may be necessary to use a part of these electives to assure a required total of not less than 51 academic hours of course work outside the School of Business Administration.

### **Bachelor of Business Administration—Retailing Major**

- I. Nonprofessional courses (49 semester hours).  
 II. Basic professional courses (31 semester hours).  
 III. Major professional courses (33 semester hours):  
     Acct. 331—Managerial Accounting  
     Eco. 331—Economics of Business Enterprise  
     Mgt. 336—Behavioral Science in Business and Industry  
     Mkt. 334—Principles of Advertising  
     Mkt. 335—Principles of Retailing  
     Mkt. 433—Marketing Problems  
     Mkt. 436—Marketing Research and Analysis  
     Mkt. 4315—Retail Buying  
     Mkt. 4319—Retail Internship  
     Phil. 231—Introduction to Logic  
     Psy. 230—General Psychology I  
 IV. Electives to complete a total of 126 semester hours, exclusive of freshman and sophomore physical education, band, or basic ROTC. It may be necessary to use a part of these electives to assure a required total of not less than 51 academic hours of course work outside the School of Business Administration.

### **Courses in Marketing**

#### **FOR UNDERGRADUATES**

#### **246. Introduction to Business Statistics. (4:3:2)**

Prerequisite: Math. 137 and 138. Techniques of the collection, presentation, analysis, and interpretation of numerical data as applied to business. Emphasis on measurement of seasonal variations, trends, and cyclical fluctuations.

#### **321. Public Relations. (2:2:0)**

Policies and methods of creating and maintaining public good will in business, including studies of employee participation and consumer attitude and opinion. Public relations programs of representative business concerns.

#### **332. Principles of Marketing. (3:3:0)**

Marketing structures and agencies. Motives and buying habits. Types of middlemen, marketing institutions, and channels. Current marketing practices. Marketing of industrial and consumer goods.

#### **334. Principles of Advertising. (3:3:0)**

Advertising from the point of view of the needs of businessmen. To acquaint students in business with the tools and techniques of advertising and the use of advertising as a selling force. Consideration of the media available, the publicity budget, relation of the publicity department to other departments of the business, and means of testing and measuring benefits of advertising.

#### **335. Principles of Retailing. (3:3:0)**

Prerequisite: Mkt. 332. Analysis of store location; layout, fixtures, and organization; interpreting consumer demand; purchasing, receiving, checking, pricing, and merchandising; sales promotion; inventory and merchandise control; credit; and personnel.

**338. Essentials of Television Advertising. (3:3:0)**

No prerequisite, but Mkt. 334 recommended before this course. The study of the techniques and principles of advertising on television. The phases of creating, producing, and scheduling. Advertisements for a variety of products and business will be covered.

**339. Principles of Salesmanship. (3:3:0)**

Fundamentals of personal salesmanship applied specifically in the marketing of goods and services and as they may aid any business or professional man.

**FOR UNDERGRADUATES AND GRADUATES****426. Index Numbers. (2:2:0)**

Prerequisite: Mkt. 246. An intensive study of business use of index numbers, construction and interpretation of index numbers, problems of weighting and splicing, adjustment of business data for inflation and deflation. Practical problems in measurement of business status through use of index numbers.

**431. Industrial Marketing. (3:3:0)**

Prerequisite: Mkt. 332. Problems involved in marketing industrial goods, including commodities.

**433. Marketing Problems. (3:3:0)**

Prerequisite: Mkt. 332 and senior standing. Actual marketing cases and problems. Marketing costs, analysis of operating statements, production policy, brand policy, various channels of distribution, sales promotion, sales policies, price determination, price policies, and operating control.

**434. Wholesaling. (3:3:0)**

Prerequisite: Mkt. 332. Processes and institutions of wholesale marketing from manufacturer or processor to retailer through merchant and functional middlemen. Special emphasis upon modern channels of distribution, including agents and agency structures, selling agents, manufacturers' agents, brokers, jobbers, commission firms, service and special wholesalers, other intermediary marketing institutions, and consignments.

**435. Business Cycles and Forecasts. (3:3:0)**

Prerequisite: Mkt. 246. Theories of cycles. Causes and proposed remedies. Examination of forecasting services available and techniques employed by them. Problems in specific commodities and securities.

**436. Marketing Research and Analysis. (3:3:0)**

Prerequisite: Mkt. 246 and 332. Scientific marketing research methods; emphasis on collection, analysis, and interpretation of data as applied to the solution of marketing problems. Class projects include gathering both primary and secondary data and the preparation of written reports.

**437. Advanced Business Statistics. (3:3:0)**

Prerequisite: Mkt. 246. Statistical methods and their uses in business institutions. A more extended study of some phases of business statistics, including sampling, averages, dispersion, time series, index numbers, linear and nonlinear correlation, multiple and partial correlation, estimates, variance, and the use of statistics in business forecasting.

**438. Sales Promotion, Retail Advertising, and Display. (3:3:0)**

Prerequisite: Mkt. 334 or 335. A study of sales promotion activities in retail stores including advertising, display, publicity, and special sales events. The choice of media, including newspaper, radio, television, and other local media. The techniques used in retail advertising and promotions including copy, layout, display, scheduling, and budget. The coordination of sales promotion campaigns with merchandising and the measurement of their effectiveness. Materials fee, \$5.

**439. Sales Management. (3:3:0)**

Prerequisite: Mkt. 332. Problems and methods of organization and administration of sales departments, including sales research; sales operations, including departmental organization, selection, training, equipping, and remunerating sales personnel; sales control, embodying sales territories, routing, expense accounts, quotas, costs, and budgets; sales promotion; and sales policies.

**4311. Advertising Practices. (3:2:2)**

Prerequisite: Mkt. 334 or approval of instructor. Analysis of the creative aspects of the advertisement: copy, layout, and production, to provide a practical account of the work in each of these three areas.

**4312. Advertising Campaigns. (3:1:4)**

Prerequisite: Mkt. 4311 or approval of instructor. A specialized, skill-development course with emphasis on advertising campaigns. Provides a systematic approach to the actual creation and administration of advertising campaigns for a variety of products and/or services.

**4315. Retail Buying. (3:3:0)**

Prerequisite: Mkt. 335. Functions of the retail buyer, emphasizing principles and procedures in buying for resale. Organization for buying, analysis of consumer demand, model stock plans, sources of supply, resident buying, cooperative and central buying, terms and discounts, price quotations, trade relations, selection, and training techniques.

**4316. Advertising Administration. (3:3:0)**

Prerequisite: Mkt. 4311. Major problems involved in the building, implementing, and evaluating of advertising programs as distinguished from individual advertisements. Situations which have confronted actual businessmen in such areas as advertising appropriation, coordination of advertising with other sales efforts, and advertising agency relationships.

**4319. Analysis of Retail Operations. (3:1:4)**

Prerequisite: Approval of instructor. A study of the functional operations processes in a retailing or marketing institution. The student will follow a schedule of observation, analysis and application in one or more business firms. Minimum of 75 clock hours.

**FOR GRADUATES****531. Advanced Marketing Problems. (3:3:0)****532. Advanced Marketing Research. (3:3:0)****536. Individual Study in Marketing I. (3:3:0)**

Directed individual study of advanced marketing problems varying with the needs of the particular student.

**537. Individual Study in Marketing II. (3:3:0)**

Directed individual study of advanced marketing problems varying with the needs of the particular student.

**5331. Marketing Foundations. (3:3:0)**

Prerequisite: Graduate standing. Emphasis is on a basic treatment of marketing functions and the institutions which perform them; choice of criteria for marketing strategy decisions; development of marketing structural relationships; and the role of marketing in the firm and the economy.

**5332. Statistical Methods in Business. (3:3:0)**

Prerequisite: Graduate standing. Topics covered include frequency distributions, measures of central tendency, dispersion, estimation, testing hypotheses, correlation, regression, inference, analysis of time series, and applications of these techniques to decision making. This course is intended to provide the student a working facility with basic statistical tools.

**5341. Marketing Administration. (3:3:0)**

Marketing planning, strategy, and tactics. Organization, execution, and control of the marketing effort. Enrollment limited to nonmarketing majors.

**5342. Advanced Statistical Methods. (3:3:0)**

Prerequisite: Mkt. 5332 or Mkt. 246. A continuation of Mkt. 5332. Emphasis on evaluation and use of analytical and interpretive statistical methods relating to the management of a business firm.

**5351. Marketing Thought and Theory. (3:3:0)**

Prerequisite: Mkt. 332 or Mkt. 5331. Principles, theories, and problems in marketing. Consideration of the contributions of marketing scholars to the mainstream of marketing thought. The functional, institutional, cost, and historical approaches are utilized in viewing marketing from both the social and firm's point of view.

**5352. Statistical Decision Making. (3:3:0)**

Prerequisite: Mkt. 246 or Mkt. 5332. Logical analysis of practical business problems in which a decision must be reached under uncertainty. Basic concepts of decision theory applied to a variety of situations.

# SUGGESTED PROGRAMS BY SEMESTERS 1966 - 1967

(See preceding pages for official degree requirements.)

YEAR	ACCOUNTING		ADMINISTRATIVE MANAGEMENT		ADVERTISING		BUSINESS EDUCATION	
	FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
FIRST	Acct. 232 Eng. 131 Hist. 231 Mgt. 110 Math. 137 P.E. Science	Eco. 133 Eng. 132 Hist. 232 Math. 138 P.E. Science	Eco. 133 Eng. 131 Humanities Mgt. 110 Math. 137 P.E. Science	Acct. 232 Eng. 132 Hist. 231 Math. 138 P.E. Science	Eco. 133 Eng. 131 Mgt. 110 Math. 137 Hist. 231 Science P.E.	Acct. 232 Eng. 132 Math. 138 Hist. 232 Sec. Ad. 122 Sec. Ad. 131 P.E.	Eco. 133 Eng. 131 Hist. 231 Math. 137 Sec. Ad. 122 Sec. Ad. 131 P.E.	Acct. 232 Eng. 132 Hist. 232 Math. 138 Sec. Ad. 132 Mgt. 110 P.E.
SECOND	Acct. 234 Eco. 231 Eng. 231 or 232 Govt. 231 Humanities P.E.	Acct. 235 Eco. 232 Govt. 232 Speech 338 P.E.	Acct. 234 Eco. 231 Eng. 231 Govt. 231 Sec. Ad. 333 P.E.	Acct. 235 Eco. 232 Govt. 232 Hist. 232 Speech 338 P.E.	Acct. 234 Eco. 231 Eng. 232 or 231 Govt. 231 Psy. 230 Al. A. 121 P.E.	Acct. 235 Eco. 232 Govt. 232 Mkt. 334 Mkt. 332 Al. A. 321 P.E.	Acct. 234 Eco. 231 Eng. 231 Govt. 231 Mkt. 246 P.E.	Acct. 235 Eco. 232 Eng. 232 Govt. 232 Science P.E.
THIRD	Acct. 334 Acct. 336 Bus. L. 338 Mkt. 332 Sec. Ad. 333	Acct. 335 Bus. L. 339 Fin. 331 Mkt. 246 Acct. Elective	Acct. 331 Bus. L. 338 Mgt. 333 Mgt. 331 Second Field	Bus. L. 339 Mgt. 334 Mkt. 246 Mgt. 335 Second Field	Bus. L. 338 Fin. 331 Mkt. 246 Journ. 3351 Mkt. 4311	Acct. 331 Bus. L. 339 Humanities Mgt. 331 Mkt. 4312	Bus. L. 338 Educ. 330 Educ. 332 Sec. Ad. 321 Sec. Ad. 327 Science	Bus. L. 339 Educ. 334 Mkt. 332 Sec. Ad. 322 Bus. Ed. 432 Bus. Ed. 433
FOURTH	Acct. 430 Acct. 434 Acct. 437 Sec. Ad. 327	Mgt. 331 Acct. Elective Acct. Elective	Fin. 331 Mgt. 430 Mgt. 431 Second Field	Mgt. 432 Mgt. 435 Mgt. 442 Mkt. 332 Second Field	Mkt. 339 Mkt. 436 Speech 338 Sec. Ad. 333 Journ. 433	Mkt. 4316 Mkt. 433 Mkt. 335 Mkt. 321 Journ. 3312	<p>Student Teaching Semester may be either Fall or Spring</p> <p><u>Non-Student Teaching Semester</u></p> <p>Acct. elective Eco. 326 Fin. 331 Mgt. 331 Sec. Ad. 333 Speech 338</p> <p><u>Student Teaching Semester</u></p> <p>Educ. 462 Educ. 436 Elective</p> <p>Evidence of at least eight weeks of continuous full-time business experience.</p>	



## SUGGESTED PROGRAMS BY SEMESTERS

1966 - 1967

(Continued)

(See preceding pages for official degree requirements.)

YEAR	ECONOMICS		FINANCE--Banking		FINANCE Financial Administration		FINANCE Insurance and Real Estate	
	FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
FIRST	Eco. 133 Eng. 131 Hist. 231 Mgt. 110 Math. 137 P.E. Science	Acct. 232 Eng. 132 Hist. 232 Math. 138 P.E. Science	Eco. 133 Eng. 131 Hist. 231 Mgt. 110 Math. 137 P.E. Science	Acct. 232 Eng. 132 Hist. 232 Math. 138 P.E. Science	Eco. 133 Eng. 131 Hist. 231 Mgt. 110 Math. 137 P.E. Science	Acct. 232 Eng. 132 Hist. 232 Math. 138 P.E. Science	Eco. 133 Eng. 131 Hist. 231 Mgt. 110 Math. 137 P.E. Science	Acct. 232 Eng. 132 Hist. 232 Math. 138 P.E. Science
SECOND	Acct. 234 Eco. 231 Eng. 231 or 232 Govt. 231 Speech 338 P.E.	Acct. 235 Eco. 232 Govt. 232 Humanities P.E.	Acct. 234 Eco. 231 Eng. 232 or 232 Govt. 231 P.E. Elective	Acct. 235 Eco. 232 Govt. 232 Humanities Elective Speech 338 P.E.	Acct. 234 Eco. 231 Eng. 231 Govt. 231 P.E. Elective	Acct. 235 Eco. 232 Govt. 232 Humanities Elective P.E. Speech 338	Acct. 234 Eco. 231 Eng. 231 Govt. 231 P.E. Elective	Acct. 235 Eco. 232 Govt. 232 Humanities Elective P.E. Speech 338
THIRD	Acct. 331 or 332 Bus. L. 338 Eco. 3314 Fin. 331 Mkt. 332	Bus. L. 339 Eco. 3311 Mgt. 331 Mkt. 246	Bus. L. 338 Fin. 331 Fin. 333 Fin. 335 Eco. 331	Acct. 332 Bus. L. 339 Mkt. 332 Mkt. 246	Acct. 334 Bus. L. 338 Fin. 331 Fin. 333 Fin. 335	Acct. 335 Bus. L. 339 Mkt. 332 Mkt. 246 Eco. 331	Bus. L. 338 Fin. 331 Fin. 333 Fin. 335 Eco. 331	Acct. 332 Bus. L. 339 Fin. 336 Mkt. 332 Mkt. 246
FOURTH	Eco. 430 Sec. Ad. 333 Approved Electives	Eco. 4312 Eco. 4311 Approved Electives	Fin. 431 Fin. 434 Sec. Ad. 333 Mgt. 331 Elective	Fin. 433 Fin. 438 Fin. 4311 Sec. Ad. 327 Electives	Acct. 430 Elective Fin. 431 Fin. 434 Sec. Ad. 333	Acct. 439 Fin. 433 Fin. 4311 Sec. Ad. 327 Electives	Bus. L. 3312 Fin. 432 Fin. 435 Mgt. 331 Elective	Bus. L. 3311 Fin. 434 Fin. 439 Sec. Ad. 327 Sec. Ad. 333 Elective

# SUGGESTED PROGRAMS BY SEMESTERS 1966 - 1967

(Continued)

(See preceding pages for official degree requirements.)

YEAR	INDUSTRIAL MANAGEMENT		INTERNATIONAL TRADE		MARKETING		OFFICE MANAGEMENT	
	FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
FIRST	Eco. 133 Eng. 131 Humanities Mgt. 110 Math. 133 P.E. Gen. Chem. or Gen. Phys.	Acct. 232 Eng. 132 Math. 131 Math. 139 P.E. Gen. Chem. or Gen. Phys.	Eco. 133 Eng. 131 Hist. 231 Mgt. 110 Math. 137 P.E. Science	Acct. 232 Eng. 132 Hist. 232 Math. 138 P.E. Science	Eco. 133 Eng. 131 Mgt. 110 Psy. 230 Science P.E. Math. 137	Eng. 132 Acct. 232 Math. 138 Humanities Science P.E.	Eco. 133 Eng. 131 Humanities Mgt. 110 Math. 137 P.E. Science	Acct. 232 Eng. 132 Hist. 231 Math. 138 P.E. Science Sec. Ad. 121
SECOND	Acct. 234 Eco. 231 Eng. 231 Govt. 231 Math. 231 P.E.	Acct. 235 Eco. 232 Govt. 232 Math. 232 Hist. 231 P.E.	Acct. 234 Eco. 231 Eng. 231 Govt. 231 P.E. Speech 338	Acct. 235 Eco. 232 Eco. 237 Govt. 232 Humanities P.E.	Acct. 234 Eco. 231 Eng. 231 or 232 Govt. 231 Hist. 231 P.E.	Acct. 235 Eco. 232 Govt. 232 Hist. 232 Mkt. 246 P.E.	Acct. 234 Eco. 231 Eng. 231 Govt. 231 Hist. 232 P.E.	Acct. 235 Eco. 232 Govt. 232 Sec. Ad. 122 Sec. Ad. 327 Speech 338 P.E.
THIRD	Bus. L. 338 Mgt. 331 Mgt. 333 Sec. Ad. 333 Speech 338	Bus. L. 339 Hist. 232 Mgt. 332 Mkt. 332 Mkt. 246	Bus. L. 338 Eco. 338 Fin. 331 Govt. 4361 Mkt. 332	Bus. L. 339 Eco. 339 Mgt. 331 Mkt. 246 Sec. Ad. 333	Mkt. 332 Mkt. 334 Bus. L. 338 Fin. 331 Acct. 336 or 332	Mkt. 335 Mkt. 434 Bus. L. 339 Mgt. 331 Sec. Ad. 333	Acct. 331 Bus. L. 338 Mkt. 332 Sec. Ad. 321	Bus. L. 339 Fin. 331 Mgt. 331 Mkt. 246 Sec. Ad. 333
FOURTH	Acct. 336 Fin. 331 Mgt. 432 Mgt. 435 Mgt. 438	Acct. 4313 Mgt. 336 Mgt. 439 I.E. 3331 Eco. 3314	Acct. 331 or 332 Eco. 337 Eco. 430 Eco. 433 Eco. 437	Govt. 4363 Govt. 4364 Govt. 4362 Electives	Mkt. 439 Mkt. 436 Mgt. 432 Mkt. 339	Mkt. 433 Mkt. 435 Speech 338	Mgt. 339 Mgt. 431 Sec. Ad. 322	Mgt. 334 Mgt. 435 Mgt. 436 Sec. Ad. 431

## SUGGESTED PROGRAMS BY SEMESTERS

1966 - 1967

(Continued)

(See preceding pages for official degree requirements.)

YEAR	PERSONNEL MANAGEMENT		PRE-LAW		PUBLIC ADMINISTRATION		RETAILING	
	FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
FIRST	Eco. 133 Eng. 131 Humanities Mgt. 110 Math. 137 P.E. Science	Acct. 232 Eng. 132 Math. 138 P.E. Psy. 230 Science	Eco. 133 Eng. 131 Mgt. 110 Math. 137 Humanities Science P.E.	Acct. 232 Eng. 132 Hist. 231 Math. 138 P.E. Science	Eco. 133 Eng. 131 Mgt. 110 Math. 137 Psy. 230 P.E. Science	Acct. 232 Eng. 132 Math. 138 Humanities P.E. Science	Eco. 133 Eng. 131 Math. 137 Mgt. 110 Psy. 230 Science P.E.	Acct. 232 Eng. 132 Math. 138 Phil. 231 Science P.E.
SECOND	Acct. 234 Eco. 231 Eng. 231 Govt. 231 Hist. 231 P.E.	Acct. 235 Eco. 232 Govt. 232 Hist. 232 Speech 338 P.E.	Acct. 234 Eco. 231 Eng. 231 or 232 Hist. 232 Govt. 231 P.E.	Acct. 235 Eco. 232 Govt. 232 Sec. Ad. 333 Speech 338 P.E.	Acct. 234 Eco. 231 Eng. 231 or 232 Govt. 231 Hist. 231 P.E.	Acct. 235 Eco. 232 Govt. 232 Hist. 232 Speech 338 P.E.	Acct. 234 Eco. 231 Govt. 231 Hist. 231 Eng. 231 or 232 P.E.	Acct. 235 Eco. 232 Govt. 232 Hist. 232 Mkt. 332 P.E.
THIRD	Bus. L. 338 Mgt. 333 Mkt. 332 Psy. 330 Sec. Ad. 333	Bus. L. 339 Mgt. 331 Mgt. 334 Mgt. 336 Mkt. 246	Eco. 326 Mgt. 331 Mkt. 332 Bus. Ad. Elect. Major Elect.	Fin. 331 Mkt. 246 Sec. Ad. 327 Bus. Ad. Elect. Major Elect.	Bus. L. 338 Mkt. 246 Sec. Ad. 333 Mkt. 332	Bus. L. 339 Fin. 331 Govt. 4341 Mgt. 334 Mkt. 321	Bus. L. 338 Acct. 331 Fin. 331 Mkt. 334 Sec. Ad. 333	Bus. L. 339 Mgt. 331 Mkt. 335 Mkt. 246 Mgt. 336
FOURTH	Acct. 331 Mgt. 431 Mgt. 433 Mgt. 435 Psy. 439	Fin. 331 Mgt. 432 Mgt. 434 Psy. 432			Eco. 326 Govt. 4321 Eco. 331 Mgt. 335 Sec. Ad. 431	Acct. 432 Arch. 436 Eco. 334 Govt. 4353 Mgt. 435 Sec. Ad. 327	Speech 338 Mkt. 436 Mkt. 4315 Humanities	Eco. 331 Mkt. 433 Mkt. 4319

# **SUGGESTED PROGRAMS BY SEMESTERS** **1966 - 1967**

(Continued)

(See preceding pages for official degree requirements.)

YEAR	SECRETARIAL ADMINISTRATION		TRAFFIC MANAGEMENT	
	FALL	SPRING	FALL	SPRING
FIRST	Eco. 133	Acct. 232	Eco. 133	Acct. 232
	Eng. 131	Eng. 132	Eng. 131	Eng. 132
	Mgt. 110	Math. 138	Humanities	Hist. 231
	Math. 137	Sec. Ad. 132	Mgt. 110	Math. 138
	Sec. Ad. 122	P.E.	Math. 137	P.E.
	P.E.	Science	P.E.	Science
SECOND	Sec. Ad. 131		Science	
	Acct. 234	Acct. 235	Acct. 234	Acct. 235
	Eco. 231	Eco. 232	Eco. 231	Eco. 232
	Eng. 231 or 232	Govt. 232	Eng. 231	Govt. 232
	Govt. 231	Sec. Ad. 235	Govt. 231	Hist. 232
	P.E.	P.E.	Sec. Ad. 333	Speech 338
THIRD	Science		P.E.	P.E.
	Acct. 246	Bus. Law 339	Bus. L. 338	Bus. L. 339
	Bus. Law 338	Hist. 232	Eco. 336	Mkt. 332
	Hist. 231	Mkt. 332	Mgt. 3381	Mgt. 334
	Mgt. 339	Sec. Ad. 321	Mgt. 333	Mgt. 331
	Mkt. 246	Sec. Ad. 333	Mgt. 3371	Mkt. 246
FOURTH				
	Mgt. 331	Eco. 326	Acct. 331	Eco. 435
	Sec. Ad. 327	Fin. 331	Fin. 331	I. E. 338
	Sec. Ad. 331	Sec. Ad. 332	I. E. 335	Mgt. 4371
	Sec. Ad. 322	Sec. Ad. 431	Mgt. 335	Mgt. 4381
	Speech 338	Humanities	Mgt. 435	Mgt. 432

## School of Engineering

John R. Bradford, *Dean*

Robert L. Newell, *Assistant Dean*

Office: Elec.E. 105

The School of Engineering offers the following four-year curricula, each leading to the Degree of Bachelor of Science in the respective field of engineering: agricultural, chemical, civil, electrical, mechanical, industrial, petroleum, engineering physics, and textile. The Degree of Bachelor of Science in Textile Technology and Management is also available under the administration of the Textile Engineering Department. In the Department of Architecture, two five-year curricula in architecture and a four-year curriculum in advertising art and design are offered, these leading to the degrees of Bachelor of Architecture and Bachelor of Advertising Art and Design, respectively.

The School of Engineering is divided into instructional departments which offer course work and supervise the degree programs described in Part I of this Catalog. Specific curricula are designed by the departments for each of the degree programs and are presented in special tables on the following pages along with a descriptive list of the courses offered by each department.

The courses listed in individual curricula are those prescribed for the various degrees, and the arrangement by freshman, sophomore, junior, and senior years is the recommended sequence of courses, whether students begin them in the summer or during the long session. Before registration for each semester, a student should check course prerequisites carefully and be certain to include in that semester's work the courses which are prerequisite to the ones prescribed for the following semester. Any substitution or deviation from those listed in the programs of study requires written approval from the Dean of the School of Engineering and the head of the department in which the student is majoring. Electives require the written approval of the departmental head.

The general requirements of the School of Engineering, including details of making application for a degree, are found in Part I of this Catalog.

### Freshman Programs

Recommended qualifications for admission to the School of Engineering are given in Part I of this Catalog. Students meeting these requirements, as shown by the high school records and the placement tests, will be assigned to the freshman program shown in the departmental curriculum. Entering engineering and architecture (construction option) students with inadequate preparation in mathematics will be required to

complete Math. 133, College Algebra; and/or Math. 131, Trigonometry. The most satisfactory plan to complete these courses without delay is to attend the summer school before the first long session.

Engineering students who need algebra and trigonometry, but are unable to take advantage of the summer school, should schedule the following:

#### ALTERNATE FRESHMAN YEAR FOR ENGINEERING STUDENTS

			SEMESTER	1st	2nd
Math.	131	Trigonometry		3	
Math.	133	Col. Alg.		3	
Grph.	121	Engr. Grph. I		2	
E. A.	123	Engr. Des. & Logic I		2	
Chem.	141	Gen. Chem.		4	
Math.	151	Math. for Engineers I			5
Eng.	131	Col. Rhet.			3
Grph.	122	Engr. Grph. II			2
E. A.	124	Engr. Des. & Logic II			2
Chem.	142	Gen. Chem.			4
P.E. Band, or Basic ROTC					
Total credit hours				14*	16*
SUMMER SESSION			TERM	1st	2nd
Math.	152	Math. for Engineers II		5	
Eng.	132	Col. Rhet.			3
Math.	235	Math. for Engineers III			3
Total credit hours				5	6

\* Exclusive of P.E., Band, or Basic ROTC.

Similar adjustment to compensate for deficiencies in recommended admission requirements can be made in the freshman programs in architecture—design option and construction option, advertising art and design, and textile technology and management.

Special consideration will be given to applicants with strong high school backgrounds, even though they may not meet some of the specific entrance requirements. It should be noted, however, that most students who are admitted with fewer than the recommended qualifications should anticipate its requiring more than two semesters for the completion of the freshman program.

#### Advanced Degrees in Engineering

The graduate program in the School of Engineering provides course work and research leading to the Degree of Master of Science in Chemical, Civil, Electrical, Industrial, and Mechanical Engineering; and to that of Doctor of Philosophy.

The doctoral program in the School of Engineering is divided into two main categories consisting of the traditional specialization-in-depth in each department and an interdisciplinary program cutting across departmental lines which may include work in the physical and biological sciences and mathematics.

Major course work in the respective field, combined with minor course work in related ones, provides broad and intensive study in important branches of the profession.

AGRICULTURAL ENGINEERING CURRICULUM  
Bachelor of Science in Agricultural Engineering

FRESHMAN YEAR*				SEMESTER	1st	2nd
Ag. Ed.	111	The Agri. Industry			1	
Agron.	131	Prin. of Agronomy			3	
Eng.	131	Col. Rhet.			3	
E.A.	123	Engr. Des. & Logic I			2	
Grph.	121	Engr. Grph. I			2	
Math.	151	Math. for Engineers I			5	
P.E., Band, or Basic ROTC						
Ag. Engr.	112	Fund. of Ag. Mech.				1
A.H.	131	Gen. Anim. Husb.				3
Eng.	132	Col. Rhet.				3
E.A.	124	Engr. Des. & Logic II				2
Grph.	122	Engr. Grph. II				2
Math.	152	Math. for Engineers II				5
P.E., Band, or Basic ROTC						
Total credit hours					16**	16**
SOPHOMORE YEAR				SEMESTER	1st	2nd
Ag. Eco.	235	Prin. of Ag. Eco.			3	
Ag. Engr.	233	Prin. of Ag. Engr.			3	
Chem.	141	Gen. Chem.			4	
Math.	235	Math. for Engrs. III			3	
Phys.	143	Prin. of Physics I			4	
P.E., Band, or Basic ROTC						
Ag. Engr.	232	Plane & Topog. Surv.				3
C.E.	233	Statics				3
Chem.	142	Gen. Chem.				4
Math.	335	Higher Math. for Engrs. & Scits. I				3
Phys.	241	Prin. of Physics II				4
P.E., Band, or Basic ROTC						
Total credit hours					17**	17**
JUNIOR YEAR				SEMESTER	1st	2nd
Ag. Engr.	336	Ag. Mach. Design			3	
Agron.	241	Soils			4	
C.E.	332	Dynamics			3	
E.E.	233	Elec. Systems Analysis			3	
M.E.	3314	Mach. Elements I			3	
Govt.	231	Amer. Govt., Org.			3	
E.E.	234	Electronic Instrum.				3
C.E.	3311	Mech. of Solids.				3
C.E.	3351	Mech. of Fluids				3
Govt.	232	Amer. Govt., Func.				3
M.E.	3321	Engr. Thermodynamics				3
Elective (Humanity)						3
Total credit hours					19	18
SENIOR YEAR				SEMESTER	1st	2nd
Ag. Engr.	438	Func. Des. Farm Bldgs.			3	
Ag. Engr.	437	Des. of Irrigation Sys.			3	
Ag. Engr.	436	Proc. & Cotton Gin Engr.			3	
Ag. Engr.	411	Seminar			1	
Hist.	231	Hist. of U.S. to 1865			3	
Elective					5	
Ag. Engr.	442	Engr. for Water & Soil Conser.				4
Ag. Engr.	439	Struc. Des. Farm Bldgs.				3
Ag. Engr.	434	Farm Elec. Sys.				3
Ag. Engr.	433	Elem. of Tractor Des.				3
Hist.	232	Hist. of U.S. since 1865				3
Elective (Humanity)						3
Total credit hours					18	19

Minimum hours required for graduation--140, plus P.E., Band, or Basic ROTC

\*See Alternate Freshman Year

\*\*Exclusive of required P.E., Band, or Basic ROTC.

Admission to the Graduate School is based upon an above-average undergraduate record and satisfactory standing on the Graduate Record Examinations. The regulations and requirements of the Graduate School are given in the *Graduate Catalog*.

## Agricultural Engineering

**Department of Agricultural Engineering, School of Agriculture**

Willie L. Ulich, *Head of the Department*

Office: Ag.E. 103

*Professors:* Willie L. Ulich, Ira L. Williams

*Associate Professors:* William F. Schwiesow, Lewis Eggenberger

*Assistant Professors:* Marvin J. Dvoracek, Donald F. Wanjura\*

*Research Associate:* Albert W. Sechrist

\* Part-time.

The Department of Agricultural Engineering administers the degree program in AGRICULTURAL ENGINEERING (described in Part I of this Catalog) under the joint supervision of the School of Engineering and the School of Agriculture. See the section on the School of Agriculture for a description of the department and its course offerings; the curriculum for this degree program is given on the accompanying table.

### Courses in Agricultural Engineering

See course listings of Agricultural Engineering Department in School of Agriculture.

## Department of Architecture and Allied Arts

Nolan Ellmore Barrick, *Head of the Department*

Office: A.C. 105

*Professors:* Nolan E. Barrick, W. L. Bradshaw, F. A. Kleinschmidt, R. I. Lockard, Elizabeth Sasser.

*Associate Professors:* Carl Childers, Edna Houghton, James Howze, Gordon McCutchan, Eugenia Morse, William Stewart

*Assistant Professors:* Raymond Brogniez, Paul Goeldner, Paul Hanna, Roderick Parkinson, Willard Robinson, Joseph Skorepa, Dudley Thompson, Guillermo Vidaud, Terrell Warren

*Instructors:* Walter Calvert, James Dalton, Lonnie Edwards,\* Hugh Gibbons, William Grady,\* H. V. Greer, Peter Harley, Lynwood Kreneck, William Rankin,\* Tom Rigsby,\* Jack Roberts,\* Virginia Thompson, Robert Troy

\* Part-time.

This department supervises the following degree programs described in Part I of this Catalog: ADVERTISING ART AND DESIGN, *Bachelor of*



ARCHITECTURE CURRICULUM  
Bachelor of Architecture--Construction Option

FRESHMAN YEAR			SEMESTER	1st	2nd
Arch.	121	Freehand Drawing I		2	
Arch.	133	Intro. to Des. & Theory		3	
Math.	151	Math. for Engrs. I		5	
Eng.	131	Col. Rhet.		3	
Elective				3	
P.E., Band, or Basic ROTC					
Arch.	122	Freehand Drawing II			2
Arch.	134	Arch. Graphics			3
Math.	152	Math. for Engrs. II			5
Eng.	132	Col. Rhet.			3
Elective					3
P.E., Band, or Basic ROTC					
Total credit hours				16*	16*
SOPHOMORE YEAR			SEMESTER	1st	2nd
Arch.	241	Arch. Des.		4	
Arch.	323	Hist. of Mod. Arch.		2	
Arch.	234	Mat. & Meth. of Const.		3	
Math.	235	Math. for Engrs. III		3	
Phys.	143	Prin. of Phys. I		4	
Al.A.	210	Intro. to the Arts		1	
P.E., Band, or Basic ROTC					
Arch.	242	Arch. Des.			4
Arch.	330	Hist. of Arch.: Ancient/Medieval			3
Phys.	241	Prin. of Phys. II			4
C.E.	233	Statics			3
Eng.	231	Mast. of Lit.			3
P.E., Band, or Basic ROTC					
Total credit hours				17*	17*
JUNIOR YEAR			SEMESTER	1st	2nd
Arch.	351	Arch. Des., Grade III		5	
Arch.	432	Hist. of Renaissance Arch.		3	
Arch.	335	Mech. Equip. of Bldgs.		3	
C.E.	3341	Structural Analysis I		3	
C.E.	3311	Mechanics of Solids		3	
Arch.	352	Arch. Des., Grade III			5
Arch.	337	Prin. of City Planning			3
Arch.	336	Mech. Equip. of Bldgs.			3
C.E.	3342	Structural Analysis II			3
Spch.	338	Bus. & Prof. Speech			3
Total credit hours				17	17
FOURTH YEAR			SEMESTER	1st	2nd
Arch.	451	Arch. Des., Grade IV		5	
Arch.	333	Arch. Structures		3	
C.E.	4343	Reinf. Concrete Struct. I		3	
Elective				3	
C.E.	231	Plane Surveying		3	
Arch.	436	City Planning			3
Arch.	452	Arch. Des., Grade IV			5
Arch.	334	Arch. Structures			3
C.E.	4344	Reinf. Concrete Struct. II			3
Elective					3
Total credit hours				17	17
FIFTH YEAR			SEMESTER	1st	2nd
Arch.	420	Prof. Practice		2	
Arch.	435	Building Technology		3	
C.E.	4341	Struct. Design I		3	
C.E.	3211	Mech. of Solids Lab.		2	
Hist.	231	Hist. of U.S. to 1865		3	
Govt.	231	Amer. Govt., Org.		3	
Arch.	410	Seminar		1	
Elective					3
C.E.	4342	Struct. Design II			3
C.E.	3201	Portland Cem. Conc. Tech.			2
C.E.	3321	Soil Engr. Science			3
Hist.	232	Hist. of U.S. since 1865			3
Govt.	232	Amer. Govt., Func.			1
C.E.	3121	Soil Engr. Science Lab.			3
Total credit hours				17	18

Minimum hours required for graduation--169, plus P.E., Band, or ROTC

\*Exclusive of P.E., Band, or Basic ROTC.

*Advertising Art and Design*; ARCHITECTURE, *Bachelor of Architecture*, with options in Construction or Design. Students in the School of Arts and Sciences who wish to work toward a Bachelor of Arts Degree with a major in Art or a Bachelor of Science in Education Degree with a broad field (or composite) major in art should consult the head of the department.

Programs in the Department of Architecture and Allied Arts concentrate on the concept that architecture and design are embodiments of the attitudes and ideas of society; that man's needs and requirements are basic to the realization of form and functional expressions; that the requirements of man's changing environment are major factors in design determination.

A common core of art courses applies to all degree plans and affords the department an exceptional opportunity to provide a rich and full offering in this area of instruction. Architecture majors are urged to spend summer months in the offices of registered architects; a student may, in fact, substitute an elective for Architecture 435, if he presents to the Department Head satisfactory evidence that he has completed three months of full time employment in the office of a registered architect and if he also submits examples of personal work of satisfactory quality and scope.

### Departmental Affiliations

The Department of Architecture and Allied Arts is affiliated with the following organizations:

1. Association of Collegiate Schools of Architecture
2. National Institute of Architectural Education
3. The American Federation of Art
4. The College Art Association
5. Tau Sigma Delta (National honor society in Architecture and Allied Arts)

A growing emphasis is being placed on research. The faculty includes members qualified by the Office of Civil Defense for fallout shelter analysis and those trained in documentation and preservation of historic structures, in cooperation with Historical American Building Survey. Emphasis is placed on the aspects of research as applied to the unique geographical problems of this locale.

The programs in architecture are accredited by the National Architectural Accreditation Board. Most of the faculty teaching architectural design are registered architects and hold individual memberships in the American Institute of Architects, American Institute of Planners, American Society of Planning Officials, and Association of Collegiate Schools of Architecture.

### General

The department reserves the right to retain, exhibit, and reproduce work submitted by students for credit in any course. Work submitted for grade is property of the department and remains such until it is returned to the student by the department. The department maintains a reference library under the supervision of a trained librarian and

ARCHITECTURE CURRICULUM  
Bachelor of Architecture--Design Option

FRESHMAN YEAR			SEMESTER	1st	2nd
Arch.	121	Freehand Drawing I		2	
Arch.	133	Intro. to Design & Theory		3	
Foreign language				4	
Math.	133	Col. Alg.		3	
Eng.	131	Col. Rhet.		3	
P.E., Band, or Basic ROTC					
Arch.	122	Freehand Drawing II			2
Arch.	134	Arch. Graphics			3
Math.	131	Trigonometry			3
Foreign language					4
Eng.	132	Col. Rhet.			3
Elective					3
P.E., Band, or Basic ROTC					
			Total credit hours	15*	18*
SOPHOMORE YEAR			SEMESTER	1st	2nd
Arch.	241	Arch. Design		4	
Arch.	323	Hist. of Modern Arch.		2	
Arch.	224	Freehand Drawing III		2	
Arch.	234	Mat. & Meth. of Const.		3	
Phys.	141	Gen. Physics		4	
Hist.	231	Hist. of U.S. to 1865		3	
P.E., Band, or Basic ROTC					
Arch.	242	Arch. Design			4
Arch.	330	Hist. of Arch.: Ancient/Medieval			3
Arch.	225	Beginning Watercolor			2
Phys.	142	Gen. Physics			4
Hist.	232	Hist. of U.S. since 1865			3
Al. A.	210	Intro. to the Arts			1
P.E., Band, or Basic ROTC					
			Total credit hours	18*	17*
JUNIOR YEAR			SEMESTER	1st	2nd
Arch.	351	Arch. Des., Grade III		5	
Arch.	432	Hist. of Renaissance Arch.		3	
C.E.	337	Struc. Mech.		3	
Eng.	231	Mast. of Lit.		3	
Arch.	335	Mech. Equip. of Bldgs.		3	
Arch.	352	Arch. Des., Grade III			5
C.E.	338	Struc. Mech.			3
Elective					3
Arch.	336	Mech. Equip. of Bldgs.			3
Arch.	337	Prin. of City Planning			3
			Total credit hours	17	17
FOURTH YEAR			SEMESTER	1st	2nd
Arch.	451	Arch. Des., Grade IV		5	
Arch.	333	Arch. Structures		3	
C.E.	435	Simple Th. Reinf. Conc.		3	
Arch.	420	Prof. Prac.		2	
Arch.	326	Anat. & Life Drawing		2	
Elective				3	
Arch.	452	Arch. Des., Grade IV			5
Arch.	436	City Planning			3
Arch.	334	Arch. Structures			3
Elective					3
Spch.	338	Bus. & Prof. Speech			3
			Total credit hours	18	17
FIFTH YEAR			SEMESTER	1st	2nd
Arch.	440	Arch. Des. & City Planning, Grade V		2	
Arch.	422	Design Program		4	
Arch.	4316	Arch. Sculpture		3	
Arch.	435	Building Technology		3	
Govt.	231	Amer. Govt., Org.		3	
Arch.	410	Seminar		1	
Arch.	461	Arch. Des., Grade V			6
Elective					3
Arch.	4317	Arch. Sculpture			3
Govt.	232	Amer. Govt., Func.			3
Arch.	425	Arch. Design: Thesis			2
			Total credit hours	16	17

Minimum hours required for graduation--170, plus P.E., Band, or Basic ROTC

\*Exclusive of P.E., Band, or Basic ROTC.

receives research source material on loan from the main library pertinent to design problems in progress at all levels. Included in the reference sources are valuable training aids provided by the Carnegie Foundation and an extensive collection of photographic plates and slides on architecture and art.

Many courses in architecture and allied arts, especially those in city planning and history of architecture, history of landscape architecture, history of painting and sculpture, and freehand drawing are available for electives to students majoring in education, history, government, music, etc. Consent of the instructor may be secured in lieu of the professional prerequisites listed. Allied Arts 131, 132, 4318, and 4319 qualify for the fine arts requirement in degree programs in the School of Arts and Sciences.

Freshman level courses must be completed before the student reaches senior classification in the College. Students who postpone freshman courses until the senior year must take such courses, although credit therefrom will not apply toward the hours required for a degree. For the purpose of this regulation, a senior is considered to be a student with a minimum of 96 hours to his credit.

Students in architecture and advertising art may not register for work in the Advanced Undergraduate Program which starts with the junior year until they are formally certified as eligible for such work by the department. To qualify for certification a student must have completed the program for the first two years in its entirety and must have maintained a grade point average of at least 2.00. A grade point average of not less than a 2.00 must be maintained in the professional course work.

Elective courses must be approved by the Head of the Department, and students are strongly urged to take elective courses in the humanities or instructional disciplines other than architecture and art. Courses in anthropology, sociology, philosophy, psychology, and related subjects are available.

## **Courses in Architecture**

### **FOR UNDERGRADUATES**

#### **121-122. Freehand Drawing I, II. (2:0:6 each)**

Representational drawing in charcoal emphasizing fundamental skills. Alternating problems stressing creative interpretation. Culminating work introducing color with pastels.

#### **133. Introduction to Design and Theory. (3:3:0)**

Study of man and his environment and the influences of environment on the design professions. Introduction to design principles.

#### **134. Architectural Graphics. (3:1:6)**

Prerequisite: Arch. 133. Study of descriptive geometry, architectural shades and shadows and perspective methods. Basic problems in projections.

#### **224. Freehand Drawing III. (2:0:6)**

Prerequisite: Arch. 121-122. Pencil, pen and ink rendering, and sketching from life and nature.

#### **225. Beginning Watercolor. (2:0:6)**

Prerequisite: Arch. 122. Watercolor painting from life and from nature.

#### **234. Materials and Methods of Construction. (3:3:0)**

Prerequisite: Arch. 133, 134. Introduction to properties, specifications and uses of architectural materials and analysis of structural systems related to architecture.

**241-242. Architectural Design. (4:0:12 each)**

Prerequisite: Arch. 133,134. Application of the basic principles of design with emphasis on three-dimensional problems leading to 6-hour to 48-hour projects under individual criticism dealing with elements of plan and evaluation. Introduction to project-completion method of study. 9-hour problems emphasizing composition and presentation.

**326. Anatomy and Life Drawing. (2:0:6)**

Prerequisite: Arch. 224. Study of anatomical structure. Drawing from life.

**327. Life Drawing I. (2:0:6)**

Prerequisite: Arch. 326. Drawing from life in a variety of media and approaches, with emphasis upon aesthetic factors. Instruction by individual criticism.

**331. Fundamentals of Residential Architecture. (3:3:0)**

Prerequisite: Junior standing. Fundamentals of residential architecture, including historical, aesthetic, and economic problems in the design of housing, with emphasis on single family dwellings.

**332. History of Landscape Architecture. (3:3:0)**

Prerequisite: Junior classification. Historical survey of landscape design, with applications to the present time. Illustrated lectures.

**333-334. Architectural Structures. (3:2:3 each)**

Prerequisite: Arch. 352, 336. Application of Structural Theory to specific building requirements, code restrictions and fabrication limitations. Preparation of details and visits to projects under construction.

**335-336. Mechanical Equipment of Buildings. (3:3:0 each)**

Prerequisite: Arch. 234 and 242. Heating and air-conditioning requirements and systems for buildings. Basic theory and problems in illumination and acoustics.

**337. Principles of City Planning. (3:3:0)**

Prerequisite: Arch. 242 or junior standing. Comprehensive background in planning principles which will contribute to the total understanding of architecture as students and as professionals in an urban society and environment.

**339. Fall-out Shelter Analysis. (3:3:0)**

Prerequisite: Architecture major, Arch. 451 and C. E. 435; Engineering majors, senior classification. Analysis of effects of nuclear weapons, nuclear shielding calculation methodologies, environmental factors in shelter design and application of basic principles of design to shelter systems and their utilization. Those successfully completing course will be awarded Department of Defense Certificate of Proficiency upon graduation.

**351-352. Architectural Design, Grade III. (5:2:9 each)**

Prerequisite: Arch. 241-242. 15-hour to 75-hour problems under individual criticism dealing with small building types. The project-completion method of study is used. 9-hour sketch problems dealing with details of architecture and with larger architectural compositions.

**410. Seminar in Architecture. (1:1:0)**

Prerequisite: Fifth year standing in Architecture. Papers on subjects relating to Architecture presented for discussion. For candidates for Degree of Bachelor of Architecture only

**422. Design Program. (2:1:3)**

Prerequisite: Arch. 440 or concurrent enrollment in Arch. 440. Preliminary study, research and conferences to develop complete program for terminal problem in Arch. 461 and 425.

**425. Architectural Design: Thesis. (2:0:6)**

Prerequisite: Arch. 461 or concurrent registration in Arch. 461. Coordination of research and preparation of written thesis supporting project completed in Arch. 461.

**440. Architectural Design and City Planning, Grade V. (4:0:12)**

Prerequisite: Arch. 451-452. 24-hour to 72-hour problems under individual criticism dealing with large compositions involving groups of buildings, site planning, and transportation and circulation.

**451-452. Architectural Design, Grade IV. (5:2:9 each)**

Prerequisite: Arch. 351-352. 15-hour to 90-hour problems under individual criticism dealing with more comprehensive building types and groups of buildings. 9-hour sketches are offered to test creative ability and expression in a limited amount of time.

**461. Architectural Design, Grade V. (6:0:18)**

Prerequisite: Arch. 440 and 422. Development and design of terminal thesis problem programmed in Arch. 422.

## FOR UNDERGRADUATES AND GRADUATES

### 323. History of Architecture: 19th & 20th Centuries. (2:2:0)

Prerequisite: For Arch. majors, Arch. 133-134; for others, none. Cultural and social influences as they determine the development of the 19th and 20th century architecture in Europe and the Americas. Illustrated lectures.

### 330. History of Architecture: Ancient/Medieval. (3:3:0)

Prerequisite: For Arch. majors, Arch. 323; for others, none. Architectural contributions of ancient, classic and medieval civilizations and their relation to cultural heritage and development of the western world. Illustrated lectures.

### 420. Professional Practice. (2:2:0)

Prerequisite: Senior standing. Office organization, ethics, professional relations for architects.

### 423. Life Drawing II. (2:0:6)

Prerequisite: Arch. 327. Continuation of Arch. 327. May be repeated for credit (6 hrs. max.).

### 430. History of Early American Architecture. (3:3:0)

Prerequisite: Arch. 432 and consent of instructor. The American architectural heritage. Pre-Columbian, Southwestern Colonial, regional styles of the eastern seaboard, Western Reserve, and Greek Revival. Illustrated lectures.

### 432. History of Renaissance Architecture. (3:3:0)

Prerequisite: Arch. 330. The Renaissance architecture of Europe, emphasizing the development of styles essential to an understanding of the background of early American and modern architectural growth. Illustrated lectures.

### 4316-4317. Architectural Sculpture. (3:1:6 each)

Prerequisite: Senior standing. Problems in modeling, carving, and combined techniques using clay, wood, metal, plaster, and other materials. Study of the historic development of sculptural techniques. Plaster-mold making, glazing, and firing.

### 4331. Special Problems in Architecture and City Planning. (3:3:0)

Prerequisite: Advanced standing and approval of the Department Head. Individual studies in advanced architecture and city planning of special interest to students. May be repeated for credit.

### 435. Building Technology. (3:1:6)

Prerequisite: Arch. 334 and 336. Synthesis of mechanical, electrical, and acoustical problems relative to design and structural considerations. Preparation of calculations, working drawings, and architectural details.

### 436. City Planning. (3:1:6)

Prerequisite: Senior standing. The theory and problems of city development, community planning, housing, and their drawn and rendered solutions under individual criticism.

## Allied Arts Courses in Advertising Art and Design

### FOR UNDERGRADUATES

### 131, 132. History of Art. (3:3:0 each)

Architecture, sculpture, painting and the minor arts from prehistoric times to the present. Emphasis is placed upon the arts as they reveal the visual aspects of man's social, political, and cultural growth. Illustrated lectures. Open to all students except those majoring in architecture. Fulfills the fine arts requirement for Bachelor or Arts Degree.

### 153. Pictorial Composition. (5:2:9)

Prerequisite: Arch. 134. Theory of space design, with emphasis on line and area composition. Basic problems in projections, perspective, and shades and shadows.

### 210. Introduction to the Arts. (1:1:0)

Prerequisite: English 132. Art as a contemporary philosophical concept; augmented by lectures on the major arts.

### 220. Advertising Office Practice. (2:2:0)

Prerequisite: Al. A. 153. Office organization, ethics, professional relations in the advertising field.

ADVERTISING ART & DESIGN CURRICULUM  
Bachelor of Advertising Art & Design

FRESHMAN YEAR			SEMESTER	1st	2nd
Arch.	121	Freehand Drawing I		2	
Arch.	133	Intro. to Design & Theory		3	
Arch.	134	Arch. Graphics		3	
Al. A.	131	Hist. of Art		3	
Math.	135	Intro. to Col. Math.		3	
Eng.	131	Col. Rhet.		3	
P.E., Band, or Basic ROTC					
Arch.	122	Freehand Drawing II			2
Al. A.	153	Pict. Comp.			5
Al. A.	132	Hist. of Art			3
Eng.	132	Col. Rhet.			3
Elective					3
P.E., Band, or Basic ROTC					
Total Credit hours				17*	16*
SOPHOMORE YEAR			SEMESTER	1st	2nd
Al. A.	238	Pottery		3	
Arch.	224	Freehand Drawing III		2	
Al. A.	233	Intro. to Lettering		3	
Eng.	231	Mast. of Lit.		3	
Foreign language				4	
P.E., Band, or Basic ROTC					
Al. A.	3314	Comm. Illus. I			3
Al. A.	239	Pottery			3
Arch.	326	Anat. & Life Drawing			2
Arch.	225	Beginning Watercolor			2
Al. A.	220	Advtg. Office Prac.			2
Foreign language					4
P.E., Band, or Basic ROTC					
Total credit hours				15*	16*
SUMMER SESSION			FIRST TERM		SECOND TERM
Al. A.	421	Art Workshop	2		
Hist.	231	Hist. of U.S. to 1865	3		
Al. A.	421	Art Workshop			2
Hist.	232	Hist. of U.S. since 1865			3
Total credit hours				5	5
JUNIOR YEAR			SEMESTER	1st	2nd
Arch.	327	Life Drawing I		2	
Al. A.	4212	Comm. Illus. II		2	
Al. A.	342	Comm. Des. I		4	
Al. A.	328	Adv. Lettering & Art Layout		2	
Elective or foreign language				3	
Spch.	338	Bus. & Prof. Speech		3	
Arch.	423	Life Drawing II			2
Al. A.	343	Comm. Des. I			4
Al. A.	4314	Fashion Illus.			3
Al. A.	329	Adv. Lettering & Art Layout			2
Eng.	232	Mast. of Lit. or foreign language			3
Phys.	237	Tech. of Photog.			3
Total credit hours				16	17
SENIOR YEAR			SEMESTER	1st	2nd
Elective				3	
Al. A.	433	Comm. Des. II		3	
Al. A.	4311	Ceramics or			
Al. A.	3311	Drawing, Painting, & Des. Th.		3	
Al. A.	426	Adv. Painting		2	
Al. A.	4318	Hist. Painting & Sculpture		3	
Govt.	231	Amer. Govt., Org.		3	
Al. A.	4213	Comm. Illus. II			2
Al. A.	434	Comm. Des. II			3
Al. A.	4312	Ceramics or			
Al. A.	3312	Drawing, Painting, & Des. Th.			3
Al. A.	427	Adv. Painting			2
Al. A.	4319	Hist. Painting & Sculpture			3
Govt.	232	Amer. Govt., Func.			3
Elective					3
Total credit hours				17	19

Minimum hours required for graduation--143, plus P.E., Band, or Basic ROTC

\*Exclusive of P.E., Band, or Basic ROTC.

**233. Introduction to Lettering. (3:1:6)**

Prerequisite: Al. A. 153. Instruction on type and letter forms as design elements; hand lettering for reproduction; introduction to methods of productions for advertising and editorial use.

**238-239. Pottery. (3:1:6 each)**

Prerequisite: Arch. 134, Al. A. 153. All hand and simple commercial methods of pottery production. Decorating, glazing, and firing of ware.

**328-329. Advanced Lettering and Art Layout. (2:0:6 each)**

Prerequisite: Al. A. 233. Functions of the art director. Application of typographic design, with addition of illustrative elements for all forms of printed elements.

**3311-3312. Principles of Drawing and Painting, and Theory of Design. (3:1:6 each)**

Prerequisite: Arch. 225, Al. A. 3314. Advanced analysis of principles governing good drawing and painting throughout the ages. Lectures illustrated. Laboratory work in line drawing and color.

**3314. Commercial Illustration I. (3:0:9)**

Prerequisite: Arch. 224, Al. A. 233. Printmaking. Illustration applicable to advertising and commercial fields. Lithographic drawing on stones and painting in various media for designated processes of reproduction. Intaglio, aquatint, soft ground and lift ground etching on copper and zinc plates.

**342-343. Commercial Design I. (4:1:9 each)**

Prerequisite: Al. A. 233, Arch. 326. Problems for the designer in motion picture and television; display, packaging, and three dimensional design; relationship of advertising to industrial design and the integrated campaign.

**426-427. Advanced Painting. (2:0:6 each)**

Prerequisite: Arch. 225. Principles of design related to various types of composition in conjunction with direct study from the human model, still life, or landscape. Problems in oil or water color may take the form of book illustration, painting, or mural decoration.

**4212-4213. Commercial Illustration II. (2:0:6 each)**

Prerequisite: Al. A. 3314. A continuation of Al. A. 3314, with problems in print-making and studio practice; specialization in illustration, with emphasis on figure representation.

**4314. Fashion Illustration. (3:0:9)**

Prerequisite: Arch 327, Al. A. 3314. The drawing and rendering of the costumed figure for newspaper and magazine fashion illustration, with emphasis on figure construction and draping.

**FOR UNDERGRADUATES AND GRADUATES**

**421. Art Workshop. (2:0:6)**

Prerequisite: Junior standing. Advanced work in drawing, painting, pottery, sculpture, ceramics, or other graphic media. Instruction on individual project basis. Course may be repeated four times for credit.

**433-434. Commercial Design II. (3:0:9 each)**

Continuation of Al. A. 343. Problems involving extended research and group product development. Construction of scale models or execution of the finished product where feasible.

**4311-4312. Ceramics. (3:0:9 each)**

Prerequisite: Al. A. 238-239. Advanced pottery design and production. Glaze calculation and clay body construction. Research.

**4318, 4319. History of Painting and Sculpture. (3:3:0 each)**

Prerequisite: Junior classification. Illustrated lectures in the development of painting and sculpture from the 14th century to the present day, emphasizing the interrelations of the visual arts and man's social, political, and cultural history. Fulfills the fine arts requirement for Bachelor of Arts Degree. Three hours of library research per week.

**FOR GRADUATES**

**5335. Art in the Modern World. (3:3:0)**

Development of influences upon art forces in the modern world. Study of painting, sculpture, and architecture from 1800 to present, with emphasis on relationship of contemporary art and architecture to literature, philosophy, music, and the theater.



CHEMICAL ENGINEERING CURRICULUM  
Bachelor of Science in Chemical Engineering

FRESHMAN YEAR*			SEMESTER	1st	2nd
Math.	151	Math. for Engineers I		5	
Eng.	131	Col. Rhet.		3	
Grph.	121	Engr. Grph. I		2	
E.A.	123	Engr. Des. & Logic I		2	
Chem.	141	Gen. Chem.		4	
P.E., Band, or Basic ROTC					
Math.	152	Math. for Engineers II			5
Eng.	132	Col. Rhet.			3
Grph.	122	Engr. Grph. II			2
E.A.	124	Engr. Des. & Logic II			2
Chem.	142	Gen. Chem.			4
P.E., Band, or Basic ROTC					
Total credit hours				16**	16**
SOPHOMORE YEAR			SEMESTER	1st	2nd
Math.	235	Math. for Engrs. III		3	
Phys.	143	Prin. of Physics I		4	
E.E.	233	Elec. Sys. Anal.		3	
Chem.	333	Organic Chemistry		3	
Chem.	311	Organic Chemistry Lab		1	
Govt.	231	Amer. Govt., Org.		3	
P.E., Band, or Basic ROTC					
Phys.	241	Prin. of Physics II			4
E.E.	234	Electronic Instrum.			3
Math.	335	Higher Math. for Engr. & Scits. I			3
Chem.	334	Organic Chemistry			3
Chem.	312	Organic Chemistry Lab			1
Govt.	232	Amer. Govt., Func.			3
P.E., Band, or Basic ROTC					
Total credit hours				17**	17**
SUMMER SESSION				FIRST TERM	SECOND TERM
Ch. E.	3311	Chem. Engr. I		3	
C.E.	233	Statics		3	
Ch. E.	3312	Chem. Engr. II			3
C.E.	3311	Mech. of Solids			3
Total Credit hours				6	6
JUNIOR YEAR			SEMESTER	1st	2nd
Chem.	347	Physical Chemistry		4	
Ch. E.	4311	Chem. Engr. III		3	
Hist.	231	Hist. of U.S. to 1865		3	
Ch. E.	330	Engr. Mat. Science		3	
Elective (Humanity)				3	
Ch. E.	3111	Chem. Engr. Lab.		1	
Chem.	348	Physical Chemistry			4
Ch. E.	4312	Chem. Engr. IV			3
Hist.	232	Hist. of U.S. since 1865			3
Ch. E.	3351	Anal. Instrumentation			3
Ch. E.	4341	Unit Processes			3
Ch. E.	4121	Chem. Engr. Seminar			1
Total credit hours				17	17
SENIOR YEAR			SEMESTER	1st	2nd
Ch. E.	4321	Chem. Engr. Thermodynamics		3	
Ch. E.	4241	Unit Oper. Lab.		2	
Ch. E.	4353	Process Instrumentation		3	
Ch. E.	4352	Process Design		3	
Elective (Technical)				3	
Ch. E.	4322	Chem. Engr. Thermodynamics			3
Ch. E.	4242	Unit Oper. Lab.			2
Ch. E.	4354	Chem. Engr. Plant Design			3
Elective					3
Elective (Technical)					3
Total credit hours				14	14

Minimum hours required for graduation--140, plus P.E., Band, or Basic ROTC

\*See Alternate Freshman Year.

\*\*Exclusive of P.E., Band, or Basic ROTC.

## Department of Chemical Engineering

Arnold J. Gully, *Head of the Department*  
Office: Ch.E. 201

*Professors:* John R. Bradford, Arnold J. Gully, Aaron  
G. Oberg, Jules A. Renard

*Assistant Professor:* Hubert R. Heichelheim

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: **CHEMICAL ENGINEERING, Bachelor of Science in Chemical Engineering, Master of Science in Chemical Engineering, Doctor of Philosophy.**

The undergraduate curriculum in chemical engineering provides a broad fundamental background in science, mathematics, and engineering, plus humanistic studies so necessary in the education of the engineer. The first two years include intensive study of chemistry, physics, mathematics, and the engineering sciences common to all branches of engineering. The last two years emphasize advanced chemistry and the fundamentals of chemical engineering. Extensive training is given in stoichiometry, unit operations, thermodynamics, instrumentation, and their applications in chemical process technology.

Many students find it advantageous to pursue advanced studies at the graduate level. The undergraduate curriculum in chemical engineering provides a firm background for such studies.

The department is now housed in a new building specifically designed to accommodate the specialized laboratories for unit operations, unit processes, process control, fuels and combustion, and research. Equipment includes not only precision instruments for chemical and physical measurements, but relatively large-scale pilot plant equipment in which integral processes and operations can be studied.

It is highly desirable that a chemical engineering student's accomplishments be of highest quality. In addition to the Engineering School requirements for graduation, chemical engineering students must have a minimum grade point average of 2.00 in all courses in their major field. Only one D will be accepted in a course, completion of which requires two semesters.

### Courses in Chemical Engineering

#### FOR UNDERGRADUATES

##### 3111. Chemical Engineering Laboratory. (1:0:3)

Prerequisite: Chem. 142. Elementary engineering measurement of the chemical and physical properties of materials of commercial importance.

##### 330. Engineering Materials Science. (3:3:0)

Prerequisite: Chem. 142. Fundamental properties of engineering materials. Interatomic and intermolecular binding forces and energies; thermal energies; crystal structure; amorphous solids; aggregates and imperfections. Physical basis for common electrical, magnetic, and thermal properties.

##### 3311. Chemical Engineering I. (3:3:0)

Prerequisite: Chem. 142, Phys. 143. Material and energy balances for engineering systems subjected to chemical or physical transformations.

**3312. Chemical Engineering II. (3:3:0)**

Prerequisite: Ch. E. 3311. Basic principles of the unit operations, including the fundamentals of heat, mass and momentum transport.

**3351. Analytical Instrumentation. (3:2:3)**

Prerequisite: Ch. E. 3111. Analytical tools used for instrumental analysis and control of process plants.

**FOR UNDERGRADUATES AND GRADUATES****4121. Chemical Engineering Seminar. (1:1:0)**

Prerequisite: Advanced standing and approval of the Department Head. Individual study of chemical engineering problems of special interest and value to the student. May be repeated for credit in different areas.

**4241-4242. Unit Operations Laboratory. (2:0:6 each)**

Prerequisite: Ch. E. 3312. Laboratory experiments on the unit operations of chemical engineering, with written reports.

**4311-4312. Chemical Engineering III-IV. (3:3:0 each)**

Prerequisite: Ch. E. 3312. Theory and practice of such selected unit operations of chemical engineering as fluid flow, heat transmission, evaporation, distillation, and extraction, all illustrated by the solution of numerous problems.

**4321-4322. Chemical Engineering Thermodynamics. (3:3:0 each)**

Prerequisite: Advanced standing. A problem course applying the laws and principles of thermodynamics to physical and chemical systems and processes.

**4323. Chemical Reaction Engineering. (3:3:0)**

Prerequisite: Chem. 348. An introduction to the kinetics of chemical conversion processes and the design of chemical reactors.

**4331. Special Problems in Chemical Engineering. (3:3:0)**

Prerequisite: Advanced standing and approval of Department Head. Individual studies in advanced engineering areas of special interest. May be repeated for credit.

**4332. Special Experimental Problems in Chemical Engineering. (3:0:9)**

Prerequisite: Advanced standing and approval of Department Head. Individual experimental studies in an area of special interest to student. May be repeated for credit.

**4341. Unit Processes. (3:3:0)**

Prerequisite: Chem. 353, Ch. E. 4311. Process analysis and synthesis; integration of unit processes and unit operations into operable processing schemes.

**4343. Engineering Experimentation. (3:3:0)**

Prerequisite: Junior standing in physical science or engineering. Strategy in experimentation; planning efficient experiments; analysis of data and presentation of results; evolutionary operation of complex process systems.

**4352. Process Design. (3:3:0)**

(Formerly Process Development)

Prerequisite: Ch. E. 4341. A problem course on the application of engineering and economic principles to the design of chemical processes.

**4353. Process Instrumentation. (3:2:3)**

Prerequisite: Ch. E. 3312. Characteristics of industrial instruments and their manner of use in controlling process variables.

**4354. Chemical Engineering Plant Design. (3:1:6)**

Prerequisite: Ch. E. 4352 or consent of instructor. Development of process and equipment designs for integral manufacturing plants.

**4371. Nuclear Engineering. (3:3:0)**

Prerequisite: Thermodynamics or its equivalent. Basic principles applicable to engineering problems of the atomic energy field.

**FOR GRADUATES****5121. Graduate Seminar. (1:1:0)**

Required of all chemical engineering graduate students. May be repeated for credit.

**5311. Transport Phenomena—Heat Transmission. (3:3:0)**

Fundamental relations governing energy, momentum, and mass transfer between phases, with special emphasis on heat transmission.

**5312. Transport Phenomena—Fluid Dynamics. (3:3:0)**

Fundamental relations governing energy, momentum, and mass transfer between phases, with special emphasis on fluid dynamics.

**5313. Transport Phenomena—Diffusion Processes. (3:3:0)**

Fundamental relations governing energy, momentum, and mass transfer between phases, with special emphasis on diffusion processes.

**5314. Process Dynamics and Automatic Control. (3:3:0)**

Prerequisite: Graduate standing in chemical engineering or consent of instructor. Study of the transient behavior of process systems; methods of analysis; synthesis and simulation of control systems; introduction to analog and digital computer control.

**5321. Advanced Chemical Engineering Thermodynamics. (3:3:0)**

Advanced topics in thermodynamics and its applications to processes and operations.

**5322. Equilibrium Systems. (3:3:0)**

General equations of equilibrium of multicomponent, multiphase systems; the concept of chemical potential and the phase rule; selected techniques for predicting physical and chemical equilibria in both ideal and non-ideal systems.

**5331. Special Problems in Chemical Engineering. (3:3:0)**

Prerequisite: Approval of Department Head. Individual study of theoretical projects under the guidance of a member of the staff. May be repeated for credit in different areas.

**5332. Experimental Studies in Chemical Engineering. (3:0:9)**

Prerequisite: Approval of Department Head. Individual study of experimental projects under the guidance of a member of the staff. May be repeated for credit in different areas.

**5341. Distillation. (3:3:0)**

Theory of distillation, with special emphasis on multicomponent distillation and application of theory to problems of design.

**5343. Reaction Kinetics. (3:3:0)**

Theoretical and experimental aspects of the kinetics of uncatalyzed and catalyzed reactions and their mechanism. Rate theory and its application to the design of batch and flow reactors.

**5348. Organic Syntheses. (3:3:0)**

The major organic unit processes; equipment, reaction theory, and the unitary aspects of each organic unit process are considered.

**5351. Chemical Engineering Design. (3:1:6)**

Design of the complete plant. Plant location, equipment design or selection, plant layout, building requirements, and estimation of the cost of the plant.

**5371-5372. Principles of Nuclear Engineering. (3:3:0 each)**

Prerequisite: Graduate standing in engineering, mathematics, or the physical sciences. This course is the basis for all other course work in the nuclear field.

**5373-5374. Nuclear Chemical Engineering. (3:3:0 each)**

Prerequisite: Graduate standing in engineering, mathematics, chemistry, or physics, and preferably Ch. E. 4371. Nuclear reactions, reactor fuel cycles, production of nuclear feed materials, properties of irradiated fuels, and separations processes.

**5378. Reactor Shielding. (3:3:0)**

Prerequisite: Graduate standing in engineering, mathematics, or the physical sciences. Data and techniques available for the design of a practical shield.

**5379. Nuclear Reactor Instrumentation and Control. (3:3:0)**

Prerequisite: Graduate standing in engineering, mathematics, or the physical sciences. Reactor safety systems and automatic control equipment; the effects of such various parameters as temperature and fission product poisons on reactor control; feed-back loops in power reactors and reactor simulation.

**5381-5382. Nuclear Radiations Laboratory. (3:2:6 each)**

Prerequisite: Graduate standing in engineering, mathematics, or the physical sciences. Acquaints the student with the instruments and techniques used directly or indirectly in the nuclear field. The laboratory is equipped with a water uranium-moderated subcritical reactor. The student will be allowed to a limited extent to carry out research problems as the course develops.

**630. Master's Report. (3)**

**631. Master's Thesis. (3)**

Enrollment required at least twice.

**731-732. Research. (3 each)**

**831. Doctor's Dissertation. (3)**

Enrollment required at least four times.

## Department of Civil Engineering

Keith Robert Marmion, *Head of the Department*

Office: C&M.E. 152-A

*Professors:* Charles G. Decker, Keith R. Marmion,  
George A. Whetstone

*Associate Professors:* Kersi S. Davar, Cliff H. Keho,\*  
Albert J. Sanger

*Assistant Professors:* Billy J. Claborn, Osman I.  
Ghazzaly, Ernst W. Kiesling,\* James R. Mc-  
Donald, Kishor C. Mehta, Clifford M. Parrish

*Instructor:* Charles S. Skillman, Jr.

\* On leave, 1965-1966.

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: **CIVIL ENGINEERING, Bachelor of Science in Civil Engineering, Master of Science in Civil Engineering, Doctor of Philosophy.**

The objective of the curriculum leading to the Degree of Bachelor of Science in Civil Engineering is to provide the student a firm foundation upon which he can build his professional career. Toward this end the student is required to take a number of courses in the mathematical, physical, and engineering sciences in his first two and one-half years. Coursework in the final two years emphasizes basic concepts of engineering analysis and design rather than the development of routine skills. A system of electives permits some specialization in the areas of structural, transportation, and water resources engineering.

For details of the program in Civil Engineering leading to the Master of Science Degree in Civil Engineering and to the Doctor of Philosophy Degree, see the Catalog of the Graduate School.

## Courses in Civil Engineering

### FOR UNDERGRADUATES

**231. Plane Surveying. (3:2:3)**

Prerequisite: Math. 232. Precision of measurements; differential and profile leveling; transit stadia; open and closed traverses; area calculations; circular and parabolic curves.

**233. Statics. (3:3:0)**

Prerequisite: Math. 152, Phys. 143. Equivalent force systems, equilibrium of force systems, friction, centroids, moments of inertia, introduction to structural mechanics.

**3121. Soil Engineering Science Laboratory. (1:0:3)**

Prerequisite: Concurrent enrollment in C.E. 3321. Laboratory determination and engineering evaluation of the physical properties of soils.

**3151. Mechanics of Fluids Laboratory. (1:0:3)**

Prerequisite: Registration in C.E. 3351.

**3201. Construction Materials. (2:1:3)**

Prerequisite: Junior engineering standing. Studies concerning the physical properties of construction materials.

**3211. Mechanics of Solids Laboratory. (2:1:3)**

Prerequisite: Registration in C.E. 3311. Analytical studies of stress and strain; strain measurements; interpretation of strain data.

**332. Dynamics. (3:3:0)**

Prerequisite: C.E. 233. Motion of a particle and of rigid bodies; kinetics of translation, rotation, and plane motion; work, energy, impulse, momentum.

**337, 338. Structural Mechanics. (3:3:0 each)**

Prerequisite: Math. 131. Statics, strength of materials, and structural design. For students of architecture, design option, and others who desire a brief and general presentation of the material.

**3311. Mechanics of Solids. (3:3:0)**

Prerequisite: C.E. 233. Introductory theory of determination of stress and strain in elastic and inelastic bodies subject to various conditions of loading; deflection of beams; theories of failure.

**3321. Soil Engineering Science. (3:3:0)**

Prerequisite: C.E. 3311, C.E. 3351, Geol. 233, Ch. E. 330 and concurrent registration in C.E. 3121. Physical and mechanical properties of soils; theories of stress, settlement, and consolidation.

**3341. Structural Analysis I. (3:3:0)**

Prerequisite: C.E. 3311. The analysis of stress functions in framed structures for fixed and moving load systems.

**3342. Structural Analysis II. (3:3:0)**

Prerequisite: C.E. 3211 and C.E. 3311. The theory of statically indeterminate structures.

**3351. Mechanics of Fluids. (3:3:0)**

Prerequisite: C.E. 233, Math. 331. Hydrostatics; dynamics of viscous and non-viscous fluids; fluid resistance to flow; flow in pipes and open channels.

**3355. Surface Hydrology. (3:3:0)**

Prerequisite: Registration in C.E. 3351. The occurrence and distribution of water; precipitation, evapotranspiration, infiltration, runoff.

**3371. Water and Waste Treatment. (3:2:3)**

Prerequisite: Registration in C.E. 3355. Quality and quantity of water and wastes in municipal and industrial engineering. Laboratory work in the chemistry of water and wastes.

**3373. Sewage and Sewage Treatment. (3:2:3)**

Prerequisite: Registration in C.E. 3355. Quantity and quality of sewage; sewers and sewage systems; theory of sewage treatment; laboratory work in the chemistry of sewage.

**435. Simple Theory of Reinforced Concrete. (3:3:0)**

Prerequisite: C.E. 337. For architecture (design option) majors, and others whose preparation to enter C.E. 4343 is inadequate. May not be used in lieu of C.E. 4343 to fulfill requirements.

**4341. Structural Design I. (3:2:6)**

Prerequisite: C. E. 3341 and C.E. 3342. Plastic and elastic design in homogeneous materials, with special emphasis on steel and aluminum.

**4343. Reinforced Concrete Structures I. (3:3:0)**

Prerequisite: C.E. 3341 and enrollment in C.E. 3342. Study and application of the elastic and ultimate strength theories of reinforced concrete analysis. Topics considered are beams; tied and spiral columns; spread and combined footings; retaining walls; two way slabs.

**4361. Highway Engineering I. (3:2:3)**

Prerequisite: C.E. 231, C.E. 3321, C.E. 3355. Route location, highway planning, traffic engineering, geometric design, drainage, and earthwork; composition, properties, and uses of bituminous materials.

CIVIL ENGINEERING CURRICULUM  
Bachelor of Science in Civil Engineering

FRESHMAN YEAR*				SEMESTER	1st	2nd
Math.	151	Math. for Engineers I			5	
Eng.	131	Col. Rhet.			3	
Grph.	121	Engr. Grph. I			2	
E. A.	123	Engr. Des. & Logic I			2	
Chem.	141	Gen. Chem.			4	
P.E., Band, or Basic ROTC						
Math.	152	Math. for Engineers II				5
Eng.	132	Col. Rhet.				3
Grph.	122	Engr. Grph. II				2
E. A.	124	Engr. Des. & Logic II				2
Chem.	142	Gen. Chem.				4
P.E., Band, or Basic ROTC						
Total credit hours					16**	16**
SOPHOMORE YEAR				SEMESTER	1st	2nd
Math.	235	Math. for Engrs. III			3	
Phys.	143	Prin. of Physics I			4	
E.E.	233	Elec. Sys. Anal.			3	
Hist.	231	Hist. of U.S. to 1865			3	
Elective (Humanity)					3	
P.E., Band, or Basic ROTC						
Phys.	241	Prin. of Physics II				4
E.E.	234	Electronic Instrum.				3
Math.	335	Higher Math. for Engrs. & Scits. I				3
Hist.	232	Hist. of U.S. since 1865				3
C.E.	233	Statics				3
P.E., Band, or Basic ROTC						
Total credit hours					16**	16**
SUMMER SESSION				FIRST TERM	SECOND TERM	
Math.	336	Higher Math. for Engrs. & Scits. II		3		
C.E.	3351	Mechanics of Fluids		3		
Ch. E.	330	Engr. Mat. Science				3
C.E.	3311	Mechanics of Solids				3
Total credit hours				6		6
JUNIOR YEAR				SEMESTER	1st	2nd
Geol.	233	Geol. for Engr.			3	
C.E.	332	Dynamics			3	
C.E.	3211	Mech. of Solids Lab.			2	
C.E.	3341	Struc. Analysis I			3	
C.E.	3355	Surface Hydrology			3	
C.E.	4331	Special Prob. in Civil Engr.			3	
C.E.	231	Plane Surveying				3
C.E.	3121	Soil Engr. Science Lab.				1
C.E.	3201	Construction Materials				2
C.E.	3321	Soil Engr. Science				3
C.E.	3342	Struc. Analysis II				3
C.E.	3371	Water & Waste Treatment				3
Total credit hours					17	15
SENIOR YEAR				SEMESTER	1st	2nd
Govt.	231	Amer. Govt., Org.			3	
M.E.	3321	Thermodynamics			3	
C.E.	4343	Reinf. Conc. Struct. I			3	
C.E.	4361	Highway Engr. I			3	
Elective (Technical)					3	
Govt.	232	Amer. Govt., Func.				3
C.E.	4331	Special Prob. in Civil Engr.				3
Electives (Technical)						9
Total credit hours					15	15

Minimum hours required for graduation--138, plus P.E., Band, or Basic ROTC.

\*See Alternate Freshman Year.

\*\*Exclusive of P.E., Band, or Basic ROTC.

## FOR UNDERGRADUATES AND GRADUATES

**4121. Civil Engineering Seminar. (1:1:0)**

Prerequisite: Advanced standing and approval of Department Head. Individual study of engineering problems of special interest and value to the student. May be repeated for credit in different areas.

**4261. Traffic Engineering. (2:1:3)**

Prerequisite: Enrollment in C.E. 4361 or approval of Department Head. Studies of speed, volume, accident locations, driver observance of traffic control devices, time delay studies, and the statistical analysis of data.

**4321. Soil Engineering. (3:3:0)**

Prerequisite: C.E. 3321. Slope stability, lateral earth pressures, pile foundations, bearing capacity, consolidation and settlement, and earth structures.

**4331. Special Problems in Civil Engineering. (3:3:0)**

Prerequisite: Advanced standing and approval of Department Head. Individual studies in advanced engineering areas of special interest. May be repeated for credit.

**4332. Special Experimental Problems in Civil Engineering. (3:0:9)**

Prerequisite: Advanced standing and approval of Department Head. Individual experimental studies in current problems in advanced engineering technology of special interest. May be repeated for credit.

**4337. Cost Estimating. (3:3:0)**

Prerequisite: C.E. 3311. Estimating costs of construction projects, to include earthwork, pavements and concrete, steel, masonry, and timber structures.

**4339. Law and Ethics in Engineering. (3:3:0)**

Prerequisite: Senior standing in engineering or approval of Department Head. Professional and industrial problems, contracts, specifications, ethics of engineering.

**4342. Structural Design II. (3:2:3)**

Prerequisite: C.E. 4341, C.E. 4343. Advanced theory and design in homogeneous and composite materials for complex structures.

**4344. Reinforced Concrete Structures II. (3:3:0)**

Prerequisite: C.E. 4343. Analysis and design of prestressed concrete members including continuous beams, slabs, tension members, compression members, tanks.

**4351. Intermediate Hydromechanics. (3:3:0)**

Prerequisite: C.E. 3351. Dimensional analysis and hydraulic similitude; problems in laminar and turbulent flow, boundary layers, and wave phenomena.

**4353. Elements of Hydraulic Engineering. (3:3:0)**

Prerequisite: C.E. 3351. Dams; channels and pressure conduits; hydraulic machinery; hydroelectric power.

**4355. Ground Water Hydrology. (3:3:0)**

Prerequisite: C.E. 3355 and Math. 336, or consent of instructor. Infiltration. Flow of underground water under water table and artesian conditions. Development of ground water supplies. Natural and artificial recharge of ground water reservoirs.

**4362. Highway Engineering II. (3:3:0)**

Prerequisite: C.E. 3201, C.E. 4361, C.E. 4243. Design, construction, and maintenance of flexible pavement and bases; design, construction, and maintenance of rigid pavements; soil-aggregate roads and soil stabilization.

## FOR GRADUATES

**5311. Advanced Mechanics of Solids. (3:3:0)**

Prerequisite: C.E. 3311. Stress and strain at a point; theories of failure; unsymmetrical bending; curved flexural members; beams on continuous support; energy methods.

**5313. Theory of Elastic Stability. (3:3:0)**

Prerequisite: Approval of Department Head. Theory of the conditions governing the stability of structural members, determination of critical loads for various types of members under the action of various conditions of loading and support.

**5314. Theory of Plates and Shells. (3:3:0)**

Prerequisite: Approval of Department Head. Stress analysis of plates and shells of various shapes. Small and large deflection theory of plates. Membrane theory of shells. General theory of shells.



**5316. Theory of Elasticity. (3:3:0)**

Prerequisite: Approval of Department Head. Several analyses of stress and strain in rectangular and polar coordinates; stress functions; energy methods; finite difference equations; membrane analogy for torsion.

**5321. Advanced Soil Engineering. (3:3:0)**

Prerequisite: C.E. 4321. Specialized topics in the theoretical and practical aspects of foundation and earthwork engineering.

**5331, 5332. Advanced Work in Specific Fields. (1 to 6)**

Prerequisite: Approval of Department Head. Nature of course and amount of credit depend on the nature of the work and the student's interest and performance. An individual study course. May be repeated for credit.

**5342. Advanced Plastic Design. (3:3:0)**

Prerequisite: C.E. 4341. Study of the theory of plastic design of steel frames.

**5343. Advanced Structural Analysis. (3:3:0)**

Prerequisite: C.E. 4344, 4341, or approval of Department Head. Application of modern design methods to building frames, arches, rigid bents, continuous trusses.

**5344. Advanced Reinforced Concrete Design. (3:3:0)**

Prerequisite: C.E. 4344. Analysis and design of reinforced concrete structures by inelastic methods.

**5346. Design of Structures for Dynamic Loads. (3:3:0)**

Prerequisite: Approval of Department Head. Nature of dynamic loading from earthquake and wind forces; nature of dynamic resistance of structural elements and complete structures; concepts of limit design applied to dynamic loading.

**5351. Open Channel Hydraulics. (3:3:0)**

Prerequisite: C.E. 3351. Channel geometry and parameters. Uniform and varied flow. Flood routing.

**5353. Water Resources Engineering. (3:3:0)**

Prerequisite: C.E. 4353. Problems in water resources conservation and utilization, with particular emphasis on river basin studies involving multiple water uses.

**5355. Flow in Porous Media. (3:3:0)**

Prerequisite: C.E. 4355, or approval of Department Head. Single and multiple phase flow in confined and unconfined porous formations toward natural outlets or toward wells.

**5356. Earth Dams. (3:3:0)**

Prerequisite: C.E. 4355. Selection of dam sites, principles of design of earth dams, flow nets and seepage, selected topics.

**5371. Advanced Water and Waste Treatment. (3:2:3)**

Prerequisite: C.E. 3371, C.E. 3373. Advanced methods of water and waste treatment, including industrial and radioactive wastes.

**630. Master's Report. (3)**

**631. Master's Thesis. (3)**

Enrollment required at least twice.

**731, 732. Research. (3 each)**

May be repeated for credit.

**831. Doctor's Dissertation. (3)**

Enrollment required at least four times.

## Department of Electrical Engineering

Russell Holland Seacat, Jr., *Acting Head of the Department*  
Office: Elec.E. 201

*Professors:* Paul Gene Griffith, Charles Ernest Houston, Russell Holland Seacat, Jr.

*Associate Professors:* John Paul Craig, Willie Edward Phillips, Tom Basil Stenis

*Assistant Professors:* Cecil Roberts Coale, Jr., Billy Howard Easter, Wilford Wayne Wilkins

*Instructors:* Alonzo Franklin Adkins, Ilor Clive Lankford, Jr.

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: ELECTRICAL ENGINEERING, *Bachelor of Science in Electrical Engineering*, *Master of Science in Electrical Engineering*, *Doctor of Philosophy*.

The undergraduate program stresses basic concepts, analytical methods, and experimental techniques. The first two years include courses in mathematics, physics, and chemistry; work in the mechanics, thermodynamics, electricity, and magnetism; and a study of the properties of the materials with which an engineer must work. Humanistic courses such as English, history, government, and economics balance the curriculum and prepare the student for the obligations of citizenship. The professional program includes required courses in the fundamentals of circuit theory, electronics, electromagnetic theory, and energy conversion, and technical electives in such specialized fields as control systems, computers, acoustics, electronic instrumentation, and solid-state devices. Laboratory training in the application of these emphasizes experimental techniques; individual projects train the student in the planning and execution of experimental investigation, the proper choice and use of laboratory equipment, and the evaluation and interpretation of experimental data. This foundation in engineering science rather than in routine skills prepares the student either for continued graduate training or for a professional career in any area open to electrical engineering graduates.

To be admitted to junior standing as an electrical engineering major, a student must submit a petition to the department prior to his registration for the third year; its acceptance depends upon the student's grade record. He is expected to have an overall grade-point average of 2.00, above average grades in mathematics courses, and C or better in both EE231 and 232.

Each student entering the electrical engineering program will be assigned a faculty adviser and will be responsible for arranging a course of study with his advice and approval. All students enrolled in this program will be required to maintain a grade-point ratio of at least 2.00 in their major field during each semester. Any student who fails to meet this requirement in any given semester must fulfill a program outlined by his faculty adviser before being allowed to proceed.

ELECTRICAL ENGINEERING CURRICULUM  
Bachelor of Science in Electrical Engineering

FRESHMAN YEAR*			SEMESTER	1st	2nd
Math.	151	Math. for Engineers I		5	
Eng.	131	Col. Rhet.		3	
Grph.	121	Engr. Grph. I		2	
E.A.	123	Engr. Des. & Logic I		2	
Chem.	141	Gen. Chem.		4	
P.E., Band, or Basic ROTC					
Math.	152	Math. for Engrs. II			5
Grph.	122	Engr. Grph. II			2
E.A.	124	Engr. Des. & Logic II			2
Eng.	132	Col. Rhet.			3
Chem.	142	Gen. Chem.			4
P.E., Band, or Basic ROTC					
Total credit hours				16**	16**
SOPHOMORE YEAR			SEMESTER	1st	2nd
Math.	235	Math. for Engrs. III		3	
Math.	335	Higher Math. for Engrs. & Scits. I		3	
Phys.	143	Prin. of Physics I		4	
E.E.	231	Prin. of E.E. I		3	
Govt.	231	Amer. Govt., Org.		3	
P.E., Band, or Basic ROTC					
Phys.	241	Prin. of Physics II			4
E.E.	232	Prin. of E.E. II			3
Math.	336	Higher Math. for Engrs. & Scits. II			3
E.E.	3331	Measurements Lab.			3
Ch. E.	330 or	E.E. 3361			3
P.E., Band, or Basic ROTC					
Total credit hours				16**	16**
SUMMER SESSION			FIRST TERM	SECOND TERM	
C.E.	233	Statics	3		
M.E.	3321	Engr. Thermodynamics	3		
C.E.	332	Dynamics		3	
Govt.	232	Amer. Govt., Func.		3	
Total credit hours			6	6	
JUNIOR YEAR			SEMESTER	1st	2nd
E.E.	3311	Electronics I		3	
E.E.	3321	Circuit Theory I		3	
E.E.	3323	Meth. of Circuit Analysis		3	
E.E.	3341	Electromagnetic Th. I		3	
Hist.	231	Hist. of U.S. to 1865		3	
E.E.	3312	Electronics II			3
E.E.	3322	Circuit Theory II			3
E.E.	3332	Experimental Lab. I			3
E.E.	3342	Electromagnetic Th. II			3
Hist.	232	Hist. of U.S. since 1865			3
Total credit hours				15	15
SENIOR YEAR			SEMESTER	1st	2nd
E.E.	4333	Experimental Lab. II		3	
E.E.	4351	Energy Conversion I		3	
Elective (Humanity)				3	
Electives (Technical)***				6	
E.E.	4332	Special Experimental Problems			3
Electives (Technical)					6
Electives					6
Total credit hours				15	15

Minimum hours required for graduation--136, plus P.E., Band, or Basic ROTC

\*See Alternate Freshman Year.

\*\*Exclusive of P.E., Band, or Basic ROTC.

\*\*\*At least one technical elective must be in the area of thermodynamics or dynamics.

## Courses in Electrical Engineering

### FOR UNDERGRADUATES

#### 231-232. Principles of Electrical Engineering. (3:2:2 each)

Corequisite: Math. 235 or approval of Department Head. Principles of electric and magnetic circuits. Magnetic properties of iron and steel. Induced and generated electromotive force. Forces on conductors. Fundamentals of alternating current circuits. Fundamentals of resistance inductance, and capacitance. Network theorems, resonance phenomena, coupled circuits, analysis, three-phase circuit and nonsinusoidal waveforms.

#### 233. Electrical Systems Analysis. (3:2:3)

Prerequisite: Math. 235. The language of signals and systems. Mathematical representation of signals and system components. Models for electrical and mechanical systems. Concept of the transfer function. Elements of analog simulation and computation.

#### 234. Electronic Instrumentation. (3:2:3)

Prerequisite: E.E. 233. Circuit models, block diagrams, and signal-flow diagrams. Concept of the controlled source. Models for physical devices. Electronic amplifiers and feedback systems. Instrumentation systems and the application of electromechanical transducers.

#### 3311. Electronics I. (3:3:0)

Prerequisite: E.E. 232. Principles and methods of analysis of high vacuum tubes, gas tubes, rectifiers, photo-tubes, semiconductor diodes, and transistors.

#### 3312. Electronics II. (3:3:0)

Prerequisite: E.E. 3311. Vacuum tube and transistor amplifiers, oscillators, modulators, demodulators, frequency converters, and wave-shaping circuits.

#### 3321. Circuit Theory I. (3:3:0)

Prerequisite: E.E. 232. Transient behavior of electrical circuits and other physical systems. Application of differential equation and Laplace transformation techniques. Initial conditions and initial and final value theorems. Single energy-storage systems, double energy-storage systems, and coupled systems. Introduction to transfer functions.

#### 3322. Circuit Theory II. (3:3:0)

Prerequisite: E.E. 3321. Generalized matrix formulation of the network problems. Two-port networks and parametric formulation. The filter problem, filter types, and application to filter design. Introduction to the synthesis problem.

#### 3323. Methods of Circuit Analysis. (3:3:0)

Prerequisite: E.E. 232, Math. 336. Rigorous treatment of the mathematical methods available and applicable to the analysis of linear circuits, applications of determinants, matrices, linear transformations, vector analysis, complex variable, Fourier series, and integrals.

#### 3331. Measurements Laboratory. (3:0:9)

Prerequisite: Completion of or concurrent enrollment in E.E. 232. A laboratory course to accompany third-year basic courses in electrical engineering. Detailed experimental study of the measurement problem. Projects assigned to correlate with the material presented in electronics, network theory, and electromagnetic theory. Use of test equipment and measurement devices.

#### 3332. Experimental Laboratory I. (3:0:9)

Prerequisite: E.E. 3311, E.E. 3321, E.E. 3331. A laboratory course to accompany third-year basic courses in electrical engineering. Projects assigned to correlate with the theory presented in second-semester junior courses.

#### 3341. Electromagnetic Theory I. (3:3:0)

Prerequisite: Junior standing in engineering. General treatment of static electric and magnetic fields from the vector viewpoint. Laws of Coulomb, Gauss, Ampere, Biot and Savart, and Faraday. Poisson's and Laplace's equations. Development of Maxwell's equations in differential and integral form.

#### 3342. Electromagnetic Theory II. (3:3:0)

Prerequisite: E.E. 3341. General solutions for Maxwell's equations. Traveling waves in scalar media. Boundary conditions and constraints imposed by bounding surfaces. Guided waves in three dimensions. Detailed treatment of the one-dimensional case.

#### 3361. Electric and Magnetic Properties of Materials. (3:3:0)

Prerequisite: Math. 235, E.E. 231. Structure of crystals. Application of diffraction techniques. Atomic bonding. Free-electron and zone theories. Application to semiconducting materials. Electrical processes in dielectrics. Atomic considerations in magnetic processes. Application to ferrites and ferromagnetic materials. Optical processes in metals, semiconductors, and insulators.

## FOR UNDERGRADUATES AND GRADUATES

**4121. Electrical Engineering Seminar. (1:1:0)**

Prerequisite: Advanced standing and approval of Department Head. Individual study of engineering problems of special interest and value to the student. May be repeated for credit in different areas.

**4311. Analog and Digital Computation. (3:3:0)**

Prerequisite: Senior standing in engineering. An introductory treatment of analog and digital computers. Circuit types and components. Number systems. Operational techniques. Storage devices. Input-output equipment. Programming.

**4317. Electronics III. (3:3:0)**

Prerequisite: E.E. 3312. Electronic systems for the processing and transmission of information. Application of matrix, topological, and signal-flow-graph methods to system analysis. Introduction to nonlinear and time-varying linear systems. Effects of noise and saturation in electronic systems.

**4318. Physical Electronics. (3:3:0)**

Prerequisite: E.E. 3312, E.E. 3342. Introductory study of the physical properties of electron devices; electron ballistics, thermionic emission, conduction through gases and solids; detailed study of model theory for semiconductor and high vacuum devices.

**4321. Passive Network Synthesis. (3:3:0)**

Prerequisite: E.E. 3322. Properties of positive real functions; synthesis of canonical forms for the two-element kind; extension to three-element kind, methods of Brune, Bott-Duffin, and Bode; approximation techniques and introduction to two-terminal pair synthesis.

**4322. Topological Network Analysis. (3:3:0)**

Prerequisite: E.E. 3322. Fundamentals of linear graphs; topological formulation and theory of contacts; realization of loop matrices, terminal matrices of non-oriented nets; linear programming techniques.

**4331. Special Problems in Electrical Engineering. (3:3:0)**

Prerequisite: Advanced standing and approval of Department Head. Individual studies in advanced engineering areas of special interest. May be repeated for credit.

**4332. Special Experimental Problems in Electrical Engineering. (3:0:9)**

Prerequisite: E.E. 4333. Individual experimental studies in current problems in advanced engineering technology of special interest.

**4333. Experimental Laboratory II. (3:0:9)**

Prerequisite: E.E. 3312, E.E. 3332, E.E. 3341. A laboratory course to accompany fourth-year courses in electrical engineering. Projects assigned to correlate the theory presented in first-semester senior courses.

**4341. Microwave Systems. (3:3:0)**

Prerequisite: E.E. 3342. The wave equation and its solution in guiding systems. Discontinuities and impedances in waveguides. Microwave resonators. Microwave antennas and radiating systems. Introductory treatment of the various types of microwave tubes and generation techniques. Application of magnetic materials in component design.

**4343. Energy Transmission. (3:3:0)**

Prerequisite: Senior standing in electrical engineering. Theory and application of transmission lines at power, signal, and high frequencies.

**4351. Energy Conversion I. (3:3:0)**

Prerequisite: Senior standing in electrical engineering. Elements of energy conversion applied to direct current and alternating current static and rotating machinery. Theoretical study of transient and steady state operating characteristics of machines, with applications. Symmetrical components.

**4352. Energy Conversion II. (3:3:0)**

Prerequisite: E.E. 3341. Elements of energy conversion applied to solid-state static devices, thermionic and solar devices. The principles of magnetohydrodynamics are also discussed.

**4353. Feedback Control Systems. (3:3:0)**

Prerequisite: Senior standing in engineering. An introduction to the theory of automatic control systems. Flowgraphs and block diagrams. Stability criteria. Prediction of closed-loop time response. System compensation. Components.

**4354. Acoustics. (3:3:0)**

Prerequisite: Senior standing in engineering. General nature of the acoustics problem. Radiating systems. Dynamical analogies. Microphones and other transducers. Acoustic measurements.

**4355. Nonlinear Feedback Systems. (3:3:0)**

Prerequisite: E.E. 4353. Behavior of nonlinear systems, phase plane techniques, describing functions; stability considerations and compensation; discontinuous controllers, limit cycles; optimal systems, quasi-optimal concept, representative adaptive systems; analog simulation.

**4361. Introduction to Information Theory and Noise. (3:3:0)**

Prerequisite: E.E. 3312, E.E. 3322. Transmission through linear networks; impulse response and convolution; modulation and modulation systems; noise and noise spectra; signal to noise considerations, matched filters; quantization techniques.

**FOR GRADUATES****5311. Stability of Nonlinear Systems. (3:3:0)**

Prerequisite: Graduate standing. Concepts of stability criteria based upon the methods of Lyapunov and Andronov and Chalken are applied to nonlinear systems. Techniques based upon piecewise linearization, limit, cycles, and other approaches are also discussed.

**5312. Optimal and Adaptive Control Systems. (3:3:0)**

Prerequisite: Graduate standing or consent of instructor. Different control systems are discussed and design techniques based upon Pontryagin's Maximum Principle, Wiener's characterization and phase plane plots are applied to the design of the systems. The use of orthogonal functions in optimum control systems is also presented.

**5313-5314. Solid-State Electronics I and II. (3:3:0 each)**

Prerequisite: Graduate standing. Quantum mechanics, physical processes in crystal-line solids and other media, characteristics of junction devices; thermoelectric, thermionic and electrochemical devices; development and application of circuit models for solid-state devices.

**5315. Sampled Data and Digital Control Systems. (3:3:0)**

Prerequisite: Graduate standing or consent of instructor. Sampling concepts, Z transform, signal flow graphs and state variable methods applied to sampled data systems are presented. The Schur-Cohn and Jury's Stability tests, digital controllers, and Z plane synthesis are described.

**5317. Advanced Transients. (3:3:0)**

Prerequisite: Graduate standing in electrical engineering. Transient analysis using transform methods, with emphasis on physical interpretations. Lumped constant linear approximations. Laplace, Fourier transformations. Convolution processes in real and complex domains. Z transforms. Applications to sampled data systems, difference and cyclic switching.

**5318. Pulse and Timing Circuits. (3:3:0)**

Prerequisite: Graduate standing in electrical engineering or consent of instructor. Electron devices as switching elements. R-C coupled circuits, multivibrators (bistable, monostable, and astable). Sweep circuits, pulse transformers, blocking oscillators, lines and pulse-forming networks.

**5319. Electronic Circuits and Systems. (3:3:0)**

Prerequisite: Graduate standing in electrical engineering or consent of instructor. Fundamentals of linear amplifiers, speed of step responses (sag, overshoot, etc.), distributed amplifiers, stagger-tuned amplifiers, synchronous-tuned amplifiers, double-tuned interstages, physical analogies, design procedures, circuit noise, calculation of noise figure.

**5321. Digital Systems. (3:3:0)**

Graduate standing in electrical engineering. A detailed treatment of the concepts and procedures involved in the logical design of digital systems. Boolean algebra and applications. Application equations. Memory units. Input-output equipment. Arithmetic units. The general design problem.

**5322-5323. Advanced Network Theory I and II. (3:3:0 each)**

Prerequisite: Graduate standing in electrical engineering or consent of instructor. Theory of two-terminal and four-terminal networks, impedance transformation, Foster's theorem and extensions, conventional and lattice filters, equalizers, network design and synthesis, application of network theory to vacuum-tube circuits.

**5324. Symmetrical Components. (3:3:0)**

Prerequisite: Graduate standing in electrical engineering or consent of instructor. The theory of the method of symmetrical components is reviewed and supplemented in detail; related components are described, and the method is applied to the calculation of voltage and currents in complex systems under conditions of fault and unbalanced loading. The symmetrical component impedances of machines are defined and calculated, also the zero sequence impedance of lines and cables.

**5325. Information Theory. (3:3:0)**

Prerequisite: Graduate standing in electrical engineering. Probability theory of finite systems. General properties of channels of various types. Transmission of information. Discrete channels with and without memory. Coding theorems.

**5326. Network Applications of Linear Graph Theory. (3:3:0)**

Prerequisite: E.E. 4322 or consent of instructor. The theory of linear graphs is presented in detail. Applications are made to topological formulations, flow graphs, contact networks and switching circuits.

**5327. Multistage Decision Processes. (3:3:0)**

Prerequisite: Graduate standing. Concepts of linear programming, optimal search, and stochastic processes are presented. Applications to the transportation problem and policy decisions are made.

**5328. Statistical Theory of Communications. (3:3:0)**

Prerequisite: E.E. 5317 or consent of instructor. The Fourier methods, Wiener-Hopf criteria, prediction and prediction filters presented. Synthesis of statistical communications networks are discussed.

**5331. Theoretical Investigations in Engineering Applications. (3:3:0)**

Prerequisite: Graduate standing in engineering. An individual study course involving a rigorous theoretical investigation of some aspect of an engineering problem of current interest. A formal report is required.

**5332. Experimental Investigation in Engineering Application. (3:0:9)**

Prerequisite: Graduate standing in engineering. An individual study course involving an experimental investigation of some aspect of an engineering problem of current interest. A formal report is required.

**5341-5342. Advanced Electromagnetic Theory I and II. (3:3:0 each)**

Prerequisite: Graduate standing in electrical engineering or consent of instructor. Rigorous treatment of the boundary-value problems encountered in the analysis of systems for guiding electromagnetic waves. Reduction of wave-guide and obstacle problems to equivalent network problems.

**5343. Radio Propagation. (3:3:0)**

Prerequisite: Graduate standing, E.E. 5342, or consent of instructor. Propagation in a stratified medium; ray theory; ionospheric sounding; transmission problems; cross-modulation and nonlinear effects.

**5344. Antennas and Radiating Systems. (3:3:0)**

Prerequisite: Graduate standing and E.E. 5342 or consent of instructor. Huyghen's principle, Babinet's principle. Reaction concept and variational principles. Applications to antennas and to general method of calculating results of practical measurements of antenna radiation patterns and impedance. Observations of scattering and diffraction.

**5354. Direct Energy Conversion. (3:3:0)**

Prerequisite: E.E. 4352 or consent of instructor. Plasma dynamics, foundations of the production and manipulation of ionized gases. Quantum theory applied to thermoelectric and electrochemical devices.

**630. Master's Report. (3)**

**631. Master's Thesis. (3)**

Enrollment required at least twice.

**731, 732. Research. (3 each)**

**831. Doctor's Dissertation. (3)**

Enrollment required at least four times.

## Engineering Physics

### Department of Physics, School of Arts and Sciences

Henry C. Thomas, *Head of the Department*  
Office: Sc. 109-B

*Professors:* James W. Day, Kamalasksha Das Gupta,  
Henry C. Thomas

*Associate Professors:* Preston F. Gott, Young N. Kim,  
Glen A. Mann, Billy J. Marshall, Billy J. Sandlin

*Assistant Professors:* David A. Howe, Mohammad A.  
K. Lodhi, Raymond W. Mires, Charles R. Quade

The curriculum leading to the Degree of Bachelor of Science in Engineering Physics is primarily one of engineering science and is administered by the Department of Physics in the School of Arts and Sciences and by the School of Engineering. See the section on the School of Arts and Sciences for a description of the department and its course offerings.

Because of the emphasis on the basic sciences and the freedom to select advanced courses to satisfy electives, the curriculum provides excellent foundation for graduate study both in physics and engineering.

### Courses in Engineering Physics

See course listings of Physics Department in School of Arts and Sciences.

## Department of Industrial Engineering

Richard Albert Dudek, *Head of the Department*  
Office: T.E. 118

*Professors:* Richard A. Dudek, Erwin R. Tichauer

*Associate Professors:* Mohamed M. Ayoub, George K.  
Hutchinson, William L. Jenkins, Horace J. Mac-  
Kenzie, William D. Sandel

*Assistant Professors:* Charles L. Burford, Prabhakar  
M. Ghare

*Instructor:* Raymond E. Boche

#### ENGINEERING GRAPHICS STAFF

*Associate Professor:* Lee C. Lindenmeier

*Assistant Professors:* Lyman M. Graham, Billy K.  
Power

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: INDUSTRIAL ENGINEERING, *Bachelor of Science in Industrial Engineering*, *Master of Science in Industrial Engineering*, *Doctor of Philosophy*.

The industrial engineering curriculum includes a core of courses in mathematics, physics, chemistry, and humanities, as well as the basic



**ENGINEERING PHYSICS CURRICULUM**  
Bachelor of Science in Engineering Physics

FRESHMAN YEAR*			SEMESTER	1st	2nd
Math.	151	Math. for Engineers I		5	
Eng.	131	Col. Rhet.		3	
Grph.	121	Engr. Grph. I		2	
E.A.	123	Engr. Des. & Logic I		2	
Chem.	141	Gen. Chem.		4	
P.E., Band, or Basic ROTC					
Math.	152	Math. for Engineers II			5
Phys.	143	Prin. of Physics I			4
Grph.	122	Engr. Grph. II			2
E.A.	124	Engr. Des. & Logic II			2
Chem.	142	Gen. Chem.			4
P.E., Band, or Basic ROTC					
Total credit hours				16**	17**
SOPHOMORE YEAR			SEMESTER	1st	2nd
Math.	235	Math. for Engrs. III		3	
Eng.	132	Col. Rhet.		3	
Phys.	241	Prin. of Physics II		4	
E.E.	233	Elec. Sys. Anal.		3	
C.E.	233	Statics		3	
P.E., Band, or Basic ROTC					
Math.	335	Higher Math. for Engrs. & Scits. I			3
Phys.	242	Prin. of Physics III			4
E.E.	234	Electronic Instrum.			3
C.E.	3311	Mechanics of Solids			3
Elective (Humanity)					3
P.E., Band, or Basic ROTC					
Total credit hours				16**	16**
SUMMER SESSION			FIRST TERM	SECOND TERM	
Phys.	335	Elec. & Magnetism	3		
Govt.	231	Amer. Govt., Org.	3		
Phys.	336	Elec. & Magnetism			3
Govt.	232	Amer. Govt., Func.			3
Total credit hours			6	6	
JUNIOR YEAR			SEMESTER	1st	2nd
Math.	336	Higher Math. for Engrs. & Scits. II		3	
Hist.	231	Hist. of U.S. to 1865		3	
Phys.	434	Mechanics		3	
M.E.	3321	Engr. Thermodynamics		3	
Elective				3	
Phys.	341	Electronics			4
Hist.	232	Hist. of U.S. since 1865			3
Phys.	435	Mechanics			3
Ch. E.	330	Engr. Mat. Science			3
Elective					3
Total credit hours				15	16
SENIOR YEAR			SEMESTER	1st	2nd
Math.	3318	Finite Math. Structure		3	
Phys.	437	Quantum Mech.		3	
M.E.	4314	Fluid Dynamics		3	
E.E.	4311	Analog and Digital Comp.		3	
Elective				3	
Math.	434	Advanced Calculus			3
Phys.	313	Nuclear Physics Lab.			1
Phys.	338	Intro. to Nuclear Physics			3
M.E.	4315	Heat and Mass Transfer			3
E.E.	4353	Feedback Control Systems			3
Elective					3
Total credit hours				15	16

Minimum hours required for graduation--139, plus P.E., Band, or Basic ROTC

\*See Alternate Freshman Year.

\*\*Exclusive of P.E., Band, or Basic ROTC.

courses in mechanical and electrical engineering and engineering mechanics. The departmental courses include the principles of industrial engineering, industrial statistics, work systems analysis and design, work control, and production design. Problems with which these courses deal are, primarily, those of cost, quality, and quantity of work. Their solution involves organizing, planning, and coordinating the effective utilization and control of money, materials, facilities, and personnel, and requires the consideration of human and economic, as well as technical, factors. Many problems presented in advanced courses can be solved best with the aid of an electronic computer, and the student is expected to make use of this facility. The curriculum is designed to equip the student for graduate work, as well as professional pursuits in industry and business.

It is most important that students maintain the highest quality of work. While a "D" grade is passing, it is below the standard expected of majors in this department. If a student receives a grade of "D" in more than one course at the junior or senior level, he will be required to repeat such work.

Special programs sponsored by the Student Chapter of AIIE and Alpha Pi Mu, the national honor society, as well as organized departmental seminars, supplement course instruction, thus keeping the student informed of latest developments in the growing field of industrial engineering.

## Courses in Industrial Engineering

### FOR UNDERGRADUATES

#### 321. Computer Programming Techniques. (2:1:3)

Prerequisite: Consent of the instructor. Programming techniques for digital and analog computers.

#### 332. Industrial Organization and Management. (3:3:0)

Prerequisite: Non-major student and consent of instructor. Modern manufacturing management. Forms of ownership, financial sources; organization charts; plant location and types of buildings; design of manufacturing processes; use of motion and time study in the management field; principles and methods of quality, production, and inventory control; wage and salary policies.

#### 335. Safety Engineering. (3:3:0)

Prerequisite: Junior standing in engineering or business management. Principles of safety engineering as applied to industrial situations. Costs of accidents, accident prevention methods, industrial safety programs, frequency and severity rates, protective equipment, jigs and fixtures, accident investigations and reports, student reports on related safety subjects.

#### 337. Production Planning and Control. (3:3:0)

Prerequisite: I.E. 3311 or equivalent. Control functions; types of production and control; forecasting and estimating; basic information required for control; initiating production control; flow control; block and load control. Reproduction of forms and communications systems, relationships of product control department with other departments. Value of production control. Linear programming applications to production control.

#### 338. Elements of Methods Analysis. (3:2:3)

Prerequisite: Non-major student and consent of instructor. Science and work, the work system, work simplification, operation analysis, forms control and design. Methods improvement techniques and principles of effective work. A survey of work measurement, work sampling, and inventory control. Applications to many areas, such as business concerns, the home, the farm, the hospital, etc.

#### 3311. Principles of Industrial Engineering I. (3:3:0)

Prerequisite: Math. 3318. Consideration of the organization through systems approach. Management objectives, decision theory, "model" formulation, and introduction to operations research techniques.

**INDUSTRIAL ENGINEERING CURRICULUM**  
Bachelor of Science in Industrial Engineering

FRESHMAN YEAR*			SEMESTER	1st	2nd
Math.	151	Math. for Engineers I		5	
Eng.	131	Col. Rhet.		3	
Grph.	121	Engr. Grph. I		2	
E.A.	123	Engr. Des. & Logic I		2	
Chem.	141	Gen. Chem.		4	
P.E., Band, or Basic ROTC					
Math.	152	Math. for Engineers II			5
Eng.	132	Col. Rhet.			3
Grph.	122	Engr. Grph. II			2
E.A.	124	Engr. Des. & Logic II			2
Chem.	142	Gen. Chem.			4
P.E., Band, or Basic ROTC					
			Total credit hours	16**	16**
SOPHOMORE YEAR			SEMESTER	1st	2nd
Math.	235	Math. for Engrs. III		3	
Phys.	143	Prin. of Physics I		4	
E.E.	233	Elec. Sys. Anal.		3	
Eco.	235	Prin. of Eco.		3	
Ch. E.	330	Engr. Mat. Science		3	
P.E., Band, or Basic ROTC					
Phys.	241	Prin. of Physics II			4
E.E.	234	Electronic Instrum.			3
Math.	335	Higher Math. for Engrs. & Scits. I			3
C.E.	233	Statics			3
Math.	3318	Finite Math. Struc.			3
P.E., Band, or Basic ROTC					
			Total credit hours	16**	16**
SUMMER SESSION				FIRST TERM	SECOND TERM
I.E.	3311	Prin. of I.E. I		3	
I.E.	3315	Indus. Statistics I		3	
I.E.	3321	Prin. of I.E. II			3
C.E.	332 or 3311				3
			Total credit hours	6	6
JUNIOR YEAR			SEMESTER	1st	2nd
I.E.	3331	Work Anal. and Des. I		3	
I.E.	3325	Indus. Statistics II		3	
I.E.	417	Indus. Statistics Lab.		1	
M.E.	3321	Engr. Thermodynamics		3	
Acct.	231	Indus. Acct. for Engr.		3	
Elective (Humanity)				3	
I.E.	3334	Work Anal. and Des. II			3
I.E.	3341	Work Control I			3
I.E.	3351	Production Design I			3
Hist.	231	Hist. of U.S. to 1865			3
Elective (Technical)***					3
			Total credit hours	16	15
SENIOR YEAR			SEMESTER	1st	2nd
I.E.	4334	Work Anal. and Des. III		3	
I.E.	4212	Spec. Prob. in Ind. Engr.		2	
Govt.	231	Amer. Govt., Org.		3	
Elective				6	
I.E.	4361	Indus. Engr. Design			3
Govt.	232	Amer. Govt., Func.			3
Hist.	232	Hist. of U.S. since 1865			3
Elective (Technical)					6
			Total credit hours	14	15

Minimum hours required for graduation--136, plus P.E., Band, or Basic ROTC

\*See Alternate Freshman Year.

\*\*Exclusive of P.E., Band, or Basic ROTC.

\*\*\*This technical elective selected from M.E. 4314, 4315; C.E. 332, 3311, 3351; E.E. 3311, 4311; or Phys. 242.

**3315. Industrial Statistics I. (3:3:0)**

Prerequisite: Math. 232. Elements of industrial statistics; descriptive statistics, probability, and quality control.

**3321. Principles of Industrial Engineering II. (3:3:0)**

Prerequisite: I.E. 3311 and 3315. Continuation of operations research techniques. Principles and theories of quantitative methods for analysis of work systems.

**3325. Industrial Statistics II. (3:3:0)**

Prerequisite: I.E. 3315 or equivalent. Statistical inference techniques and applications to work systems.

**3331. Work Analysis and Design I. (3:2:3)**

Prerequisite: I.E. 3315 and 3321. Principles and techniques of analysis of work measurement, engineering economy and work flow, with applications of design for better work systems. Emphasis on methods and measurement.

**3334. Work Analysis and Design II. (3:3:0)**

Prerequisite: I.E. 3331. Emphasis on engineering economy analysis.

**3341. Work Control I. (3:3:0)**

Prerequisite: I.E. 3331. Basic designs of work control systems. Emphasis on forecasting; material and product control.

**3351. Production Design I. (3:2:3)**

Prerequisite: I.E. 3331 and Ch. E. 330 or equivalent. Elements of machines and manufacturing processes, metal removal theory; principles of machine tool design; introduction to automation principles and design.

## FOR UNDERGRADUATES AND GRADUATES

**417. Industrial Statistics Problem Laboratory. (1:0:3)**

Prerequisite: Parallel registration in I.E. 3315, 3325, or 3317, and consent of instructor. Experimental study of statistical techniques. Problem design and data analysis.

**4121. Industrial Engineering Seminar. (1:1:0)**

Prerequisite: Advanced standing and approval of Department Head. Individual study of engineering problems of special interest and value to the student. May be repeated for credit in different areas.

**421. Materials Handling. (2:2:0)**

Prerequisite: I.E. 338 or 3331. A study of the various types of materials handling equipment, such as trucks, elevators, conveyors, etc., and the application of the proper type to various materials handling problems. Students desiring a 3-hour course in materials handling may enroll in I.E. 4121 for the additional hour of credit.

**4221. Special Problems in Industrial Engineering. (2:2:0)**

Prerequisite: Industrial engineering seniors. Practical solutions of a variety of problems which the industrial engineer may be expected to encounter in his work; plant layout; production planning; engineering economy; methods improvements; materials handling; and others.

**439. Analysis of Industrial Operations. (3:3:0)**

Prerequisite: I.E. 3315 or equivalent. Introduction to operations research techniques. Study of the applications of quantitative methods for analysis of industrial operating problems.

**4311. Automatic Data Processing Systems. (3:3:0)**

Prerequisite: Consent of instructor. Includes types of equipment, programming procedures, principles of processing in systems design for computer applications in industry.

**4331. Individual Studies in Industrial Engineering. (3:3:0)**

Prerequisite: Advanced standing and approval of Department Head. May be repeated.

**4332. Special Experimental Problems in Industrial Engineering. (3:0:9)**

Prerequisite: Advanced standing and approval of Department Head. May be repeated.

**4334. Work Analysis and Design III. (3:2:3)**

Prerequisite: I.E. 3334. Emphasis on work flow design.

**4341. Work Control II. (3:3:0)**

Prerequisite: I.E. 3341. Emphasis on inventory theory, "model" formulation of work control systems, etc.

**4351. Production Design II. (3:2:3)**

Prerequisite: I.E. 3351. Emphasis on automation and automatic controls.

**4361. Industrial Engineering Design. (3:3:0)**

Prerequisite: Graduating industrial engineering seniors. Design of a complete operational organization, with emphasis on the application of theories covered in previous course work.

**FOR GRADUATES**

**512, 513. Seminar. (1:1:0)**

Prerequisite: Graduate standing or consent of instructor. Discussion will concern present research being conducted in the industrial engineering field. Other special topics will also be considered. May be repeated for credit.

**532. Standard Data Systems. (3:2:3)**

Prerequisite: Graduate standing or consent of instructor. Concepts of standard time data and standard data systems, consideration of company, commercial, and statistical standard data systems; use of multivariable charts and nomographs.

**535. Engineering Controls for Industrial Safety. (3:3:0)**

Prerequisite: Graduate standing or consent of instructor. Design of the industrial safety program under widely variant conditions through proper combination of accident control activities. Workmen's compensation, minimum safety standards legislation, health hazards in industry. Statistical measurements of safety performances. Analytical studies of fire prevention techniques.

**538. Engineering Aspects of Wage Policies. (3:3:0)**

Prerequisite: Graduate standing or consent of instructor. Engineering aspects of wage problems based on wage incentives, plans, job analysis, job descriptions, merit rating, and job evaluation.

**5111, 5212, 5213, 5214. Industrial Engineering Case Analysis. (1, 2)**

Prerequisite: Graduate standing or consent of instructor. Special studies and investigations in the application of various industrial engineering techniques.

**5301, 5302, 5303. Advanced Work Analysis and Design. (3:2:3 each)**

Prerequisite: Graduate standing or consent of instructor. Industrial biomechanics, kinesiology and cybernetics with emphasis on the design, evaluation and monitoring of man-task systems for optimal operation and prevention of work stress. Advanced work study procedures, validity and design of predetermined time systems, link analysis for static and dynamic work, physiological monitoring, biomechanical quality occurrence, etc., applied to work systems.

**5307, 5308. Advanced Production Control. (3:3:0 each)**

Prerequisite: Graduate standing or consent of instructor. Modern practices and theory of making optimal decisions concerning production, inventories, and human resources. The use of the analytical and mathematical approach to solve complicated decision problems.

**5311, 5312. Analysis Techniques for Management. (3:3:0 each)**

Prerequisite: Graduate standing or consent of instructor. Concepts and principles of operations research. Mathematical and statistical tools which aid management decisions; applications and case studies.

**5314, 5315. Analysis Techniques for Work Systems. (3:3:0 each)**

Prerequisite: Graduate standing or consent of instructor. Concepts and principles of queuing theory, dynamic programming, simulation, and other mathematical and statistical tools which aid in the analysis and design of work systems; applications and case studies.

**5316. Statistical Reliability Analysis. (3:3:0)**

Prerequisite: 3 hours of statistics or consent of instructor. The role of probability and statistics in reliability analysis; statistical models for fatigue and failure, with emphasis on exponential, Weibull, Gamma, and extreme-value distributions. Design, analysis, and interpretation of multifactor reliability experiments; increased severity testing; improved reliability through redundancy and maintenance; application to component and systems reliability.

**5317. Advanced Industrial Statistics. (3:3:0)**

Prerequisite: 6 hours of statistics or consent of instructor. Analysis of variance, multiple correlation, analysis of covariance, design of experiments, randomized blocks and Latin square, response-surface analysis, and determination of optimum conditions.

**5318. Selected Topics in Advanced Statistics. (3:3:0)**

Prerequisite: 6 hours of statistics or consent of instructor. Selected topics chosen from such areas as nonparametric statistical methods; sequential analysis; multivariate analysis; etc. May be repeated in different areas.

**5321, 5322. Decision Theory and Management Science. (3:3:0 each)**

Prerequisite: Graduate standing or consent of instructor. Concepts and principles of decision models; theory and practice of management planning and administrative control; decision theory, cybernetics and management science.

**5331. Theoretical Studies in Advanced Industrial Engineering Topics. (3:3:0)**

Prerequisite: Graduate standing and approval of the department. Individual theoretical study of advanced topics selected on the basis of departmental recommendation. May be repeated.

**5332. Experimental Investigation in Advanced Industrial Engineering Topics. (3:0:9)**

Prerequisite: Graduate standing and approval of the department. Individual experimental study of advanced topics selected on the basis of departmental recommendation. May be repeated.

**5351, 5352. Advanced Production Design. (3:3:0 each)**

Prerequisite: I.E. 4351 and Math. 335. A continuation of I.E. 4351, with emphasis on design and construction for automation and automatic controls.

**5361, 5362. Dynamics of Engineering Economy. (3:3:0)**

Prerequisite: Graduate standing or consent of instructor. A continuation of engineering economy studies with emphasis on utility, price changes, investment, growth, replacement and taxes. Quantitative analysis of problems involving risk and uncertainty within the above areas.

**630. Master's Report. (3)****631. Master's Thesis. (3)**

Enrollment required at least twice.

**731, 732. Research. (3 each)****831. Doctor's Dissertation. (3)**

Enrollment required at least four times.

Engineering graphics courses are required for all engineering students. The object of these courses is to familiarize the student with the graphic language of the engineer and to train the student to use skillfully and intelligently engineering sketching and drawing techniques as a background for specialized engineering and design problems.

**Courses in Engineering Graphics****FOR UNDERGRADUATES****121. Engineering Graphics I. (2:1:3)**

Introduction to space relationships; fundamentals of shape description, free-hand sketching, engineering geometry, pictorial presentations of ideas, and principles of size description. Stress is given to the essentials of sketching and drafting in conveying ideas in the graphic language of the engineer.

**122. Engineering Graphics II. (2:1:3)**

Prerequisite: E. Graph. 121. Graphical presentation of data, fundamentals of nomography, advanced space relationships, concepts of surface intersections and developments.

**Courses in Engineering Analysis and Design****FOR UNDERGRADUATES****123-124. Engineering Design and Logic I, II. (2:2:0 each)**

The profession of engineering and its relation to energy, materials, resources, computers, communication and control. Basic digital computer programming. Synthesis and analysis of typical engineering problems.

## FOR UNDERGRADUATES AND GRADUATES

**4313. Variational Methods. (3:3:0)**

Prerequisite: Math 335. Variational and optimal methods in selected engineering topics. Stability and steady-state criteria. Formulation and solution of physical problems by variational techniques including exact methods (Euler-Lagrange equations) and approximate methods (Rayleigh-Ritz method and dynamic programming).

**4331. Special Problems in Engineering Analysis and Design. (3:3:0)**

Prerequisite: Consent of Instructor. Individual studies in engineering analysis and design of special interest. May be repeated for credit in different areas.

**4333. Special Problems in Computer Science. (3:3:0)**

Prerequisite: Mathematics 335 and senior standing. Individual studies in computer technology in areas of special interests. May be repeated for credit in different areas.

**4341, 4342. Digital Computations. (3:3:0 each)**

Prerequisite: Engineering Analysis 124, Math. 335. Application of numerical analysis to the solution of linear and nonlinear engineering systems problems. The approximation problem applied to engineering systems. Matrix methods in engineering.

**4343. Analog Computations. (3:2:3)**

Prerequisite: Math. 335, Engineering Analysis 124. Analysis of selected engineering problems by use of the analog computer. Auxiliary devices used with analog computer.

**4345. Process Simulation. (3:2:3)**

Prerequisite: Consent of Instructor. Simulation of physical processes utilizing the analog and digital computers. Development of mathematical models of physical systems.

**4347. Engineering Applications of Linear Programming. (3:2:2)**

Prerequisite: Engineering Analysis 4342. Elements of linear programming. Application to warehousing problems, transportation problems, network flow and other engineering problems.

## FOR GRADUATES

**5312. Engineering Applications of Stochastic Processes. (3:3:0)**

Prerequisite: Approval of Instructor. Statistical methods applied to physical systems. Microstates of matter. Statistical mechanics, ensemble concepts. Liouville Theorem. Information theory as a basis of statistical methods. Applications to thermodynamics, radiation, and industrial problems.

**5313. Field Theory. (3:3:0)**

Prerequisite: Math. 335. Application of partial-differential equations and related methods to generalized field problems selected from the areas of electromagnetism, heat transfer, elasticity, fluid mechanics, and vibrations.

**5331. Special Problems in Advanced Engineering Analysis and Design. (3:3:0)**

Prerequisite: Graduate standing. Individual studies in advanced applied engineering analysis and design of special interest. May be repeated for credit in different areas.

**5333. Special Problems in Advanced Computer Science and Technology. (3:3:0)**

Prerequisite: Graduate standing. Individual studies in advanced computer science and technology of special interest. May be repeated for credit in different areas.

**5341. Dynamic Programming. (3:2:2)**

Prerequisite: Engineering Analysis 4342. Basic concepts of dynamic programming and its applications to systems analysis; allocation and scheduling processes; Markovian decision processes.

**5342. Applications of Topological Methods. (3:2:3)**

Prerequisite: Graduate standing. Linear graphs for applied transportation and network flow problems. Minimal cost flow; multiterminal maximal flow. The application of topology in engineering problems.

## Department of Mechanical Engineering

Louis John Powers, *Head of the Department*  
Office: C.&M.E 103

*Professors:* Donald Jacob Helmers, Robert Louis Mason, Robert Lee Newell, Louis John Powers

*Associate Professors:* Monty Earl Davenport, James Harold Lawrence, Robert Edward Martin, Elbert Brunner Reynolds, Jr.

*Assistant Professors:* Duane Paul Jordan, Levern Anthony Reis

*Instructor:* James Larry Chance

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: **MECHANICAL ENGINEERING, Bachelor of Science in Mechanical Engineering, Master of Science in Mechanical Engineering, Doctor of Philosophy.**

The undergraduate program is designed to develop competence and professional attitudes on the part of the student in both the technical and social applications of mechanical engineering. Elective freedom provides a means of additional preparation in areas of the student's choice. All students are encouraged to consider continuing into graduate studies. Classroom instruction is broadened by experimental laboratory experience in vibrations, stress analysis, metallography, heat transfer, and fluid flow. Control systems for thermal processes are analyzed to gain understanding of their basic behavior; the design of mechanical systems is introduced through the study of machine elements and their functions; metals are investigated through their fundamental chemical characteristics, physical constitution, and response to metal working and testing methods. The use of digital and analog computers is made an integral part of problem solving in all courses.

The mechanical engineering faculty maintains close relationships with industries and research agencies, which continually provide new basic problems for study and research in mechanical engineering.

### Courses in Mechanical Engineering

#### FOR UNDERGRADUATES

##### 3314. Mechanisms. (3:3:0)

Corequisite: Math. 235. Kinematic analysis and synthesis of cams, gears, linkages.

##### 3315. Stress Analysis. (3:3:0)

Prerequisite: C.E. 233, Math. 335. Elastic behavior in tension, torsion, bending; stability, plane strain and plane stress.

##### 3318. Mechanical Engineering Instrumentation. (3:1:6)

(Formerly M.E. 3216)

Prerequisite: E.E. 234. Calibration techniques and measurements with electronic, optical, and mechanical instrumentation.

##### 3321. Engineering Thermodynamics I. (3:3:0)

Prerequisite: Phys. 241, Math. 335. Concepts of thermodynamics, properties, irreversibility, applications to systems.



**MECHANICAL ENGINEERING CURRICULUM**  
**Bachelor of Science in Mechanical Engineering**

FRESHMAN YEAR*			SEMESTER	1st	2nd
Math.	151	Math. for Engineers I		5	
Eng.	131	Col. Rhet.		3	
Grph.	121	Engr. Grph. I		2	
E.A.	123	Engr. Des. & Logic I		2	
Chem.	141	Gen. Chem.		4	
P.E., Band, or Basic ROTC					
Math.	152	Math. for Engineers II			5
Eng.	132	Col. Rhet.			3
Grph.	122	Engr. Grph. II			2
E.A.	124	Engr. Des. & Logic II			2
Chem.	142	Gen. Chem.			4
P.E., Band, or Basic ROTC					
Total credit hours				16**	16**
SOPHOMORE YEAR			SEMESTER	1st	2nd
Math.	235	Math. for Engrs. III		3	
Phys.	143	Prin. of Physics I		4	
E.E.	233	Elec. Sys. Anal.		3	
M.E.	3314	Mechanisms		3	
Govt.	231	Amer. Govt., Org.		3	
P.E., Band, or Basic ROTC					
Math.	335	Higher Math. for Engrs. & Scits. I			3
Phys.	241	Prin. of Physics II			4
E.E.	234	Electronic Instrum.			3
C.E.	233	Statics			3
Govt.	232	Amer. Govt., Func.			3
P.E., Band, or Basic ROTC					
Total credit hours				16**	16**
JUNIOR YEAR			SEMESTER	1st	2nd
C.E.	332	Dynamics		3	
M.E.	3321	Engr. Thermodynamics I		3	
M.E.	3341	Materials I		3	
Chem.	343	Intro. Phys. Chem.		4	
Hist.	231	Hist. of U.S. to 1865		3	
M.E.	3315	Stress Analysis			3
M.E.	3318	Mech. Engr. Instrum.			3
M.E.	3342	Materials II			3
Math.	336	Higher Math. for Engrs. & Scits. II			3
Hist.	232	Hist. of U.S. since 1865			3
Total credit hours				16	15
SUMMER SESSION			FIRST TERM	SECOND TERM	
M.E.	4314	Fluid Dynamics	3		
M.E.	4316	Dynamics	3		
M.E.	4315	Heat and Mass Transfer			3
M.E.	4321	Engr. Thermodynamics II			3
Total credit hours				6	6
SENIOR YEAR			SEMESTER	1st	2nd
M.E.	4312	Mech. Engr. Lab. I		3	
M.E.	4333	Thermal Systems I		3	
M.E.	4335	Design I		3	
M.E.	4341	Materials III		3	
Elective (Humanity)				3	
M.E.	4313	Mech. Engr. Lab. II			3
M.E.	4331	Special Problems			3
M.E.	4334	Thermal Systems II			3
M.E.	4336	Design II			3
Elective					3
Total credit hours				15	15

Minimum hours required for graduation--137, plus P.E., Band, or Basic ROTC

\*See Alternate Freshman Year.

\*\*Exclusive of P.E., Band, or Basic ROTC.

**3341. Materials I. (3:3:0)****(Formerly M.E. 237)**

Corequisite: Chem. 343 or M.E. 3321. Fundamental thermodynamic and chemical nature of the structure and properties of materials.

**3342. Materials II. (3:2:3)****(Formerly M.E. 3317)**

Prerequisite: M.E. 3341. Mechanical properties and behavior of engineering materials based on their metallurgical constitution.

**FOR UNDERGRADUATES AND GRADUATES****4121. Mechanical Engineering Seminar. (1:1:0)**

Prerequisite: Advanced standing and approval of departmental adviser. Individual study of engineering problems of special interest and value to the student. May be repeated for credit in different areas.

**4312, 4313. Mechanical Engineering Laboratory I, II. (3:1:6 each)**

Prerequisite: M.E. 3318. Experimental and developmental testing of basic mechanical equipment.

**4314. Fluid Dynamics. (3:3:0)**

Prerequisite: M.E. 3321. Basic fluid and fluid flow concepts, fluid resistance, compressible flow, and hydrodynamic theory.

**4315. Heat and Mass Transfer. (3:3:0)**

Prerequisite: M.E. 3321. Heat transfer by conduction, convection, and radiation. Mass transfer in liquids, vapors, and gases.

**4316. Dynamics. (3:3:0)****(Formerly 3313)**

Prerequisite: Math. 335, C.E. 332. Newtonian dynamics of rigid bodies, Lagrange's equations, theory of small vibrations.

**4321. Engineering Thermodynamics II. (3:3:0)****(Formerly M.E. 4212, 4213)**

Prerequisite: M.E. 3321, Math. 336. Kinetic theory, basic chemical thermodynamics, non-equilibrium thermodynamics, introduction to statistical mechanics.

**4331. Special Problems in Mechanical Engineering. (3:3:0)**

Prerequisite: Advanced standing and approval of departmental adviser. Individual studies in advanced engineering areas of special interest. May be repeated for credit in different areas.

**4332. Special Experimental Problems in Mechanical Engineering. (3:0:9)**

Prerequisite: Advanced standing and approval of departmental adviser. Individual experimental studies in advanced engineering areas of special interest. May be repeated for credit in different areas.

**4333. Thermal Systems I. (3:3:0)****(Formerly M.E. 3212, 3213)**

Prerequisite: M.E. 3321. Analysis of thermal power and environmental system components; steady state behavior of such systems.

**4334. Thermal Systems II. (3:3:0)****(Formerly M.E. 3214, 3215)**

Prerequisite: M.E. 4333. Analysis and simulation of control of thermal power and environmental systems.

**4335. Design I. (3:3:0)****(Formerly M.E. 4216)**

Prerequisite: M.E. 3314, 3315. Analysis of stresses and deformations in and functions of machine elements.

**4336. Design II. (3:3:0)****(Formerly M.E. 4217)**

Prerequisite: M.E. 4335. Product analysis, design, development, and evaluation.

**4341. Materials III. (3:3:0)**

Prerequisite: M.E. 3341. The methods of forming and fabrication, their effects on materials, and the suitability of materials for various processes.

### FOR GRADUATES

**5313. Dynamics III. (3:3:0)**

Prerequisite: Math. 336, C.E. 332. Wave transmission in elastic media.

**5314. Stress Analysis I. (3:2:3)**

(Formerly 5311)

Prerequisite: Math. 336, M.E. 3315. Theory and application of photoelasticity to static and dynamic stress analysis.

**5316. Mechanical Vibrations I. (3:3:0)**

(Formerly M.E. 5312)

Prerequisite: Math. 336, C.E. 332. Free and forced vibrations of linear and non-linear lumped parameter systems.

**5317. Mechanical Vibrations II. (3:3:0)**

Prerequisite: Math. 336, C.E. 332. Free and forced vibration of continuous, elastic structures.

**5321. Thermodynamics I. (3:3:0)**

(Formerly M.E. 531)

Prerequisite: M.E. 4321. Quantum mechanics, information theory, intermolecular forces.

**5322. Thermodynamics II. (3:3:0)**

Prerequisite: M.E. 5323. Microscopic-scale analysis of non-equilibrium phenomena, irreversible thermodynamics.

**5323. Thermodynamics III. (3:3:0)**

Prerequisite: M.E. 4321. Non-equilibrium states and irreversible processes; description of systems in non-equilibrium states and analyses of transient and steady irreversible processes from the macroscopic viewpoint.

**5324. Heat Transmission I. (3:3:0)**

(Formerly M.E. 532)

Prerequisite: M.E. 4314 or M.E. 4315. The fundamental principles of heat transmission by conduction; boundary value problems, separation; transform, integral, and numerical methods.

**5325. Heat Transmission II. (3:3:0)**

(Formerly M.E. 533)

Prerequisite: M.E. 4314 or M.E. 4315. Fundamental principles of heat transmission by convection; theoretical and empirical methods of analysis.

**5326. Heat Transmission III. (3:3:0)**

Prerequisite: M.E. 4315. Fundamental principles of heat transmission by radiation; grey surfaces; network methods, absorbing media.

**5327. Aerodynamics I. (3:3:0)**

(Formerly M.E. 534)

Prerequisite: M.E. 4314. Gas dynamics, external compressible flow, wave phenomena, potential theory.

**5328. Aerodynamics II. (3:3:0)**

(Formerly M.E. 535)

Prerequisite: M.E. 4314. Boundary layer theory, viscous and turbulent flows, separation, thermal boundary layers.

**5329. Aerodynamics III. (3:3:0)**

Prerequisite: M.E. 5327 or M.E. 5328. Non-equilibrium gas dynamics, boundary layer interactions, aerodynamic heating, aerothermochemistry.

**5331. Theoretical Studies in Advanced Topics. (3:3:0)**

Prerequisite: Graduate standing and approval of the departmental adviser. Individual theoretical study of advanced topics selected on the basis of the departmental adviser's recommendation. May be repeated for credit in different areas.

**5332. Experimental Studies in Advanced Topics. (3:1:6)**

Prerequisite: Graduate standing and approval of the departmental adviser. Individual experimental study of advanced topics selected on the basis of the departmental adviser's recommendation. May be repeated for credit in different areas.

**5333. Design I. (3:3:0)**

Prerequisite: M.E. 5325. Synthesis of thermal systems, design and off-design characteristics, transient behavior of thermal systems.

**5341. Metallurgy I. (3:3:0)**

(Formerly M.E. 539)

Prerequisite: M.E. 3341. Dislocations and plastic flow in metals; reaction kinetics of diffusion; phase transformations and precipitation; thermal, electronic, and structural properties of metals and semi-conductors.

**5351. Boiling Heat Transfer. (3:3:0)**

Prerequisite: M.E. 5324 or 5325 or equivalent. Bubble dynamics; nucleate, transitional, and film boiling; critical heat fluxes, flow in boiling systems.

**630. Master's Report. (3)**

**631. Master's Thesis. (3)**

Enrollment required at least twice.

**731, 732. Research. (3 each)**

May be repeated for credit.

**831. Doctoral Dissertation.**

Enrollment required at least four times.

## Department of Petroleum Engineering

William Lyon Ducker, Jr., *Head of the Department*

Office: Petr. 105

*Professor:* William Lyon Ducker, Jr.

*Associate Professor:* Philip Johnson

*Assistant Professor:* Duane Austin Crawford

This department supervises the following degree program described in Part I of this Catalog: PETROLEUM ENGINEERING, *Bachelor of Science in Petroleum Engineering*. The curriculum includes courses basic to all engineering, which are then followed by those specialized subjects essential to the practice of the profession of petroleum engineering. Theory is supplemented by laboratory work in the major techniques which will be encountered in the petroleum industry.

Departmental facilities include special equipment for reservoir and production studies, experiments in natural gas flow, regulation and control, and property determination. Complete equipment is available for the study of drilling fluid characteristics, use of special fluids, mud contamination, properties and effects of mud additives, and related problems.

Field trips to the oil-producing areas surrounding Lubbock are conducted by the department, and in-the-field dynamometer tests of pumping equipment, and standard natural gas tests, are performed by the students.

PETROLEUM ENGINEERING CURRICULUM  
Bachelor or Science in Petroleum Engineering

FRESHMAN YEAR*			SEMESTER	1st	2nd
Math.	151	Math. for Engineers I		5	
Eng.	131	Col. Rhet.		3	
Grph.	121	Engr. Grph. I		2	
E.A.	123	Engr. Des. & Logic I		2	
Chem.	141	Gen. Chem.		4	
P.E., Band, or Basic ROTC					
Math.	152	Math. for Engineers II			5
Eng.	132	Col. Rhet.			3
Grph.	122	Engr. Grph. II			2
E.A.	124	Engr. Des. & Logic II			2
Chem.	142	Gen. Chem.			4
P.E., Band, or Basic ROTC					
Total credit hours				16**	16**
SOPHOMORE YEAR			SEMESTER	1st	2nd
Math.	235	Math. for Engrs. III		3	
Phys.	143	Prin. of Physics I		4	
E.E.	233	Elec. Sys. Anal.		3	
Govt.	231	Amer. Govt., Org.		3	
Ch. E.	330	Engr. Mat. Science		3	
P.E., Band, or Basic ROTC					
Phys.	241	Prin. of Physics II			4
E.E.	234	Electronic Instrum.			3
Math.	335	Higher Math. for Engrs. & Scits. I			3
C.E.	233	Statics			3
Chem.	241	Anal. Chem.			4
P.E., Band, or Basic ROTC					
Total credit hours				16**	17**
SUMMER SESSION			FIRST TERM		SECOND TERM
C.E.	332	Dynamics	3		
Elective (Humanity)			3		
C.E.	3311	Mech. of Solids			3
M.E.	3321	Engr. Thermodynamics			3
Total credit hours			6		6
JUNIOR YEAR			SEMESTER	1st	2nd
Pet. E.	331	Petrol. Devel.		3	
Pet. E.	322	Rot. Drill Fluids		2	
Geol.	143	Phys. Geol.		4	
Chem.	343	Intro. Phys. Chem.		4	
Math.	336	Higher Math. for Engrs. & Scits. II		3	
Pet. E.	333	Petrol. Prod. Meth.			3
Pet. E.	320	Well Logging Meth.			2
Pet. E.	314	Production Lab.			1
Geol.	144	Hist. Geol.			4
C.E.	3351	Mech. of Fluids			3
C.E.	3151	Mech. of Fluids Lab.			1
Govt.	232	Amer. Govt., Func.			3
Total credit hours				16	17
SENIOR YEAR			SEMESTER	1st	2nd
Pet. E.	4121	Petrol. Engr. Seminar		1	
Pet. E.	433	Reservoir Engr.		3	
Pet. E.	434	Nat. Gas. Engr.		3	
Pet. E.	416	Reservoir Engr. Lab.		1	
Geol.	332	Struc. Geol.		3	
Hist.	231	Hist. of U.S. to 1865		3	
Pet. E.	4121	Petrol. Engr. Seminar			1
Pet. E.	435	Adv. Nat. Gas Engr.			3
Pet. E.	413	Nat. Gas Lab.			1
Pet. E.	436	Adv. Reservoir Engr.			3
Pet. E.	420	Petrol. Prop. Eval. & Mgt.			2
Bus. Law	3313	Oil and Gas Law			3
Hist.	232	Hist. of U.S. since 1865			3
Total credit hours				14	16

Minimum hours required for graduation--140, plus P.E., Band, or Basic ROTC

\*See Alternate Freshman Year.

\*\*Exclusive of P.E., Band, or Basic ROTC.

## Courses in Petroleum Engineering

### FOR UNDERGRADUATES

#### 314. Production Laboratory. (1:0:3)

Prerequisite: Enrollment in Pet. E. 333. Reservoir characteristics, core analyses, oil dehydration, corrosion, lease operation, and pumping well characteristics.

#### 320. Well Logging Methods. (2:2:0)

Prerequisite: Pet. E. 331 and Phys. 241. Theories of electrical, microelectrical, radiation, optical, chemical, and mechanical well-logging methods, and applications of these theories. Field examples and problems.

#### 321. Phase Behavior. (2:2:0)

Prerequisite: Phys. 241 and enrollment in M.E. 3321. Introduction to the phase behavior of multiple-component hydrocarbon systems. Application to the production of crude oil and condensate reservoirs and to the separation of natural gasoline from natural gas.

#### 322. Rotary Drilling Fluids. (2:1:3)

Prerequisite: Chem. 142 and enrollment in Pet. E. 331. Testing methods for determining drilling fluid characteristics, drilling fluid problems, and the use of special drilling fluids. Laboratory exercises consist of the practice of altering properties of fresh water and special drilling fluids for drilling through troublesome zones with the rotary system.

#### 330. Introduction to Petroleum Industry. (3:3:0)

Prerequisite: Junior standing in geology or engineering. A general study of the industry, including its history; the chemistry of petroleum; its occurrence in nature and its importance in the world economy; leasing and royalty; exploration, drilling, and production methods; conservation, transportation, and refining; economics of the industry.

#### 331. Petroleum Development Methods. (3:3:0)

Prerequisite: Junior standing. Exploration methods; spacing of wells; rotary and cable tool drilling methods; directional drilling; drilling hazards; oil field hydrology; and well completion practices.

#### 333. Petroleum Production Methods. (3:3:0)

Prerequisite: Pet. E. 331 and Chem. 343. Properties of reservoir fluids and characteristics of the reservoir which influence oil recovery. Production of wells by flowing, gas lift, hydraulic and sucker rod pumping.

### FOR UNDERGRADUATES AND GRADUATES

#### 413. Natural Gas Laboratory. (1:0:3)

Prerequisite: Registration in Pet. E. 434 or 435. Natural gas analysis and testing; measurement and calibration of flow-metering devices; regulation and control devices; gas-phase relations; and natural gasoline techniques.

#### 416. Reservoir Engineering Laboratory. (1:0:3)

Prerequisite: Pet. E. 433. Experiments relating to flow of fluids in porous media, including viscosimetry, P-V-T relationships, surface energies, relative permeability, mobility ratios, and areal sweep efficiencies.

#### 421. Petroleum Engineering Seminar. (1:1:0)

Prerequisite: Advanced standing and approval of Department Head. Individual study of engineering problems of special interest and value to the student. May be repeated for credit in different areas.

#### 420. Petroleum Property Evaluation and Management. (2:1:3)

Prerequisite: Parallel enrollment in Pet. E. 433. Economic and physical evaluation of oil and gas producing and processing properties. Contour and isopachous mapping procedures; well log and core analysis interpretation, reserve estimates, reservoir performance, and economic analysis. Evaluation of actual oil properties.

#### 430. Special Natural Gas and Production Problems. (3:3:0)

Prerequisite: Pet. E. 333. Theory, design, and operation of gas lift systems. Production problems to include gas-oil control, water control, decline curves, formation damage due to well completion, and well workovers.

#### 433. Reservoir Engineering. (3:3:0)

Prerequisite: Pet. E. 333. Fundamentals of fluid flow in porous media, including petrophysics; reservoir energy and producing mechanisms; and application of the material balance.

**TEXTILE ENGINEERING CURRICULUM**  
**Bachelor of Science in Textile Engineering**

FRESHMAN YEAR*				SEMESTER	1st	2nd
Math.	151	Math. for Engineers I			5	
Eng.	131	Col. Rhet.			3	
Grph.	121	Engr. Grph. I			2	
E.A.	123	Engr. Des. & Logic I			2	
Chem.	141	Gen. Chem.			4	
P.E., Band, or Basic ROTC						
Math.	152	Math. for Engineers II				5
Eng.	132	Col. Rhet.				3
Grph.	122	Engr. Grph. II				2
E.A.	124	Engr. Des. & Logic II				2
Chem.	142	Gen. Chem.				4
P.E., Band, or Basic ROTC						
Total credit hours					16**	16**
SOPHOMORE YEAR				SEMESTER	1st	2nd
Math.	235	Math. for Engrs. III			3	
Phys.	143	Prin. of Physics I			4	
E.E.	233	Elec. Sys. Anal.			3	
Govt.	231	Amer. Govt., Org.			3	
Eng.	231	Mast. of Lit.			3	
P.E., Band, or Basic ROTC						
Phys.	241	Prin. of Physics II				4
E.E.	234	Electronic Instrum.				3
Math.	335	Higher Math. for Engrs. & Scits. I				3
Math.	3318	Finite Math.				3
C.E.	233	Statics				3
P.E., Band, or Basic ROTC						
Total credit hours					16**	16**
SUMMER SESSION				FIRST TERM	SECOND TERM	
I.E.	3311	Prin. of I.E. I		3		
I.E.	3315	Indus. Statistics I		3		
I.E.	3321	Prin. of I.E. II			3	
Ch. E.	330	Engr. Mat. Science			3	
Total credit hours				6	6	
JUNIOR YEAR				SEMESTER	1st	2nd
T.E.	333	Textile Bleaching			3	
T.E.	331	Prin. of Fiber Proc. I			3	
C.E.	332	Dynamics			3	
M.E.	3321	Engr. Thermodynamics			3	
I.E.	3331	Work Anal. and Design I			3	
Elective						
T.E.	334	Textile Finishing				3
T.E.	332	Prin. of Fiber Proc. II				3
M.E.	4315	Heat and Mass Transfer				3
C.E.	3311	Mech. of Solids				3
I.E.	3334	Work Anal. & Design II				3
Govt.	232	Amer. Govt., Func.				3
Total credit hours				18		18
SENIOR YEAR				SEMESTER	1st	2nd
T.E.	436	Fabric Des. & Constr.			3	
T.E.	432	Man-Made Fibers			3	
Hist.	231	Hist. of U.S. to 1865			3	
I.E.	3341 or I.E. 3325				3	
Elective (Technical)						
T.E.	437	Fabric Anal. & Adv. Des.				3
T.E.	431	Textile Test. & Qual. Control				3
Hist.	232	Hist. of U.S. since 1865				3
I.E.	4334	Work Anal. & Design III				3
Total credit hours				15		12

Minimum hours required for graduation--139, plus P.E., Band, or Basic ROTC

\*See Alternate Freshman year.

\*\*Exclusive of P.E., Band, or Basic ROTC.

**434. Natural Gas Engineering. (3:3:0)**

Prerequisite: Pet. E. 333. The properties and behavior of hydrocarbons and related systems, and the associated thermodynamics.

**435. Advanced Natural Gas Engineering. (3:3:0)**

Prerequisite: Pet. E. 434. The application of the fundamentals of natural gas engineering to the production of natural gas and condensate reservoirs; the processing, transportation, distribution, and measurement of natural gas and its derivatives. Problems and design.

**436. Advanced Reservoir Engineering. (3:3:0)**

Prerequisite: Pet. E. 433. Analysis of primary depletion mechanisms, including water drive, solution drive, gas-cap reservoir, and condensate reservoirs. Economic studies of secondary recovery methods.

**4331. Special Problems in Petroleum Engineering. (3:3:0)**

Prerequisite: Advanced standing and approval of Department Head. Individual studies in advanced engineering areas of special interests. May be repeated for credit.

**4332. Special Experimental Problems in Petroleum Engineering. (3:0:9)**

Prerequisite: Advanced standing and approval of Department Head. Individual experimental studies in current problems in advanced engineering technology of special interest. May be repeated for credit.

## Department of Textile Engineering and Textile Research Laboratories

L. E. Parsons, *Acting Head of the Department*  
Office: T.E. 131

*Professor:* L. E. Parsons

*Assistant Professor:* Billy K. Power

*Associate Director Textile Research Laboratories:*  
Bill B. Crumley

*Assistant Director Textile Research Laboratories:*  
Harry E. Arthur

This department supervises the following degree programs described in Part I of this Catalog: *TEXTILE ENGINEERING, Bachelor of Science in Textile Engineering*; *TEXTILE TECHNOLOGY AND MANAGEMENT, Bachelor of Science in Textile Technology and Management*.

The objectives of the Department of Textile Engineering and the Textile Research Laboratories are:

- 1) To prepare graduates in Textile Engineering and Textile Technology and Management to fill responsible posts in the very rapidly expanding textile industry.
- 2) To prepare graduates for research, development, and testing in the field of textiles, to meet the needs of interested governmental and private agencies.

The Textile Engineering curriculum is recommended for those students desiring advanced study or careers in research, while the Textile Technology and Management curriculum is designed to aid in striking a balance between technological and business management sectors.

Each program contains a nucleus of courses embracing the most fundamental studies of fibers, textile production, finishing and testing, and quality control.



TEXTILE TECHNOLOGY AND MANAGEMENT CURRICULUM  
Bachelor of Science in Textile Technology and Management

FRESHMAN YEAR			SEMESTER	1st	2nd
Math.	131	Trigonometry		3	
Math.	133	Col. Alg.		3	
Grph.	121	Engr. Grph. I		2	
Eng.	131	Col. Rhet.		3	
Chem.	141	Gen. Chem.		4	
P.E., Band, or Basic ROTC					
Phys.	141	Gen. Physics			4
Grph.	122	Engr. Grph. II			2
Eng.	132	Col. Rhet.			3
Chem.	142	Gen. Chem.			4
Math.	238	Statistics			3
P.E., Band, or Basic ROTC					
Total credit hours				15*	16*
SOPHOMORE YEAR			SEMESTER	1st	2nd
Phys.	142	Gen. Physics		4	
T.E.	239	Cotton Eval. & Mkt.		3	
Acct.	234	Elem. Acct. I		3	
Eng.	233	Tech. Writing		3	
Govt.	231	Amer. Govt., Org.		3	
P.E., Band, or Basic ROTC					
Eco.	235	Prin. of Eco.			3
T.E.	235	Textile Fibers			3
Acct.	235	Elem. Acct. II			4
Chem.	341	Gen. Org. Chem.			3
Govt.	232	Amer. Govt., Func.			3
P.E., Band, or Basic ROTC					
Total credit hours				16*	16*
JUNIOR YEAR			SEMESTER	1st	2nd
T.E.	331	Prin. of Fiber Proc. I		3	
T.E.	333	Textile Bleaching		3	
Mgt.	331	Indust. Mgt.		3	
Mkt.	332	Prin. of Mkt.		3	
Hist.	231	Hist. of U.S. to 1865		3	
I.E.	338	Elem. of Meth. Anal.		3	
I.E.	321	Computer Program. Tech.			2
T.E.	332	Prin. of Fiber Proc. II			3
T.E.	334	Textile Dyeing & Finishing			3
Mgt.	333	Collect. Bargaining			3
Mgt.	435	Employee Supervision			3
Hist.	232	Hist. of U.S. since 1865			3
Total credit hours				18	17
SENIOR YEAR			SEMESTER	1st	2nd
T.E.	432	Man-Made Fibers		3	
T.E.	436	Fabric Des. & Constr.		3	
C.E.	4339	Law & Ethics for Engr.		3	
Spch.	338	Bus. & Prof. Spch.		3	
Mkt.	439	Sales Management		3	
Elective (Technical)				3	
T.E.	431	Textile Test. & Qual. Control			3
T.E.	437	Fabric Anal. & Adv. Design			3
Cloth. & Text.	438	Historic Textiles			3
Mgt.	431	Job Eval. & Wage Adm.			3
Elective					3
Total credit hours				18	15

Minimum hours required for graduation--131, plus P.E., Band, or Basic ROTC.

\*Exclusive of P.E., Band, or Basic ROTC.

## Courses in Textile Engineering

### FOR UNDERGRADUATES

#### 230. Applied Textiles. (3:3:0)

A beginning study of the structure of textile fibers as related to their properties, cotton and synthetic yarn manufacturing systems, and fundamentals of power weaving as related to design and production of fabrics. Demonstrations of systems are given to supplement lectures. Not for Textile Engineers.

#### 235. Textile Fibers. (3:3:0)

Physical and chemical properties of the natural fibers. Attention is given stress-strain and other characteristics affecting manufacturing performance. First introduction to theory of fiber structure.

#### 239. Cotton Evaluation and Fiber Marketing. (3:2:2)

The structure of the cotton marketing system. Special emphasis on new laboratory techniques of fiber analysis and evaluation. Grading and stapling covered in the laboratory. Open also to other majors.

#### 331. Principles of Fiber Processing I. (3:2:3)

Fundamental principles and practices for processing cotton and man-made fibers into yarn. Analysis of machine operations and performance standards.

#### 332. Principles of Fiber Processing II. (3:2:3)

Includes preparation of yarns to meet specific end uses. Correlation of machine performance capabilities of fundamental fiber properties.

#### 333. Textile Bleaching. (3:2:3)

Prerequisite: Current registration in Chem. 341. The physical and chemical principles of processes required to prepare yarns and fabrics for dyeing and finishing.

#### 334. Textile Dyeing and Finishing. (3:2:3)

Theory and practice of dyeing and coloring all types of textile fibers, yarns, and fabrics, as well as industrial finishing of these fabrics.

#### 431. Textile Testing and Quality Control. (3:2:3)

Instrumentation for manufacturing process control. Test data are correlated and process control charts prepared from data obtained in mill scale operation methods of sampling and testing for product and machine performance. Technical reports emphasize rigorous statistical treatment of test data.

#### 432. Man-Made Fibers. (3:3:0)

The physical, chemical and engineering properties of the most important man-made fibers. Studied also are raw materials used, manufacturing methods, classification of fibers, and their principal fields of application.

#### 436. Fabric Design and Construction. (3:1:6)

Theory and practice in designing and weaving fabrics. In the laboratory engineering analysis is made of weaving mechanisms and their application to fabric construction.

#### 437. Fabric Analysis and Advanced Design. (3:1:6)

Prerequisite: T.E. 436. Fabrics are analyzed for data to permit duplication or improved design. Special mechanisms and design of complex fabric structures are covered.

### FOR UNDERGRADUATES AND GRADUATES

#### 4121. Textile Engineering Seminar. (1:1:0)

Prerequisite: Advanced standing and approval of Department Head. Individual study of engineering problems of special interest and value to the student. May be repeated for credit in different areas.

#### 4331. Special Problems in Textile Engineering. (3:3:0)

Prerequisite: Advanced standing and approval of Department Head. Individual studies in advanced engineering areas of special interest. May be repeated for credit.

#### 4332. Special Experimental Problems in Textile Engineering. (3:0:9)

Prerequisite: Advanced standing and approval of Department Head. Individual experimental studies in current problems in advanced engineering technology of special interest. May be repeated for credit.

## School of Home Economics

Willa Vaughn Tinsley, *Dean*

Billie Williamson, *Assistant to the Dean*

Office: H.E. 151

The School of Home Economics is divided into instructional departments which offer course work and supervise the degree programs described in Part I of this Catalog. Specific curricula are designed by the departments for each of the degree programs and are presented in special tables on the following pages along with a descriptive list of the courses offered by each department.

### Home Economics Advisory Program

The faculty-student advisory program in Home Economics is designed to assist the student in planning her college program intelligently and to help her anticipate and solve personal problems through close relations with the faculty. Each student enrolled in the school is assigned a faculty adviser for her freshman and sophomore years. When the student achieves junior standing (64 semester hours), the head of her major department usually becomes her adviser. Advanced transfer students are at once assigned to department heads for purposes of advisement. Either advisers or advisees may request the Dean to make a change in assignment at any time and for any reason.

The faculty adviser:

1. Advises the student as to the courses to be taken each semester.
2. Helps the student arrange a schedule for enrolling in these courses.
3. Assists the student in the selection of a major and in making out a degree plan.
4. Counsels with the student on personal problems (when the student wishes help).

### Core Curriculum

The School of Home Economics offers work leading to the Degree of Bachelor of Science in Home Economics with a major in applied arts, clothing and textiles, food and nutrition, home economics education, or home and family life. The degree is also given with a major in general home economics for those students who wish a broad background of preparation for homemaking and related occupations but who do not wish to specialize in any one of the other professional areas of home economics.

The degree requirements common to all majors in the School of Home Economics are as follows:

- I. Foundation core courses to provide breadth in liberal education (46-48 hours)
  - Eng. 131-132—College Rhetoric
  - Eng. 231-232—Masterpieces of Literature
  - Govt. 231—American Government, Organization
  - Govt. 232—American Government, Functions
  - \*Hist. 231-232—History of the United States
  - Physical education or band, 4 semesters
  - Social and Natural Sciences—18-20 hours, including:
    - Sociology 230—Introduction to Sociology
    - or
    - Sociology 233—Current Social Problems
    - Zoology 137—Anatomy and Physiology
    - or
    - Zoology 235-236—Anatomy, Physiology and Hygiene
    - or
    - Biology 141-142—Botany and Zoology
- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)
  - Ch. D. & F. R. 112—Personal Development
  - Ap. A. 131—Design Applied to Daily Living
  - Ch. D. & F.R. 131—Personal and Family Relationships
  - Cloth. & Text. 131—Wardrobe Analysis, Construction and Buying
  - Food & Nutr. 131—Nutrition and Food
  - H. Mgt. 131—Management and Consumer Problems
  - H. E. Ed. 331—Philosophy and Principles of Vocational Home Economics
  - or
  - H. Ed. 433—Introduction to Research in Home Economics
  - H. Ed. 411—Home Economics Seminar
- III. Additional required and elective courses as specified in the major degree programs to complete a total minimum of 127 semester hours for graduation.

### Special Curriculum for General Home Economics

Supervised by Dean Tinsley

- I. Foundation core courses to provide breadth in liberal education (46-48 hours)
- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)
- III. Additional courses in Home Economics (27 hours)
  - Ap. A. 331—Interior Design
  - Ch. D. & F.R. 233—Child Growth & Development
  - Ch. D. & F.R. 433—Family Relations
  - Cloth. & Text. 231—Textiles for the Consumer

\* Hist. 330—History of Texas—may be taken in lieu of Hist. 231 or 232 except in meeting certification requirements in the Home Economics Education major.

- Cloth. & Text. 237—Apparel Selection and Design  
 Food & Nutr. 331—Meal Management  
 H. E. Ed. 331—Philosophy and Principles of Vocational Home Economics or H. E. Ed. 433—Introduction to Research in Home Economics  
 H. Mgt. 432—Home Management Living  
 H. Mgt. Elective—3 semester hours
- IV. Additional required courses and specified electives (27 hours)  
 Food & Nutr. 334—Human Nutrition  
 Cloth. & Text. 332—Dressmaker Tailoring and Design  
 Electives in home economics—6 semester hours  
 Philosophy or religious education—3 semester hours  
 Electives not in home economics—6 semester hours  
 Speech, radio, TV, or journalism—3 semester hours  
 Music, art appreciation, or anthropology—3 semester hours
- V. Electives to complete a total minimum of 127 semester hours for graduation.

## Department of Applied Arts

Bill C. Lockhart, *Head of the Department*  
 Office: H.E. 265-B

*Professors:* Clarence Kincaid, Bill Lockhart

*Associate Professors:* Ethel Jane Beitler, T. A. Lockard, Foster Marlow

*Assistant Professors:* D. J. Davis, May Dyer, Peggy Howard, Franz Kriwanek, Juanita Pollard, Donna Read, John Queen

*Instructors:* Richard Cheatham, Pauline Dahl, Jaclyn Harland

*Part-Time Instructor:* Patricia Marlow

This department supervises the undergraduate degree programs in Applied Arts, *Bachelor of Science in Home Economics*, described in Part I of this Catalog and cooperates with the Department of Architecture and Allied Arts in the supervision of the Bachelor of Arts Degree in Art. In the Bachelor of Science in Home Economics program in applied arts, the following options for specialization are available: General Option, Art Education Option, Design Option, and a Double Major Option in cooperation with the Department of Home Economics Education.

Instruction given by the Department of Applied Arts is offered in the belief that every individual has some creative ability which can be developed under proper guidance and in a sympathetic environment, and with the conviction that most persons welcome experience in the creation or selection of artistically appealing objects for daily living or business.

Courses are designed to appeal to students in all parts of the College who wish an experience in creative art work as a part of their liberal education, as well as to those in the School of Home Economics

who are planning careers in fields based on training in applied art. There is a growing demand for qualified designers, and concentration in applied arts may lead to careers in interior design, teaching, or recreation.

The Department of Applied Arts reserves the right to retain, for one year, students' class projects for exhibition or reproducing purposes.

Each senior major in the department is required to arrange a public exhibit of his work at some time during his last regular semester in college.

## **Bachelor of Science in Home Economics—Applied Arts Major**

### **General Option**

- I. Foundation core courses to provide breadth in liberal education (46-48 hours)
- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)
- III. Additional courses in Applied Arts (21 hours)
  - Ap. A. 112—Philosophies and Purposes in Applied Arts
  - Ap. A. 132—Introduction to Crafts
  - Ap. A. 234—Intermediate Design
  - Ap. A. 328—Appreciation of Art Today
  - Ap. A. Electives—12 semester hours
- IV. Additional required courses and specified electives (18 hours)
  - Ch. D. & F. R. 233—Child Growth and Development
  - Cloth. & Text. 231—Textiles for the Consumer
  - Cloth. & Text. 237—Apparel Selection and Design
  - Food & Nutr. 334—Human Nutrition
  - H. Mgt. Elective—3 semester hours
  - H. E. Elective—3 semester hours
- V. Electives to complete a total minimum of 127 semester hours for graduation.

### **Interior Design Option**

- I. Foundation core courses to provide breadth in liberal education (46-48 hours)
- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)
- III. Additional courses in Applied Arts (27 hours)
  - Ap. A. 112—Philosophies and Purposes in Applied Arts
  - Ap. A. 132—Introduction to Crafts
  - Ap. A. 234—Intermediate Design
  - Ap. A. 236—Graphics for Interiors
  - Ap. A. 328—Appreciation of Art Today
  - Ap. A. 331—Interior Design
  - Ap. A. 334—Furnishings for Interiors
  - Ap. A. 4314—Advanced Treatments of Interior Residential Space
  - Ap. A. 4315—Advanced Treatments of Interior Commercial Space
  - Ap. A. 439—Experience Training in Applied Arts

- IV. Additional required courses and specified electives (18 hours)  
 Ch. D. & F.R. 233—Child Growth and Development  
 Cloth. & Text. 231—Textiles for the Consumer  
 Cloth. & Text. 237—Apparel Selection and Design  
 Food & Nutr. 334—Human Nutrition  
 H. Mgt. Elective—3 semester hours  
 H. E. Elective—3 semester hours
- V. Electives to complete a total minimum of 127 semester hours for graduation.

### Art Education Option

- I. Foundation core courses to provide breadth in liberal education (49-51 hours)  
 (In addition to core courses, 3 hours in Mathematics or Foreign Language are required to meet certification requirements)
- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)
- III. Additional courses in Art (48 hours)  
 Ap. A. 112—Philosophies and Purposes in Applied Arts  
 Ap. A. 132—Introduction to Crafts  
 Ap. A. 134—Techniques in Visual Expression in Applied Arts  
 Ap. A. 234—Intermediate Design  
 Ap. A. 238—Introduction to Jewelry  
 Ap. A. 2312—Presentation Techniques in the Visual Arts  
 Ap. A. 2313—Techniques in Clay for Art Education  
 Ap. A. 328—Appreciation of Art Today  
 Ap. A. 337, 338\*—Art in Elementary Education  
 Ap. A. 3312, 3313—Techniques in Oil and Water-base Paints for Art Education  
 Ap. A. 432—Sculpture  
 Ap. A. 436—Art in Secondary Education  
 Ap. A. 437—Current Practices in Secondary Art Education  
 A1. A. 131-132—History of Art, or  
 A1. A. 4318-4319—History of Painting and Sculpture
- IV. Additional required courses and specified electives (36-42 hours)  
 Ch. D. & F.R. 233—Child Growth and Development  
 Cloth. & Text. 231—Textiles for the Consumer  
 Cloth. & Text. 237—Apparel Selection and Design  
 Food & Nutr. 334—Human Nutrition  
 H. Mgt. Elective—3 semester hours  
 H. E. Elective—3 semester hours  
 Education courses—18-24 semester hours to meet certification requirements. (Consult the Department of Education for the specific requirements in Education courses).
- V. Electives to complete a total minimum of 153-161 semester hours for graduation.

\* Secondary Art Education Majors are not required to take Ap. A. 338, making minimum degree requirements 150 semester hours for these majors.

**Design Option**

- I. Foundation core courses to provide breadth in liberal education (46-48 hours)
- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)
- III. Additional courses in Applied Arts (27 hours)
  - Ap. A. 112—Philosophies and Purposes in Applied Arts
  - Ap. A. 132—Introduction to Crafts
  - Ap. A. 234—Intermediate Design
  - Ap. A. 328—Appreciation of Art Today
  - Ap. A. courses in one of the following specified areas: jewelry, sculpture, or textiles (9 semester hours):
    - Jewelry —Ap. A. 238—Introduction to Jewelry
      - Ap. A. 435—Jewelry
      - Ap. A. 4351—Jewelry Problems
    - Sculpture—Ap. A. 432—Sculpture
      - Ap. A. 434—Metalwork
      - Ap. A. 4321—Sculpture Problems
    - Textiles —Ap. A. 2311—Introduction to Textile Design
      - Ap. A. 431—Silk Screen
      - Ap. A. 4311—Textile Design
  - Ap. A. courses in general crafts (9 semester hours) to be elected from courses listed:
    - Ap. A. 238—Introduction to Jewelry
    - Ap. A. 2311—Introduction to Textile Design
    - Ap. A. 2313—Techniques in Clay for Art Education
    - Ap. A. 332—Woodwork
    - Ap. A. 339—Enameling
    - Ap. A. 3311—Advanced Crafts
    - Ap. A. 411—Special Problems
    - Ap. A. 431—Silk Screen
    - Ap. A. 432—Sculpture
    - Ap. A. 434—Metal Work
    - Ap. A. 435—Jewelry
    - Ap. A. 4311—Textile Design
    - Ap. A. 4313—Exploration of Ceramics
    - Ap. A. 4321—Sculpture Problems
    - Ap. A. 4351—Jewelry Problems
- IV. Additional required courses and specified electives (18 hours)
  - Ch. D. & F.R. 233—Child Growth and Development
  - Cloth. & Text. 231—Textiles for the Consumer
  - Cloth. & Text. 237—Apparel Selection and Design
  - Food & Nutr. 334—Human Nutrition
  - H. Mgt. Elective—3 semester hours
  - H. E. Elective—3 semester hours
- V. Electives to complete a total minimum of 127 semester hours for graduation



## APPLIED ARTS CURRICULA

## Bachelor of Science in Home Economics

Core Curriculum	General Option	Interior Design Option	Art Education Option	Design Option
I. Foundation core courses to provide breadth in liberal education	Eng. 131-132, 231, 232 Govt. 231, 232 Hist. *231, 232 P.E. or Band-4 semesters Social and Natural Sciences - 18-20 hours, including Soc. 230 or 233 Zool. 137 or 235-236 or Biol. 141-142  46-48 hours	Same as for General Option  46-48 hours	Same as for General Option, plus 3 hours in Math. or Foreign Language  49-51 hours	Same as for General Option  46-48 hours
II. Home Economics core courses to provide basic concepts in personal and family living	Ap. A. 131 Ch. D. & F. R. 112, 131 Cloth. & Text. 131 Food & Nutr. 131 H. Mgt. 131 H. E. Ed. 331 or 433, 411  20 hours	Same as for General Option  20 hours	Same as for General Option  20 hours	Same as for General Option  20 hours
III. Additional Courses in Art	Ap. A. 112, 132, 234, 328, plus electives  21 hours	Ap. A. 112, 132, 234, 236, 328, 331, 334, 4314, 4315, 439  27 hours	Ap. A. 112, 132, 134, 234, 238, 2312, 2313, 328, 337, 338, 3312, 3313, 432, 436, 437 Al. A. 131, 132 or Al. A. 4318, 4319  48 hours	Ap. A. 112, 132, 234, 328, 9 hours in <u>one</u> of the following groups: Ap. A. 238, 435, 4351 or Ap. A. 432, 434, 4321 or Ap. A. 2311, 431, 4311, 9 hours elected from the following: Ap. A. 238, 2311, 2313, 332, 339, 3311 411, 431, 432, 434, 435, 4311, 4313, 4321, 4351  27 hours
IV. Additional required courses and specified electives	Ch. D. & F.R. 233 Cloth. & Text. 231, 237 Food & Nutr. 334 H. Mgt. elective H.E. elective  18 hours	Same as for General Option  18 hours	Same as for General Option, plus 18-24 hours in Education  36-42 hours	Same as for General Option  18 hours
V. Electives to complete a total minimum of 127 semester hours for graduation	Electives, 20-22 hours	Electives, 14-16 hours	Electives, None	Electives, 14-16 hours

### Double Major Option

The requirements of any option in Applied Arts may be combined with the requirements for a major in Home Economics Education, with the number of hours required for graduation depending upon the option chosen.

## Courses in Applied Arts

### FOR UNDERGRADUATES

112. **Philosophies and Purposes in Applied Arts. (1:1:0)**
131. **Design Applied to Daily Living. (3:1:4)**  
Elements and principles of design as they function in the life of the individual.
132. **Introduction to Crafts. (3:1:4)**  
Prerequisite for majors to other crafts courses.
134. **Techniques in Visual Expression in Applied Arts. (3:1:4)**  
The presentation of various graphic techniques including pencil, ink, charcoal, felt pen, and brush. The content areas with emphasis on individual expression includes Art Education and Interior Design.
231. **Costume Design. (3:1:4)**
231. **Introduction to Textile Design. (3:1:4)**  
Prerequisite: Ap. A. 131 or departmental approval. An introduction to various processes used in the execution of textile designs; emphasis is on stitchery, weaving, block-printing, and batik.
231. **Presentation Techniques in the Visual Arts. (3:1:4)**  
Prerequisite: Ap. A. 234 or departmental approval. Exploration of different areas of visual presentation to include lettering, graphic representation and organization, light-sensitive materials, and display techniques.
231. **Techniques in Clay for Art Education. (3:1:4)**  
Prerequisite: Ap. A. 131 or departmental approval. Simple forming, firing, glazing, and decorating of clay and other plastic materials.
234. **Intermediate Design. (3:1:4)**  
Prerequisite: Ap. A. 131 or equivalent.
235. **General Crafts. (3:1:4)**  
Survey of crafts for non-majors.
236. **Graphics for Interiors. (3:1:4)**  
**(Formerly Rendering for Interiors)**  
Prerequisite: Ap. A. 331. A study of perspective drawing and rendering in relation to interior spaces.
238. **Introduction to Jewelry. (3:1:4)**  
Prerequisite: Ap. A. 131 or departmental approval. An introduction to jewelry design and basic jewelry-making processes, with emphasis on fabricated jewelry.
328. **Appreciation of Art Today. (2:2:0)**  
Practice in aesthetic evaluations.
331. **Interior Design. (3:1:4)**  
Prerequisite: Sophomore standing. Application of design principles to selection and arrangement of furnishings for a home, with emphasis on utility, beauty, and convenience.
331. **Advanced Crafts. (3:1:4)**  
Prerequisite: Advanced standing. Individual study in a specific craft.
- 331, 331. **Techniques in Oil and Water-base Paints for Art Education. (3:1:4)**  
Prerequisite: Ap. A. 134 and Ap. A. 234 or departmental approval. Fundamentals of various oil and water-base painting techniques; emphasis on individual expression relative to various levels of art expression.

**3315. Equipment and Materials for Interior Spaces. (3:1:4)**

Prerequisite: Ap. A. 331. Properties, installation, and sales problems relating to lighting and other equipment and materials for interiors.

**332. Woodwork. (3:1:4)**
**334. Furnishings for Interiors. (3:3:0)**
**337, 338. Art in Elementary Education. (3:1:4 each)**

Practical application of current art education practices in providing creative experiences for children in our schools.

**339. Enameling. (3:1:4)**

Designing with enameling process on semi-precious and precious metals.

### FOR UNDERGRADUATES AND GRADUATES

**411. Special Problems. (1:0:2)**

Prerequisite: Advanced standing. Advanced work in applied arts through individual investigation. May be repeated for credit.

**431. Silk Screen. (3:1:4)**
**4311. Textile Design. (3:1:4)**

Prerequisite: Ap. A. 2311. A continuation of the study of the design of textiles with an exploration of additional processes used in Textile Design.

**4313. Exploration of Ceramics. (3:1:4)**

Prerequisite: Ap. A. 2313. An exploration of forming techniques including the potters wheel, with emphasis upon creative production; included are glaze calculations and investigation of ceramic bodies.

**4314. Advanced Treatments of Interior Residential Space. (3:1:4)**

Prerequisite: Ap. A. 236 and Ap. A. 331. Advanced study of various dimensions, purposes, and characters in relation to the small and large residential shelters. Oral and visual presentations stressed.

**4315. Advanced Treatments of Interior Commercial Space. (3:1:4)**

Prerequisite: Ap. A. 236 and Ap. A. 331. Advanced study in the treatment of commercial interiors such as lounges, offices, conference and meeting rooms, restaurants, motels, etc. Oral and visual presentations stressed.

**4316. Research in Dynamics of Interior Space. (3:1:4)**

Prerequisite: Ap. A. 331. Advanced problems relating to architectural space.

**432. Sculpture. (3:1:4)**
**4321. Sculpture Problems. (3:1:4)**

Advanced problems in sculpture.

**434. Metalwork. (3:1:4)**
**435. Jewelry. (3:1:4)**
**4351. Jewelry Problems. (3:1:4)**

Advanced problems in jewelry.

**436. Art in Secondary Education. (3:1:4)**

Investigation and study of current art education practices for secondary schools.

**437. Current Practices in Secondary Art Education. (3:1:4)**

The teaching of art in the secondary school and its application to the history and philosophy of art education.

**439. Experience Training in Applied Arts. (3:1:6)**

Prerequisite: Advanced standing. Student arranges to gain first-hand experience in a local business firm or institution; work must be done in the field of applied arts in which the student has chosen an option; may be repeated once for credit.

### FOR GRADUATES

**511. Advanced Applied Arts Unit. (1:0:2)**

Individual investigation in applied arts. May be repeated for credit.

**518. Seminar in Applied Arts. (1:1:0)**

Prerequisite: Graduate standing and departmental approval. An investigation of current trends in Applied Arts based on a survey of the literature.

**531. Special Problems. (3:1:4)**

Advanced work in applied arts in which student has had previous training. May be repeated for credit.

**535. Theory and Practice of Art for Elementary Teachers. (3:1:4)**

Art activities and experiences for the child.

**537. Art for Exceptional Children. (3:1:4)**

Review of the characteristics of atypical children; application of this knowledge in unfolding the creative potentialities of each child through the use of art experiences as a vocational as well as recreational medium.

**538. Vocational Art Orientation and Evaluation in Rehabilitation Counseling. (3:1:4)**

Planned for students in Vocational Rehabilitation Counselor Training Program.

## Department of Clothing and Textiles

Gene Shelden, *Head of the Department*

Office: H.E. 259

*Professors:* Hazel Fletcher, Florence Petzel, Gene Shelden

*Associate Professor:* Lila Kinchen

*Assistant Professor:* Mary Gerlach

*Instructor:* Johnny Dorsey

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: CLOTHING AND TEXTILES, *Bachelor of Science in Home Economics* and *Master of Science in Home Economics*. In the undergraduate program options are available in Fashion, Merchandising, Technology, and in a double major in co-operation with the Department of Home Economics Education. Instruction is designed to prepare the graduate for a career in one of the many aspects of the clothing and textiles industry or for teaching clothing and textiles. In each of the programs, emphasis is placed on selection and purchase of clothing and textiles for the individual and for the home. One of four options may be chosen. A student in another school may have a minor in this department by completing 18 hours selected in conference with the department head.

### Bachelor of Science in Home Economics—Clothing and Textiles Major

#### Fashion Option

- I. Foundation core courses to provide breadth in liberal education (46-48 hours)
- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)

- III. Additional courses in Clothing and Textiles (21 hours)
  - Cloth. & Text. 231—Textiles for the Consumer
  - Cloth. & Text. 237—Apparel Selection and Design
  - Cloth. & Text. 332—Dressmaker Tailoring and Design
  - Cloth. & Text. 433—History and Philosophy of Dress
  - Cloth. & Text. 436—Flat Pattern Design
  - Cloth. & Text. Electives—6 semester hours
- IV. Additional required courses and specified electives (17 hours)
  - Ap. A. 231—Costume Design
  - Ap. A. 328—Appreciation of Art Today
  - Ap. A. 331—Interior Design
  - Ch. D. & F.R. Elective—3 semester hours
  - Food and Nutr. 334—Human Nutrition
  - H. Mgt. Elective—3 semester hours
- V. Electives to complete a total minimum of 127 semester hours for graduation. (Recommended: Foreign Language—14 semester hours; Speech—3 semester hours; Journalism—3-6 semester hours.)

#### **Merchandising Option**

- I. Foundation core courses to provide breadth in liberal education (46-48 hours)
- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)
- III. Additional courses in Clothing and Textiles (21 hours)
  - Cloth. and Text. 231—Textiles for the Consumer
  - Cloth. and Text. 237—Apparel Selection & Design
  - Cloth. and Text. 332—Dressmaker Tailoring and Design
  - Cloth. and Text. 334—Family Clothing
  - Cloth. and Text. 433—History & Philosophy of Dress
  - Cloth. and Text. Electives—6 semester hours
- IV. Additional required courses and specified electives (26 hours)
  - Acct. 234—Elementary Accounting I
  - Ap. A. 328—Appreciation of Art Today
  - Ap. A. Electives—3 semester hours
  - Ch. D. & F.R. Electives—3 semester hours
  - Food & Nutr. 334—Human Nutrition
  - H. Mgt. Elective—3 semester hours
  - Mkt. 332—Principles of Marketing
  - Mkt. 335—Principles of Retailing
  - Mkt. 4315—Retail Buying or Mkt. 334—Principles of Advertising
- V. Electives to complete a total minimum of 127 semester hours for graduation. (Recommended: Eco. 235—Principles of Economics, Speech—3 semester hours.)

#### **Technology Option**

- I. Foundation core courses to provide breadth in liberal education (54 hours)
  - In addition to the required core science courses, these additional science courses are required:
    - Chemistry 141-142—General Chemistry
    - Chemistry 341—Introductory Organic Chemistry
    - Physics 141-142—General Physics

- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)
- III. Additional courses in Clothing and Textiles (21 hours)
  - Cloth. & Text. 231—Textiles for the Consumer
  - Cloth. & Text. 237—Apparel Selection and Design
  - Cloth. & Text. 332—Dressmaker Tailoring and Design
  - Cloth. & Text. 431—Textile Testing and Analysis
  - Cloth. & Text. 433—History and Philosophy of Dress
  - Cloth. & Text. 438—Historic Textiles
  - Cloth. & Text. Electives—3 semester hours
- IV. Additional required courses and specified electives (23 hours)
  - Ap. A. 328—Appreciation of Art Today
  - Ap. A. Elective—3 semester hours
  - Ch. D. & F.R. Elective—3 semester hours
  - Food & Nutr. 334—Human Nutrition
  - H. Mgt. Elective—3 semester hours
  - Math. 133—College Algebra
  - Math. 139—Analytic Geometry and Calculus I
  - Eng. 233—Technical Writing
- V. Electives to complete a total minimum of 127 semester hours for graduation. (Recommended: Spch. 239 or 338.)

### Double Major Option

This option combines the requirements of the Fashion Option in Clothing and Textiles with the requirements for a major in Home Economics Education, and totals 131 hours.

## Courses in Clothing and Textiles

### FOR UNDERGRADUATES

- 131. **Wardrobe Analysis, Construction, and Buying.** (3:1:4)  
Prerequisite: Ap. A. 131 or concurrent.
- 132. **Apparel and Textile Selection.** (3:3:0)  
For non-home economics majors. Selection in relation to the individual, to fashion, and to family needs.
- 231. **Textiles for the Consumer.** (3:3:0)  
Selection, use, and care of textiles in relation to fiber composition, yarn and fabric structure, color and finish.
- 237. **Apparel Selection and Design.** (3:1:4)  
Prerequisite: Ap. A. 131 or equivalent.
- 332. **Dressmaker Tailoring and Design.** (3:1:4)  
Prerequisite: Cloth. & Text. 131, 237.
- 333. **Problems in Upholstering and Draperies.** (3:1:4)  
Consumer problems in buying household textiles and upholstered furniture; finishing or refinishing chair frame and upholstering; construction problems in draw-draperies.
- 334. **Family Clothing.** (3:3:0)  
Basic philosophy of dress in the American culture; wardrobe planning and buying procedures for family members with emphasis on children's clothing.

### FOR UNDERGRADUATES AND GRADUATES

- 411. **Special Problems.** (1:0:3)  
Prerequisite: Cloth. & Text. 332. May be repeated for 2 or 3 hours of credit.

CLOTHING AND TEXTILES CURRICULA  
Bachelor of Science in Home Economics

Core Curriculum	Fashion Option	Merchandising Option	Technology Option
I. Foundation core courses to provide breadth in liberal education	Eng. 131-132, 231, 232 Govt. 231, 232 Hist. *231, 232 P.E. or Band-4 semesters Social and Natural Sciences- 18-20 hours, including Soc. 230 or 233 Zool. 137 or 235-236 or Biol. 141-142 46-48 hours	Same as for Fashion Option  46-48 hours	Same as for Fashion Option, but science courses to include: Chem. 141-142, 341 Physics 141-142 54 hours
II. Home Economics core courses to provide basic concepts in personal and family living	Ap. A. 131 Ch. D. & F. R. 112, 131 Cloth. & Text. 131 Food & Nutr. 131 H. Mgt. 131 H.E. Ed. 331 or 433, 411 20 hours	Same as for Fashion Option  20 hours	Same as for Fashion Option 20 hours
III. Additional courses in Clothing & Textiles	Cloth. & Text. 231, 237, 332, 433, 436, plus electives 21 hours	Cloth. & Text. 231, 237, 332, 334, 433, plus electives 21 hours	Cloth. & Text. 231, 237, 332, 431, 433, 438, plus electives 21 hours
IV. Additional required courses and specified electives	Ap. A. 231, 328, 331 Ch. D. & F.R. elective Food & Nutr. 334 H. Mgt. elective 17 hours	Acct. 234 Ap. A. 328, elective Ch. D. & F.R. elective Food & Nutr. 334 H. Mgt. elective Mkt. 332, 335 Mkt. 4315 or 334 26 hours	Ap. A. 328, elective Ch. D. & F.R. elective Eng. 233 Food & Nutr. 334 H. Mgt. elective Math. 133, 139 23 hours
V. Electives to complete a total minimum of 127 semester hours for graduation	Electives, 21-23 hours (Recommended electives: Foreign language, 14 hours; Speech; Journalism)	Electives, 12-14 hours (Recommended electives: Eco. 235, Speech)	Electives 9 hours (Recommended elective: Speech 239 or 338)

\*Hist. 330 is acceptable in lieu of Hist. 231 or 232.

431. **Textile Testing and Analysis.** (3:1:4)  
Prerequisite: Cloth. & Text. 231.
432. **Dress Design Through Draping.** (3:1:4)  
Prerequisite: Cloth. & Text. 332, 237.
433. **History and Philosophy of Dress.** (3:3:0)
434. **Fashion Fundamentals.** (3:3:0)  
Analysis of fashion relative to social, psychological, and economic change. Significance of fashion to merchandising.
436. **Flat Pattern Design.** (3:1:4)  
Prerequisite: Cloth. & Text. 237, 332.
437. **Demonstration Techniques in Clothing.** (3:3:0)  
Prerequisite: Cloth. & Text. 332.
438. **Historic Textiles.** (3:3:0)

## FOR GRADUATES

511. **Advanced Clothing Problems.** (1:0:3)  
May be repeated for credit.
518. **Seminar.** (1:1:0)  
May be repeated for credit.
531. **Special Problems in Clothing and Textiles.** (3:1:4)  
May be repeated for credit.
5335. **Textiles for Elementary Teachers.** (3:3:0)  
Prerequisite: Graduate standing in elementary education. Consumer source materials; historical and recent developments in textiles; units of special significance for each elementary grade; special attention to consumer problems for the personal use of class members.
534. **Custom Tailoring.** (3:1:4)
535. **Advanced Problems in Upholstery, Draperies, and Other Household Fabrics.** (3:1:4)
630. **Master's Report.** (3)
631. **Master's Thesis.** (3)  
Enrollment required at least twice.

## Department of Food and Nutrition

Mina Wolf Lamb, *Head of the Department*  
Office: H.E. 263

*Professors:* Sara Hunt, Mina Lamb, Willa Vaughn  
Tinsley

*Associate Professor:* Gladys Holden

*Assistant Professors:* Margaret Kassouny,\* Clara McPherson, Barbara Zeches

*Instructors:* Angela Boren, Dorothy Helen Brittin,  
Opal Wood

\* On leave, 1966-1967.

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: FOOD AND NUTRITION, *Bachelor of Science in Home Economics*, and *Master of Science in Home Economics*.



These programs emphasize the increasingly important role of food and nutrition in the personal lives of people as well as in the operation of institutions of many types, such as hospitals, schools and colleges, industries, and military establishments. The aim of this department is to add to the liberal education of students through a knowledge of food and nutrition and to provide students with a sound foundation for professional careers in this area.

To meet the need for trained men and women the department offers courses which provide various academic options: dietetics, food merchandising, community nutrition, food technology, research, and teaching.

## **Bachelor of Science in Home Economics—Food and Nutrition Major**

### **Dietetics Option**

- I. Foundation core courses to provide breadth in liberal education (53 hours)  
In addition to the required core science courses, these additional science courses are required:  
Bacteriology 231—Bacteriology  
Chemistry 141-142—General Chemistry  
Chemistry 341—Introductory Organic Chemistry  
Chemistry 342—Physiological Chemistry
- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)
- III. Additional courses in Food and Nutrition (21 hours)  
Food & Nutr. 231—Principles of Food Preparation  
Food & Nutr. 320—Quantity Food Production and Service  
Food & Nutr. 321—Food Service Organization and Management  
Food & Nutr. 331—Meal Management  
Food & Nutr. 334—Human Nutrition  
Food & Nutr. 439—Food Purchasing  
Food & Nutr. electives selected to meet American Dietetic Association academic requirements
- IV. Additional required courses and specified electives (12 hours)  
Ap. A. elective  
Ch. D. & F. R. elective  
Cloth. & Text. 231—Textiles for the Consumer  
H. Mgt. 432—Home Management Living
- V. Electives to complete a total minimum of 127 semester hours for graduation.

### **Community Nutrition Option**

- I. Foundation core courses to provide breadth in liberal education (53 hours)  
In addition to the required core science courses, these additional science courses are required:  
Chemistry 141-142—General Chemistry  
Chemistry 341—Introductory Organic Chemistry  
Chemistry 342—Physiological Chemistry  
Psychology 332—Mental Health or  
Psychology 335—Adolescent Psychology

- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)
- III. Additional courses in Food and Nutrition (21 hours)
  - Food & Nutr. 231—Principles of Food Preparation
  - Food & Nutr. 331—Meal Management
  - Food & Nutr. 334—Human Nutrition
  - Food & Nutr. 412—Field Work in Nutrition
  - Food & Nutr. 422—Food and the Consumer
  - Food & Nutr. 423—Community Nutrition
  - Food & Nutr. 424—Diet Therapy
  - Food & Nutr. electives—5 semester hours
- IV. Additional required courses and specified electives (12 hours)
  - Ap. A. elective
  - Ch. D. & F. R. elective
  - Cloth. & Text. 231—Textiles for the Consumer
  - H. Mgt. 232—General Home Management or
  - H. Mgt. 435—Advanced Consumer Problems
- V. Electives to complete a total minimum of 127 semester hours for graduation.

#### **Research Option**

- I. Foundation core courses to provide breadth in liberal education (58 hours)
  - In addition to the required core science courses, these additional science courses are required:
    - Chemistry 141-142—General Chemistry
    - Chemistry 241, 242—Analytical Chemistry
    - Chemistry 341—Introductory Organic Chemistry
    - Chemistry 342—Physiological Chemistry
- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)
- III. Additional courses in Food and Nutrition (21 hours)
  - Food & Nutr. 231—Principles of Food Preparation
  - Food & Nutr. 331—Meal Management
  - Food & Nutr. 334—Human Nutrition
  - Food & Nutr. 432—Advanced Human Nutrition
  - Food & Nutr. 436—Experimental Methods with Foods
  - Food & Nutr. electives—6 semester hours
- IV. Additional required courses and specified electives (12 hours)
  - Ap. A. elective
  - Ch. D. & F. R. elective
  - Cloth. & Text. 231—Textiles for the Consumer
  - H. Mgt. elective
- V. Electives to complete a total minimum of 127 semester hours for graduation.

#### **Business and Merchandising Option**

- I. Foundation core courses to provide breadth in liberal education (46-48 hours)

FOOD AND NUTRITION CURRICULA  
Bachelor of Science in Home Economics

Core Curriculum	Dietetic Option	Community Nutrition Option	Research Option	Business and Merchandising Option
I. Foundation core courses to provide breadth in liberal education	Eng. 131-132, 231, 232 Govt. 231, 232 Hist. *231, 232 P.E. or Band-4 semesters Social and Natural Sciences, including Mbio. 231 Chem. 141-142, 341, 342 Soc. 230 or 233 Zool. 137  53 hours	Eng. 131-132, 231, 232 Govt. 231, 232 Hist. *231, 232 P.E. or Band-4 semesters Social and Natural Sciences, including Chem. 141-142, 341, 342 Psy. 332 or 335 Soc. 230 or 233 Zool. 137  53 hours	Eng. 131-132, 231, 232 Govt. 231, 232 Hist. *231, 232 P.E. or Band-4 semesters Social and Natural Sciences, including Chem. 141-142, 241, 242, 341, 342 Soc. 230 or 233 Zool. 137  58 hours	Eng. 131-132, 231, 232 Govt. 231, 232 Hist. *231, 232 P.E. or Band-4 semesters Social and Natural Sciences, including 18-20 hours, including Chem. 133-134 Soc. 230 or 233 Zool. 137  46-48 hours
II. Home Economics core courses to provide basic concepts in personal and family living	Ap. A. 131 Ch. D. & F. R. 112, 131 Cloth. & Text. 131 Food & Nutr. 131 H. Mgt. 131 H.E. Ed. 331 or 433, 411  20 hours	Same as for Dietetic Option  20 hours	Same as for Dietetic Option  20 hours	Same as for Dietetic Option  20 hours
III. Additional courses in Food and Nutrition	Food & Nutr. 231, 320, 321, 331, 334, 439, plus electives to meet American Dietetic Assn. academic requirements  21 hours	Food & Nutr. 231, 331, 334, 412, 422, 423, 424, plus electives  21 hours	Food & Nutr. 231, 331, 334, 432, 436, plus electives  21 hours	Food & Nutr. 231, 331, 334, 422, 425, 436, plus electives  21 hours
IV. Additional required courses and specified electives	Ap. A. elective Ch. D. & F. R. elective Cloth. & Text. 231 H. Mgt. 432  12 hours	Ap. A. elective Ch. D. & F. R. elective Cloth. & Text. 231 H. Mgt. 232 or 435  12 hours	Ap. A. elective Ch. D. & F. R. elective Cloth. & Text. 231 H. Mgt. elective  12 hours	Ap. A. elective Ch. D. & F. R. elective Cloth. & Text. 231 H. Mgt. 333 Mkt. 321, 334 17 hours
V. Electives to complete a total minimum of 127 semester hours for graduation	Electives, 21 hours	Electives, 21 hours	Electives, 16 hours	Electives, 21-23 hours

\* H.E. Ed. 330 is acceptable in lieu of H.E. Ed. 331 or 433.

- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)
- III. Additional courses in Food and Nutrition (21 hours)
  - Food & Nutr. 231—Principles of Food Preparation
  - Food & Nutr. 331—Meal Management
  - Food & Nutr. 334—Human Nutrition
  - Food & Nutr. 422—Food and the Consumer
  - Food & Nutr. 425—Food Demonstrations
  - Food & Nutr. 436—Experimental Methods with Food
  - Food & Nutr. electives—5 semester hours
- IV. Additional required courses and specified electives (17 hours)
  - Ap. A. elective
  - Ch. D. & F. R. elective
  - Cloth. & Text. 231—Textiles for the Consumer
  - H. Mgt. 333—Household Equipment
  - Mkt. 321—Public Relations
  - Mkt. 334—Principles of Advertising
- V. Electives to complete total minimum of 127 semester hours for graduation.

### Double Major Option

The requirements of any option in Food and Nutrition may be combined with the requirements for a major in Home Economics Education, with the number of hours required for graduation depending upon the option chosen.

### Interdisciplinary Opportunities

The student may strengthen his program by arranging his degree plan to take advantage of work offered in other departments, such as chemistry, psychology, management, marketing, education, industrial engineering, horticulture, and animal husbandry.

### Courses in Food and Nutrition

#### FOR UNDERGRADUATES

- 111. **Food Service Workshop. (1:0:3)**  
Admission by special approval. May be used for degree credit with dean's approval.
- 131. **Nutrition and Food. (3:2:2)**  
Science of nutrition and food as applied to everyday living.
- 211. **Special Problems in Food Preparation. (1:0:2)**  
Prerequisite: F&N 131. Development of manipulative skills in food preparation.
- 231. **Principles of Food Preparation. (3:1:4)**  
Scientific and efficient methods of food preparation.
- 320. **Quantity Food Production and Service. (2:1:3)**  
Prerequisite: Junior standing of Food and Nutrition majors. Quantity food production and service; emphasis on quality of food, portion and cost control, and efficient food service.
- 321. **Food Service Organization and Management. (2:1:3)**  
Prerequisite: Junior standing of Food and Nutrition majors. Organization and management of food production; emphasis on arrangement of work areas, time, cost, labor, and personal management.

**331. Meal Management. (3:1:4)**

Prerequisite: Junior standing. Management of time, money, equipment, and energy in food purchasing, preparation, and serving family meals.

**334. Human Nutrition. (3:2:3)**

Prerequisite: Human anatomy and physiology or other biological science. Physiological functioning of nutrients, their availability, and emphasis in menu and dietary planning; bioassay and dietary analysis as tools in teaching and in research.

**FOR UNDERGRADUATES AND GRADUATES****411. Problems in Food and Nutrition. (1:1:0)**

May be repeated for credit.

**412. Field Work in Nutrition. (1:0:3)**

Prerequisite: F&N 423 and/or F&N 424 or concurrent. Experience in hospital and community centers to enhance understanding of nutrition of people.

**421. Advanced Food Production Management. (2:1:3)**

Further study and experience in responsibility of management to produce quality food for group service.

**422. Food and the Consumer. (2:2:0)**

Prerequisite: Junior standing. Consideration and observation of numerous technological aspects of food in production, preservation, processing, and merchandising.

**423. Community Nutrition. (2:2:0)**

Prerequisite: F&N 334. The nutritional status and needs of groups of people in a community including preschool and school children, welfare cases, the aged, and the culturally deprived.

**424. Diet Therapy. (2:2:0)**

Prerequisite: F&N 334 and Organic Chemistry. Concepts of abnormal nutrition and disease treated by dietary modifications.

**425. Food Demonstrations. (2:1:2)**

Prerequisite: F&N 331. Study, observation, and practice of demonstration methods used with food in teaching, merchandising, and television.

**432. Advanced Human Nutrition. (3:3:0)**

Prerequisite: F&N 334 and organic chemistry. Concepts of normal nutrition in the chemistry and physiology of the human body.

**436. Experimental Methods with Food. (3:1:6)**

Prerequisite: F&N 331 and chemistry. Investigation of the chemical and physical factors influencing quality in food; consideration of proportions, manipulation of ingredients, and additives in preparation.

**439. Food Purchasing. (3:2:1)**

Prerequisite: Junior standing. Current economic, legislative, commercial and industrial developments which affect the purchase of food.

**FOR GRADUATES****515. Special Aspects of Food and Nutrition. (1:0:3)**

May be repeated for credit.

**531. Research in Food and Nutrition. (3:1:6)**

May be repeated for credit.

**533. Seminar in Food and Nutrition. (3:3:0)**

May be repeated for credit.

**5335. Principles and Applications of Nutrition for Elementary Teachers. (3:3:0)**

Principles of nutrition, the nutrient and food requirements of the school child, and techniques for motivating children to sound food habits.

**534. Advanced Problems in Human Nutrition and Foods. (3:3:0)**

May be repeated for credit.

**630. Master's Report. (3)****631. Master's Thesis. (3)**

Enrollment required twice.

## Department of Home Economics Education

L. Ann Buntin, *Head of the Department*

Office: H.E. 154-B

*Professors:* L. Ann Buntin, Thelma Leonard

*Associate Professors:* Phyllis Drake, Billie Williamson

*Assistant Professors:* Margaret Sitton, Virginia Tompkins

This department supervises the following degree programs described in Part I of this Catalog or in the *Graduate Catalog*: HOME ECONOMICS EDUCATION, *Bachelor of Science in Home Economics* and *Master of Science in Home Economics*.

These programs prepare the student for careers in teaching or in home demonstration work of the Agricultural Extension Service, religious education work in church organizations, home service work with public utility programs, and other fields related to home economics. They also provide a valuable foundation for the vocation of homemaking.

### Teacher Education

Each year a large number of West Texas high schools cooperate with the College in its student teaching program for home economics education students. In her student teaching activities, the student is given an opportunity to develop her leadership abilities, to observe and assist in teaching youth and adults, and to work with students in their homes. In addition to student teaching, selected juniors in this department are offered an opportunity to serve as apprentice teachers in the summer phase of the high school homemaking program.

Each student working toward any teacher's certificate must file a certification plan with the College Director of Teacher Certification during the last semester of the sophomore year.

Each person expecting to receive a teaching certificate in vocational homemaking must meet the following admission standards to student teaching:

1. Must have completed approximately 90 hours of the home economics education curriculum, including the requisite courses in professional home economics and a majority of the courses designed to support the major field.
2. Must file an application with the Department of Home Economics Education to enroll in student teaching during the first semester of the junior year.
3. Must have a grade-point average of 2.25 or higher on all college work and a grade-point average of 2.25 or higher in professional education courses as well as in home economics courses. No grade below C in home economics courses will be accepted in establishing this average.
4. The student must pass the health examination required of teachers in the school system in which the student teaching is performed.

5. The applicant must present evidence that he is free from extreme handicaps that are judged by the Committee on Student Teaching to be detrimental to effective classroom instruction.
6. Proficiency in the use of the English language must be demonstrated by a grade-point average of 2.25 or higher in English courses.
7. Students transferring to Texas Technological College in their senior year who wish to be recommended for certification must complete 3 semester hours at the College in each of the subject matter departments in the field of home economics. This requirement may be increased on the recommendation of the Head of the Department of Home Economics Education.

### **Bachelor of Science in Home Economics—Home Economics Education Major**

- I. Foundation core courses to provide breadth in liberal education (46-48 hours)
- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)
- III. Additional courses in professional education (20 hours)
  - Educ. 332—Educational Psychology
  - Educ. 334—Curriculum Development in Secondary Education
  - H. E. Ed. 426—Problems in Student Teaching
  - H. E. Ed. 432—Methods of Teaching Home Economics
  - H. E. Ed. 434—Current Issues and Developments in Home Economics Education or H. E. Ed. 436—Home, School, and Community Experiences in Home Economics Education
  - H. E. Ed. 461—Student Teaching in Home Economics
- IV. Additional required courses and specified electives (33 hours)
  - Ap. A. 331—Interior Design
  - Ch. D. & F.R. 233—Child Growth & Development, or Ch. D. & F.R. 331—Later Childhood
  - Ch. D. & F.R. 433—Family Relations
  - Cloth. & Text. 231—Textiles for the Consumer
  - Cloth. & Text. 237—Apparel Selection & Design
  - Cloth. & Text. 332—Dressmaker Tailoring & Design
  - Food & Nutr. 331—Meal Management
  - Food & Nutr. 334—Human Nutrition
  - H. Mgt. 432—Home Management Living
  - H. Mgt. Elective—3 semester hours
  - Ch. D. & F. R. or H. Mgt. Elective—3 semester hours
- V. Electives to complete a total minimum of 127 semester hours for graduation.

### **Double Major Option**

A major in Home Economics Education can be combined with one or more options in each of the other departments in Home Economics. In some cases, degree requirements for double majors can be met within the minimum of 127 hours for graduation but in other cases, the total hours for graduation may exceed this minimum.

## Courses in Home Economics Education

### FOR UNDERGRADUATES

#### 331. Philosophy and Principles of Vocational Home Economics. (3:3:0)

Prerequisite or parallel: Educ. 332. For majors. Study and observation of typical vocational home economics programs in various school communities; principles of learning; critical review of literature, with emphasis on experimental data in various fields of home economics.

#### 411. Home Economics Seminar. (1:1:0)

Required of all seniors in home economics. Emphasis upon professional aspects of employment; upon relating the total curriculum to professional use; upon research in home economics; upon continued growth of the home economist and current problems in home economics.

### FOR UNDERGRADUATES AND GRADUATES

#### 414. Problems in Home Economics Education. (1:1:0)

Prerequisite: H.E. Ed. 331. Individual study of current problems in home economics education and their significance for curriculum development and teaching of home economics at the elementary, secondary and adult level.

#### 426. Problems in Student Teaching. (2:0:4)

Parallel: H.E. Ed. 432. Analysis of student teaching problems and ways and means whereby they may be solved. May be repeated for credit.

#### 432. Methods of Teaching Home Economics. (3:3:0)

Prerequisite: H.E. Ed. 331. Development of plans for providing effective learning in home economics; selection, use, and evaluation of learning experiences; guided observation of vocational home economics classes and programs.

#### 433. Introduction to Research in Home Economics. (3:3:0)

Survey of research in selected areas of home economics; application of the scientific method to selected problems; understanding of recent theories of learning.

#### 434. Current Issues and Developments in Home Economics Education. (3:3:0)

Adult education; recent trends in curriculum and their significance for home economics education at elementary and secondary school levels.

#### 436. Home, School, and Community Experiences in Home Economics Education. (3:3:0)

Methods of evaluating the growth of the learner; provision for effective learning in home economics through experiences in home, school, community, and Future Homemakers of America.

#### 461. Student Teaching in Home Economics. (6)

Prerequisite: H.E. Ed. 432.

### FOR GRADUATES

#### 514. Specific Problems in Teaching Home Economics. (1:1:0)

A study of the organization and presentation of selected areas or aspects of the home economics program. May be repeated for credit.

#### 518. Seminar. (1:1:0)

Comprehensive consideration of research in home economics; presentation and consideration of individual student research problems in progress.

#### 531. Administration and Supervision of Home Economics Education. (3:3:0)

Administration and supervision of typical home economics programs on both vocational and non-vocational basis, with special attention to resources, school-community curricula, and management. Designed for experienced home economists.

#### 532. Curriculum Development in Home Economics. (3:3:0)

Philosophy and development of year-round program in home economics education; legislation affecting the home economics program; survey of recent curriculum developments and their implication for home economics education.

#### 533. Evaluation in Home Economics. (3:3:0)

Procedures for appraisal of progress in the total program in home economics. Development of evaluative instruments and interpretation of data in the evaluation of various types of home economics programs.



**534. Techniques of Research in Home Economics. (3:3:0)**

Methods and techniques of research in home economics; interpretation of findings and application to selected situations and problems.

**536. Problems. (3:3:0)**

Individual and group problems according to special interests and needs of the class. May be repeated for credit.

**537. Techniques of Supervision in Home Economics. (3:3:0)**

Philosophy, responsibilities, and techniques of supervision in home economics. Designed for experienced home economists.

**630. Master's Report. (3)**

**631. Master's Thesis. (3)**

Enrollment required at least twice.

## **Department of Home and Family Life**

Estelle H. Wallace, *Head of the Department*

Office: H.E. 202

*Professors:* Ellzey W. Clark, Donald S. Longworth,  
Willia Tinsley, Ilse Wolf

*Associate Professors:* Phyllis Drake, Henry Draper,  
Lola Drew, Helen Randle, Estelle Wallace

*Assistant Professors:* Charlotte Camp, Wildring Ed-  
wards, Winnifred Gifford, Jan Greenwaldt, Verna  
Hildebrand, K. F. King,\* Mildred E. Medlock,  
Floy Sides, Billie Wolfe

*Instructors:* Camille Bell, Jeanette Jenkins, Eddie E.  
Landers, J. Samuel Phillips

\* On leave, 1966-1967.

This department supervises the *Bachelor of Science in Home Economics* program in HOME AND FAMILY LIFE described in Part I of this Catalog. Options are available in Child Development and Family Relations, in Home Management, and in a double major in cooperation with the Department of Home Economics Education. The curriculum developed for each area is designed to provide a foundation for home and family life and to prepare graduates for sound academic professional careers.

Emphasis is given to the various stages in the family life cycle, beginning with the personal and family adjustments of the college student toward dating, courtship, and marriage; followed by a study of childbearing, childrearing, and child launching; then concluding with a consideration of aging members in the family. The availability and management of personal and family resources are stressed, since these are basic to satisfactory adjustments at all stages of life. Through affiliation with Merrill-Palmer Institute of Human Relations, Detroit, Michigan, competent advanced students have the privilege of selecting to do a term or semester of work in Detroit to enhance the scope of their professional training.

## **Bachelor of Science in Home Economics—Home and Family Life Major**

### **Child Development and Family Relations Option**

- I. Foundation core courses to provide breadth in liberal education (46-48 hours)
- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)
- III. Additional courses in Child Development and Family Relations (21 hours)
  - Ch. D. & F.R. 232—Child Guidance
  - Ch. D. & F.R. 233—Child Growth & Development
  - Ch. D. & F.R. 235—Preparation for Success in Marriage
  - Ch. D. & F.R. 332—Organization, Methods, and Materials in the Preschool Program
  - Ch. D. & F.R. 433—Family Relations
  - Ch. D. & F.R. 461—Student Teaching in the Preschool, or
  - Ch. D. & F.R. 439—Family Life in the Middle and Later Years and Ch. D. & F.R. 436—Community and Professional Responsibilities to Children and Families
- IV. Additional required courses and specified electives (18 hours)
  - Ap. A. 337—Art in Elementary Education
  - Cloth. & Text. 231—Textiles for the Consumer
  - Educ. 4344—Children's Literature
  - Food & Nutr. 334—Human Nutrition
  - H. Mgt. 432—Home Management Living
  - H. Mgt. Elective—3 semester hours
- V. Electives to complete a total minimum of 127 semester hours for graduation.

### **Home Management Option**

- I. Foundation core courses to provide breadth in liberal education (46-48 hours)
- II. Home Economics core courses to provide basic concepts in personal and family living (20 hours)
- III. Additional courses in Home Management (21 hours)
  - H. Mgt. 232—General Home Management
  - H. Mgt. 331—Housing the Family
  - H. Mgt. 333—Household Equipment
  - H. Mgt. 431—Advanced Housing for the Family
  - H. Mgt. 432—Home Management Living
  - H. Mgt. 433—Advanced Household Equipment
  - H. Mgt. 435—Advanced Consumer Problems
- IV. Additional required courses and specified electives (29 hours)
  - Ap. A. 331—Interior Design
  - Ch. D. & F.R. 233—Child Growth & Development
  - Ch. D. & F.R. 433—Family Relations
  - Cloth. & Text. 231—Textiles for the Consumer
  - Cloth. & Text. 233—Decorator Fabrics

# 402 Home and Family Life Curricula

## HOME AND FAMILY LIFE CURRICULA

### Bachelor of Science in Home Economics

Core Curriculum	Child Development and Family Relations Option	Home Management Option
I. Foundation core courses to provide breadth in liberal education	Eng. 131-132, 231, 232 Govt. 231, 232 Hist. *231, 232 P.E. or Band-4 semesters Social and Natural Sciences- 18-20 hours, including Soc. 230 or 233 Zool. 137 or 235-236 or Biol. 141-142  46-48 hours	Same as for Child Development and Family Relations Option  46-48 hours
II. Home Economics core courses to provide basic concepts in personal and family living	Ap. A. 131 Ch. D. & F. R. 112, 131 Cloth. & Text. 131 Food & Nutr. 131 H. Mgt. 131 H.E. Ed. 331 or 433, 411  20 hours	Same as for Child Development and Family Relations Option  20 hours
III. Additional courses in Home and Family Life	Ch. D. & F.R. 232, 233, 235, 332, 433 and either 461 or 439 and 436  21 hours	H. Mgt. 232**, 331, 333, 431, 432, 433, 435  21 hours
IV. Additional required courses and specified electives	Ap. A. 337 Cloth. & Text. 231 Ed. 4344 Food & Nutr. 334 H. Mgt. 432 H. Mgt. elective  18 hours	Ap. A. 331 Ch. D. & F.R. 233, 433 Cloth. & Text. 231, 233, 332 Food & Nutr. 331, 334, 425 Radio, T.V., or Jour. elective  29 hours
V. Electives to complete a total minimum of 127 semester hours for graduation	Electives 20-22 hours	Electives 9-11 hours

\* Hist. 330 is acceptable in lieu of Hist. 231 or 232.

\*\* H. Mgt. 232 is required only for transfer and/or mature students who did not take H. Mgt. 131 as freshmen.

- Cloth. & Text. 332—Dressmaker Tailoring & Design
- Food & Nutr. 331—Meal Management
- Food & Nutr. 334—Human Nutrition
- Food & Nutr. 425—Food Demonstration
- Radio, TV, or Journalism—3 semester hours

V. Electives to complete a total minimum of 127 semester hours for graduation.

### Double Major Option

A double major with either option in Home and Family Life and a major in Home Economics Education is available. Such a program, however, may require more than the minimum of 127 hours for graduation, depending upon individual circumstances.

## Courses in Child Development and Family Relations FOR UNDERGRADUATES

### 111. Nursery School Organization and Management. (1)

Brief overview of the basic principles of the preschool program.

### 112. Personal Development. (1:1:0)

Relationship of the student to college; survey of the field of home economics; personal and academic guidance.

### 113. Child Development and Behavior. (1:0:3)

Laboratory experiences with young children to better understand their developmental patterns and competencies.

### 131. Personal and Family Relationships. (3:2:2)

Guidance in gaining competence in satisfying personal and family relationships; observation of various age levels.

### 231. The Infant. (3:3:0)

Physical and psychological development of the family for parenthood, study of growth and development from the prenatal period through the second year; observations of infants at different age levels; interviews with parents.

### 232. Child Guidance. (3:2:3)

Interpretation of current concepts underlying behavior and methods of working with children.

### 233. Child Growth and Development. (3:2:3)

The growth and development of young children as a basis for understanding oneself and others. Experience in observing and participating in child development laboratory.

### 234. The Child from Two to Four. (3:2:2)

Continuation of the physical and psychological development of the young child. Observations of the child in the home and interviews with parents.

### 235. Preparation for Success in Marriage. (3:3:0)

Designed to consider the role which love, compatibility and conflict have in the interpersonal relationships of dating, courtship and engagement.

## FOR UNDERGRADUATES AND GRADUATES

### 331. Later Childhood. (3:2:3)

Development of the older child through pre-adolescence; relationships in the family and with peer groups. Laboratory experience by arrangement with school age children.

### 332. Organization, Methods, and Materials in the Preschool Program. (3:2:3)

Organization of a most efficient program for the preschool child; the methods of working with young children and the materials used to provide the greatest breadth of experience and learning.

**333. Early Years of Marriage. (3:3:0)**

Considerations of the problems of adjustment, interaction, establishment, and growth of the beginning family.

**335. The Adolescent in the Family. (3:3:0)**

Prerequisite: CD&FR 233 or approval of department head. The adolescent's relationship to his family, his peer group, and to society.

**433. Family Relations. (3:3:0)**

Special problems of living together in the family as affected by family composition, family resources, traditions, and practices.

**436. Community and Professional Responsibilities to Children and Families. (3:3:0)**

Study of community resources as they relate to welfare of children and families.

**438. Exceptional Children in the Family. (3:2:3)**

Prerequisite: Junior standing. Personal-social development of exceptional children; family attitudes and responsibilities; utilization of community resources; cooperative laboratory work with related departments.

**439. Family Life in the Middle and Later Years. (3:3:0)**

Needs that arise from changes in family relationships, living arrangements, income, and employment.

**461. Student Teaching in the Preschool. (6:0:0)**

Prerequisite: Senior classification in Home and Family Life. Observation and direction of a program in a preschool situation or in other appropriate organized groups.

FOR GRADUATES

**518. Seminar in Child Development and Family Relations. (1:1:0)**

Prerequisite: Graduate standing. Home and family life research and special problems as they relate to the life of the family and/or its members at any given stage.

**534. Special Topics in Child Development. (3:3:0)**

Reading in current research in child development; the role of the family members; visits to preschool laboratories, clinics, special education classes.

**5336. Advanced Interpersonal and Family Relations. (3:3:0)**

Group processes; factors influencing personal family adjustments; methods and techniques of teaching and counseling.

**Courses in Home Management**

FOR UNDERGRADUATES

**131. Development of Personal and Family Management. (3:3:0)**

Prerequisite: Freshmen only. Use of human and material resources as they relate to the achievement of goals.

**231. Management Practices for the Individual and Family. (3:3:0)**

Prerequisite: Sophomore standing or consent of department head. Personal and family goals as they relate to human and material resources. Comparison studies of individuals and families with respect to goals sought, resources available, and managerial ability.

**232. General Home Management. (3:3:0)**

Prerequisite: Sophomore standing. Philosophy of home management; work simplification, planning for family financial security; and general management of all the family's resources.

**233. Physical Sciences in the Home. (3:2:3)**

Prerequisite: Sophomore standing. Application of the physical sciences to the work of the home. Selected principles from the field of physics and chemistry. Topics covered include mechanics, heat, electricity, sound and light, chemical characteristics of cleaning supplies and of surfaces to be cleaned. May count as a science credit in the School of Home Economics.

**331. Housing the Family. (3:1:4)**

Housing as it relates to satisfying family living; developing an understanding of housing needs and values in relation to family goals.

**333. Household Equipment. (3:1:4)**

Selection, use, and care of household equipment; includes kitchen and laundry planning.

**335. Family Finance and Consumer Education. (3:3:0)**

Prerequisite: 3 semester hours in Home Management. Principles involved in family finance and the implications for consumer education.

**FOR UNDERGRADUATES AND GRADUATES**

**431. Advanced Housing for the Family. (3:1:4)**

Prerequisite: H. Mgt. 331. New trends in housing, community and city development, home ownership, legal procedures, and financing.

**432. Home Management Living. (3)**

Prerequisite: Senior standing in home economics. At least six weeks' residence with supervised application of skills in all phases of home living, including the care of an infant. Married students maintaining a home in the community work on personal managerial problems under supervision.

**433. Advanced Household Equipment. (3:1:4)**

New developments in equipment, including function, use, and value to the family.

**435. Advanced Consumer Problems. (3:3:0)**

Prerequisite: H.Mgt. 131 or 231. Advertising, labeling, regulations, and consumer protection. Savings and investments, credit, wills, insurance, and social security.

**FOR GRADUATES**

**511. Studies in Home Management. (1:1:0)**

Prerequisite: Graduate standing. Individual study of advanced problems in home management, work simplification, family financial security. May be repeated for credit.

**518. Seminar in Home Management. (1:1:0)**

Prerequisite: Graduate standing in Home Economics. Individual and group problems according to special interests and needs of the class.

**531. Advanced Home Management. (3:3:0)**

Prerequisite: Graduate standing. Current problems in management, consumption, housing, and household equipment by graduate study.

## Requirements in Selected Options in the School of Home Economics for the Bachelor of Science Degree in Home Economics

## Minimum of 127 Semester Hours Required for Graduation

Requirements in Home Economics	Curriculum Requirements for the Majors in Selected Home Economics Options								
	Applied Arts	Clothing and Textiles		Food and Nutrition		General Home Economics	Home Economics Education	Home and Family Life	
	General Option	Fashion Option	Merchandising Option	Dietetics Option	Business & Mdse. Option			Child Development and Family Relations Option	Home Management Option
Applied Arts	112, 131, 132, 234, 328, plus electives to complete 24 hrs.	131, 231, 328, 331-11 hrs.	131, 328, elective-8 hrs.	131, elective 6 hrs.	131, elective 6 hrs.	131, 331-6 hrs.	131, 331-6 hrs.	131, 337-6 hrs.	131, 331-6 hrs.
Clothing and Textiles	131, 231, 237 9 hrs.	131, 231, 237, 332, 433, 436 plus electives to complete 24 hours	131, 231, 237, 332, 334, 433 plus electives to complete 24 hours	131, 231-6 hrs.	131, 231-6 hrs.	131, 231, 332, 237-12 hrs.	131, 231, 237, 332-12 hrs.	131, 231-6 hrs.	131, 231, 333, 332, 12 hrs.
Food and Nutrition	131, 334-6 hrs.	131, 334-6 hrs.	131, 334-6 hrs.	131, 231, 320, 321, 331, 334, 439, plus electives to complete 24 hrs.	131, 231, 331, 334, 422, 425, 436, plus electives to complete 24 hrs.	131, 331, 334 9 hrs.	131, 331, 334 9 hrs.	131, 334-6 hrs.	131, 331, 334 425-11 hrs.
Home Economics Education	331 or 433, 411-4 hrs.	331 or 433, 411-4 hrs.	331 or 433, 411-4 hrs.	331 or 433, 411-4 hrs.	331 or 433, 411-4 hrs.	331, 433, 411 7 hrs.	331, 411, 426, 432, 434 or 436, 461 18 hrs.	331 or 433, 411-4 hrs.	331 or 433, 411 4 hrs.
Home and Family Life Child Development and Family Relations	112, 131, 233 7 hrs.	112, 131, elective-7 hrs.	112, 131, elective-7 hrs.	112, 131, elective-7 hrs.	112, 131, elective-7 hrs.	112, 131, 233, 433-10 hrs.	112, 131, 233 or 331, 433 10 hrs.	112, 131, 232, 233, 235, 332, 433, 461 or 439 and 436 25 hrs.	112, 131, 233 433-10 hrs.
Home Management	131, elective 6 hrs.	131, elective 6 hrs.	131, elective 6 hrs.	131, 432 6 hrs.	131, 333 6 hrs.	131, 432, elective-9 hrs.	131, 432, elective-9 hrs. (Elective in either area to complete 22 hrs.)	131, 432, elective-9 hrs.	131, 232, 331, 333, 431, 432, 433, 435 24 hrs.
Total Hours Required in Home Economics	56	58	55	53	53	53	67	56	67

Titles and descriptions of the courses listed above, as well as for all other home economics courses are given in the departmental sections.  
The chart on the next page shows the requirements outside the School of Home Economics.

## Curriculum Requirements for the Majors in Home Economics

Requirements Outside of Home Economics	Curriculum Requirements for the Majors in Home Economics								
	Applied Arts	Clothing and Textiles		Food and Nutrition		General Home Economics	Home Economics Education	Home and Family Life	
	General Option	Fashion Option	Merchandising Option	Dietetics Option	Business & Mdse. Option			Child Development and Family Relations Option	Home Management Option
English	131-132; 231, 232 12 hrs.	131-132; 231, 232 12 hrs.	131-132; 231, 232 12 hrs.	131-132; 231, 232 12 hrs.	131-132; 231, 232 12 hrs.	131-132; 231, 232 12 hrs.	131-132; 231, 232 12 hrs.	131-132; 231, 232 12 hrs.	131-132; 231, 232 12 hrs.
History	231, 232*6 hrs.	231, 232*6 hrs.	231, 232*6 hrs.	231, 232*6 hrs.	231, 232*6 hrs.	231, 232*6 hrs.	231, 232-6 hrs.	231, 232*6 hrs.	231, 232*6 hrs.
Government	231, 232-6 hrs.	231, 232-6 hrs.	231, 232-6 hrs.	231, 232-6 hrs.	231, 232-6 hrs.	231, 232-6 hrs.	231, 232-6 hrs.	231, 232-6 hrs.	231, 232-6 hrs.
Physical Education or Band	4 hrs.	4 hrs.	4 hrs.	4 hrs.	4 hrs.	4 hrs.	4 hrs.	4 hrs.	4 hrs.
Accounting			234-3 hrs.						
Education							332-334-6 hrs.	4344-3 hrs.	
Marketing			332, 335, 334 or 4315-9 hrs.		321, 334-5 hrs.				
Music, Art Appreciation or Anthropology						Elective 3 hrs.			
Religious Education or Philosophy						Elective 3 hrs.			
Speech, Radio, TV, Journalism						Elective 3 hrs.			Elective 3 hrs.
Sciences Natural & Behavioral	18-20 hrs., including Soc. 230 or 233 and Zool. 137 or 235-236 or Biol. 141-142	18-20 hrs., including Soc. 230 or 233 and Zool. 137 or 235-236 or Biol. 141-142	18-20 hrs., including Soc. 230 or 233 and Zool. 137 or 235-236 or Biol. 141-142	25 hrs., including Chem. 141-142, 341, 342, Mbio. 231, Zool. 137, Soc 230 or 233	18-20 hrs., including Chem. 133-134, Zool. 137 Soc. 230 or 233	18-20 hrs., including Soc. 230 or 233 and Zool. 137 or 235-236 or Biol. 141-142	18-20 hrs., including Soc. 230 or 233 and Zool. 137 or 235-236 or Biol. 141-142	18-20 hrs., including Soc. 230 or 233 and Zool. 137 or 235-236 or Biol. 141-142	18-20 hrs., including Soc. 230 or 233 and Zool. 137 or 235-236 or Biol. 141-142
Total Hours Required Outside Home Eco.	46-48	46-48	58-60	53	51-53	55-57	52-54	49-51	49-51
Elective hours	In home economics-3 hrs. Free-20-22 hrs.	Free-21-23 hrs.	Free-12-14 hrs.	Free-21 hrs.	Free-21-23 hrs.	In home economics-6 hrs. Outside home economics-6 hrs. free 5-7	Free-6-8 hrs.	Free-20-22 hrs.	Free-9-11 hrs.

\*Hist. 330 is acceptable in lieu of 231, 232.



## **Reserve Officers Training Corps**

The Departments of the Army and the Air Force both maintain senior division Reserve Officers Training Corps units at Texas Technological College for the purpose of developing and producing officers, and outstanding ROTC graduates may be recommended for commissions.

In addition to the four-year ROTC commissioning program, a two-year program is now available to afford junior college transfers the opportunity to obtain Army or Air Force commissions under certain provisions.

All physically fit male freshmen and sophomore students, except veterans, are required to elect either band, physical education, military science, or aerospace studies.

### **Four-Year Program**

The four-year program is composed of two years of basic course studies and two years of advanced course studies, including a six-week summer training encampment at an Army post or four weeks at an Air Force base.

#### **Basic Course**

To enroll in the four-year ROTC program the student must be physically qualified as prescribed by the Department of the Army or Air Force, be accepted by the institution as a regularly enrolled student, be not less than 14 years of age at the time of enrollment, and agree to complete the basic course once enrolled, unless released by mutual agreement between the student's academic dean and the Professor of Military Science or Professor of Aerospace Studies. If a student in the basic ROTC program desires, he may be deferred from selective service for as long as he remains in the program, although his obligation to register with his local draft board remains unchanged. Midyear enrollees are accepted in the ROTC programs (veterans and students who have had previous ROTC training may receive credit, based on length of service or training, for all or part of the basic course; credit for high school ROTC may be granted for one year of the Army or Air Force basic course). Upon completion of the basic course, a student may continue in the advanced course ROTC if he so desires, provided he meets the requirements listed in the following paragraph.

### Advanced Course

To be able to enroll in the advanced ROTC program a student must have successfully completed the basic course, be a citizen of the United States, be not less than 17 years old, and be able to complete all requirements for appointment as regular or reserve officer by the time he is 28 years old (for the Air Force, by the time he is 26 years and six months old, if he is programmed for flying training, or 28 years old, if he is programmed for other than flying training). He must also successfully complete such general survey or screening tests as are required, be physically qualified as prescribed by the Department of the Army or Air Force, be a regularly enrolled student, and be selected by the Professor of Military Science or Professor of Aerospace Studies to continue in the program. Upon admission to the advanced course program, the student must agree in writing, with the consent of his parent or guardian if he is a minor, to complete the advanced course of instruction and accept a commission as a second lieutenant. This agreement is automatically terminated when the student receives his commission or is disenrolled from the ROTC for any reason other than willful evasion of his contract.

All advanced course students are automatically deferred from the draft.

### Summer Camp

Members of advanced ROTC are required to attend one summer camp, normally between their junior and senior years. Army ROTC summer camp begins early in June each year and lasts six weeks. Air Force ROTC has two four-week summer camps. The first camp begins early in June and the second early in August. Advanced four-year ROTC program students are required to attend only one summer camp.

### Commissioning

Upon receiving a commission, the ROTC student agrees to serve as follows:

**ARMY:** Six months or two years on active duty. The length of active duty depends upon desires of the individual and the needs of the Army at the time of commissioning.

**AIR FORCE:** Four years on active duty in a nonflying capacity, or five years on active duty if given flight training.

### Two-Year Program

The two-year program will exist simultaneously with the advanced course of the four-year program. The program is open to otherwise qualified students with two years of undergraduate or graduate study remaining.

Entry requirements into the two-year program will be the same as entry into the four-year advanced program except for two additional requirements. These two requirements are the completion of a six-week basic training camp conducted during the summer prior to enrollment and acceptance for enrollment in Texas Technological College by the Dean of Admissions and Registrar.

### Summer Camp

Both Army and Air Force ROTC students must attend pre-enrollment summer camps before enrolling in a two-year program. The Air Force ROTC student can choose to go to the first pre-enrollment camp, which begins in early June, or the second camp, which begins about the middle of July. The Army ROTC camp begins in early June. In addition, the Army ROTC student must attend the regular summer camp between the two years of his program. (The Army regular summer camp is the same as the one available to the four-year program advanced Army ROTC students.) The Air Force does not have the requirement for the two-year program student to attend a summer camp other than the pre-enrollment summer camp mentioned above. Military training at all ROTC camps will consist of practical and theoretical instruction.

### Financial Assistance

When the student enters the advanced course, he becomes eligible to receive cadet retainer pay of not less than \$40 and not more than \$50 per month beginning on the day he starts advanced training and ending upon completion of his instruction, but in no event shall any student receive such pay for more than 20 months.

### Scholarships

The Financial Assistance Grants are awarded to four-year Air Force cadets (at the beginning of their junior year) who possess outstanding academic records, who attain satisfactory scores on the Air Force Officer Qualifying Tests, and who demonstrate qualities of officer potential (leadership ability, initiative, and dependability). The Financial Assistance Grant provides the selected Air Force cadet with \$50 per month in addition to payment of all fees (including lab fees) and up to \$150 for books over a two-year period.

Two types of scholarships are available from the Department of the Army. Four-year scholarships are awarded on a competitive basis by each of the five continental U.S. Armies—and two-year scholarships are awarded to outstanding Military Science II cadets selected by the Professor of Military Science and a board of Army and College officials. Both scholarships pay all tuition and regular classroom expense, such as fees, textbooks, etc., as well as \$50 per month for subsistence.

### Uniforms and Equipment

Each ROTC student is furnished an officer-type uniform, including overcoat or raincoat and shoes, without cost to the student. Each student is required to maintain his uniform by cleaning and proper care and to return it to the ROTC military property custodian in the event he leaves school or becomes separated from the ROTC for other reasons. This uniform and other equipment remains the property of the Federal Government or the College; however, Air Force students may retain their ROTC uniforms as personal property when commissioned. All advanced ROTC students who receive a commission will also receive a \$300 uniform allowance when they are called to active duty.

The Federal Government provides the necessary texts and equipment to carry out the ROTC program at no cost to the student.

## Discipline

Texas Technological College is not a military school. Discipline in the Military Science and Aerospace Studies departments is achieved by instilling pride in the individual student and by a system of demerits for minor offenses, such as failure to maintain equipment and personal appearance properly. These demerits may be removed by constructive study or other work in the department. Unremoved demerits will lower the student's final grades.

## Academic Credit

Academic credit is granted as follows for completion of the course:  
In Military Science:

Basic	Fall Sem.	Spring Sem.	Total Credit Hours
First year	1 hour	1 hour	2
Second year	2 hours	2 hours	4
Advanced			
First year	3 hours	2 hours	5
Second year	3 hours	2 hours	5
			16

In Aerospace Studies:

Basic	Fall Sem.	Spring Sem.	Total Credit Hours
First year	1 hour	1 hour	2
Second year	2 hours	2 hours	4
Advanced			
First year	3 hours	3 hours	6
Second year	3 hours	3 hours	6
			18

## Flight Training

During their final year in Army and Air Force ROTC, selected advanced course students may receive flight training in a standardized flight instruction program approved by the Federal Aviation Agency. The course consists of 35 hours of ground instruction and 36½ hours of flight instruction, both given on an extracurricular basis. No academic credit is received, but students completing the course are given the opportunity to qualify for a Federal Aviation Agency private pilot's certificate.

Note: For Air Force ROTC a minimum of 5 hours of ground school instruction will be given.

## Aerospace Studies

### (Air Force ROTC)

*Professor:* Lt. Col. Henry L. Gantz, Jr.

*Associate Professor:* Maj. Stephen Von Phul

*Assistant Professors:* Capt. Robert Dyer, Capt. Herman A. Jones, Maj. Robert L. Paradis

*Administrative Assistants:* TSgt. Garland L. Kirkland,  
SSgt. Franklin H. Lee, SSgt. Ultan J. Oman,  
SSgt. Tracy L. Steadman, SSgt. Larry C. Triplett

The educational curriculum of the Air Force ROTC is designed to develop skills and attitudes vital to the career professional Air Force officer and to qualify for commissions those college men who desire to serve in the United States Air Force.

The purposes and specific objectives of the Air Force ROTC program are:

- a. To select and motivate cadets to serve as career Air Force officers in fields as specifically required by the United States Air Force.
- b. To develop in cadets by precept, example, and participation the attributes of character, personality, and attitudes essential for leadership.
- c. To develop in cadets an interest in, and understanding of, the Air Force mission, organization, operations, problems, and techniques.
- d. To provide that military education and training which will give cadets a general background and sound foundation on which to build an officer career.

The four-year Air Force ROTC program consists of two parts, the General Military Course and the Professional Officers Course. Only the Professional Officers Course is included in the two-year Air Force ROTC program. All courses are taught by Air Force officers on active duty who are assigned to the college as faculty members.

### The General Military Course Program

Entrance to the General Military Course will be granted *only* to those who have completed the necessary screening test and meet physical requirements.

The General Military Course includes causes of the present world conflict, a comparison of democracy, fascism, and communism, organization of Air Force commands, and a study of world military issues surrounding the existence of these forces.

In the fall and spring semester of his freshman year, the student will have one hour of Leadership Laboratory a week. In the fall and spring semester of his sophomore year, the student includes in his schedule two hours in the classroom and one hour of Leadership Laboratory a week.

### The Professional Officer Course Program

The advanced program is titled Professional Officer Course Program and introduces the student to the growth and development of aerospace power, military professionalism, and leadership and manage-

ment responsibilities of the professional officer. In both semesters of his junior and senior year, the student takes 3 hours in the classroom. Drill and staff work within the cadet corps is a required supplement. The student in the four-year program is also required to attend a four-week summer camp at an Air Force base. This is normally accomplished between the junior and senior years, but under exceptional circumstances it may be delayed until completion of the senior year. The student in the two-year program attends only the six-week pre-enrollment summer camp.

Entrance to the Professional Officers Course is limited to those who are regularly enrolled in the College, have completed the necessary screening, testing, and physical examination; who have completed the General Military Course or the pre-enrollment six-week basic summer camp, or receive credit for prior service. (Students who have had honorable active service in the Army, Navy, Marine Corps, Air Force, or Coast Guard may request a waiver of the General Military Course as a requirement for entrance into the advanced course.)

Students who complete the Professional Officers Course are tendered commissions as second lieutenants in the United States Air Force Reserve. Commissions in the Regular Air Force are offered each year to those cadets who complete the Professional Officers Course with outstanding records.

## Awards and Recognition

Awards presented by the Department of Aerospace Studies during the school year are:

**Professor of Aerospace Studies Leadership Award.** Awarded to a senior cadet demonstrating outstanding leadership within the Corps.

**The President's Award.** Awarded to an outstanding senior cadet, based on academic standing and demonstrated ability as evidenced by his contributions to cadet activities and student life during his college career. This award is presented by the President of the College.

**Pilot Training Badge.** Wings are awarded each spring to advanced cadets who have successfully completed the Flight Training Program.

**Distinguished Military Students.** Students possessing outstanding qualities of leadership, high moral character, and definite aptitude for military service, whose academic standing is in the upper half of their college class and the upper third of ROTC, are considered for designation as Distinguished Military Students. Official designation and award of the DMS badge is made early in the senior year.

**Distinguished Military Graduates.** Distinguished Military Students who maintain their high standards of performance until graduation are designated Distinguished Military Graduates and are eligible to apply for Regular Air Force commissions.

In addition to the above, Air Force cadets are eligible for the following awards:

Special Commendation Award

Completed Cadet Award

Arnold Air Society Service Award

Air Force Times Award

Armed Forces Communications and Electronics Association Award

Flying Instruction Program Award

Arnold Air Society Medal

Society of American Military Engineers Award

Reserve Officers Association Gold Medal

Reserve Officers Association Silver Medal

Good Conduct Award

Flight Commendation Award

Sons of American Revolution Award

Squadron Commanders Outstanding Aerospace Studies (1 Award)

## Angel Flight

The Angel Flight is an organization of college women sponsored by the Arnold Air Society of the Air Force ROTC. Its mission is to promote interest in the Air Force ROTC program. A noted feature of the Angel Flight is its precision drill team. Selection for membership in the Angel Flight is based on marching ability, beauty, charm, poise, personality, and scholastic standing.

## Courses in Air Force Aerospace Studies

### 111. Aerospace Leadership Laboratory. (1:0:1)

Prerequisite: None. Introduction to leadership principles and techniques through participation and study of the basic elements of military discipline.

### 112. Aerospace Leadership Laboratory. (1:0:1)

Prerequisite: None. Introduction to leadership principles and techniques through participation and study of the basic elements of military discipline.

### 212. Aerospace Leadership. (1:0:1)

Prerequisite: AerS. 111 and 112. Intermediate principles and practices of leadership involved in controlling units and an introduction of supervisory problems of the leaders. Academic year 1966-1967 only.

### 223. World Military Systems. (2:2:0)

Prerequisite: AerS. 111 and 112. An introductory course explaining the causes of the present world conflict, the role and relationship of military power to that conflict, and the responsibility of an Air Force officer.

### 224. World Military Systems. (2:2:0)

Prerequisite: AerS. 111 and 112. A comparative study of world military forces to include free world land and naval forces, free world air forces, communist military systems, and trends in the development and employment of military power.

### 335. Growth and Development of Aerospace Power. (3:3:0)

Prerequisite: Junior standing. A course concerning the nature of war, development of air power in the United States, mission and organization of the Defense Department, Air Force concepts, doctrine and employment.

### 336. Growth and Development of Aerospace Power. (3:3:0)

Prerequisite: Junior standing. Astronautics and space operations, and the future development of aerospace power. Includes the United States space programs, vehicles, systems, and problems in space exploration.

### 433. The Professional Officer. (3:3:0)

Prerequisite: AerS. 335 and 336. A study in the meaning of professionalism, responsibilities of the professional officer, foundations of the military profession, and the military justice system.

### 434. The Professional Officer. (3:3:0)

Prerequisite: AerS. 335 and 336. A study of leadership theory, functions, and practices, management principles and functions, problem and solving, and management tools, practices, and controls.

## Military Science

### (Army ROTC)

*Professor:* Col. B. W. Paden, Artillery

*Associate Professors:* Lt. Col. John H. Buechler, Artillery; Maj. Hurshall G. Morton, Engineers

*Assistant Professors:* Maj. Darrell B. Kampschror, Signal Corps; Maj. George A. Turain, Armor

*Non-Commissioned Officer-Instructors:* SMaj. Lyman D. Heacock, Jr., MSgt. Thomas E. Tinker, SFC. Calvin H. Maledy

*Administrative Assistants:* SSgt. William K. Belknap, Jr., SFC James D. Stroud

The Army ROTC program consists of two parts:

**Basic Course.** A two-year course consisting of one hour of classroom instruction and one hour of drill per week during the freshman year, and two hours of classroom instruction and one hour of drill per week, during one semester of the sophomore year. A college-related course, History of Military Affairs (History 3317), is substituted for one semester of military science academics during the sophomore year.

**Advanced Course.** Consists of three hours of classroom instruction and one hour of drill per week during the first semester of the junior and senior years, and two hours of classroom instruction and one hour of drill per week during the second semester of the junior and senior years. In addition to the classroom instruction and drill, each advanced course student will attend one six-week summer camp.

Upon graduation the student who has successfully completed the advanced course may be tendered a commission as a second lieutenant in the United States Army Reserve. Outstanding military science students who are selected as Distinguished Military Graduates may, like West Point graduates, be offered commissions as second lieutenants in the Regular Army. Students may be commissioned in one of the following 14 branches of the Army: Infantry, Armor, Artillery, Corps of Engineers, Signal Corps, Medical Service Corps, Finance Corps, Ordnance Corps, Military Police Corps, Adjutant General Corps, Transportation Corps, Quartermaster Corps, Chemical Corps, or Army Intelligence and Security. Branch assignment is based on the student's preference, his academic training, and the needs of the service at the time of commissioning.

### Army ROTC Military Science Curriculum

The Military Science curriculum is designed to prepare students for commissions as officers in the various arms and services of the United States Army, both regular and reserve. There is no specialization during the ROTC course; all students pursue the same subjects. The student receives specialized training in the techniques and duties of the various branches at the branch schools when ordered to active duty after graduation and commission.



The basic purpose of Army ROTC is to develop a cadets' qualities of leadership. This principle lies behind every hour of ROTC training. Specifically the training gives the cadet:

1. An understanding of human behavior, together with proven methods for motivating others.
2. Indoctrination in the techniques of leadership — tested practices and devices which tend to make him an effective leader.
3. Opportunity to apply the principles of leadership to everyday problems.

## Awards and Recognition

Awards presented by the Department of Military Science during the school year are:

**Military Excellence Ribbon.** Awarded to the outstanding basic cadet in each company.

**The President's Award.** Awarded to a fourth-year ROTC student based on academic standing and demonstrated leadership ability as evidenced by his contributions to cadet activities and student life during his college career. The award is presented by the President of the College.

**Academic Achievement Ribbon.** Awarded each semester to cadets who are scholastically in the upper 10 percent of their military class.

**Student Pilot's Badge.** Half wing awarded to cadets enrolled in ROTC flight training program. Full wings are awarded to cadets successfully completing the program.

**Distinguished Military Students.** Students possessing outstanding qualities of leadership, high moral character, and definite aptitude for the military service, whose academic standing is in the upper fifth of their college class and the upper third of ROTC, are considered for designation as Distinguished Military Students. Official designation and award of the DMS badge is made early in the senior year.

**Distinguished Military Graduates.** Distinguished Military Students who maintain their high standard of performance until graduation are designated Distinguished Military Graduates and are eligible to apply for Regular Army commissions.

In addition to the above, Army cadets are eligible for the following awards:

Texas Sons of the American Revolution Medal of Honor

Society of American Military Engineers Award of Merit

National Defense Transportation Association Medal

National Defense Supply Association Award

Dr. Ralph Mershon Memorial Award

Superior Cadet Ribbon

American Ordnance Association Scholarship Key

Association of the United States Army Medal

Armed Forces Communications and Electronics Medal

The Army and Navy Legion of Valor of the United States of America Bronze Cross

The Reserve Officers Association Medal

## Band

The Army ROTC maintains a band as an integral part of the Cadet Brigade. Students with prior band experience may be assigned to the band and will practice and play during the normal drill period. Band instruments are furnished by the federal government; however, students owning instruments are encouraged to use them.

## Army CorpsDettes

The Army CorpsDettes is an organization of college women who have qualified for membership by personal appearance and charm, motivation, and scholastic achievement. This auxiliary to the Corps of Cadets has four main objectives: 1. To stimulate interest in the Army Reserve Officers Training Corps; 2. To augment the educational experiences of CorpsDettes members; 3. To participate in extracurricular activities which contribute to the welfare of the United States Army, of Texas Technological College, and of the Army ROTC Cadet Corps; 4. To act as an auxiliary drill team to the Cadet Corps.

## Courses in Military Science

The Army ROTC Military Science curriculum is under extensive revision as of the date of publication of this Catalog. However, it is anticipated that the revised curriculum will follow generally the subject grouping indicated below.

### 111. Organization of the Army and Individual Weapons Training. (1)

Prerequisite: Physical, mental, and moral qualifications as prescribed by the Department of the Army. Organization of the Army and ROTC; small arms characteristics, functioning, and employment; marksmanship training on the rifle range.

### 112. The U.S. Army and National Security. (1)

Prerequisite: Same as for M.S. 111. National defense policy; missions, capabilities, and role of the Army in conceivable types of warfare.

### 221. Leadership Laboratory. (2)

Prerequisite: M.S. 111, 112 or equivalent. School of the soldier and exercise of command.

### 222. Map and Aerial Photography and Introduction to Operations and Basic Tactics. (2)

Prerequisite: M.S. 111, 112 or equivalent. Reading and employment of maps and aerial photographs; principles of offensive and defensive combat.

### 322. Small Unit Tactics and Communications. (2)

Prerequisite: Same as for M.S. 331. Principles of offensive and defensive combat operations and their application to the units of the Infantry division battalion; principles of communications and communications systems used in the battalion to include use of radio equipment, wire equipment and field messages.

### 331. Leadership, Military Teaching, and Branches of the Army. (3)

Prerequisite: M.S. 221, 222 or equivalent. Basic psychology of leadership and its application; methods and techniques of military instruction and familiarization with the missions and organizations of the various combat technical branches of the U.S. Army.

### 422. Military Law, Role of the U.S. in World Affairs, and Service Orientation. (2)

Prerequisite: Same as for M.S. 431. Fundamental concepts of military justice in the armed forces; basic principles and methods of procedures for pretrial investigations, conduct of trials, and the principles of nonjudicial punishment; analysis of the United States as to its economic power, war potential, and its aptitude for conduct of war; effect of U.S. power and policy on the present world situation; orientation on service life for future officers.

### 431. Military Operations, Logistics, and Administration. (3)

Prerequisite: M.S. 322, 331. Military staff organization and function; principles and uses of military intelligence; mission of supply, supply doctrine, and classes of supply; the Army system of motor transportation and preventive maintenance; fundamentals of Army administration.

# Official Directory

## Board of Directors 1965 - 1966

### Officers

R. WRIGHT ARMSTRONG, Chairman  
J. EDD McLAUGHLIN, Vice Chairman  
J. ROY WELLS, Secretary

### Members of the Board

Term Expires February 19, 1967

ALVIN R. ALLISON	Levelland
R. WRIGHT ARMSTRONG	Fort Worth
J. EDD McLAUGHLIN	Rolls

Term Expires February 19, 1969

ROY FURR	Lubbock
HERBERT ALLEN	Houston
HAROLD HINN	Dallas and Plainview

Term Expires February 19, 1971

C. A. CASH	Amarillo
RETHA R. MARTIN	Lubbock
FLADGER F. TANNERY	Dallas

## Officers of Administration

ROBERT CABANISS GOODWIN, B.A., M.A., Ph.D., President.<sup>1</sup>  
121 Administration Building.

GROVER ELMER MURRAY, B.S., M.S., Ph.D., President Elect.<sup>2</sup>  
121 Administration Building.

WILLIAM MARTIN PEARCE, B.A., M.A., Ph.D., Vice President for Academic Affairs.  
121 Administration Building.

MARSHALL LEE PENNINGTON, B.B.A., Vice President for Business Affairs.  
120 Administration Building.

BILL J. PARSLEY, LL.B., Vice President for Development.<sup>3</sup>  
119 Administration Building.

JAMES ROY WELLS, B.A., B.B.A., M.B.A., Assistant to the President and Secretary of the Board of Directors.  
121 Administration Building.

JAMES GEORGE ALLEN, B.A., M.A., Dean of Student Life.  
167 Administration Building.

SHIRLEY SCHULZ BATES, B.S., Director of Food Service, Residence Halls.  
Central Food Facilities.

<sup>1</sup> Retiring as President August 31, 1966.

<sup>2</sup> Appointment as President effective September 1, 1966.

<sup>3</sup> Appointed January 1, 1966.

- FLOYD D. BOZE, B.S., M.S., Ed.D., Dean of Admissions and Registrar.  
150 Administration Building.
- JOHN ROSS BRADFORD, B.S., M.S., Ph.D., Dean of Engineering.  
105 Electrical Engineering Building.
- HENRY LEE GANTZ, JR., B.G.E., Lieutenant Colonel, United States Air Force, Professor of Aerospace Studies.  
21 Social Science Building.
- RONALD LEE HAMM, B.A., Director of Public Information.  
117 Journalism Building.
- GEORGE GAIL HEATHER, B.S., M.A., Ph.D., Dean of Business Administration.  
216 Business Administration Building.
- RAY CURTIS JANEWAY, B.A., B.S. in L.S., M.S., Librarian.  
Library Office.
- JEAN AYRES JENKINS, B.A., Director of the Placement Service.  
252 Electrical Engineering Building.
- LEWIS NORTON JONES, B.S., M.A., Dean of Men.  
163 Administration Building.
- SABE McCLAIN KENNEDY, B.A., M.A., Ph.D., Dean of Arts and Sciences.  
206 Administration Building.
- JACOB HOMER MILLIKIN, B.A., M.A., Director of Extension and Correspondence.  
108 Extension Building.
- GUY JUNIOR MOORE, B.S., M.S., Director of Residence Halls.  
Housing Office.
- BILL WOODROW PADEN, B.A., Colonel, United States Army, Professor of Military Science.  
2 Social Science Building.
- FLORENCE LOUISE PHILLIPS, B.A., M.A., Ed.D., Dean of Women.  
171 Administration Building.
- ROBERT BYRON PRICE, B.B.A., M.B.A., C.P.A., Comptroller.  
111 Administration Building.
- FRED DURNFORD RIGBY, B.A., M.S., Ph.D., Dean of the Graduate School.  
251 Administration Building.
- ELVIS DEAN SMITH, B.B.A., M.B.A., Purchasing Agent.  
113 Administration Building.
- JOHN GATES TAYLOR, Business Manager.  
118 Administration Building.
- GERALD WAYLETT THOMAS, B.S., M.S., Ph.D., Dean of Agriculture.  
201 Agriculture Building.
- WILLA VAUGHN TINSLEY, B.S., M.S., Ph.D., Dean of Home Economics.  
151 Home Economics Building.
- FREDRIC JOHN WEHMEYER, B.B.A., Director of Classified Personnel.  
211 Administration Building.

## Assistant Officers of Administration

- JAMES WAYLAND BENNETT, B.S., M.S., Ph.D., Associate Dean of Agriculture.  
201 Agriculture Building.
- MARGARET RAGSDALE BIRKMAN, B.S., Assistant Director of Food Service, Residence Halls.  
Central Food Facilities.
- GERMAIN BONIFACE BOER, B.S., M.B.A., Ph.D., C.P.A., Acting Assistant Dean of Business Administration.  
216 Business Administration Building.
- ROGER LEON BROOKS, B.A., M.A., Ph.D., Associate Dean of the Graduate School.  
251 Administration Building.
- RALPH WELDON CARPENTER, Assistant Director of Public Information.  
117 Journalism Building.
- DONALD CATES, B.S., M.Ed., Director of Undergraduate Admissions.  
162 Administration Building.
- FLORENCE EVELYN CLEWELL, B.A., Assistant Registrar and Coordinator of Space.  
158 Administration Building.
- JESSE EARL CRAWFORD, B.S., Central Stores and Property Manager.  
Physical Plant Building.
- DOROTHY TAFT GARNER, B.A., M.A., M.Ed., Coordinator, Residence Hall Supervision for Women.  
Housing Office.
- JERRY PIOTT HOUSE, B.B.A., Assistant Purchasing Agent.  
115 Administration Building.
- LOYCE ANN KATZ, B.A., B.J., M.A., Assistant Dean of Women.  
171 Administration Building.

- MERLE SCOGGIN KNIGHT, B.A., Assistant Director of the Placement Service.<sup>1</sup>  
252 Electrical Engineering Building.
- AUBREY ELDON LEWIS, B.S., M.A., Coordinator, Residence Hall Supervision for Men.  
Housing Office.
- IVAN LEE LITTLE, B.A., M.A., Ph. D., Associate Dean of Arts and Sciences.  
206 Administration Building.
- D. M. McELROY, Director of Educational Television.  
Television Station.
- ROBERT LEE NEWELL, B.S., M.S., Assistant Dean of Engineering.  
105 Electrical Engineering Building.
- JACQUELINE ISABEL OLSEN, B.S. in Ed., M.S. in Ed., Assistant Dean of Women.  
171 Administration Building.
- JAMES EDWARD PLATZ, B.A., B.S. in L.S., Associate Librarian.  
Library Office.
- JOHN HAYES REESE, B.B.A., LL.B., Assistant Dean of Business Administration.<sup>2</sup>  
216 Business Administration Building.
- DONALD LEE RENNER, B.B.A., M.B.A., Assistant Dean of Admissions and Registrar.  
160 Administration Building.
- HOLLIS ROYCE SMITH, B.B.A., Chief Accountant.  
111 Administration Building.
- VIRGINIA LEE SNELLING, B.A., Head of Payroll Department and Employee Benefits.  
110 Administration Building.
- THOMAS PAUL STOVER, B.A., M.S., Adviser to Fraternities, to Foreign Students, and  
on Student Loans.  
168 Administration Building.
- FRANK MILLETT TEMPLE, B.S., B.S. in L.S., M.A., Associate Librarian.  
Library.
- DENNIS NEWT WATKINS, B.B.A., Assistant Dean of Men.  
163 Administration Building.

## **Emeritus Officers of Administration and Faculty**

- CLIFFORD BARTLETT JONES, President, Emeritus, 1938, 1944.  
LL.D., Texas Technological College, 1940.
- WARREN PERRY CLEMENT, Registrar, Emeritus, 1932, 1961.  
B.A., Baylor University, 1919; M.A., 1920.
- WILLIAM THOMAS GASTON, Business Manager, Emeritus, 1929, 1955.
- WILLIAM BRYAN GATES, Dean of the Graduate School, Emeritus, 1925, 1963.  
B.S., Millsaps College, 1918; M.A., Vanderbilt University, 1921; M.A., University  
of Michigan, 1927; Ph.D., University of Pennsylvania, 1932.
- WENZEL LOUIS STANGEL, Dean of Agriculture, Emeritus, 1925, 1958.  
B.S., Texas A & M University, 1915; M.S., University of Missouri, 1916; LL.D.,  
Texas A & M University, 1956.
- MARGARET WATSON WEEKS, Dean of Home Economics, Emeritus, 1925, 1953.  
B.S., Teachers College, Columbia University, 1922; M.S., 1925.
- OTTO VINCENT ADAMS, Professor of Civil Engineering, Emeritus, 1927, 1955; Dean  
of Engineering, 1932-1949.  
B.S. in C. and I.E., Colorado State University, 1918; M.S.E., University of  
Michigan, 1924; D.Sc., Colorado State University, 1945; Reg. Prof. Engr.  
(Texas).
- VIVIAN JOHNSON ADAMS, Professor of Home Economics Education, Emeritus, 1928,  
1962.  
B.S., Southwest Texas State College, 1924; M.A., Columbia University, 1927.
- LOUISE CRAWFORD ALLEN, Associate Professor of Journalism, Emeritus, 1928, 1963.  
B.A., Southern Methodist University, 1924; M.A., University of Missouri, 1940.
- ALBERT BARNETT, Professor of Education and Professor of Psychology, Emeritus, 1933,  
1965.  
B.S., George Peabody College for Teachers, 1916; M.A., 1917; Ph.D., 1926.
- CHARLES VICTOR BULLEN, Professor of Electrical Engineering, Emeritus, 1932, 1960.  
B.S.E.E., University of Texas, 1920; M.S.E.E., Massachusetts Institute of Tech-  
nology, 1927; Reg. Prof. Engr. (Texas).
- LEWIS BRISCOE COOPER, Professor of Education, Emeritus, 1938, 1965.  
B.S., North Texas State University, 1922; M.A., University of Texas, 1926; Ph.D.,  
University of Cincinnati, 1931.
- WILLIAM MOORE CRAIG, Professor of Chemistry, Emeritus, 1926, 1958.  
B.A., Southwestern University, 1906; M.A., 1907; M.A., University of Texas,  
1916; Ph.D., Harvard University, 1927; Reg. Prof. Engr. (Texas).

<sup>1</sup> Resigned October 23, 1965.

<sup>2</sup> On leave 1965-1966. Resigned February 9, 1966.

- CHARLES DUDLEY EAVES, Professor of History, Emeritus, 1925, 1959.  
B.A., University of Texas, 1916; M.A., University of Chicago, 1923; Ph.D., University of Texas, 1943.
- MABEL DEANE ERWIN, Professor of Clothing and Textiles, Emeritus, 1926, 1955.  
B.S., Purdue University, 1913; M.A., Teachers College, Columbia University, 1925.
- EUNICE JOINER GATES, Professor of Foreign Languages, Emeritus, 1925, 1963.  
B.A., Southwestern University, 1921; M.A., 1924; M.A., University of Michigan, 1927; Ph.D., University of Pennsylvania, 1933.
- CARL HENNINGER, Associate Professor of Foreign Languages, Emeritus, 1926, 1954.  
B.A., Indiana University, 1907; M.A., University of Illinois, 1908.
- CECIL HORNE, Professor and Head of the Department of Journalism, Emeritus, 1926, 1951.  
B.A., Baylor University, 1908; B.A., Yale University, 1911.
- OSCAR ARVLE KINCHEN, Professor of History, Emeritus, 1929, 1965.  
B.A., University of Oklahoma, 1916; M.A., 1920; Ph.D., University of Iowa, 1934.
- JOHNNY GILKERSON LANGFORD, Professor of Physical Education, Emeritus, 1925, 1955.  
B.B.A., University of Texas, 1924; M.A., University of Southern California, 1929.
- SETH SHEPARD McKAY, Professor of History, Emeritus, 1928, 1965.  
B.A., University of Texas, 1912; M.A., 1919; Ph.D., University of Pennsylvania, 1924.
- JONNIE McCRERY MICHIE, Professor of Food and Nutrition, Emeritus, 1925, 1955.  
B.S., Columbia University, 1920; M.A., 1923.
- RUFUS ARTHUR MILLS, Professor of English, Emeritus, 1926, 1951.  
B.A., University of Texas, 1914; M.A., 1923.
- JAMES HAROLD MURDOUGH, Professor of Civil Engineering, Emeritus, 1925, 1962.  
B.S., Massachusetts Institute of Technology, 1916; M.S.E., University of Michigan, 1930; Reg. Prof. Engr. (Texas).
- ANNAH JOE PENDLETON, Professor of Speech, Emeritus, 1927, 1961.  
B.A., Texas Christian University, 1918; M.A., University of Iowa, 1931.
- CONNER COLUMBUS PERRYMAN, Professor of Engineering Drawing, Emeritus, 1929, 1955.  
B.S., North Texas State University, 1926; Reg. Prof. Engr. (Texas).
- CHARLES BLAISE QUALIA, Professor of Foreign Languages, Emeritus, 1925, 1961.<sup>1</sup>  
B.A., University of Texas, 1916; M.A., 1921; Ph.D., 1932.
- EMBREE RECTOR ROSE, Professor and College Physician, Emeritus, 1947, 1965.  
B.A., Indiana University, 1919; M.A., 1922; M.D., 1941.
- OSCAR ALLEN ST. CLAIR, Professor of Industrial Engineering, Emeritus, 1934, 1959.  
B.S., Illinois Institute of Technology, 1905; Reg. Prof. Engr. (Texas).
- CLARENCE CARL SCHMIDT, Professor of Physics, Emeritus, 1927, 1964.  
B.A., Cornell College, 1917; M.A., University of Illinois, 1922; Ph.D., 1927.
- WILLIAM MACKAY SLAGLE, Professor of Chemistry, Emeritus, 1926, 1960.  
B.A., Southwestern University, 1916; M.A., University of Texas, 1928.
- FRED WINCHELL SPARKS, Professor of Mathematics, Emeritus, 1926, 1951.  
B.A., Southwestern University, 1920; M.A., 1922; M.S., University of Chicago, 1924; Ph.D., 1931.
- ALAN LANG STROUT, Professor of English, Emeritus, 1928, 1961.  
B.A., Dartmouth College, 1918; M.A., University of Chicago, 1920; M.A., University of Wisconsin, 1923; Ph.D., Yale University, 1925.
- EARL L. THOMPSON, Professor of Mathematics, Emeritus, 1928, 1951.  
B.A., Kansas State Teachers College, 1908; M.A., University of Kansas, 1914; Ph.D., University of Chicago, 1928.
- RALPH SYLVESTER UNDERWOOD, Professor of Mathematics, Emeritus, 1927, 1961.  
B.A., University of Minnesota, 1916; M.A., 1917; Ph.D., University of Chicago, 1930.
- THOMAS FERDINAND WIESEN, Professor of Economics, Emeritus, 1940, 1962.  
B.S., Texas A & M University, 1920; M.B.A., University of Pennsylvania, 1935.
- WARREN WATSON YOCUM, Professor of Horticulture, Emeritus, 1937, 1963.  
B.S., Northeast Missouri State Teachers College, 1923; M.A., University of Missouri, 1927; Ph.D., University of Nebraska, 1937.

## Faculty

First date indicates year of original appointment; second date, year of appointment to present position and rank.

- ROBERT CABANISS GOODWIN, President, 1930, 1959.<sup>2</sup>  
B.A., Howard Payne College, 1917; M.A., University of Texas, 1923; Ph.D., Harvard University, 1928.

<sup>1</sup> Deceased May 3, 1966.

<sup>2</sup> Retiring as President August 31, 1966.

- GROVER ELMER MURRAY, President Elect and Professor of Geology, 1966.<sup>1</sup>  
B.S., University of North Carolina, 1937; M.S., Louisiana State University and Agricultural and Mechanical College, 1939; Ph.D., 1942.
- BURL MONROE ABEL, Associate Professor of Finance, 1955.  
B.S., University of Oklahoma, 1929; M.B.A., 1931; C.L.U.
- MICHAEL ROBERT ABBOTT, Part-time Instructor in Accounting, 1966.<sup>2</sup>  
B.B.A., Texas Technological College, 1963.
- JUNE ELLEN ACKROYD, Instructor in Music, 1964.  
B.M., Eastman School of Music, University of Rochester, 1962; M.M., 1964.
- JOE ALFRED ADAMCIK, Associate Professor of Chemistry, 1957, 1961.  
B.S. in Chem., University of Texas, 1951; M.A., 1954; Ph.D., University of Illinois, 1958.
- ROBERT SEXTON ADAMS, Assistant Professor of Management, 1965.  
B.B.A., North Texas State University, 1958; M.B.A., 1961; Ph.D., Louisiana State University and Agricultural and Mechanical College, 1965.
- ALONZO FRANKLIN ADKINS, Instructor in Electrical Engineering, 1963.  
B.S. Texas Technological College, 1961; M.S., 1963.
- MEREDITH EUGENE AKER, Part-time Instructor in English, 1962, 1965.  
B.A., University of Tulsa, 1960; M.A., 1962.
- SUZANNE SCRUGGS AKER, Assistant Professor of Health, Physical Education, and Recreation for Women, 1962, 1965.  
B.A., University of Tulsa, 1962.
- ROBERT CUSTER ALBIN, Assistant Professor of Animal Husbandry, 1964.  
B.S., Texas Technological College, 1961; M.S., 1962; Ph.D., University of Nebraska, 1965.
- BEATRICE WITTE ALEXANDER, Assistant Professor of Foreign Languages, 1945, 1961.  
B.A., Texas Woman's University, 1942; M.A., University of Texas, 1946.
- THEODOR WALTER ALEXANDER, Associate Professor of Foreign Languages, 1947, 1959.  
B.S., Texas Technological College, 1946; M.S., 1947.
- ARCHIE CORNELIOUS ALLEN, Assistant Professor of Biology, 1963.  
B.A., University of North Carolina, 1955; M.A., 1958; Ph.D., University of Pittsburgh, 1961.
- BONNIE L. ALLEN, Professor of Agronomy, 1959, 1965.  
B.S., Texas Technological College, 1948; M.S., Michigan State University of Agriculture and Applied Science, 1951; Ph.D., 1960.
- JAMES GEORGE ALLEN, Professor of English and Dean of Student Life, 1927, 1950.  
B.A., Southern Methodist University, 1924; M.A., Harvard University, 1928.
- SUSANNE FOSTER ALLSTROM, Instructor in Sociology, 1963, 1966.<sup>3</sup>  
B.A., Newcomb College, Tulane University of Louisiana, 1962; M.A., Texas Technological College, 1966.
- ROBERT DANIEL AMASON, Associate Professor of Marketing, 1963.  
B.B.A., Texas A & M University, 1951; M.B.A., 1958; Ph.D., University of Arkansas, 1963.
- ALI REZA AMIR-MOEZ, Professor of Mathematics, 1965.  
B.A., University of Teheran (Iran), 1942; M.A., University of California (Los Angeles), 1951; Ph.D., 1955.
- HUGH ALLEN ANDERSON, Associate Professor of Economics, 1939, 1947.  
B.A., Hardin-Simmons University, 1928; M.A., 1929.
- JOHN ARTHUR ANDERSON, Assistant Professor of Chemistry, 1961.  
B.S., Colorado State University, 1952; M.S., 1954; Ph.D., Oregon State University, 1962.
- ROBERT PAUL ANDERSON, Part-time Professor of Psychology, 1955, 1963.  
M.A., University of Chicago, 1951; Ph.D., 1954.
- RONALD MYLES ANDERSON, Assistant Professor of Mathematics, 1965.  
B.A., Luther College, 1957; M.S., Iowa State University of Science and Technology, 1959; Ph.D., 1962.
- THEODORE ANDREYCHUK, Professor and Head of the Department of Psychology, 1962.  
B.M., Michigan State University of Agriculture and Applied Science, 1943; M.A., University of Redlands, 1951; Ph.D., University of Texas, 1954.
- ELEANOR AUDREY ANNIS, Associate Professor of Applied Arts, 1965.<sup>4</sup>  
B.S., Central Michigan University, 1945; M.A., Colorado State College, 1949; Ed.D., Pennsylvania State University, 1960.
- WILLIAM BURNSIDE ARPER, Professor of Geosciences, 1953, 1960.  
B.S. in Geol., University of Oklahoma, 1940; M.S., 1942; Ph.D., University of Kansas, 1953.
- CLIFFORD CHARLES ASHBY, Associate Professor of Speech, 1963.  
B.A., University of Iowa, 1950; M.A., University of Hawaii, 1953; Ph.D., Stanford University, 1963.

<sup>1</sup> Appointed as President effective September 1, 1966.

<sup>2</sup> 1966 Spring Semester.

<sup>3</sup> Appointed February 1, 1966.

<sup>4</sup> Resigned January 31, 1966.



- DONALD ASHDOWN, Professor of Entomology, 1952, 1956.  
B.S., Utah State University of Agriculture and Applied Science, 1942; Ph.D., Cornell University, 1948.
- THOMAS ANDREW ATCHISON, Associate Professor of Mathematics, 1963, 1965.  
B.A., University of Texas, 1959; M.A., 1960; Ph.D., 1963.
- JOHN WILLARD AULT, Professor of Mathematics, 1965.  
B.S., Bowling Green State University, 1932; M.A., Ohio State University, 1935.
- J. D. AVARY, Instructor in Economics, 1964, 1965.  
B.A., University of Texas, 1944; M.A., 1947.
- CECIL IRVY AYERS, Professor of Agronomy, 1942, 1960.  
B.S., Texas Technological College, 1936; M.S., 1944; Reg. Plant Breeder (Texas).
- MOHAMED MOHAMED AYOUB, Associate Professor of Industrial Engineering, 1961, 1964.  
B.S., University of Cairo (Egypt), 1953; M.S., University of Iowa, 1955; Ph.D., 1964.
- TOD ATKINS BAKER, Instructor in Government, 1961.  
B.A., University of Alabama, 1957; M.A., University of Tennessee, 1959.
- LAURA BALLEW, Instructor in Foreign Languages, 1964.  
B.A., Texas Technological College, 1964.
- HOWARD LLOYD BALSLEY, Professor of Marketing, 1965.  
A.B., Indiana University, 1946; M.A., 1947; Ph.D., 1950.
- IROL WHITMORE BALSLEY, Professor of Business Education and Secretarial Administration, 1965.  
A.B., Wayne State College, 1933; M.S., University of Tennessee, 1940; Ed.D., Indiana University, 1952.
- SANDRA JEANNE O'NEILL BARNES, Part-time Instructor in Health, Physical Education, and Recreation for Women, 1965.  
B.S., Washington State University, 1965.
- NOLAN ELLMORE BARRICK, Professor and Head of the Department of Architecture and Allied Arts, 1953, 1965.  
B.A., Rice University, 1935; B.S. in Arch., 1936; M.A., 1937; Reg. Arch. (Texas).
- MOHAMMED ALI AL-BASSAM, Professor of Mathematics, 1960, 1962.<sup>1</sup>  
Licensee in Science (B.S. equiv.), University of Baghdad (Iraq), 1944; M.A., University of Texas, 1948; Ph.D., 1951.
- JOHN HENRY BAUMGARDNER, Professor of Animal Husbandry, 1945, 1961.  
B.S., Texas Technological College, 1939; M.S., 1940.
- MARTHA JUNE BEARDEN, Part-time Instructor in Speech, 1961, 1965.<sup>2</sup>  
B.A., Abilene Christian College, 1942; M.A., Texas Technological College, 1961.
- WELDON EARNEST BECKNER, Assistant Professor of Education, 1965.  
B.S., Wayland Baptist College, 1955; M.Ed., Texas Technological College, 1959.
- ETHEL JANE BEITLER, Associate Professor of Applied Arts, 1947, 1961.  
B.S., Iowa State University of Science and Technology, 1929; M.Ed., Marquette University, 1943.
- JEAN CAMILLE GRAVES BELL, Instructor in Home and Family Life, 1963.  
B.S., Texas Technological College, 1942; M.S., 1949.
- JAMES WAYLAND BENNETT, Professor of Agricultural Economics and Associate Dean of Agriculture, 1948, 1963.  
B.S., Texas Technological College, 1948; M.S., Louisiana State University and Agricultural and Mechanical College, 1951; Ph.D., 1955.
- RICHARD ANTHONY BERGER, Associate Professor of Health, Physical Education, and Recreation for Men, 1962, 1965.  
B.A., Michigan State University of Agriculture and Applied Science, 1951; M.A., 1956; Ph.D., University of Illinois, 1960.
- GEORGE WILLIAM BERRY, Associate Professor of Finance, 1960, 1963.  
B.B.A., University of Texas, 1956; M.B.A., 1957; Ph.D., 1961.
- JOE WILKES BERRY, JR., Assistant Professor of English, 1964.  
B.A., Abilene Christian College, 1960; M.A., Rice University, 1962; Ph.D., 1964.
- MILDRED LUCILLE BETTENCOURT, Assistant Professor of Education, 1950, 1959.  
B.A., University of Texas, 1929; M.Ed., Texas Technological College, 1951.
- JOHN EDWARD BINNION, Professor of Business Education and Secretarial Administration, 1965.  
B.B.A., University of Texas, 1945; M.A., New Mexico Highlands University, 1951; Ed.D., Oklahoma State University of Agriculture and Applied Science, 1953.
- LOTUS BERRY BLACKWELL, Instructor in Marketing, 1948.  
B.A., Hardin-Simmons University, 1947; M.A., 1949.
- LOWELL LAWRENCE BLAISDELL, Professor of History, 1957, 1963.  
B.A., Elmhurst College, 1941; M.A., University of Rochester, 1944; Ph.D., University of Wisconsin, 1949.

<sup>1</sup> On Leave, 1965-1966.

<sup>2</sup> Appointed November 22, 1965.



- ELSIE BODEMANN, Professor of Biology, 1958, 1965.  
B.A., Southwest Texas State College, 1929; M.A., University of Texas, 1932; Ph.D., 1936.
- ELINOR O'BRIEN BOER, Part-time Instructor in Accounting, 1964.  
B.S., Louisiana State University and Agricultural and Mechanical College, 1962; M.S., 1964.
- GERMAIN BONIFACE BOER, Associate Professor of Accounting and Acting Assistant Dean of Business Administration.  
B.S., St. Edward's University, 1960; M.B.A., Texas Technological College, 1961; Ph.D., Louisiana State University and Agricultural and Mechanical College, 1964; C.F.A.
- ANGELA RATTAN BOREN, Instructor in Food and Nutrition, 1960.  
B.S., Texas Technological College, 1950; M.S., 1962.
- FRANCIS HARRY BOWEN, Instructor in Music, 1963.  
B.M., University of Illinois, 1960.
- OSWALD DONIECE BOWLIN, Professor of Finance, 1965.  
B.A., Texas A & M University, 1951; M.S., 1954; Ph.D., University of Illinois, 1959.
- JAMES WARREN BOWMAN, Part-time Instructor in Government, 1956.  
B.A., Texas Technological College, 1949; LL.B., University of Texas, 1953.
- THADIS WAYNE BOX, Professor of Range Management, 1962, 1964.  
B.S., Southwest Texas State College, 1956; M.S., Texas A & M University, 1957; Ph.D., 1959.
- DIXIE BOYD, Instructor in Psychology, 1960.  
B.A., Texas Woman's University, 1933; M.Ed., North Texas State University, 1951.
- FLOYD D. BOZE, Professor of Education and Dean of Admissions and Registrar, 1958, 1965.  
B.S., East Texas State University, 1938; M.S., 1938; Ed.D., University of Tennessee, 1955.
- NANCY SMITH BOZE, Part-time Instructor in Education, 1958, 1964.  
B.S., East Texas State University, 1940; M.A., 1948.
- JOHN ROSS BRADFORD, Professor of Chemical Engineering and Dean of Engineering, 1943, 1955.  
B.S. in Ch.E., Texas Technological College, 1942; M.S. in Ch.E., 1948; Ph.D., Case Institute of Technology, 1953; Reg. Prof. Engr. (Ohio, Texas).
- WELDON LEROY BRADSHAW, Professor of Architecture and Allied Arts, 1938, 1943.  
B.S., Texas A & M University, 1924; Reg. Arch. (Texas).
- JOHN PAUL BRAND, Professor of Geosciences, 1948, 1957.  
B.A., Miami University, 1942; M.A., 1947; Ph.D., University of Texas, 1954.
- NEVILLE HASSO BREMER, Associate Professor of Education, 1965.  
B.A., West Texas State University, 1940; M.A., Colorado State College, 1946; Ed.D., University of Houston, 1956.
- MARY LOUISE BREEDLOVE BREWER, Assistant Professor of English, 1941, 1962.  
B.A., Oklahoma College for Women, 1928; M.A., University of Illinois, 1929; Ph.D., University of Texas, 1941.
- BEVERLY DIANNE BRIAN, Part-time Instructor in English, 1961, 1965.  
B.A., Baylor University, 1958; M.A., Duke University, 1961.
- THOMAS E. BRIDGE, Assistant Professor of Geosciences, 1963, 1965.  
B.S., Kansas State University of Agriculture and Applied Science, 1950; M.S., 1953.
- ANTHONY NORMAN BRITTIN, Instructor in Music, 1963.  
B.M.E., Florida State University, 1959; M.M., Manhattan School of Music, 1963.
- DOROTHY HELEN CLARK BRITTIN, Instructor in Food and Nutrition, 1965.  
B.S., Florida State University, 1960; M.S., Texas Technological College, 1965.
- RAYMOND HECTOR BROGNIEZ, Assistant Professor of Architecture and Allied Arts, 1965.  
B.A., Rice University, 1939; B.S., 1940; Bacc. in Arch., Harvard University, 1941.
- ROGER LEON BROOKS, Professor of English and Associate Dean of the Graduate School, 1960, 1964.  
B.A., Baylor University, 1949; M.A., University of Illinois, 1950; Ph.D., University of Colorado, 1959.
- MYRTLE LOUISE BROWNE, Instructor in English, 1965.<sup>1</sup>  
B.A., East Texas State University, 1941; M.A., 1946.
- PETER DRAGO BUBRESKO, Assistant Professor of French, 1964.  
B.A., University of Belgrade (Yugoslavia), 1933; M.A., 1935.
- HENRY EDESEL BUCHANAN, Assistant Professor of Health, Physical Education, and Recreation for Men and Director of Intramural Sports for Men, 1956, 1963.  
B.S., University of Michigan, 1952; M.A., 1953.
- JOHN H. BUECHLER, Lieutenant Colonel, United States Army, Associate Professor of Military Science, 1961.
- FAYE Laverne BUMPASS, Professor of Spanish, 1943, 1965.  
B.A., Texas Technological College, 1932; M.A., 1934; D.Lit., San Marcos University (Lima, Peru), 1947.

<sup>1</sup> 1965 Fall Semester.

- L. ANN BUNTIN, Professor and Head of the Department of Home Economics Education, 1962.  
B.S., Oklahoma College for Women, 1932; M.S., University of Oklahoma, 1933; Ed.D., Teachers College, Columbia University, 1957.
- CHARLES LOUIS BURFORD, Assistant Professor of Industrial Engineering, 1957, 1964.  
B.S., Texas Technological College, 1954; M.S., Oklahoma State University of Agriculture and Applied Science, 1962; Reg. Prof. Engr. (Oklahoma).
- WESLEY MORALE BUTLER, Assistant Professor of Government, 1964.  
B.A., Southwest Texas State College, 1961.
- VIRGINIA SHIRE BUTTERFIELD, Associate Reference Librarian, 1965.<sup>1</sup>  
B.A. in L.S., University of Oklahoma, 1935.
- WILLIAM GASTON CAIN, JR., Professor of Management, 1955.  
B.S.C., University of Iowa, 1942; M.A., 1946; Ph.D., 1952.
- ANDREW SCOTT CAIRNCROSS, Visiting Professor of English, 1965.  
M.A., Glasgow University (Scotland), 1922; D.Litt., 1932.
- WALTER LEE CALVERT, JR., Instructor in Architecture and Allied Arts, 1963.  
B.S., University of Kansas, 1960; M.Arch., 1963.
- CHARLOTTE BALLOW CAMP, Assistant Professor of Home and Family Life, 1946, 1953.  
B.S., Texas Technological College, 1939; M.S., 1946.
- EARL D. CAMP, Professor and Head of the Department of Biology, 1945, 1959.  
B.S., Texas Technological College, 1941; M.S., University of New Mexico, 1943; Ph.D., University of Iowa, 1952.
- TRUMAN WILDES CAMP, Professor of English, 1935, 1949.  
B.A., Yale University, 1926; Ph.D., 1935.
- CAROLYN JANICE MOORE CAMPBELL, Assistant Circulation Librarian, 1965.  
B.A., Sam Houston State College, 1960.
- SAM LEWIS CAMPBELL, Associate Professor of Psychology, 1965.  
A.B., Chapman College, 1946; A.M., Indiana University, 1952; Ph.D., 1958.
- DEORE J. CANNON, Associate Professor of Psychology, 1965.  
A.B., University of Georgia, 1950; M.A., 1951; Ph.D., University of Texas, 1958.
- MARIE KATHLEEN CARANO, Instructor in Home Economics Education, 1963.  
B.S., University of Nevada, 1959; M.S., 1961.
- GERALINE PATTERSON CARAWAY, Instructor in Mathematics, 1956, 1965.  
B.A., East Central State College, 1942; M.Ed., Texas Technological College, 1951.
- MARY SUE CARLOCK, Associate Professor of English, 1952, 1962.  
B.A., Southern Methodist University, 1930; M.A., University of Texas, 1935; Ph.D., Columbia University, 1958.
- ILA MAE CARPENTER, Instructor in Mathematics, 1956.  
B.S., East Texas State University, 1942; M.S., Texas Technological College, 1952.
- WALTER JOSEPH CARTWRIGHT, Associate Professor of Sociology, 1962, 1965.  
B.A., Southern Methodist University, 1943; B.D., 1946; M.A., University of Texas, 1960; Ph.D., 1964.
- VIRGINIA GAMBLE CASEY, Part-time Instructor in Music, 1962.  
B.M., University of Texas, 1944.
- OWEN LAVERNE CASKEY, Professor of Education, 1947, 1965.  
B.S., Texas Technological College, 1947; M.Ed., 1948; Ed.D., University of Colorado, 1952.
- HOPE HELEN CASSIDY, Part-time Instructor in Music, 1963, 1965.  
B.A., Wagner College, 1959; M.Ed., Texas Technological College, 1964.
- LOUIS ROBERT CATUOGNO, Assistant Professor of Music, 1961, 1965.  
B.M., Yale University, 1953; M.M., 1954.
- JAMES LARRY CHANCE, Instructor in Mechanical Engineering, 1965.<sup>2</sup>  
B.S., Texas Technological College, 1963; M.S. in M.E., 1965.
- WAYNE RALPH CHAPIN, Associate Professor of Accounting, 1965.  
B.B.A., University of Texas, 1958; M.B.A., 1959; D.B.A., University of Southern California, 1965; C.P.A.
- SHIRLEY CHAPMAN, Assistant Professor of Government, 1965.  
B.S., Florida Southern College, 1951; M.A., Emory University, 1958; Ph.D., 1962.
- RICHARD JARRELL CHEATHAM, Instructor in Applied Arts, 1966.<sup>3</sup>  
B.S., Texas Technological College, 1966.
- BILL AUBREY CHEVALIER, Instructor in Park Administration, 1964.  
B.S., Louisiana State University and Agricultural and Mechanical College, 1964.
- CARL JOHN CHILDERS, JR., Associate Professor of Architecture and Allied Arts, 1959, 1965.  
B.Arch., Texas Technological College, 1952; Reg. Arch. (Texas).
- SAMUEL WHITTEN CHISHOLM, Associate Professor of Accounting, 1957.  
B.B.A., Texas Technological College, 1942; M.B.A., 1950; C.P.A.
- PEDER GEORGE CHRISTIANSEN, Assistant Professor of Foreign Languages, 1963.  
B.A., Carroll College, 1956; M.A., University of Wisconsin, 1957; Ph.D., 1963.

<sup>1</sup> Resigned January 31, 1966.<sup>2</sup> Appointed October 15, 1965.<sup>3</sup> 1966 Spring Semester.

- BILLY JOE CLABORN, Assistant Professor of Civil Engineering, 1963.  
B.S., Texas Technological College, 1956; M.S., Stanford University, 1957; Reg. Prof. Engr. (California).
- VERNON THOMAS CLOVER, Professor of Economics, 1947, 1953.  
B.S., Fort Hayes Kansas State College, 1934; M.S., 1935; Ph.D., University of Colorado, 1937.
- CECIL ROBERTS COALE, JR., Assistant Professor of Electrical Engineering, 1962.  
B.S., Texas Technological College, 1957; M.S., Southern Methodist University, 1959; Ph.D., University of Texas, 1961.
- ALDRENA BEATRIX COBB, Professor of Psychology and Director of the Rehabilitation Counselor Training Program, 1958, 1963.  
B.S., West Texas State University, 1939; M.S. North Texas State University, 1950; Ph.D., University of Texas, 1953.
- JOHN WILLIAM COBB, JR., Associate Professor of Health, Physical Education, and Recreation for Men, 1958, 1963.  
B.S., University of Corpus Christi, 1951; M.Ed., Texas Technological College, 1954; P.E.D., Indiana University, 1958.
- MARY ANN MURPHY COBB, Assistant Professor of Health, Physical Education, and Recreation for Women, 1959, 1961.  
B.S.E., Henderson State Teachers College, 1951; M.Ed., Texas Technological College, 1954.
- ALICE MARIA KENT COLLINS, Assistant Professor of Spanish, 1964.  
B.A., Sagrado Corazón (Buenos Aires, Argentina), 1957; B.A., National School of Music (Asunción, Paraguay), 1961; M.A., University of Oklahoma, 1963.
- JACQUELIN COLLINS, Assistant Professor of History, 1962.  
B.A., Rice University, 1956; M.A., 1959; Ph.D., University of Illinois, 1964.
- FREDERICK LANDON CONNELL, JR., Instructor in Economics, 1961.  
B.A., Texas College of Arts and Industries, 1960; M.A., 1961.
- SEYMOUR VAUGHAN CONNOR, Professor of History and Editor of College Bulletins, 1953, 1965.  
B.A., University of Texas, 1948; M.A., 1949; Ph.D., 1952.
- MURRAY WHITFIELD COULTER, Assistant Professor of Biology, 1964.  
B.A., Emory University, 1954; M.S., University of Arizona, 1957; Ph.D., University of California (Los Angeles), 1963.
- BESSIE SPAIN COWAN, Assistant Professor of Education, 1961, 1963.  
B.S., Abilene Christian College, 1936; M.Ed., University of Texas, 1957.
- GILFORD WILLIAM COX, Assistant Professor of Accounting, 1955, 1956.  
B.B.A., Texas Technological College, 1948; M.S., Texas A & M University, 1949; C.F.A.
- JOHN PAUL CRAIG, Associate Professor of Electrical Engineering, 1957, 1965.  
B.S. in E.E., Texas Technological College, 1950; Ph.D., University of Texas, 1965; Reg. Prof. Engr. (Texas).
- DUANE AUSTIN CRAWFORD, Assistant Professor of Petroleum Engineering, 1958.  
B.S., University of Missouri School of Mines and Metallurgy, 1952; M.S., Pennsylvania State University, 1959; Reg. Prof. Engr. (Texas).
- HENRY ALLEN CROSS, JR., Associate Professor of Psychology, 1964.  
B.A., Bethany-Nazarene College, 1949; M.S., University of Oklahoma, 1951; Ph.D., Ohio State University, 1959.
- JAMES CECIL CROSS, Professor of Biology, 1948, 1959.  
A.B., Southwestern University, 1924; M.A., University of Texas, 1928; Ph.D., 1931.
- ALEX BELCHER CROWDER, JR., Assistant Professor of Education, 1965.  
B.S., Hardin-Simmons University, 1950; M.Ed., 1951; Ed.D., North Texas State University, 1965.
- SAMUEL EVERETT CURL, Associate Professor of Animal Husbandry, 1961, 1965.  
B.S., Sam Houston State College, 1959; M.S., University of Missouri, 1961; Ph.D., Texas A & M University, 1963.
- MARY BURWELL DABNEY, Professor and Head of the Department of Health, Physical Education, and Recreation for Women, 1952, 1957.  
B.S., College of William and Mary, 1932; M.A., Columbia University, 1942; Ed.D., 1951.
- PAULINE LOUISE DAHL, Instructor in Applied Arts, 1965.  
B.S., Texas Technological College, 1963.
- CHARLES EDWIN DALE, Professor of Finance, 1956, 1965.  
B.A., Texas Technological College, 1948; LL.B., Baylor University, 1950.
- LEONA FORD DALE, Instructor in English, 1961, 1965.  
B.A., Texas Technological College, 1961; M.A., 1964.
- JAMES EDWARD DALTON, Instructor in Architecture and Allied Arts, 1965.  
B.A., Miami University, 1964; M.A., University of Minnesota, 1965.
- KERSI SORAB DAVAR, Associate Professor of Civil Engineering, 1965.  
B.E., College of Engineering (Poona, India), 1946; M.I.E., Colorado State University, 1957; Ph.D., 1961.
- MONTY EARL DAVENPORT, Associate Professor of Mechanical Engineering, 1956, 1965.  
B.S. in M.E., Texas Technological College, 1956; M.S., Stanford University, 1958; Ph.D., 1962.

- ELMER HAYES DAVIDSON, Assistant Professor of Psychology, 1965.  
A.B., Greensboro College, 1960; M.A., Hollins College, 1962; Ph.D., Pennsylvania State University, 1965.
- JEAN DOLORES DAIL DAVIDSON, Part-time Instructor in Psychology, 1965.  
A.B., Greensboro College, 1957; M.S., Pennsylvania State University, 1963.
- RAYMOND LEON DAVIDSON, Professor of Education, 1949, 1962.  
B.A., Clarendon College, 1927; M.A., Texas Technological College, 1935; Ed.D., University of Texas, 1951.
- LEWIS JAMES DAVIES, Associate Professor of Sociology, 1962.  
B.A., University of Texas, 1947; M.A., 1950; Ph.D., University of Illinois, 1960.
- DONALD JACK DAVIS, Assistant Professor of Applied Arts, 1965.  
B.A., Baylor University, 1959; M.A., 1961.
- JAMES WILLIAM DAVIS, Professor of Government, 1938, 1944.  
B.A., Texas A & M University, 1928; M.A., University of Texas, 1931; Ph.D., 1940.
- KENNETH WALDRON DAVIS, Associate Professor of English, 1955, 1965.  
B.A., Texas Technological College, 1954; M.A., Vanderbilt University, 1955; Ph.D., 1963.
- JAMES WENDELL DAY, Professor of Physics, 1946, 1962.  
B.A., Hardin-Simmons University, 1928; M.A., University of Texas, 1939.
- ROBERT WALDO DEAHL, Assistant Professor of Music, 1958, 1964.  
B.M., Oberlin College, 1950; M.M., 1952.
- CHARLES GARFIELD DECKER, Professor of Civil Engineering, 1938, 1956.  
B.S. in C.E., University of Michigan, 1932; M.S. in E., 1933; Reg. Prof. Engr. (Texas).
- JOE DENNIS, Professor and Head of Department of Chemistry, 1938, 1950.  
B.A., Austin College, 1933; M.A., University of Texas, 1937; Ph.D., 1942; D.Sc., Austin College, 1964.
- VICTOR FABRI DIAZ, Instructor in Foreign Languages, 1965.  
B.A., Javeriana University (Bogota, Columbia), 1963; M.A., Kansas State University of Agriculture and Applied Science, 1966.
- MARGARET ASHER DICKSON, Assistant Catalog Librarian, 1957, 1965.  
B.S., Texas Technological College, 1943; M.L.S., Texas Woman's University, 1964.
- FRANK DIETZE, JR., Part-time Instructor in Foreign Languages, 1965.  
B.A., Texas Technological College, 1963; M.A., 1965.
- CHARLES E. DOELL, Visiting Professor of Park Administration, 1964.  
B.S., University of Minnesota, 1916; C.E., 1917.
- TIMOTHY PAUL DONOVAN, Associate Professor of History, 1960, 1963.  
B.A., University of Oklahoma, 1949; M.A., 1950; Ph.D., 1960.
- JOHNNY LARUE DORSEY, Instructor in Clothing and Textiles, 1962.  
B.S., Texas Woman's University, 1939; M.S., Texas Technological College, 1963.
- JAMES REX DOUGLAS, Instructor in Education, 1965.  
B.A., University of Texas, 1947; M.A., Western State College of Colorado, 1961.
- PHYLLIS DRAKE, Associate Professor of Home and Family Life and Home Economics Education, 1963.  
B.S., Texas Technological College, 1936; M.S., 1943.
- ARTHUR LINCOLN DRAPER, Associate Professor of Chemistry, 1959, 1961.  
B.A., Rice University, 1948; M.A., 1949; Ph.D., 1951.
- HENRY EDWARD DRAPER, Associate Professor of Home and Family Life, 1965.  
B.S., Brigham Young University, 1954; M.Ed., Oregon State University, 1961.
- LOLA MARIE DREW, Associate Professor of Home Management, 1946, 1949.  
B.A., Texas Woman's University, 1928; M.A., Teachers College, Columbia University, 1941.
- WILLIAM LYON DUCKER, Professor and Head of the Department of Petroleum Engineering, 1948.  
B.S., University of Oklahoma, 1930; Reg. Prof. Engr. (Oklahoma, Texas).
- RICHARD ALBERT DUDEK, Professor and Head of the Department of Industrial Engineering and Engineering Drawing, 1958.  
B.S. in M.E., University of Nebraska, 1950; M.S. in I.E., University of Iowa, 1951; Ph.D., 1956; Reg. Prof. Engr. (Iowa).
- WILLIAM WAYNE DUMAS, Assistant Professor of Education, 1965.  
B.S.E., Henderson State Teachers College, 1957; M.Ed., University of Arkansas, 1961; Ed.D., 1965.
- ROY SYLVAN DUNN, Associate Professor of Sociology and Director of the Southwest Collection, 1956, 1963.  
B.A., University of Texas, 1948; M.A., 1951.
- RALPH MARION DURHAM, Professor of Animal Husbandry, 1959, 1965.  
B.S., Colorado State University, 1948; M.S., University of Wisconsin, 1949; Ph.D., 1951.
- MARVIN JOHN DVORACEK, Assistant Professor of Agricultural Engineering, 1962, 1965.  
B.S., Texas A & M University, 1953; B.S., 1959; M.S., University of California (Davis), 1962.

- ROBERT DYER, Captain, United States Air Force, Assistant Professor of Aerospace Studies, 1964.  
B.S., North Texas State University, 1951.
- BILLY HOWARD EASTER, Assistant Professor of Electrical Engineering, 1955.  
B.S., Texas Technological College, 1951; S.M., Massachusetts Institute of Technology, 1953; Reg. Prof. Engr. (Texas).
- LUTA PELHAM EAVES, Assistant Professor of Accounting, 1942.  
B.B.A., Texas Technological College, 1934; M.B.A., 1941.
- FLOYD EUGENE EDDLEMAN, Associate Professor of English, 1958, 1965.  
B.S.E., Arkansas State Teachers College, 1951; M.A., University of Arkansas, 1955; Ph.D., 1961.
- LONNIE JOE EDWARDS, Part-time Instructor in Architecture and Allied Arts, 1965.  
B.Advertising Art and Design, Texas Technological College, 1964.
- THOMAS JEFFERSON EDWARDS, Part-time Instructor in Accounting, 1951.  
B.B.A., Texas Technological College, 1947; M.B.A., University of Texas, 1949; C.P.A.
- WILDRING SHERROD EDWARDS, Assistant Professor of Home and Family Life, 1962, 1964.  
B.S., Texas Technological College, 1959; M.A., 1962.
- LOUIS RICHARD EGEE, Part-time Instructor in Architecture and Allied Arts, 1966.  
B.A., University of Southern California, 1964; M.A., 1965.
- ULRICH LEWIS EGGENBERGER, Associate Professor of Agricultural Education, 1961, 1964.  
B.S., Kansas State University of Agriculture and Applied Science, 1952; M.S., 1956; Ph.D., Iowa State University of Science and Technology, 1964.
- GEORGE O. ELLE, Professor of Horticulture, 1938, 1951.  
B.S., Oregon State University, 1938; M.S., Texas Technological College, 1941; Ph.D., Cornell University, 1951.
- ARTHUR MCAULEY ELLIOT, Assistant Professor of Biology, 1961.  
B.S., University of Minnesota, 1953; M.S., 1960; Ph.D., 1961.
- RAYMOND PRUITT ELLIOTT, Professor of Music, 1950, 1960.  
B.M., University of Kansas, 1929; M.S., 1936.
- GEORGE FORBES ELLIS, JR., Professor and Head of the Department of Animal Husbandry, 1962, 1965.<sup>2</sup>  
B.S., New Mexico State University, 1955; Ph.D., Texas A & M University, 1963.
- PAUL RAYMOND ELLSWORTH, Associate Professor of Music, 1954, 1963.  
B.A., Hillsdale College, 1950; M.A., Teachers College, Columbia University, 1958.
- LISE BLUM ELSON, Visiting Assistant Professor of Music, 1965.  
Medaille, Conservatoire de Musique de Paris (France), 1937; Accessit, 1939; M.A., Indiana University, 1963.
- LAURA KATHERINE EVANS, Professor of Education, 1951, 1965.  
B.S., Eastern Kentucky State College, 1940; M.A., George Peabody College for Teachers, 1946; Ed.D., University of Maryland, 1965.
- MARY LOUISE EVANS, Instructor in Speech, 1965.<sup>3</sup>  
B.S., University of Minnesota, 1952; M.A., 1963.
- BILLY COTTON EVERTON, Assistant Professor of Education, 1958, 1964.  
B.S., Texas Woman's University, 1940; B.A., 1942; M.Ed., Texas Technological College, 1954; Ed.D., 1963.
- DANE EVERTON, Part-time Instructor in Finance, 1965.  
LL.B., University of Texas, 1964.
- BERLIE JOSEPH FALLON, Professor of Education and Executive Secretary of the West Texas School Study Council, 1955, 1962.  
B.A., Daniel Baker College, 1942; M.Ed., Texas Technological College, 1947; Ed.D., University of Colorado, 1951.
- MOHAMED ZUHDI TAJI FARUKI, Assistant Professor of Philosophy, 1963.  
B.A., American University of Beirut (Lebanon), 1946; M.A., Indiana University, 1952; Ph.D., 1957.
- DOROTHY JANE FILGO, Assistant Professor of Education, 1960, 1962.  
B.A., Baylor University, 1942; M.A., Colorado State College, 1950.
- HAZEL MARIE FLETCHER, Professor of Clothing and Textiles, 1965.  
A.B., Indiana University, 1922; A.M., 1927; Ph.D., 1929.
- EVELYN LEWIS FORREST, Part-time Instructor in German, 1964.  
B.A., Texas Technological College, 1964.
- BERTHOLD CLAUDIO FRIEDL, Visiting Professor of English, 1965.  
Baccalaureate, Lycée Victor Hugo Besancon, 1922; M.A., University of Chicago, 1926; D.Litt., L'Université de Paris (France), 1931.
- GORDON FULLER, Professor of Mathematics, 1950.  
B.A., West Texas State University, 1926; M.A., University of Michigan, 1928; Ph.D., 1933.

<sup>1</sup> 1966 Spring Semester.<sup>2</sup> Resigned June 1, 1966.<sup>3</sup> Resigned October 31, 1965.

- ALFRED A. FUNK, Assistant Professor of Speech, 1965.  
B.S., University of Oregon, 1949; M.S., 1952; M.A., University of Washington, 1961; Ph.D., 1965.
- RICHARD HAROLD FURLOW, Instructor in Anthropology, 1965.  
A.B., Indiana University, 1959; M.A., 1962.
- RICHARD DALE FURR, Visiting Professor of Animal Husbandry and Superintendent of the Texas Technological College Research Farm, 1965.  
B.S., Sam Houston State College, 1958; M.S., Oklahoma State University of Agriculture and Applied Science, 1959; Ph.D., 1961.
- JAMES RANKIN GAMMILL, Associate Professor of Education, 1952, 1963.  
B.S. in Ed., Texas Technological College, 1935; M.Ed., 1939; Ed.D., 1956.
- HENRY LEE GANTZ, JR., Lieutenant Colonel, United States Air Force, Professor of Aerospace Studies, 1963, 1965.  
B.G.E., University of Omaha, 1959.
- WALLACE EARL GARETS, Professor and Head of the Department of Journalism, 1956, 1957.  
B.S., University of Idaho, 1938; M.S., 1947.
- RAYMOND ERNEST GARLIN, Professor of Education, 1927, 1943.  
B.A., University of Texas, 1920; M.A., 1921; Ph.D., 1927.
- HERSCHEL WHITAKER GARNER, Instructor in Biology, 1963, 1965.  
B.S., Stephen F. Austin State College, 1962; M.S., Texas Technological College, 1965.
- HENRY WILTON GAUTREAU, JR., Instructor in English, 1965.  
B.S., Louisiana State University and Agricultural and Mechanical College, 1956; M.A., 1962.
- MARY AGNES GERLACH, Assistant Professor of Clothing and Textiles, 1955.  
B.S., University of Nebraska, 1937; M.A., 1951.
- GEORGETTE ELIZABETH GETTEL, Instructor in Music, 1963.  
B.M., Northwestern University, 1956.
- PRABHAKAR MAHADEO GHARE, Assistant Professor of Industrial Engineering, 1964.  
B.E., University of Bombay (India), 1949; M.S., Oklahoma State University of Agriculture and Applied Science, 1963; Ph.D., 1965.
- OSMAN ISMAIL GHAZZALY, Assistant Professor of Civil Engineering, 1965.  
B.S., University of Cairo (Egypt), 1958; M.S., University of Texas, 1963; Ph.D., 1966.
- HUGH JAMES GIBBONS, Instructor in Architecture and Allied Arts, 1963.  
B.A., Pennsylvania State University, 1959; M.A., 1961.
- WINNIFRED GARLAND GIFFORD, Assistant Professor of Home and Family Life, 1949.  
B.S., University of Illinois, 1928; M.S., Iowa State University of Science and Technology, 1937.
- JOHN VANCE GILBERT, Instructor in Music, 1962.<sup>1</sup>  
B.M., Texas Technological College, 1960; B.A., 1960; M.A., Teachers College, Columbia University, 1962.
- WILLIAM JOE GILLESPIE, Part-time Instructor in Finance, 1955.<sup>2</sup>  
B.B.A., Texas Technological College, 1949; LL.B., University of Texas, 1955.
- JOHN CHARLES GILLIAM, Associate Professor of Business Education and Secretarial Administration, 1962.  
B.A., Western State College of Colorado, 1951; M.B.Ed., University of Colorado, 1952; Ph.D., University of Iowa, 1959.
- EVERETT ALDEN GILLIS, Professor and Head of the Department of English, 1949, 1964.  
B.A., Texas Christian University, 1936; M.A., 1939; Ph.D., University of Texas, 1948.
- EARL HOWARD GILMORE, Associate Professor of Mathematics, 1958, 1961.  
B.S., Texas Technological College, 1943; M.S., 1947; Ph.D., University of California (Berkeley), 1951.
- ANTHONY ALFRED GIOIA, Associate Professor of Mathematics, 1964, 1965.  
B.A., University of Connecticut, 1955; M.A., University of Missouri, 1961; Ph.D., 1964.
- EVELYN PEARLENE VESTAL GLASRUDE, Instructor in Government, 1963, 1965.  
B.A., Texas Technological College, 1961; M.A., 1964.
- SUSANNE SANDBORN GODDARD, Assistant Catalog Librarian, 1963.  
B.A., North Texas State University, 1956; B.S. in L.S., 1957.
- JOHN EVERETT GODFREY, JR., Instructor in English, 1958.  
B.A., Moravian College, 1948; M.A., Lehigh University, 1958.
- PAUL KENNETH GOELDNER, Assistant Professor of Architecture and Allied Arts, 1962.  
B.Arch., Iowa State University of Science and Technology, 1949; Reg. Arch. (Texas).
- HOWARD ELDON GOLDEN, Professor of Marketing, 1946, 1965.  
B.S., West Texas State University, 1931; Ph.D., University of Missouri, 1935.
- MARY FRANCES GORDON, Reference Librarian, 1963.  
B.S., West Texas State University, 1938; B.A. in L.S., University of Oklahoma, 1942.

<sup>1</sup> On leave, 1965-1966.<sup>2</sup> 1965 Fall Semester.

- EDNA MAYNARD GOTT, Part-time Instructor in Economics, 1954.  
B.A., University of Texas, 1942; M.A., Texas Technological College, 1954.
- PRESTON FRAZIER GOTT, Associate Professor of Physics, 1949, 1957.  
B.S., University of Texas, 1944; M.A., 1947.
- WILLIAM FRANCES GRADY, JR., Part-time Instructor in Architecture, 1965.  
B.Arch., Texas Technological College, 1960.
- LYMAN MOODY GRAHAM, JR., Assistant Professor of Engineering Drawing, 1956, 1959.  
B.S., North Texas State University, 1943; M.S., 1949.
- LAWRENCE LESTER GRAVES, Professor of History, 1955, 1961.  
B.A., University of Missouri, 1942; M.A., University of Rochester, 1947; Ph.D., University of Wisconsin, 1954.
- HENRY LUTHER GRAY, Assistant Professor of Mathematics, 1960, 1965.  
B.S., Texas Technological College, 1959; M.S., 1961.
- JERRY CARTER GREEN, Instructor in Finance, 1964.  
B.A., Texas Technological College, 1962; M.B.A., 1964.
- LOLA BETH GREEN, Associate Professor of English, 1946, 1959.  
B.A., Texas Technological College, 1935; M.A., 1942; Ph.D., University of Texas, 1955.
- RAYMOND ACKERLY GREEN, Assistant Professor of Accounting, 1956, 1960.  
B.S., Abilene Christian College, 1947; M.A., Hardin-Simmons University, 1951.
- VIRGINIA LEE GREENHILL, Assistant Catalog Librarian, 1960.  
B.A., North Texas State University, 1960.
- JEANNETTE CARTER GREENWALDT, Assistant Professor of Home and Family Life, 1965.  
B.S., Trinity University, 1941; M.A., Syracuse University, 1964.
- HIRAM VARNER GREER, Instructor in Architecture and Allied Arts, 1963.  
B.A., Texas Technological College, 1955.
- HORACE ERNEST GRIFFITH, Part-time Instructor in Government, 1952.  
B.A., Texas Technological College, 1935; LL.B., Georgetown University, 1939.
- PAUL GENE GRIFFITH, Professor of Electrical Engineering, 1959, 1963.  
B.S., Texas Technological College, 1954; S.M., Massachusetts Institute of Technology, 1956; Ph.D., Stanford University, 1959.
- HORACE FRANKLIN GRIFFITHS, Assistant Professor of Business Education and Secretarial Administration, 1959, 1966.<sup>1</sup>  
B.S.C., Texas Christian University, 1959; M.Ed., Texas Technological College, 1960.
- CLYDE LEROY GRIMM, JR., Assistant Professor of English, 1964.  
B.S., University of Illinois, 1952; B.A., 1955; M.A., University of Arizona, 1958; Ph.D., University of Illinois, 1963.
- ORRIN LEE GROSS, Part-time Instructor in Accounting, 1964.<sup>2</sup>  
B.B.A., Texas Technological College, 1956; C.P.A.
- HERBERT WARREN GRUBB, Assistant Professor of Agricultural Economics, 1964.  
B.S., Berea College, 1958; M.S., Oklahoma State University of Agriculture and Applied Science, 1960; Ph.D., North Carolina State of the University of North Carolina at Raleigh, 1964.
- ARNOLD JARVIS GULLY, Professor and Head of the Department of Chemical Engineering, 1963.  
B.S., Auburn University, 1947; M.S., Louisiana State University and Agricultural and Mechanical College, 1950; Ph.D., 1951.
- ALAN MURRAY FINLAY GUNN, Professor of English, 1939, 1949.  
B.A., Huron College, 1927; M.A., University of Denver, 1928; Ph.D., Princeton University, 1938.
- CHARLES GROVER HALCOMB, Assistant Professor of Psychology, 1964.  
B.A., Oklahoma Baptist University, 1958; Ph.D., Baylor University, 1964.
- ARVIL CURTIS HAMILTON, SR., Part-time Instructor in Park Administration, Horticulture, and Entomology, 1965.<sup>3</sup>  
B.A., Hardin-Simmons University, 1932.
- THOMAS EARLE HAMILTON, Professor of Foreign Languages, 1940, 1955.  
B.A., Southern Methodist University, 1927; M.A., 1929; Ph.D., University of Texas, 1940.
- CARL HAMMER, JR., Professor of German, 1964.  
B.A., Catawba College, 1934; M.A., Vanderbilt University, 1936; Ph.D., University of Illinois, 1939.
- PAUL DEAN HANNA, JR., Assistant Professor of Architecture and Allied Arts, 1960, 1965.  
B.A., Austin College, 1951; M.F.A., Texas Christian University, 1965.
- FRED GEORGE HARBAUGH, Professor of Veterinary Science and Animal Husbandry and Veterinarian, 1927, 1941.  
B.S., Iowa State University of Science and Technology, 1927; D.V.M., 1927.

<sup>1</sup> Appointed February 1, 1966.<sup>2</sup> 1965 Fall Semester.<sup>3</sup> 1966 Spring Semester



- ARREN MAYNOR HARDEE, Associate Professor of French, 1963.  
B.A., University of South Carolina, 1947; M.A., 1948; Ph.D., University of California (Los Angeles), 1962.
- JOHN ELZIE HARDING, Assistant Professor of Economics and Management, 1937, 1961.  
B.A., Howard Payne College, 1927; B.F.A., 1927; M.A., Texas Technological College, 1937.
- CHARLES SIDNEY HARDWICK, Assistant Professor of Philosophy, 1960, 1965.  
B.A., Texas Technological College, 1952; M.A., 1959.
- LEVI MARLIN HARGRAVE, Professor of Agricultural Education, 1946, 1964.  
B.S., Texas Technological College, 1935; M.S., 1942.
- JACLYN FLYNN HARLAND, Instructor in Applied Arts, 1963.  
B.S., Texas Technological College, 1961.
- PETER ASH HARLEY, Instructor in Architecture and Allied Arts, 1965.  
B.E., University of Adelaide (Australia), 1956; Fellowship Diploma, South Australia Institute of Technology, 1956.
- DON LAMAR HARRIS, Instructor in Finance, 1965.<sup>1</sup>  
B.B.A., Texas Technological College, 1954.
- RAE LAWRENCE HARRIS, JR., Associate Professor of Geosciences, 1957, 1962.  
B.S., Oregon State University, 1950; Ph.D., Columbia University, 1957.
- ROBERT HENRY HARTMAN, Part-time Instructor in Accounting, 1964.  
B.B.A., Texas Technological College, 1957.
- CLARK HARVEY, Professor of Agronomy, 1954, 1961.  
B.S., West Texas State University, 1939; B.S., Texas A & M University, 1940; M.S., Iowa State University of Science and Technology, 1948; Ph.D., 1950.
- JACK OCTA HAZLERIG, Instructor in English, 1961, 1965.  
B.A., North Texas State University, 1958; M.A., 1961.
- EMMETT ALLEN HAZLEWOOD, Professor and Head of the Department of Mathematics, 1939, 1948.  
B.S., West Texas State University, 1928; M.A., Cornell University, 1931; Ph.D., 1936.
- GEORGE GAIL HEATHER, Professor of Finance and Dean of the Business Administration, 1950.  
B.S., Southwest Missouri State College, 1938; M.A., University of Iowa, 1942; Ph.D., 1946.
- HARRY GEORGE HECHT, Assistant Professor of Chemistry, 1962.<sup>2</sup>  
B.S., Brigham Young University, 1958; M.S., 1959; Ph.D., University of Utah, 1962.
- HUBERT REED HEICHELHEIM, Assistant Professor of Chemical Engineering, 1961.  
B.S., University of Notre Dame, 1953; M.S., 1956; Ph.D., University of Texas, 1962.
- ELLIS RICHARD HEINEMAN, Professor of Mathematics and Coordinator of Freshman Mathematics, 1928, 1947.  
B.A., University of Wisconsin, 1925; M.A., 1926.
- DONALD JACOB HELMERS, Professor of Mechanical Engineering, 1948, 1965.  
B.S. in M.E., Texas Technological College, 1948; M.S., University of Michigan, 1950; Ph.D., Texas A & M University, 1965; Reg. Prof. Engr. (Texas)
- GENE LeCLAIR HEMMLE, Professor and Head of the Department of Music, 1949.  
B.M., Southern Methodist University, 1937; M.A., Teachers College, Columbia University, 1946; Ed.D., 1949.
- WILLIAM SCOTT HENDON, Associate Professor of Economics, 1965.  
B.A., University of Oklahoma, 1955; M.A., 1958; Ph.D., 1964.
- WENDELL CLARK HEWETT, Instructor in Marketing, 1963.  
B.B.A., Texas Technological College, 1960; M.B.A., 1961.
- JOHN RAYMOND HILDEBRAND, Associate Professor of Economics, 1962.  
B.A., University of California (Berkeley), 1949; M.A., George Washington University, 1951; Ph.D., University of Chicago, 1959.
- SHELBY KEITH HILDEBRAND, Associate Professor of Mathematics, 1963, 1965.  
B.A., North Texas State University, 1952; M.A., 1957; Ph.D., Iowa State University of Science and Technology, 1962.
- VERNA BUTCHER HILDEBRAND, Assistant Professor of Home and Family Life, 1962, 1965.  
B.S., Kansas State University of Agriculture and Applied Science, 1945; M.S., 1957.
- WALTER KENT HILL, Instructor in Music, 1963.  
B.M., Oberlin College, 1957; M.M., Eastman School of Music, University of Rochester, 1961; Associate, American Guild of Organists.
- CAROL ANNE CONWAY HILTON, Instructor in English.<sup>3</sup>  
B.A., DePauw University, 1956; M.A., Boston University, 1958.
- JOSEPH NORWOOD HILTON, JR., Instructor in Mathematics, 1960, 1961.  
B.A., DePauw University, 1956; M.S., Texas Technological College, 1961.

<sup>1</sup> 1966 Spring Semester.<sup>2</sup> On leave, 1965-1966. Resigned January 3, 1966.<sup>3</sup> On leave, 1965-1966. Resigned January 5, 1966.



- GEORGE KENNETT HOBBS, Part-time Instructor in Management, 1963.  
B.B.A., Texas Technological College, 1951; M.B.A., 1952; LL.B., Southern Methodist University, 1959.
- ROBERT LEE HOLBERT, Instructor in Government, 1965.  
B.A., Arizona State University, 1964; M.A., 1965.
- GLADYS KEEN HOLDEN, Associate Professor of Food and Nutrition, 1945, 1963.  
B.A., Hardin-Simmons University, 1930; M.S., Texas Technological College, 1949.
- WILLIAM CURRY HOLDEN, Professor of History, 1929, 1965.  
B.A., University of Texas, 1923; M.A., 1924; Ph.D., 1928.
- WILLARD MAURICE HOLSBERRY, Instructor in Health, Physical Education, and Recreation for Men and Assistant Director of Intramural Sports for Men, 1963, 1964.  
B.A., Eastern New Mexico University, 1962; M.S., 1966.
- ERVAN JOHN HOLTSMANN, Assistant Professor of Business Education and Secretarial Administration, 1961.<sup>1</sup>  
B.S., Oklahoma State University of Agriculture and Applied Science, 1949; M.S., 1950.
- MARY ALICE HONGEN, Instructor in Music, 1964.  
B.M., Eastman School of Music, University of Rochester, 1963; M.M., 1965.
- CAROL VIRGINIA GLENN HORSMAN, Part-time Counseling Psychologist, 1961, 1965.  
B.A., Texas Technological College, 1941; M.A., 1960; Ph.D., 1964.
- EDNA NAWANNA HOUGHTON, Associate Professor of Architecture and Allied Arts, 1932, 1957.  
B.S. in A.E., Texas Technological College, 1930; B.A., University of Southern California, 1954; M.A., 1964.
- CHARLES ERNEST HOUSTON, Professor of Electrical Engineering, 1932, 1957.  
B.S. in E.E., Texas Technological College, 1931; M.A., 1932; Reg. Prof. Engr. (Texas).
- DAVID ALLEN HOWE, Assistant Professor of Physics, 1963.  
B.S., Indiana University, 1958; Ph.D., 1962.
- JAMES DEAN HOWZE, Associate Professor of Architecture and Allied Arts, 1958, 1965.  
B.A., Austin College, 1951; M.S., University of Michigan, 1958.
- DOROTHY BEATRICE HOYLE, Associate Professor of Health, Physical Education, and Recreation for Women, 1951, 1961.  
B.S., Texas Woman's University, 1940; M.A., 1949.
- CHESTER BURL HUBBARD, Assistant Professor of Management, 1947, 1952.  
B.S., Texas Technological College, 1947.
- ELLIS WRIGHT HUDDLESTON, Associate Professor of Entomology, 1960, 1965.  
B.S., Texas Technological College, 1956; M.S., Cornell University, 1958; Ph.D., 1960.
- FRANK ALDEN HUDSON, Associate Professor of Animal Husbandry, 1960, 1962.  
B.S., Arizona State University, 1952; M.S., New Mexico State University, 1953; Ph.D., Oregon State University, 1957.
- ROLF EUGENE HUFF, Assistant Professor of Biology, 1963.  
B.S., Ohio University, 1955; Ph.D., Indiana University, 1961.
- ALEXANDER POPE HULL, JR., Associate Professor of Foreign Languages, 1956, 1963.  
B.S., University of Virginia, 1944; Ph.D., 1955.
- GEORGE ROSWELL HULL, Assistant Professor of History, 1960, 1965.  
B.S., Moorhead State College, 1939; M.B.A., University of Chicago, 1949; M.A., Texas Technological College, 1963.
- SARA JANE McCLANAHAN HUNT, Professor of Food and Nutrition, 1965.  
B.A., Lambuth College, 1942; M.S., University of Tennessee, 1958; Ph.D., 1963.
- JOHN RAY HUNTER, Assistant Professor of Range Management, 1958, 1961.  
B.S., Midwestern University, 1949; M.Ed., Texas Technological College, 1958.
- GEORGE KEATING HUTCHINSON, Associate Professor of Industrial Engineering and Director of the Computer Center, 1966.  
B.S., University of Maine, 1955; M.S., Carnegie Institute of Technology, 1956; Ph.D., Stanford University, 1964.
- CHARLES FINLEY HUEY, Assistant Order Librarian, 1958, 1963.  
B.S., North Texas State University, 1944; B.S. in L.S., 1962.
- WILLIAM KEITH ICKES, Professor of Speech, 1962, 1965.  
B.S., University of Utah, 1948; M.S., 1949; Ph.D., Southern Illinois University, 1960.
- RUSSELL BRIGGS IRVIN, Part-time Instructor in Finance and Consultant, 1951, 1952.  
B.A., Hardin-Simmons University, 1929; M.A., University of Texas, 1933; LL.B., 1938.
- ALONZO DAVID JACKA, Associate Professor of Geosciences, 1959, 1964.  
B.S., Beloit College, 1953; M.S., University of Wisconsin, 1957; Ph.D., Rice University, 1960.
- J. W. JACKSON, Professor and Acting Head of the Department of Government, 1929, 1964.  
B.A., Texas Technological College, 1929; M.A., 1929.

<sup>1</sup> Resigned January 31, 1966.

- RUTH DONALD JACKSON, Assistant Professor of English, 1946, 1959.  
B.A., Texas Technological College, 1942; M.A., University of Oklahoma, 1946.
- RAY CURTIS JANEWAY, Librarian, 1949.  
B.A., University of Kansas, 1938; B.S. in L.S., 1941; M.S., University of Illinois, 1944.
- LOUIS THOMAS JARDINE, Assistant Professor of Foreign Languages, 1963.  
B.A., Yale University, 1950; M.A., University of California (Berkeley), 1954.
- CHESTER CARTWRIGHT JAYNES, Associate Professor of Agronomy, 1951, 1964.  
B.S., Texas Technological College, 1949; M.S., 1957.
- JEANETTE DAVIS JENKINS, Part-time Instructor in Home and Family Life, 1962, 1965.  
B.S. in Ed., University of Southern California, 1947; M.S., Texas Technological College, 1955.
- WILLIAM LOYD JENKINS, Associate Professor of Industrial Engineering and Engineering Drawing, 1946, 1959.  
B.S., Texas Technological College, 1943; M.S. in S.E., Georgia Institute of Technology, 1951; Reg. Prof. Engr. (Texas).
- WILLIAM MORLEY JENNINGS, Professor of Health, Physical Education, and Recreation for Men, 1941.  
B.S., Mississippi State University, 1912.
- LEONID AURELIJS JIRGENSONS, Assistant Professor of Foreign Languages, 1961.  
B.A., (Equiv.), University of Hamburg (Germany), 1948; M.A., University of Minnesota, 1961.
- PHILIP JOHNSON, Associate Professor of Petroleum Engineering, 1947, 1957.  
B.S., Texas Technological College, 1942; Reg. Prof. Engr. (Texas).
- WILLIAM RUDOLPH JOHNSON, Assistant Professor of History, 1964.  
B.S., University of Houston, 1958; M.A., 1959; Ph.D., University of Oklahoma, 1963.
- MARVIN AUTRY JOHNSTON, Instructor in Accounting, 1964.  
B.B.A., Texas Technological College, 1963; M.B.A., 1964.
- ALAN KENT JONES, Instructor in English, 1965.  
B.A., Texas Technological College, 1956; M.A., 1963.
- HERMAN ANTHONY JONES, Captain, United States Air Force, Assistant Professor of Aerospace Studies, 1963.  
B.B.A., Texas Technological College, 1956.
- LEWIS NORTON JONES, Dean of Men, 1947, 1953.  
B.S., Texas Technological College, 1938; M.A., 1939.
- RALPH GRAY JONES, Professor of Government, 1965.  
B.A., Louisiana State University and Agricultural and Mechanical College, 1935; M.A., 1938; Ph.D., University of Cambridge (England), 1949.
- DUANE PAUL JORDAN, Assistant Professor of Mechanical Engineering, 1964.  
B.S., Stanford University, 1957; M.S., 1958; Ph.D., 1961.
- DARRELL B. KAMPSCHROER, Major, United States Army, Assistant Professor of Military Science, 1963.
- MARGARET KASSOUNY, Assistant Professor of Food and Nutrition, 1962, 1964.<sup>1</sup>  
B.S., Ohio State University, 1957; M.S., 1961.
- LOYCE ANN KATZ, Assistant Dean of Women, 1965.  
B.A., University of Texas, 1964; B.J., 1964; M.A., Columbia University, 1965.
- AFZAL MUHAMMAD KAZI, Visiting Associate Professor of Mathematics, 1963.<sup>2</sup>  
M.A., University of Panjab (Pakistan), 1943; M.S. University of Michigan, 1955; M.S., University of Wisconsin, 1957; Ph.D., 1958.
- CLIFF HUTCHINSON KEHO, Associate Professor of Civil Engineering, 1957.<sup>2</sup>  
B.S. in C.E., Swarthmore College, 1947; M.S., Harvard University, 1948; Reg. Prof. Engr. (Texas).
- VIRGINIA KATHERINE KELLOGG, Instructor in Music, 1963.<sup>2</sup>  
B.M., Eastman School of Music, University of Rochester, 1957; M.M., University of Illinois, 1961.
- LEE HENRY KENNEDY, Instructor in Mathematics, 1961.  
B.A., Texas Christian University, 1958; M.S., Texas Technological College, 1960.
- SABE McCLAIN KENNEDY, Professor of Government and Dean of Arts and Sciences, 1946, 1959.  
B.A., Texas Technological College, 1943; M.A., 1946; Ph.D., University of Colorado, 1952.
- SARAH ANN NIX KENNEDY, Instructor in Mathematics, 1958, 1961.  
B.S., Texas Technological College, 1957; M.S., 1959.
- GENE KENNEY, Associate Professor of Music, 1957, 1963.  
B.S., Kansas State Teachers College, 1946; M.M., Southern Methodist University, 1952.

<sup>1</sup> On leave, 1966 Spring Semester.

<sup>2</sup> On leave, 1965-1966.

- RICHARD ORVILLE KESLIN, Associate Professor of Anthropology, 1964.  
B.A., University of Wisconsin, 1952; M.A., 1957; Ph.D., 1961.
- EUELL DWAYNE KEY, Instructor in Economics, 1963, 1965.  
B.S., Texas Technological College, 1963; M.B.A., 1965.
- ERNST WILLIE KIESLING, Assistant Professor of Civil Engineering, 1956, 1959.<sup>1</sup>  
B.S. in M.E., Texas Technological College, 1955; M.S. in Applied Mechanics, Michigan State University of Agriculture and Applied Science, 1959; Reg. Prof. Engr. (Texas).
- ERNESTINE DOLORES TUTTLE KILCHENSTEIN, Assistant Professor of Business Education and Secretarial Administration, 1959, 1965.  
B.B.A., Texas Technological College, 1957; M.B.A., 1960.
- KENNETH CLARENCE KILIAN, Assistant Professor of Agronomy, 1963.  
B.S., University of Wisconsin, 1956; M.S., 1961; Ph.D., 1963.
- MARLIN DEAN KILLION, Professor of Music and Director of Bands, 1959, 1963.  
B.M.E., University of Nebraska, 1950; M.M., 1951.
- THOMAS KUNHYUK KIM, Associate Professor of Economics, 1965.  
B.A., Berea College, 1952; M.B.A., Indiana University, 1954; Ph.D., Tulane University of Louisiana, 1961.
- YOUNG NOK KIM, Associate Professor of Physics, 1964.  
B.S., Seoul National University (Korea), 1947; M.S., 1949; Ph.D., University of Birmingham (England), 1957.
- PANZE BUTLER KIMMEL, Assistant Professor of Education, 1964.  
B.S. in Ed., Texas Technological College, 1947; M.M., University of Texas, 1949; Ed.D., Texas Technological College, 1964.
- CLARENCE EVERIT KINCAID, JR., Professor of Applied Arts, 1960, 1963.  
B.S., West Texas State University, 1949; M.Ed., 1958; Ed.D., Pennsylvania State University, 1960.
- LILA ALLRED KINCHEN, Associate Professor of Clothing and Textiles, 1939, 1955.  
B.S., Texas Technological College, 1929; M.S., 1939.
- KAY FRANCIS KING, Assistant Professor of Home and Family Life, 1963.<sup>1</sup>  
B.S., Brigham Young University, 1962; M.S., 1963.
- MERTON PRUETT KING, Assistant Professor of English, 1964.  
B.A., Westminster College (Missouri), 1951; M.A., University of Texas, 1953; Ph.D., 1962.
- RAMON WALTER KIREILIS, Professor and Head of the Department of Health, Physical Education, and Recreation for Men, 1950.  
B.S., University of Illinois, 1941; M.S., 1944; P.E.D., Indiana University, 1950.
- JAMES WILLIAM KITCHEN, Assistant Professor of Park Administration and Horticulture and Superintendent, Care and Maintenance of Grounds, 1964.  
B.S., Texas Technological College, 1951; M.S., 1952; Ph.D., Texas A & M University, 1964.
- FLORIAN ARTHUR KLEINSCHMIDT, Professor of Architecture and Allied Arts, 1928, 1953.  
B.S. in Arch., University of Minnesota, 1920; M.Arch., Harvard University, 1922; Diplome d'Architecture, University of Fontainebleau (France), 1925; Reg. Arch. (Texas).
- KARL WALTER KLEMENT, Associate Professor of Geosciences, 1964, 1965.  
Ph.D., University of Tübingen (Germany), 1959.
- SHELDON CHARLES KLOCK, JR., Assistant Professor of Foreign Languages, 1963.<sup>1</sup>  
B.A., Pan American College, 1960; M.A., Tulane University of Louisiana, 1963.
- RICHARD S. KOPP, Instructor in Geosciences, 1963.  
B.S., Colorado College, 1957; M.S., University of Idaho, 1959.
- MURRAY R. KOVNAR, Professor of Psychology, 1961.  
B.S., Long Island University, 1942; M.A., University of Denver, 1948; LL.B., 1950; Ph.D., 1953.
- LYNWOOD ALOIS KRENECK, Instructor in Architecture and Allied Arts, 1965.  
B.F.A., University of Texas, 1958; M.F.A., University of Texas, 1965.
- FRANZ FERDINAND KRIWANNEK, Assistant Professor of Applied Arts, 1963.  
B.A. (Equiv.), School of Fine Arts (Vienna, Austria), 1940; M.A., University of Iowa, 1961.
- LYLE CARLTON KUHNLEY, Associate Professor of Biology, 1959, 1965.  
B.A., University of Minnesota, 1949; M.A., University of Texas, 1955; Ph.D., 1961.
- JAMES EDWARD KUNTZ, Professor of Psychology and Director of the Counseling Center, 1951, 1959.  
B.S., Fort Hays Kansas State College, 1937; M.S., 1938; Ph.D., Purdue University, 1950.
- MARTIN THEODORE KYRE, JR., Associate Professor of Government, 1963, 1965.  
B.A., Ohio Wesleyan University, 1950; M.A., University of Washington, 1957; Ph.D., 1962.
- MINA WOLF LAMB, Professor and Head of the Department of Food and Nutrition, 1940, 1955.  
B.A., Texas Technological College, 1932; M.S., 1937; Ph.D., Columbia University, 1942.

<sup>1</sup> On leave, 1965-1966.

- HOWARD BARROW LAMBERT, Instructor in Mathematics, 1965.  
B.S., Southern State College (Arkansas), 1953; M.Ed., West Texas State University, 1957; M.A., Louisiana State University and Agricultural and Mechanical College, 1962.
- MILTON FREDERIC LANDWER, Professor of Zoology, 1927, 1949.  
B.S., Northwestern University, 1920; M.A., University of Nebraska, 1925; Ph.D., University of Michigan, 1940.
- WALKER SCOTT LANE, Associate Reference Librarian, 1965.  
B.S., West Texas State University, 1963.
- TRAVIS RAY LANGEHENNIG, Part-time Instructor in Mathematics, 1964, 1965.  
B.A., University of Texas, 1962; M.A., Sul Ross State College, 1964.
- THOMAS ALEXANDER LANGFORD, Instructor in English, 1965.  
B.A., University of California (Riverside), 1956; M.A., Texas Technological College, 1963.
- ILOR CLIVE LANKFORD, JR., Instructor in Electrical Engineering, 1962.
- PAUL MERVILLE LARSON, Professor and Head of the Department of Speech, 1950.  
B.S., Kansas State University of Agriculture and Applied Science, 1927; M.S., 1930; Ph.D., Northwestern University, 1942.
- JAMES HAROLD LAWRENCE, JR., Associate Professor of Mechanical Engineering, 1956, 1964.  
B.S. in M.E., Texas Technological College, 1956; M.S. in M.E., 1960; Ph.D., Texas A & M University, 1965; Reg. Prof. Engr. (Texas).
- ROBERT MALCOLM LAWRENCE, Associate Professor of Government, 1963, 1965.  
B.S., Kansas State University of Agriculture and Applied Science, 1954; M.A., University of Kansas, 1959; Ph.D., 1962.
- CHARLES ALFRED LAWRIE, Associate Professor of Music, 1957, 1965.  
B.M., Northwestern University, 1950; M.M., 1952.
- JOEL THOMAS LEACH, Instructor in Music, 1965.  
B.M.Ed., Michigan State University, 1963; M.M.Ed., 1964.
- THOMAS LUTHER LEACH, Professor and Head of the Department of Agricultural Education, 1937, 1961.  
B.S., Texas Technological College, 1934; M.S., 1939.
- HONG YONG LEE, Assistant Professor of Agricultural Economics, 1963, 1964.  
B.S., Central Missouri State College, 1959; M.S., Oklahoma State University of Agriculture and Applied Science, 1962.
- SAMUEL HUNT LEE, JR., Professor of Chemistry, 1951, 1961.  
B.S., University of Texas, 1939; Ph.D., Ohio State University, 1944.
- ARCHIE LeROY LEONARD, Associate Professor of Agricultural Economics, 1947.  
B.S., Oklahoma State University of Agriculture and Applied Science, 1931; M.S., 1934.
- THELMA HAMILTON LEONARD, Professor of Home Economics Education, 1965.  
B.S., Oklahoma State University of Agriculture and Applied Science, 1940; M.S., 1948; Ed.D., 1965.
- HAROLD LOYD LEWIS, Assistant Professor of Biology, 1964.  
B.S., Texas College of Arts and Industries, 1960; M.S., University of Houston, 1962; Ph.D., University of Arkansas, 1964.
- KATHRYN DIBBENS LEWIS, Periodicals Librarian, 1961, 1962.  
B.A. in L.S., University of Oklahoma, 1936; M.A. in L.S., 1958.
- QUANAH BELLE LEWIS, Assistant Professor of English, 1946, 1959.  
B.F.A., University of Oklahoma, 1931; M.A., Texas Technological College, 1940.
- TRUMAN ORVILLE LEWIS, Assistant Professor of Mathematics, 1966.  
B.S., Texas Technological College, 1956; M.S., 1960; Ph.D., University of Texas, 1966.
- HELEN ALMA LINDELL, Assistant Professor of Speech, 1948, 1949.  
B.A., Washburn University of Topeka, 1924; M.A., University of Wisconsin, 1945.
- LEE CLAIRE LINDENMEIER, Associate Professor of Engineering Drawing, 1957.  
B.S., Colorado State University, 1927; M.A., Colorado State College, 1934.
- IVAN LEE LITTLE, Professor of Philosophy and Associate Dean of Arts and Sciences, 1946, 1959.  
B.A., Texas Technological College, 1938; M.A., University of Nebraska, 1940; Ph.D., 1953.
- THOMAS BROOKS LIVINGSTON, Professor of Education, 1949, 1958.  
B.S., North Texas State University, 1939; M.S., 1941; Ed.D., Stanford University, 1952.
- ROBERT IVAN LOCKARD, Professor of Architecture and Allied Arts, 1935, 1953.  
B.S. in Arch., Kansas State University of Agriculture and Applied Science, 1930; M.S. in Arch., 1932; Reg. Arch. (Texas).
- TROY ALLEN LOCKARD, Associate Professor of Applied Arts, 1937, 1963.  
B.S., Texas Woman's University, 1932; M.A., 1940.
- BILLY CLARENCE LOCKHART, Professor and Head of the Department of Applied Arts, 1955, 1960.  
B.S., West Texas State University, 1950; M.Ed., Pennsylvania State University, 1952; Ed.D., 1955.
- MOHAMMAD ARFIN KHAN LODHI, Assistant Professor of Physics, 1963.  
B.S., University of Karachi (Pakistan), 1952; M.S., 1956; D.I.C., Imperial College (London, England), 1960; Ph.D., University of London (England), 1963.

- SUE TYSON LOVETT, Part-time Instructor in Music, 1960.  
B.S., Texas Technological College, 1949; M.Ed., 1952.
- MILDRED EILEEN LOWE, Associate Professor of Biology, 1964, 1965.  
B.A., Texas Christian University, 1954; M.S., Tulane University of Louisiana, 1956; Ph.D., 1959.
- LAURA LOUISE LUCHSINGER, Assistant Professor of Marketing, 1954, 1960.  
B.S. in B.A., University of Arkansas, 1949; M.B.A., Texas Technological College, 1955.
- VINCENT PETER LUCHSINGER, Associate Professor of Management, 1961, 1964.  
B.A., Loras College, 1949; M.A., Texas Technological College, 1959; Ph.D., 1962.
- RAYMOND DeLMONT MACK, Associate Professor of Government, 1946, 1965.  
B.A., Texas Christian University, 1945; M.A., University of Texas, 1949.
- HORACE JURS MacKENZIE, Associate Professor of Industrial Engineering and Engineering Drawing, 1949, 1956.  
B.S. in I.E., Texas Technological College, 1948; M.S., Oklahoma State University of Agriculture and Applied Science, 1953; Reg. Prof. Engr. (Texas).
- STANLEY STEPHAN MADEJA, Associate Professor of Applied Arts, 1964.  
B.S., University of Minnesota, 1956; M.A., 1959; Ph.D., 1965.
- CHARLES HENRY MAHONE, Associate Professor of Psychology, 1965.  
B.A., University of Oklahoma, 1953; M.S., 1954; M.A., University of Michigan, 1955; Ph.D., 1959.
- GLEN ALAN MANN, Associate Professor of Physics, 1960, 1964.  
B.S., Michigan State University of Agriculture and Applied Science, 1951; M.S., 1953; Ph.D., 1959.
- THOMAS GREEN MANNING, Professor of History, 1956, 1961.  
B.A., Yale University, 1936; Ph.D., 1941.
- FOSTER LEROY MARLOW, Associate Professor of Allied Arts, 1965.  
B.S. in Ed., Eastern Illinois University, 1949; M.S. in Ed., 1960; Ed.D., Pennsylvania State University, 1965.
- PATRICIA ELAINE BROWN MARLOW, Part-time Instructor in Applied Arts, 1965.  
B.S. in Ed., Eastern Illinois University, 1950; M.S. in Ed., St. Cloud State College, 1962.
- KEITH ROBERT MARMION, Professor and Head of the Department of Civil Engineering and Acting Director of the Water Resources Center, 1955, 1965.  
B.S., University of Denver, 1951; M.S., University of Colorado, 1958; Ph.D., University of California (Berkeley), 1962; Reg. Prof. Engr. (Texas).
- BILLY JACK MARSHALL, Associate Professor of Physics, 1965.  
B.A., Austin College, 1958; M.A., Rice University, 1960; Ph.D., 1962.
- ROBERT EDWARD MARTIN, Associate Professor of Mechanical Engineering, 1954, 1957.  
B.S. in M.E., Texas Technological College, 1949; M.S., University of Wisconsin, 1952; Reg. Prof. Engr. (Texas).
- DANNY RAYMOND MASON, Instructor in Health, Physical Education, and Recreation for Men and Golf Coach, 1964.  
B.S., Lamar State College of Technology, 1961; M.Ed., Texas A & M University, 1962.
- JIMMIE LEE MASON, Part-time Instructor in Accounting, 1963.<sup>1</sup>  
B.B.A., Texas Technological College, 1952; M.B.A., 1953; C.P.A.
- ROBERT LOUIS MASON, Professor of Mechanical Engineering, 1942, 1961.  
B.S. in M.E., Texas Technological College, 1939; M.S., Kansas State University of Agriculture and Applied Science, 1951; Reg. Prof. Engr. (Texas).
- THOMAS OWEN MASTROIANNI, Assistant Professor of Music, 1961, 1965.  
B.S., Juilliard School of Music, 1957; M.S., 1958.
- RICHARD BENJAMIN MATTOX, Professor and Head of the Department of Geosciences, 1954, 1964.  
B.A., Miami University, 1948; M.S., 1949; Ph.D., University of Iowa, 1954.
- BRUCE DOUGLAS MATTON, Associate Professor of Education, 1965.  
B.S., Mankato State College, 1949; M.S., 1956; Ed.D., Colorado State College, 1962.
- FERDINANDO DANTE MAURINO, Professor of Foreign Languages, 1965.  
B.A., City College, City University of New York, 1939; M.A., Columbia University, 1941; Ph.D., 1949.
- DOLORES MELVIN MAXWELL, Associate Reference Librarian, 1963.  
B.A., University of Denver, 1944; M.A., University of Wisconsin, 1949; M.A. in L.S., 1963.
- HENRY JAMES MAXWELL, Associate Professor of Foreign Languages, 1963.  
B.A., University of Nebraska, 1940; M.A., University of Wisconsin, 1941; Ph.D., 1955.
- JUDSON DANA MAYNARD, Assistant Professor of Music, 1961.  
B.M., Montana State University, 1951; M.M.E., 1953; Ph.D., Indiana University, 1961; Associate, American Guild of Organists.
- DARRELL KEITH McCARTY, Associate Professor of Music, 1953, 1963.  
B.S., University of Illinois, 1950; B.M., 1960; M.M., 1951.
- JOSEPH THOMAS McCULLEN, JR., Professor of English, 1949, 1955.  
B.A., University of North Carolina, 1937; M.A., 1939; Ph.D., 1948.

<sup>1</sup> 1965 Fall Semester.

- GORDON CARTWRIGHT McCUTCCHAN, Associate Professor of Architecture and Allied Arts, 1962, 1965.  
B.Arch., Texas A & M University, 1943; M.Arch., Massachusetts Institute of Technology, 1950; Reg. Arch. (New Mexico, Texas).
- DONALD McDONALD, Professor of Education, 1948, 1964.  
B.S., North Texas State University, 1940; M.S., 1944; Ed.D., University of Texas, 1954.
- JAMES RICHARD McDONALD, Assistant Professor of Civil Engineering, 1958, 1966.<sup>1</sup>  
B.S., Texas Technological College, 1958; M.S. in C.E., Purdue University, 1961.
- LILLIAN ETTA McGLOTHLIN, Assistant Professor of Mathematics, 1947, 1959.  
B.A., University of Texas, 1931; M.A., 1939.
- VERNON RAY McGUIRE, Assistant Professor of Speech, 1965.  
B.A., Wichita State University, 1946; M.S., Kansas State University of Agriculture and Applied Science, 1950.
- JAMES FABER McNALLY, Assistant Professor of Health, Physical Education, and Recreation for Men and Swimming Coach, 1952, 1964.  
B.S., University of Oklahoma, 1952; M.Ed., Texas Technological College, 1957.
- FLORENCE MANLEY McNEIL, Instructor in English, 1961.  
B.A., University of Illinois, 1925; M.A., Texas Technological College, 1951.
- CLARA MUELLER McPHERSON, Assistant Professor of Food and Nutrition, 1947, 1961.  
B.S., Texas Technological College, 1943; M.S., 1947.
- CLINTON MARSUD McPHERSON, Assistant Professor of Chemistry, 1956, 1960.  
B.S., Texas Technological College, 1947; M.Ed., 1952; Ed.D., 1959.
- ROBERT DONALD McWILLIAMS, Instructor in Marketing, 1965.  
B.B.A., Texas Technological College, 1964; M.B.A., 1965.
- GEORGE PEYTON MECHAM, Professor of Education, 1951, 1957.  
B.S., North Texas State University, 1928; M.A., Teachers College, Columbia University, 1933; Ph.D., George Peabody College for Teachers, 1940.
- JOHN STEPHEN MECHAM, Associate Professor of Biology, 1965.  
B.S., University of Texas, 1950; M.S., University of Florida, 1952; Ph.D., University of Texas, 1955.
- CHARLES RICHARD MEEK, Instructor in Music, 1965.  
B.M., Oberlin College, 1963.
- ROY LEE MEEK, Assistant Professor of Government, 1964.  
B.A., University of Oklahoma, 1958; M.A., 1959; Ph.D., University of Oregon, 1964.
- KISHOR CHANDULAL MEHTA, Assistant Professor of Civil Engineering, 1964.  
B.S., University of Michigan, 1957; M.S., 1958; Ph.D., University of Texas, 1965; Reg. Prof. Engr. (Texas).
- KORANDATTIL VENUGOPALAN MENON, Assistant Professor of Mathematics, 1965.  
B.Sc., University of Madras (India), 1953; M.Sc. University of Kerala (India), 1955; Ph.D., Duke University, 1965.
- RAYMOND ERWIN MEYER, Assistant Professor of Agronomy and Range Management, 1965.  
B.S., Kansas State University of Agriculture and Applied Science, 1959; Ph.D., Oklahoma State University of Agriculture and Applied Science, 1963.
- MARIE AGNES MILES, Assistant Professor of English, 1946, 1955.  
B.A., West Texas State University, 1930; M.A., University of Texas, 1937.
- ANN CROCKER MILLER, Instructor in Health, Physical Education, and Recreation for Women, 1962.  
B.S., North Texas State University, 1955.
- ROBERT ORLAN MILLER, Instructor in Speech, 1966.<sup>1</sup>  
B.A., Abilene Christian College, 1950.
- RONALD MAX MILLER, Instructor in Dairy Industry, 1960.  
B.S., Texas Technological College, 1958; M.S., Michigan State University of Agriculture and Applied Science, 1960.
- WILLIAM DONALD MILLER, Associate Professor of Geosciences, 1962, 1965.  
B.A., Texas Technological College, 1957; M.S., 1959; Ph.D., University of Missouri, 1963.
- MHYRA SCHWAY MINNIS, Professor of Sociology, 1962, 1965.  
B.A., Oberlin College, 1939; M.A., 1940; Ph.D., Yale University, 1951.
- RAYMOND WILLIAM MIRE, Assistant Professor of Physics, 1957, 1964.  
B.S., Texas Technological College, 1955; M.S., 1960; Ph.D., University of Oklahoma, 1964.
- ROBERT WETSEL MITCHELL, Assistant Professor of Biology, 1965.  
B.S., Texas Technological College, 1954; M.S., 1955; Ph.D., University of Texas, 1965.
- FREEDIS LLOYD MIZE, Professor and Head of the Department of Management, 1946, 1950.  
B.S., Sul Ross State College, 1930; M.Ed., University of Oklahoma, 1935; Ed.D., 1947.

<sup>1</sup> Appointed February 1, 1966.

- EVELYN INA MONTGOMERY, Assistant Professor of Anthropology, 1964.  
B.S., Kansas State Teachers College, 1936; M.S., 1942; Ph.D., Indiana University, 1965.
- ROBERT A. MORELAND, Assistant Professor of Mathematics, 1953, 1959.<sup>1</sup>  
B.S., Texas Technological College, 1953; M.S., 1954.
- SIBYL PIRTLE MORRISON, Order Librarian, 1947, 1964.  
B.S. in Ed., Texas Technological College, 1940; B.L.S., University of California (Berkeley), 1947.
- EUGENIA MORSE, Associate Professor of Architecture and Allied Arts, 1959.  
B.A., Rice University, 1942; B.S. in Arch., 1944; Reg. Arch. (Louisiana, Texas).
- ELWYN WADE MORTON, Assistant Professor of Mathematics, 1955, 1962.  
B.S., West Texas State University, 1949; M.A., University of Texas, 1955.
- HURSHALL G. MORTON, Major, United States Army, Associate Professor of Military Science, 1964.  
B.A., University of Houston, 1950.
- GAIL ALLAN MOUL, Circulation Librarian, 1965.  
B.A., Furman University, 1957; B.D., Southwestern Baptist Theological Seminary, 1961.
- WILLIAM D. MULLER, Assistant Professor of Government, 1965.  
A.B., Ohio University, 1960; A.M., University of Illinois, 1961.
- THOMAS ALEC MUSIAK, Instructor in Park Administration, Horticulture, and Entomology, 1965.  
B.S., University of Massachusetts, 1961; B.L.A., 1965.
- LEVI MARSHALL NAGLE, JR., Professor of Education and Assistant Director of Teacher Education and Certification, 1959, 1965.  
B.A., University of Florida, 1947; M.Ed., 1949; Ed.D., 1952.
- KLINE ALLEN NALL, Professor of English and Chairman of Freshman English, 1944, 1959.  
B.A., Texas Technological College, 1937; M.A., 1939; Ph.D., University of Texas, 1952.
- OTTO MILLARD NELSON, Assistant Professor of History, 1965.  
B.S., University of Oregon, 1956; M.A., 1961.
- GERHARD HARDER NEUFELD, Assistant Professor of Agricultural Economics, 1965.  
B.A., Phillips University, 1940; M.R.E., Bethany Biblical Seminary, 1946; M.A., Oklahoma State University of Agriculture and Applied Science, 1961.
- JOE EDD NEW, Part-time Instructor in Accounting, 1966.<sup>2</sup>  
B.S., Stephen F. Austin College, 1963.
- BENJAMIN HAVELOCK NEWCOMB, Assistant Professor of History, 1964.  
B.A., Haverford College, 1960; M.A., University of Pennsylvania, 1961; Ph.D., 1964.
- ROBERT LEE NEWELL, Professor of Mechanical Engineering and Assistant Dean of Engineering, 1941, 1956.  
B.S. in M.E., Texas Technological College, 1940; M.S. in M.E., Georgia Institute of Technology, 1949; Reg. Prof. Engr. (Texas).
- CORA FOX YONGE NIELL, Assistant Periodicals Librarian, 1961, 1963.  
B.A., Texas Woman's University, 1937.
- FRED WAYLAND NORWOOD, Professor of Accounting, 1951, 1955.  
B.B.A., University of Mississippi, 1947; M.B.A., 1948; Ph.D., University of Texas, 1951; C.P.A.
- WILLIAM DURWARD NORWOOD, JR., Associate Professor of English, 1965.  
B.A., Baylor University, 1950; M.A., Lamar State College of Technology, 1962; Ph.D., University of Texas, 1965.
- AARON GUSTAF OBERG, Professor of Chemical Engineering, 1936, 1949.  
B.S., University of Colorado, 1929; M.S., 1933; Ph.D., 1935.
- HARLEY DEAN OBERHELMAN, Professor and Head of the Department of Foreign Languages, 1958, 1964.  
B.S., University of Kansas, 1950; M.A., 1952; Ph.D., 1958.
- COLEMAN ART O'BRIEN, Assistant Professor of Animal Husbandry, 1947, 1955.  
B.S., Texas A & M University, 1944; M.S., 1945; Ph.D., 1964.
- COLLEEN MARY O'CONNOR, Assistant Professor of Health, Physical Education, and Recreation for Women, 1964.  
B.S., University of Texas, 1960; M.Ed., 1963.
- WILLIAM EUGENE ODEN, Professor of Government, 1948, 1965.  
B.A., University of Oklahoma, 1946; M.A., 1949; Ph.D., Indiana University, 1957.
- RICHARD KANE O'LOUGHLIN, Part-time Professor of Psychology, 1954.<sup>2</sup>  
M.D., Georgetown University, 1941.
- JACQUELINE ISABEL OLSEN, Assistant Dean of Women, 1963.  
B.S. in Ed., Eastern Illinois University, 1954; M.S. in Ed., Indiana University, 1956.

<sup>1</sup> On leave, 1965-1966.<sup>2</sup> 1966 Spring Semester.



- JAMES EZRA OSBORN, Assistant Professor of Agricultural Economics, 1965.  
B.S., Oklahoma State University of Agriculture and Applied Science, 1959; Ph.D., 1964.
- KURT KARL OVERHOFF, Visiting Professor of Music, 1965.  
Reifeprüfung Schottengymnasium, Vienna (Austria); Vienna University; Generalmusikdirektor, Coblenz, Heidelberg, Altenburg, Muenster (Germany).
- DOUGLAS FARRAR OWEN, Visiting Assistant Professor of Agronomy and Range Management and Agronomist and Assistant Manager, Texas Technological College Research Farm, 1963, 1965.  
B.S., Texas Technological College, 1951; M.S., Oklahoma State University of Agriculture and Applied Science, 1961; Ph.D., 1965.
- THOMAS RICHARD OWENS, Associate Professor of Agricultural Economics, 1965.  
B.S., Pennsylvania State University, 1948; M.S., 1956; Ph.D., Oregon State University, 1962.
- ROBERT LEWIS PACKARD, Associate Professor of Biology, 1962, 1965.  
B.S., University of Nebraska, 1951; M.A., University of Kansas, 1955; Ph.D., 1960.
- BILL WOODROW PADEN, Colonel, United States Army, Professor of Military Science, 1964.  
B.A., University of Oklahoma, 1938.
- MARTHA JIM PALMER, Instructor in Music, 1965.  
B.M., Texas College of Arts and Industries, 1950; M.M., University of Texas, 1961.
- ROBERT L. PARADIS, Major, United States Air Force, Assistant Professor of Aerospace Studies, 1965.  
B.S., University of Corpus Christi, 1951.
- ROBERT MARSHALL PARKER, Associate Professor of Mathematics, 1946, 1957.  
B.A., Texas Technological College, 1930; M.A., 1933.
- RODERICK PARKINSON, Assistant Professor of Architecture and Allied Arts, 1948, 1954.  
B.S. in Ed., Texas Technological College, 1948; M.S., 1950.
- CLIFFORD MARION PARRISH, Assistant Professor of Civil Engineering, 1949, 1961.  
B.S. in C.E., Texas Technological College, 1941; M.S., University of Illinois, 1949; Reg. Prof. Engr. (Texas).
- WILLIAM THOMAS PARRY, Associate Professor of Geosciences, 1963, 1965.  
B.S., University of Utah, 1957; M.S., 1959; Ph.D., 1961.
- L. E. PARSONS, Professor and Acting Head of the Department of Textile Engineering, 1942, 1961.  
B.S., Texas Technological College, 1936; Reg. Prof. Engr. (Texas).
- WILLIAM ROBERT PASEWARK, Professor and Head of the Department of Business Education and Secretarial Administration, 1956, 1957.  
B.S., New York University, 1949; M.A., 1950; Ph.D., 1956.
- ROBERT THOMAS PATE, Assistant Professor of Education, 1964.  
B.A., Central State College (Oklahoma), 1958; M.Ed., University of Oklahoma, 1962; Ed.D., 1964.
- WILLIAM TAYLOR PATTERSON, Assistant Professor of Foreign Languages, 1961.<sup>1</sup>  
B.A., University of Kansas, 1954; M.Ed., Pennsylvania State University, 1961.
- WILLIAM MARTIN PEARCE, Professor of History and Vice President for Academic Affairs, 1936, 1960.  
B.A., Southern Methodist University, 1935; M.A., Texas Technological College, 1937; Ph.D., University of Texas, 1952.
- MILTON LESTER PEEPLES, Associate Professor of Dairy Industry, 1951, 1960.  
B.S., Texas Technological College, 1949; M.S. in Agri., 1954; Ph.D., Ohio State University, 1960.
- FLORENCE ELOISE PETZEL, Professor of Clothing and Textiles, 1963.  
Ph.B., University of Chicago, 1931; M.A., 1934; Ph.D., University of Minnesota, 1954.
- GEORGE REX PHILBRICK, Professor of Health, Physical Education, and Recreation for Men and Tennis Coach, 1947, 1961.  
B.S., Texas Technological College, 1939; M.Ed. in P.E., University of Texas, 1950.
- CAMILLE PHILLIPS, Assistant Catalog Librarian, 1965.  
B.A., University of Nevada, 1960; M.L.S., North Texas State University, 1965.
- FLORENCE LOUISE PHILLIPS, Professor of Psychology and Dean of Women, 1954, 1964.  
B.A., Marshall University, 1944; M.A., Michigan State University of Agriculture and Applied Science, 1946; Ed.D., Indiana University, 1958.
- JOHN SAMUEL PHILLIPS, Instructor in Home and Family Life, 1966.<sup>2</sup>  
B.A., Ouachita Baptist College, 1946; B.D., Southern Baptist Theological Seminary, 1949; Th.M., 1951.
- RANDOLPH GAVAN PHILLIPS, Associate Reference Librarian, 1965.  
B.S., North Texas State University, 1937; M.Ed., Texas A & M University, 1953.

<sup>1</sup> On leave, 1965-1966.

<sup>2</sup> 1966 Spring Semester.



- WILLIE EDWARD PHILLIPS, Associate Professor of Electrical Engineering, 1958, 1963. B.S., Mississippi State University, 1949; B.D., Emory University, 1951; M.S., Mississippi State University, 1955; Ph.D., Vanderbilt University, 1959; Reg. Prof. Engr. (Texas).
- JEAN HENRI PIERAERTS, Part-time Instructor in Foreign Languages, 1964. Technicien Horticole., Ecole Supérieure d'Horticulture de l'Etat (Vilvorde, Belgium), 1949.
- FANNIE ERNESTINE PILLOW, Assistant Professor of Education, 1965. B.S., West Texas State University, 1942; M.Ed., Texas Technological College, 1952.
- PAULINE DAWN PITTS, Assistant Catalog Librarian, 1956. B.A., Southeastern State College, 1930; B.A. in L.S., University of Oklahoma, 1936; M.S., University of Illinois, 1951.
- JAMES EDWARD PLATZ, Associate Librarian, 1949, 1955. B.A., Lawrence College, 1929; B.S. in L.S., University of Illinois, 1940.
- CHARLES WILLIAM POST, Associate Professor of Music, 1957, 1965. B.M., Colorado State University, 1942; B.S., 1947; M.A., University of Denver, 1960.
- BILLY KEITH POWER, Assistant Professor of Textile Engineering and Engineering Drawing, 1951, 1959. B.S., Texas Technological College, 1947; M.S., Massachusetts Institute of Technology, 1950.
- RUBY STEWART POWER, Instructor in Mathematics, 1956, 1957. B.S. in T.E., Texas Technological College, 1944; M.S., 1957.
- LOUIS JOHN POWERS, Professor and Head of the Department of Mechanical Engineering, 1942, 1952. B.S. in M.E., Texas Technological College, 1939; M.S., University of Texas, 1950; Reg. Prof. Engr. (Texas).
- PAUL VERDAYNE PRIOR, Professor of Biology, 1956, 1962. B.A., University of Iowa, 1946; M.S., 1947; Ph.D., 1954.
- VERNON WILLARD PROCTOR, Professor of Biology, 1956, 1963. A.B., University of Missouri, 1950; A.M., 1951; Ph.D., 1955.
- KAREN SUE PROFILET, Part-time Instructor in Biology, 1965.<sup>1</sup> B.A., Southern Illinois University, 1964.
- MARGOT MARIE PURDY, Assistant Professor of Health, Physical Education, and Recreation for Women and Director of Intramural Sports for Women, 1962, 1964. B.S., Texas Woman's University, 1953; M.S., Eastern New Mexico University, 1963.
- CHARLES RICHARD QUADE, Assistant Professor of Physics, 1965. B.S., University of Oklahoma, 1958; M.S., 1960; Ph.D., 1962.
- JOHN WILLIAM QUEEN, Assistant Professor of Applied Arts, 1960, 1963. B.S., University of Houston, 1956; M.F.A., University of Kansas, 1962.
- ETTIE CLAIRE QUICKSALL, Assistant Professor of Secretarial Administration, 1945, 1964. B.A., Baylor University, 1926; M.A., 1928.
- SUE AVA RAINEY, Professor of Health, Physical Education, and Recreation for Women, 1945, 1965. B.S., George Peabody College for Teachers, 1922; M.A., Columbia University, 1926.
- HELEN CALDWELL RANDLE, Associate Professor of Home and Family Life, 1965. B.S., University of Texas, 1934; M.S., Colorado State University, 1940.
- WILLIAM POTTER RANKIN, Part-time Instructor in Architecture and Allied Arts, 1965.<sup>2</sup> B.F.A., Ohio State University, 1947; B.Arch., Texas Technological College, 1957.
- MARY LOU GODBEHERE RAWLINGS, Instructor in English, 1965. B.A., Texas Technological College, 1947; M.A., 1965.
- JOSEPH BLAND BOB RAY, Professor of Psychology, 1963, 1965. B.A., University of Oklahoma, 1948; M.S., 1949; Ph.D., 1954.
- ROBERT RENTOUL REED, Assistant Professor of Horticulture, 1957, 1962. B.S., Pennsylvania State University, 1954.
- ROBERT BALDRIDGE REEDY, Part-time Instructor in Management, 1954. B.A., University of Illinois, 1943.
- JAMES VERDO REESE, Assistant Professor of History, 1962, 1964. B.A., Rice University, 1957; M.A., University of Texas, 1961; Ph.D., 1964.
- JOHN HAYES REESE, Associate Professor of Finance and Assistant Dean of Business Administration, 1957, 1963.<sup>3</sup> B.B.A., Southern Methodist University, 1954; LL.B., 1954.
- EMMA BARRETT REEVES, Instructor in English, 1953. B.A., Hardin-Simmons University, 1924; M.A., Texas Technological College, 1949.
- CORWIN C. REEVES, JR., Assistant Professor of Geosciences, 1957, 1962. B.S., University of Oklahoma, 1955; M.S., 1957.
- LEVERN ANTHONY REIS, Assistant Professor of Mechanical Engineering, 1957, 1962. B.S. in M.E., Texas Technological College, 1960; M.Met.E., University of Oklahoma, 1962.

<sup>1</sup> Appointed November 22, 1965, for the Fall Semester.<sup>2</sup> 1965 Fall Semester.<sup>3</sup> On leave, 1965-1966. Resigned February 9, 1966.

- ROBERT GEORGE REKERS, Associate Professor of Chemistry, 1955, 1961.  
B.S., University of Rochester, 1942; Ph.D., University of Colorado, 1951.
- SHIRLEY GILBERT REKERS, Instructor in Mathematics, 1957, 1965.  
B.A., University of Colorado, 1950.
- JULES ALEXANDER RENARD, Professor of Chemical Engineering, 1951, 1964.  
Licencie en Sciences Chimiques, University Paul Pastur (Belgium), 1925; Ingenieur-Chimiste, University of Nancy (France), 1934.
- ELBERT BRUNNER REYNOLDS, JR., Associate Professor of Mechanical Engineering, 1964.  
B.S. in M.E., Texas A & M University, 1947; M.S. in M.E., Pennsylvania State University, 1948; Ph.D., University of Wisconsin, 1957.
- JAMES TROY RICHARDSON, Instructor in Sociology, 1965.  
B.A., Texas Technological College, 1964; M.A., 1965.
- HANNAH ELIZABETH LOW RICKMAN, Instructor in Mathematics, 1965.  
B.A., University of Missouri, 1962; M.S., 1965.
- FRED DURNFORD RIGBY, Professor of Mathematics and Dean of the Graduate School, 1940, 1963.  
B.A., Reed College, 1935; M.S., University of Iowa, 1938; Ph.D., 1940.
- CHARLES LATHAN RIGGS, Professor of Mathematics, 1953, 1960.  
B.A., Texas Christian University, 1944; M.A., University of Michigan, 1945; Ph.D., University of Kentucky, 1949.
- THOMAS ARTHUR RIGSBY, Part-time Instructor in Architecture and Allied Arts, 1966.<sup>1</sup>  
B.A., Texas Technological College, 1961.
- CHARLES BERNARD RITER, Instructor in Marketing, 1965.  
B.B.A., University of Mississippi, 1964; M.B.A., Texas Technological College, 1965.
- JAMES GAMBRELL ROBBINS, Instructor in Speech, 1962.<sup>2</sup>  
B.A., Hardin-Simmons University, 1945; M.A., University of Colorado, 1958.
- GEORGE STIEGLER ROBERT, Assistant Professor of History, 1962.  
B.A., Concordia Seminary, 1945; B.D., 1948; S.T.M., 1949; M.A., University of Cincinnati, 1952; Ph.D., Indiana University, 1964.
- LOUISE BUENGER ROBERT, Part-time Assistant Professor of History, 1962, 1964.  
B.A., Carleton College, 1947; M.A., University of Cincinnati, 1948; B.Ed., 1949; Ph.D., University of Wisconsin, 1955.
- ARTHUR THEOPHILE ROBERTS, Professor of Accounting, 1955, 1963.  
B.S. in B.A., Boston College, 1950; M.B.A., Boston University, 1951; Ph.D., Louisiana State University and Agricultural and Mechanical College, 1955; C.P.A.
- JACK FRANCIS ROBERTS, Part-time Instructor in Architecture and Allied Arts, 1957  
B.S. in M.E., University of Texas, 1947; Reg. Prof. Engr. (Colorado, Kansas, New Mexico, Oklahoma, Texas).
- VIRGINIA BOWMAN ROBERTS, Assistant Professor of Mathematics, 1945, 1957.  
B.A., Texas Technological College, 1943; M.A., 1945.
- SELDON C. ROBINSON, Assistant Professor of Management, 1963, 1965.  
B.S., Sul Ross State College, 1935; M.B.A., Texas Christian University, 1940.
- WILLARD BETHUREM ROBINSON, Assistant Professor of Architecture and Allied Arts, 1963, 1965.  
B.Arch., Montana State College, 1958; M.Arch., Rice University, 1960; Reg. Arch. (Montana).
- POLK FANCHER ROBISON, Associate Professor of Health, Physical Education, and Recreation for Men and Director and Business Manager of Athletics, 1942, 1961.  
B.A., Texas Technological College, 1934.
- BETSY GAY KING ROE, Part-time Instructor in Music, 1965.  
B.M.E., Baldwin-Wallace College, 1964.
- CHARLES RICHARD ROE, Instructor in Music, 1964.  
B.M., Baldwin-Wallace College, 1963; M.M., University of Illinois, 1964.
- WALTER BOB ROGERS, Associate Professor of Agricultural Economics, 1953, 1961.<sup>3</sup>  
B.S., Texas Technological College, 1951; M.S., University of Arizona, 1953; Ph.D., Oklahoma State University of Agriculture and Applied Science, 1959.
- JOHN RALPH ROLLANS, Instructor in Mathematics, 1964.  
B.A., Abilene Christian College, 1962; M.S., Texas Technological College, 1964.
- ROBERT ALAN ROOKER, Assistant Professor of Journalism, 1963.  
B.A., Texas Technological College, 1958; M.A., 1960.
- AVIS MARIE RIEDLINGER ROSS, Part-time Instructor in Management, 1965.  
B.S., University of Houston, 1960.
- BILLY IRVAN ROSS, Associate Professor of Marketing, 1964.  
B.J., University of Missouri, 1948; M.A., Eastern New Mexico University, 1952; Ph.D., Southern Illinois University, 1964.

<sup>1</sup> 1966 Spring Semester.<sup>2</sup> On leave, 1965-1966.<sup>3</sup> On leave, 1965-1966. Resigned September 24, 1965.

- ROBERT LYLE ROUSE, Professor and Head of the Department of Economics and the Department of Finance, 1950, 1958.  
B.A., Coe College, 1943; M.A., University of Iowa, 1949; Ph.D., 1950.
- CHESTER MORRISON ROWELL, JR., Assistant Professor of Biology, 1957.<sup>1</sup>  
B.A., University of Texas, 1947; M.S., Texas A & M University, 1949.
- JAMES ARTHUR RUSHING, Instructor in English, 1952.  
B.S. in Journ., Southern Methodist University, 1949; M.A., 1951.
- REGINALD RUSHING, Professor and Head of the Department of Accounting, 1939, 1948.  
B.A., Southwestern University, 1926; M.B.A., University of Texas, 1932; Ph.D., 1948, C.P.A.
- RUTH WILSON RUSSELL, Assistant Professor of English, 1948, 1959.  
B.S., University of Oklahoma, 1932; M.A., 1936.
- WILLIAM FREDERICK RUSSELL, Assistant Professor of Finance, 1964.  
B.B.A., Southern Methodist University, 1960; LL.B., 1964.
- JOHN ALLEN RYAN, Professor and Head of the Department of Marketing, 1957.  
B.S., University of Southern California, 1946; M.B.A., University of Texas, 1948; Ph.D., 1957.
- MICHAEL KENT RYLANDER, Assistant Professor of Biology, 1965.  
B.A., North Texas State University, 1956; M.S., 1962; Ph.D., Tulane University of Louisiana, 1965.
- WALEED ABDULLA AL-SALAM, professor of Mathematics, 1963, 1964.<sup>2</sup>  
B.S., University of California (Berkeley), 1950; M.A., 1951; Ph.D., Duke University, 1958.
- BILLY JOE SANDLIN, Associate Professor of Physics, 1955, 1959.  
B.S., East Texas State University, 1948; M.S., 1949; Ph.D., University of Texas, 1960.
- GERALD HERBERT SANDY, Bibliographer, 1965.  
B.A., State University of Iowa, 1928; B.S., University of Illinois, 1929; M.A., 1932.
- ALBERT JOSEPH SANGER, Associate Professor of Civil Engineering, 1956, 1957.  
C.E., University of Cincinnati, 1942; M.S., Illinois Institute of Technology, 1948; Reg. Prof. Engr. (Texas).
- ELIZABETH SKIDMORE SASSER, Professor of Architecture and Allied Arts, 1949, 1963.  
B.F.A., Ohio State University, 1943; M.A., 1944; Ph.D., 1946.
- KATRINA ADELE SAVAGE, Assistant Documents Librarian, 1965.  
B.A., Texas Technological College, 1964; M.L.S., North Texas State University, 1965.
- RONALD EDWARD SCHULZ, Associate Professor of Speech, 1952, 1959.  
B.S., Northwestern University, 1947; M.A., 1948.
- JOSEPH LAWRENCE SCHUSTER, Assistant Professor of Range Management, 1964.  
B.S., Texas A & M University, 1954; M.S., Colorado State University, 1959; Ph.D., Texas A & M University, 1962.
- WILLIAM FREDERICK SCHWIESOW, Associate Professor of Agricultural Engineering, 1957.  
B.S., South Dakota State University, 1950; M.S., University of Illinois, 1957; Ph.D., Oklahoma State University of Agriculture and Applied Science, 1966; Reg. Prof. Engr. (Illinois, Texas).
- CHARLES DALE SCOTT, Instructor in Mathematics, 1958.  
B.A., Ouachita Baptist College, 1924; M.S., Oklahoma State University of Agriculture and Applied Science, 1933.
- DONALD RAY SCOTT, Assistant Professor of Chemistry, 1965.  
B.A., University of Texas, 1956; M.S., University of Houston, 1960; Ph.D., 1965.
- RUSSELL HOLLAND SEACAT, JR., Associate Professor and Acting Head of the Department of Electrical Engineering, 1959, 1965.  
B.S., Texas A & M University, 1948; M.A., 1958; Ph.D., 1963; Reg. Prof. Engr. (Texas).
- JESSE Q. SEALEY, Professor of Biology, 1928, 1955.  
B.A., University of Texas, 1928; M.A., 1928; Ph.D., 1951.
- A. B. SEGARS, Part-time Instructor in Accounting, 1953.<sup>3</sup>  
B.B.A., University of Texas, 1941; M.B.A., 1948; C.P.A.
- HERMAN BRAZILL SEGREEST, Professor of Health, Physical Education, and Recreation for Men, 1963, 1965.  
B.S., North Texas State University, 1937; M.S., 1946; M.Ed., Texas A & M University, 1955; Ed.D., Baylor University, 1962.
- KAL HILL SEGRIST, JR., Instructor in Health, Physical Education, and Recreation for Men and Assistant Baseball Coach, 1964, 1965.  
B.S., North Texas State University, 1962; M.Ed., Texas Technological College, 1965.
- RALPH LOUIS SELLMEYER, Assistant Professor of Journalism, 1960.  
B.J., University of Missouri, 1950; M.A., University of Missouri at Kansas City, 1951.

<sup>1</sup> On leave, 1965 Fall Semester.<sup>2</sup> On leave, 1965-1966.<sup>3</sup> 1965 Fall Semester.

- MARTHA GENE SHELLEN, Professor and Head of the Department of Clothing and Textiles, 1955.  
B.A., Wichita State University, 1933; M.S., Kansas State University of Agriculture and Applied Science, 1941; Ph.D., Texas Woman's University, 1955.
- DAVID RICHARD SHEPHERD, Instructor in Sociology, 1965.  
B.S., Brigham Young University, 1963; M.S., 1964.
- WILLIAM MASON SHIMER, Instructor in Speech, 1965.  
B.S., Syracuse University, 1960; M.A., University of New Mexico, 1964.
- HENRY JOSEPH SHINE, Professor of Chemistry, 1954, 1960.  
B.Sc., University of London (England), 1944; Ph.D., 1947; A.R.I.C.
- MARY JANE GUINN SHIPLEY, Instructor in Mathematics, 1961.  
B.A., Baylor University, 1945; M.A., Texas Technological College, 1961.
- HAROLD DEAN SHUMAN, Part-time Instructor in Finance, 1959.  
B.A., Washburn University of Topeka, 1954; LL.B., 1954.
- DESKIN HUNT SHURBET, JR., Professor of Geosciences and Director of the Seismological Observatory, 1956, 1961.  
B.S., University of Texas, 1950; M.A., 1951.
- GERALD LYNN SHURBET, Assistant Professor of Mathematics, 1956, 1960.  
B.A., University of Texas, 1949; M.S., Texas Technological College, 1957.
- FLOY GLENN SIDES, Assistant Professor of Home and Family Life, 1954, 1963.  
B.S., Texas Technological College, 1939; M.Ed., 1955.
- ANNE HARRIS SIMMONS, Assistant Professor of Health, Physical Education, and Recreation for Women, 1964.  
B.S., Texas Woman's University, 1951; M.A., 1956.
- HAROLD LESTER SIMPSON, Associate Professor of Foreign Languages, 1962.  
B.S., College of Charleston, 1951; M.A., Princeton University, 1953; Ph.D., 1957.
- VERA LOIE JARRARD SIMPSON, Instructor in Speech, 1964.  
B.A., Texas Technological College, 1962; M.A., 1965.
- MARGARET ANN WILSON SITTON, Assistant Professor of Home Economics Education, 1962, 1965.  
B.S., North Texas State University, 1949; M.Ed., Southwest Texas State College, 1953; Ed.D., Texas Technological College, 1965.
- CHARLES SPENCER SKILLMAN, JR., Instructor in Civil Engineering, 1963.  
B.S., Texas A & M University, 1957.
- JOSEPH LAVERN SKORDEPA, Assistant Professor of Architecture and Allied Arts, 1962.  
B.S. in Arch., University of Houston, 1949; B.Arch., 1950.
- BENJAMIN NEAL SMITH, Assistant Professor of Music, 1960, 1963.  
B.M., Eastman School of Music, University of Rochester, 1958; M.M., 1959.
- BURNETT T. SMITH, Assistant Professor of Mathematics, 1948, 1959.  
B.S., Texas Technological College, 1942; M.Ed., 1948.
- STELLA PRUDE SMITH, Instructor in English, 1960, 1963.  
B.A., University of Texas, 1940; M.A., Texas Technological College, 1962.
- THOMAS EWIN SMITH, Assistant Professor of Sociology, 1964.  
B.A., University of Alabama, 1957; M.S., Hunter College, 1958; M.A., University of Alabama, 1961; Ph.D., University of Minnesota, 1964.
- VAN MITCHELL SMITH, Associate Professor of History, 1959.  
B.A., University of Texas, 1939; M.A., 1940; Ph.D., 1949.
- PILL-SOON SONG, Assistant Professor of Chemistry, 1965.  
B.S., Seoul National University (Korea), 1958; M.S., 1960; Ph.D., University of California (Davis), 1964.
- JERRY MADISON SOWDER, Part-time Instructor in Government, 1955.  
B.A., Texas Technological College, 1949; LL.B., University of Texas, 1955.
- DON LEWIS SPARKS, Part-time Instructor in Health, Physical Education, and Recreation for Men and Athletic Department Trainer, 1958, 1964.  
B.S., Texas Wesleyan College, 1952.
- HENRY ELI SPECK III, Assistant Professor of English, 1965.  
B.A., University of Texas, 1960; M.A., 1961; Ph.D., Oxford University (England), 1965.
- HAROLD AYLESWORTH SPUHLER, Professor of Electrical Engineering, 1950, 1965.<sup>1</sup>  
B.S., Texas Technological College, 1948; M.S., Massachusetts Institute of Technology, 1950; Ph.D., University of Illinois, 1960.
- WINFRED GEORGE STEGLICH, Professor and Head of the Department of Sociology and Anthropology, 1957, 1960.  
B.A., Concordia Seminary, 1942; Dip.Th., 1946; M.A., University of Texas, 1945; Ph.D., 1951.
- ANNE KERCHEVAL STEINER, Assistant Professor of Mathematics, 1965.  
A.B., University of Missouri, 1958; M.A., 1963; Ph.D., University of New Mexico, 1965.
- EUGENE FRANCIS STEINER, Associate Professor of Mathematics, 1965.  
B.S., Missouri School of Mines and Metallurgy, 1954; M.A., University of Missouri, 1960; Ph.D., 1963.
- TOM BASIL STENIS, Associate Professor of Electrical Engineering, 1947, 1956.  
B.S., University of Texas, 1943; M.S., 1947; Reg. Prof. Engr. (Texas).

<sup>1</sup> Resigned January 31, 1966.

## 444 Faculty

- LEWIS MOORE STEWART, Instructor in Economics and Finance, 1957, 1963.  
B.S., Harding College, 1957; M.B.A., Texas Technological College, 1960.
- WILLIAM ADDISON STEWART, Associate Professor of Architecture and Allied Arts, 1965.  
B.A., University of Florida, 1958.
- MICKEY FAY STORY, Assistant Professor of Applied Arts, 1962, 1965.  
B.S., Texas Technological College, 1961; M.Ed., Pennsylvania State University, 1962.
- MARY RUTH CHANCE STRANDTMANN, Assistant Professor of Mathematics, 1951, 1959.  
B.A., Southwest Texas State College, 1936; M.A., Texas Technological College, 1952.
- RUSSELL WILLIAM STRANDTMANN, Professor of Biology, 1948.  
B.S., Southwest Texas State College, 1935; M.S., Texas A & M University, 1937; Ph.D., Ohio State University, 1944.
- ALFRED BELL STREHLI, Professor of Foreign Languages, 1928, 1961.  
B.A., Ohio State University, 1925; B.S., 1925; M.A., 1926.
- EDWARD DALE STRICKLAND, Instructor in Health, Physical Education, and Recreation for Men, 1965.  
B.S., Texas Technological College, 1963; M.Ed., 1965.
- PASCHAL NEILSON STRONG, JR., Professor of Psychology, 1960, 1965.  
B.A., Washington University, 1950; Ph.D., University of Tennessee, 1955.
- MARGARET RUSSELL STUART, Associate Professor of Chemistry, 1946, 1959.  
B.A., Texas Technological College, 1940; M.A., 1949.
- MORRIS FRANK STUBBS, Professor of Chemistry, 1963.  
B.A., Sterling College, 1921; M.S., University of Chicago, 1925; Ph.D., 1931. D.Sc., Sterling College, 1960.
- ARTHUR BARCLAY SWENEY, Associate Professor of Psychology, 1962.  
B.S., University of Illinois, 1947; M.S.W., 1949; Ph.D., University of Houston, 1958.
- METIN TAMKOC, Associate Professor of Government, 1964.  
LL.B., University of Istanbul (Turkey), 1950; M.A., University of Maryland, 1955; Ph.D., Georgetown University, 1960.
- JERI TANNER, Instructor in English, 1966.<sup>1</sup>  
B.A., East Texas State University, 1961; M.A., 1963.
- HASKELL GRANT TAYLOR, Professor of Accounting, 1937, 1948.  
B.B.A., Texas Technological College, 1936; M.A., 1937; C.P.A.
- ANTOINETTE MARIE TEJEDA, Instructor in Foreign Languages, 1964, 1965.  
B.A., Bradley University, 1946; M.A., Texas Technological College, 1965.
- FRANK MILLETT TEMPLE, Associate Librarian, 1951, 1963.  
B.S., Boston University, 1950; B.S. in L.S., North Texas State University, 1951; M.A., Texas Technological College, 1959.
- DAHLIA JEWELL TERRELL, Instructor in English, 1956.<sup>2</sup>  
B.A., Texas Technological College, 1940; M.Ed., 1948.
- BETTY ANN WERTHEIMER TEVIS, Assistant Professor of Health, Physical Education, and Recreation for Women, 1966.<sup>1</sup>  
B.A., Texas Woman's University, 1950; B.S., 1950; M.A., 1951.
- JAC LYNDON THARPE, Associate Professor of English, 1965.  
B.A., University of Tennessee, 1956; M.A., 1957; Ph.D., Harvard University, 1965.
- GERALD WAYLETT THOMAS, Professor of Range Management and Dean of Agriculture, 1958.  
B.S., University of Idaho, 1941; M.S., Texas A & M University, 1951; Ph.D., 1954.
- HENRY COFFMAN THOMAS, Professor and Head of the Department of Physics, 1958.  
B.S., Western Kentucky State College, 1943; M.S., Vanderbilt University, 1948; Ph.D., 1950.
- ARTHUR DUDLEY THOMPSON, Assistant Professor of Architecture and Allied Arts, 1959, 1964.  
B.Arch., Texas Technological College, 1954; M.S. in Urban Planning, Columbia University, 1963.
- PAUL EDWARD THOMPSON, Instructor in Mathematics, 1963.  
B.S., University of New Mexico, 1961; M.S., 1963.
- RICHARD JOHN THOMPSON, Assistant Professor of Chemistry, 1962.  
B.S., University of Texas, 1952; M.A., 1956; Ph.D., 1959.
- VIRGINIA MAHALEY THOMPSON, Instructor in Architecture and Allied Arts, 1961, 1964.  
B.Advertising Art and Design, Texas Technological College, 1959.
- ERWIN RUDOLPH TICHAUER, Professor of Industrial Engineering, 1963, 1965.  
Dipl.Ing., Albertus University (Konigsberg, Germany), 1939; Dr. rer. nat., 1940; Reg. Prof. Engr. (Queensland, Australia).
- JOE WAYNE TIDROW, Professor of Education, 1962, 1965.  
B.S., Central State College (Oklahoma), 1947; M.S., Oklahoma State University of Agriculture and Applied Science, 1954; Ed.D., 1957.

<sup>1</sup> Appointed February 1, 1966.

<sup>2</sup> On leave, 1965-1966.

- POLLY COOK TILTON, Instructor in Biology, 1947, 1955.  
B.S., Texas Technological College, 1947; M.S., 1951.
- WILLA VAUGHN TINSLEY, Professor of Home and Family Life and Dean of Home Economics, 1953.  
B.S., Texas Woman's University, 1928; M.S., Colorado State University, 1936; Ph.D., University of Minnesota, 1947.
- RICHARD EARL TOLLEY, Assistant Professor of Music, 1959, 1963.  
B.S., University of Illinois, 1955; M.S., 1959.
- KAY ANN TORBETT, Associate Reference Librarian, 1965.  
B.A., University of Arkansas, 1964; M.L.S., University of Oklahoma, 1965.
- JAMIL ISSA TOUBBEH, Associate Professor of Speech, 1965.  
B.A., Millikin University, 1954; M.A., University of Illinois, 1956; Ph.D., University of Denver, 1965.
- IDRIS RHEA TRAYLOR, JR., Assistant Professor of History, 1960, 1965.  
B.A., University of Texas, 1957; M.A., 1959; Ph.D., Duke University, 1965.
- ROBERT DENNIS TROY, Instructor in Architecture and Allied Arts, 1965.  
B.Arch., Texas Technological College, 1959; M.S. in Arch., Columbia University, 1964.
- FERRELLINE TUCKER, Documents Librarian, 1942, 1949.  
B.A., Texas Technological College, 1940; B.S. in L.S., University of California (Berkeley), 1949.
- SCOTT MAE TUCKER, Professor of Spanish, 1945, 1964.  
B.A., University of Texas, 1924; M.A., 1925; Ph.D., 1950.
- LENORE MICKEY TUNNELL, Instructor in English, 1954.  
B.A., Texas Technological College, 1934; M.A., 1943.
- GEORGE A. TURAIN, Captain, United States Army, Assistant Professor of Military Science, 1963.  
B.S., University of New Hampshire, 1955.
- KIRK B. TURNER, Associate Professor of Animal Husbandry, 1948, 1955.  
B.S., Utah State University of Agriculture and Applied Science, 1939; M.S., Oklahoma State University of Agriculture and Applied Science, 1941.
- WILLIE LEE ULICH, Professor and Head of the Department of Agricultural Engineering, 1961.  
B.S., Texas A & M University, 1943; M.S., 1947; Ph.D., Harvard University, 1951; Reg. Prof. Engr. (Texas).
- ELO JOE URBANOVSKY, Professor and Head of the Department of Park Administration, Horticulture, and Entomology and College Landscape Architect, 1949, 1951.  
B.S., Texas A & M University, 1931.
- MARY JEANNE van APPLIEDORN, Associate Professor of Music, 1950, 1962.  
B.M., Eastman School of Music, University of Rochester, 1948; M.M., 1950; Ph.D., 1966.
- ZENOBIA CHRISTINE BROWN VERNER, Assistant Professor of Education, 1963, 1965.  
A.B., Colorado State College, 1948; M.A., Sul Ross State College, 1957; Ed.D., Texas Technological College, 1965.
- GUILLERMO VIDAUD, Assistant Professor of Architecture and Allied Arts, 1964.  
Diploma de Arquitecto, Habana University (Cuba), 1954; Reg. Arch. (Cuba).
- DAVID MARTELL VIGNESS, Professor and Head of the Department of History, 1955, 1961.  
B.A., University of Texas, 1943; M.A., 1948; Ph.D., 1951.
- STEPHEN VON PHUL, Major, United States Air Force, Associate Professor of Aerospace Studies, 1965.  
B.B.A., Baylor University, 1951.
- CHARLES ERNEST WADE, Assistant Professor of Finance, 1965.  
B.B.A., Arlington State College, 1961; M.B.A., North Texas State University, 1962.
- FRANKLIN ALTON WADE, Professor of Geosciences, 1954.  
B.S., Kenyon College, 1926; M.A., 1928; Ph.D., Johns Hopkins University, 1937.
- ROBERT JOHN WADE, JR., Assistant Professor of Finance, 1964.  
B.S. in Bus., Indiana University, 1960; LL.B., University of Michigan, 1963.
- GEORGIA TERHUNE WALDRON, Instructor in Mathematics, 1954, 1965.  
B.A., Illinois College, 1928.
- HARRY STUART WALKER, Assistant Professor of Economics, 1953.  
B.A., University of Denver, 1948; M.B.A., 1950.
- WARREN STANLEY WALKER, Professor of English, 1964.  
B.A., State University of New York at Albany, 1947; M.A., 1948; Ph.D., Cornell University, 1951.
- ERNEST WALLACE, Professor of History, 1936, 1945.  
B.S., East Texas State University, 1932; M.A., Texas Technological College, 1935; Ph.D., University of Texas, 1942.
- ESTELLE HAYS WALLACE, Associate Professor and Head of the Department of Home and Family Life, 1959, 1965.  
B.S., North Texas State University, 1931; M.S., Iowa State University of Science and Technology, 1937.
- KENNETH JAY WALLACE, Instructor in Economics, 1965.  
B.B.A., McMurray College, 1962; M.B.A., Texas Technological College, 1965.



- MORRIS SHEPPARD WALLACE, Professor and Head of the Department of Education and Philosophy and Director of Teacher Education and Certification, 1955, 1958. B.A., North Texas State University, 1934; M.A., 1938; Ed.D., Teachers College, Columbia University, 1948.
- DONALD FRANK WANJURA, Part-time Assistant Professor of Agricultural Engineering, 1965. B.S., Texas A & M University, 1961; M.S., Clemson University, 1962.
- TERRELL BARNEY WARREN, Assistant Professor of Architecture and Allied Arts, 1964. B.S. in A.E., University of Oklahoma, 1960; Ma.E., 1964.
- THOMAS BRUCE WATERS, Associate Professor of Philosophy, 1962. B.A., University of Kentucky, 1930; M.A., 1932; Ph.D., Ohio State University, 1935.
- DENNIS NEWT WATKINS, Assistant Dean of Men, 1964, 1965. B.B.A., Texas Technological College, 1964.
- JAMES ARTHUR WATKINS, Instructor in Management, 1965. B.S., University of Maryland, 1961; M.B.A., Indiana University, 1962.
- JAMES TAGGART WATT, Associate Professor of Business Education and Secretarial Administration, 1960, 1965. B.Sc., University of Cincinnati, 1950; M.A., Ohio State University, 1960; Ph.D., 1965.
- HOLMES ANDREW WEBB, Professor of Education, 1960, 1965. B.A., Texas Technological College, 1930; M.A., 1935; Ed.D., University of Southern California, 1953.
- ROBERT GODFREY WELCH, Assistant Professor of Agricultural Economics, 1963. B.S., University of Wyoming, 1957; M.S., 1958; Ph.D., Oregon State University, 1962.
- GRACE PLEASANT WELBORN, Assistant Professor of English, 1947, 1959. B.A., Hardin-Simmons University, 1928; M.A., 1934; B.S., Howard Payne College, 1947.
- WESLEY WILLIAM WENDLANDT, Professor of Chemistry, 1954, 1960. B.S., Wisconsin State University—River Falls, 1950; M.S., University of Iowa, 1952; Ph.D., 1954.
- FRANK DOSTER WETHERILL, Assistant Professor of Foreign Languages, 1965. B.A., Pomona College, 1952; M.A., University of Colorado, 1957; Ph.D., University of Southern California, 1964.
- OLIVE BOONE WHEELER, Associate Professor of Education, 1953, 1959. B.A., Howard Payne College, 1922; M.A., Texas Christian University, 1946; Ed.D., Texas Technological College, 1955.
- GEORGE ARTHUR WHEATSTONE, Professor of Civil Engineering, 1946, 1955. B.S., University of Washington, 1933; M.S., 1937; Ph.D., 1940.
- JOHN THOMAS WHITE, Associate Professor of Mathematics, 1965. B.A., University of Texas, 1952; M.A., 1953; Ph.D., 1962.
- CARLTON JAMES WHITEHEAD, Associate Professor of Management, 1965. B.S., Southeastern Louisiana College, 1958; M.B.A., Louisiana State University and Agricultural and Mechanical College, 1962; Ph.D., 1964.
- THOMAS SAUNDERS WHITELEY, Associate Reference Librarian, 1958, 1964. B.A., Baylor University, 1935; M.A., University of Texas, 1940; M.L.S., Texas Woman's University, 1959.
- R. C. WHITMILL, Instructor in Education, 1965. B.S., Southwest Texas State College, 1939; M.A., 1951.
- WILLIAM ELMER WHITTINGTON, Professor of Accounting, 1947, 1964. B.B.A., University of Texas, 1939; M.B.A., 1947; Ph.D., University of Illinois, 1957.
- RICHARD EDWARD WILDE, JR., Assistant Professor of Chemistry, 1963. B.S., University of California (Los Angeles), 1956; Ph.D., University of Washington, 1961.
- WILFORD WAYNE WILKINS, Assistant Professor of Electrical Engineering, 1964. B.S., Texas Technological College, 1960; M.S., Texas A & M University, 1962; Ph.D., 1965.
- DOYLE ZANE WILLIAMS, Assistant Professor of Accounting, 1965. B.S., Northwestern State College of Louisiana, 1960; M.S., Louisiana State University and Agricultural and Mechanical College, 1962; Ph.D., 1965; C.P.A.
- HERMAN JOSEPH WILLIAMS, Part-time Instructor in Home and Family Life, 1965.<sup>1</sup> B.A., Furman University, 1955; B.D., Southeastern Baptist Theological Seminary, 1959; Th.M., 1961.
- IRA LAWSON WILLIAMS, Professor of Agricultural Engineering, 1952, 1961. B.S., Texas A & M University, 1930; M.S., Iowa State University of Science and Technology, 1931; Reg. Prof. Engr. (Texas).
- PEGGY JEAN WILLIAMS, Assistant Professor of Health, Physical Education, and Recreation for Women, 1962. B.S., East Texas State University, 1950; M.Ed., 1953.

<sup>1</sup> 1966 Spring Semester.

- WILLARD FOREST WILLIAMS, Professor and Head of the Department of Agricultural Economics, 1963.  
B.S., Oregon State University, 1947; M.S., University of California (Berkeley), 1948; Ph.D., Purdue University, 1952.
- BILLIE FRANCES WILLIAMSON, Associate Professor of Home Economics Education and Assistant to the Dean of Home Economics, 1956, 1961.  
B.S., Texas Woman's University, 1934; M.A., 1936.
- CARL HAMMEL WILLINGHAM, Assistant Professor of Mathematics, 1955, 1957.  
B.A., Texas Technological College, 1928; M.A., 1932.
- JUDDIE JOHNSON WILLINGHAM, Professor and Head of the Department of Dairy Industry, 1948, 1949.  
B.S., Texas A & M University, 1931; M.S., Iowa State University of Science and Technology, 1937; Ph.D., 1942.
- WELBORN KIEFER WILLINGHAM, Assistant Professor of Education, 1961, 1964.  
B.A., Texas Technological College, 1949; M.Ed., University of Texas, 1956; Ph.D., Texas Technological College, 1964.
- ALBERT HUGH WILSON, Captain, United States Air Force, Assistant Professor of Aerospace Studies, 1962.  
B.S., North Texas State University, 1954.
- CHARLES EDWARD WILSON, SR., Instructor in Chemistry, 1957, 1960.  
B.A., University of Missouri, 1925.
- MARGARET EILEEN WILSON, Professor of Health, Physical Education, and Recreation for Women, 1965.  
B.S.E., University of Arkansas, 1944; M.S., 1949; Ph.D., State University of Iowa, 1960.
- JARVIS WITT, Part-time Assistant Professor of Economics, 1953, 1965.  
B.A., Texas Technological College, 1948; M.A., 1956.
- JOHN WITTMAN, JR., Associate Professor of Economics, 1960, 1965.  
B.S. in B.C., Southern State College (Arkansas), 1957; M.B.A., University of Arkansas, 1959; Ph.D., 1965.
- OPAL LANIER WOOD, Instructor in Food and Nutrition, 1945, 1965.  
B.S., Texas Woman's University, 1926.
- HEATHER GRAHAM WOODALL, Instructor in Music, 1963.  
B.M., Oberlin College, 1963.
- BENJAMIN WILSON WOODRUFF, JR., Instructor in Music, 1964.  
B.A., University of South Carolina, 1961; M.S., University of Illinois, 1963.
- PAUL JOSEPH WOODS, Associate Professor of History, 1960.  
B.A., University of Illinois, 1938; M.A., 1940; Ph.D., 1941.
- HORACE EUGENE WOODWARD, JR., Associate Professor of Mathematics, 1937, 1956.  
B.A., Texas Technological College, 1936; M.A., 1937.
- ILSE HILDEGARDE WOLF, Professor of Home and Family Life, 1965.  
B.S., Texas Technological College, 1932; M.Ed., University of Texas, 1939; M.A., Columbia University, 1948; Ed.D., 1957.
- FREDERICK HENRY WOLFE, Instructor in Chemistry, 1961, 1965.  
B.A., Hofstra University, 1960.
- WILLIE MAY WOLFE, Assistant Professor of Home Management, 1955.  
B.S., University of Texas, 1937; M.S., 1938.
- RUTH COWART WRIGHT, Instructor in Government, 1957.  
B.A., Texas Technological College, 1948; M.A., 1949.
- JIA-HSI WU, Assistant Professor of Biology, 1963.<sup>1</sup>  
B.S., Taiwan University, 1950; M.S., Cornell University, 1952; Ph.D., Washington University, 1958.
- T. KARL H. WUERSCHING, Assistant Professor of Geosciences, 1965.  
B.A., Western Michigan University, 1961; M.A., University of Michigan, 1962.
- VESTAL LIARLY YEATS, Instructor in Geosciences, 1960.  
B.S., University of Texas, 1958; M.S., Texas Technological College, 1960.
- ARTHUR WESLEY YOUNG, Professor and Head of the Department of Agronomy and Range Management, 1935, 1938.  
B.S., Iowa State University of Science and Technology, 1929; M.S., 1930; Ph.D., 1932.
- VERA BERG YOUNG, Instructor in Mathematics, 1952, 1965.  
B.S., Iowa State University of Science and Technology, 1928; M.S., 1930.
- LESBETH EVA ESSLINGER AL-ZAHAWI, Part-time Instructor in Foreign Languages, 1964.  
Akad. Übersetzer, University of Vienna (Austria), 1961; M.A., Texas Technological College, 1963.
- BARBARA JEAN ZECHES, Assistant Professor of Food and Nutrition, 1962.  
B.S., University of Texas, 1954; M.S., University of Arizona, 1963.
- DALE WENDEL ZINN, Associate Professor of Animal Husbandry, 1961.  
B.S., West Virginia University, 1952; M.S., 1956.

<sup>1</sup> On leave, 1965-1966.



- EDWARD WILLIAM ZUKAUCKAS, JR. Associate Professor of Horticulture and Greenhouse Manager, 1952, 1961.  
B.S., Rutgers University, 1950; M.S., 1952.
- WOLODYMYR TARAS ZYLA, Assistant Professor of Foreign Languages, 1963.  
B.S., University of Manitoba (Canada), 1959; M.A., 1962.

## Biblical Literature

- JACK GREEVER, B.A., B.D., Biblical Literature, under auspices of the Baptist General Convention of Texas.
- JAMES HOUSTON HODGES, B.A., B.D., Biblical Literature, United Bible Chair under auspices of the Christian, Episcopal, Lutheran, and Presbyterian Churches.
- STANLEY EDWARD HOVATTER, B.A., B.D., Biblical Literature, United Bible Chair under auspices of the Christian, Episcopal, Lutheran, and Presbyterian Churches.<sup>1</sup>
- RALPH EDWARD MACY, B.S., B.D. Biblical Literature, United Bible Chair under auspices of the Christian, Episcopal, Lutheran, and Presbyterian Churches.
- CECIL RAYMOND MATTHEWS, B.A., B.D., D.D., Biblical Literature, under auspices of the Northwest Texas Conference of the Methodist Church.
- LOWELL DEAN MCCOY, B.S., M.S., Biblical Literature, under auspices of the Churches of Christ.
- PATRICK JOSEPH O'DWYER, S.A.C., B.A., M.A., Biblical Literature, under auspices of the Catholic Church.
- JAMES WELDON THOMPSON, B.A., M.A., Biblical Literature, under auspices of the Churches of Christ.

## Teaching Assistants

- JOHN ROBERT ABISHIRE, Government, 1965.  
B.A., Texas Technological College, 1962.
- WILLIAM ROBERT ADAMS, Agricultural Economics, 1966.<sup>1</sup>  
B.S., Texas Technological College, 1965.
- KENNY DWIGHT ALLRED, Accounting, 1966.<sup>1</sup>  
B.B.A., Texas Technological College, 1966.
- SUSANNE FOSTER ALLSTROM, Sociology, 1963.<sup>2</sup>  
B.A., Newcomb College, Tulane University of Louisiana, 1962.
- RICHARD VERNON ALUMBAUGH, Psychology, 1965.  
B.A., Fort Hays Kansas State College, 1962; M.S., 1963.
- WILLIAM GERALD AMBROSE, Mathematics, 1962.  
B.S., Texas Technological College, 1962; M.S., 1964.
- RUTH ANN WILLIAMS ANDRES, Economics, 1965.  
B.B.A., Texas Technological College, 1965.
- SARAH ANN ANTROBUS, Speech, 1965.<sup>2</sup>  
B.A., West Texas State University, 1964.
- JOYCE ANN DAVIS ARTERBURN, Health, Physical Education, and Recreation for Women, 1959, 1964.  
B.S. in Ed., Texas Technological College, 1954.
- ABDUL AZIZ ASHRAF, Geosciences, 1964.  
B.Sc., University of Karachi (D. J. Science College, Pakistan), 1956; M.Sc., 1958.
- B. W. ASTON, History, 1963.  
B.S., Texas Technological College, 1962; M.A., 1964.
- MARY ANN BABER, Foreign Languages, 1965.  
B.S., Texas Technological College, 1965.
- GRACE ANN BADGETT, Home and Family Life, 1966.<sup>1</sup>  
B.S., Texas Technological College, 1965.
- RONALD NELSON BAIRD, Finance, 1964.<sup>2</sup>  
B.S.B.A., University of Denver, 1964; M.B.A., Texas Technological College, 1965.
- DEWEY RICHARD BAKER, Mathematics, 1965.<sup>3</sup>  
B.S., Texas Technological College, 1964.
- LYNN EDWARD BAKER, Geosciences, 1965.  
B.S., Texas Technological College, 1965.

<sup>1</sup> 1966 Spring Semester.

<sup>2</sup> 1965 Fall Semester.

<sup>3</sup> Resigned January 31, 1966.

- CHARLES MILTON BALDWIN, Chemistry, 1965.  
B.A., University of Corpus Christi, 1962.
- ROYCE EUGENE BALLINGER, Biology, 1964.  
B.A., University of Texas, 1964.
- ROBERT CASMER BANASIK, Industrial Engineering and Engineering Drawing, 1965.  
B.S. in M.E., Wayne State University, 1965.
- EDWARD RICHARD BARKOWSKY, English, 1965.  
B.A., Texas Technological College, 1964.
- MARY ANN BARNHART, Business Education and Secretarial Administration, 1965.  
B.B.A., Texas Technological College, 1965.
- DORTHA DAWKINS BARRETT, Music, 1965.<sup>1</sup>  
B.S., Texas Technological College, 1947.
- JAMES HARVEY BASKETT, Economics, 1965.  
B.A., Texas Technological College, 1961.
- JAMES EDWARD BECK, Economics, 1965.  
B.A., Texas Technological College, 1965.
- ROLLER CONRAD BECKHART, Chemistry, 1965.  
B.S., New Mexico Institute of Mining and Technology, 1965.
- JEAN LUCY ANSON BERGMAN, English, 1965.  
B.A., Goucher College, 1942.
- GEORGE LESLIE BIFFLE, Music, 1965.<sup>2</sup>
- HAROLD TYRONE BLACK, Economics, 1965.  
B.B.A., Texas Technological College, 1965.
- PEGGY JANICE BLACKWELL, Psychology, 1966.<sup>1</sup>  
B.A., University of Wyoming, 1960
- PHILIP THOMAS BLAZEY, Geosciences, 1964.  
B.S., Texas A & M University, 1953.
- JOE EDWARD BLUMENTRITT, Chemistry, 1965.  
B.A., University of Texas, 1962.
- MICHAEL KNIGHT BOHN, Government, 1965.  
B.A., Texas Technological College, 1965.
- ROBERT COE BRADEN, English, 1965.  
B.S., Iowa State University of Science and Technology, 1964; B.S., 1965.
- JOHN MICHAEL BROOKS, Sociology, 1965.  
B.A., Texas Technological College, 1965.
- ELEANOR AUGUSTA CLAYTON BROWN, Foreign Languages, 1961, 1965.  
B.A., Texas Technological College, 1961.
- CECIL DOUGLAS BUCK, Management, 1965.<sup>3</sup>  
B.B.A., Texas Technological College, 1965.
- SuEARL BULLOCK, Biology, 1965.  
B.A., McMurry College, 1964.
- NONA MARIE PEVEHOUSE BURGAMY, English, 1965.  
B.A., Texas Technological College, 1964.
- ROBERT EDMUND BURKE, History, 1964.  
B.A., St. Mary's University of San Antonio, 1960; M.A., 1963.
- FORREST DEAN BURT, English, 1965.  
B.A., Wayland Baptist College, 1962; M.A., Texas Technological College, 1965.
- JONATHAN SAYER BURTON, Mathematics, 1964.  
B.S., Texas Technological College, 1962.
- JOHN MORRIS BURGESS, Mathematics, 1965.<sup>4</sup>  
B.S., Colorado School of Mines, 1965.
- EDWARD LEAVELL BYRD, JR., History, 1964.  
B.A., Baylor University, 1959; M.A., 1962.
- FORREST MICKEY BYRD, English, 1965.  
B.A., Wayland Baptist College, 1964.
- DORIS KAY WILDMAN CADDEL, Clothing and Textiles, 1965.  
B.S. in Ed., Southwestern State College, 1965.
- LEO HENRY CAESAR, Mechanical Engineering, 1965.<sup>4</sup>  
B.S. in M.E., Texas Technological College, 1965.
- THOMAS MILTON CANNON, JR., Psychology, 1961, 1963.  
B.A., Texas Technological College, 1955; M.A., 1959.
- ROBERT QUINTANA CARTER, Foreign Languages, 1965.  
B.A., Texas Technological College, 1964.
- REUEL GLENN CASEY, Management, 1965.  
B.B.A., Texas Technological College, 1965.
- CAROLYN SHEPARD CATES, English, 1965.  
B.A., Texas Technological College, 1964.

<sup>1</sup> 1966 Spring Semester.<sup>2</sup> Resigned October 19, 1965.<sup>3</sup> 1965 Fall Semester.<sup>4</sup> Resigned January 31, 1966.

## 450 *Teaching Assistants*

- EMMELINA SERRANO CEGUERRA, Accounting, 1965.  
B.S.B.A., University of the Philippines, 1959; C.P.A.
- BI-YUN CHEN CHENG, Chemistry, 1964.  
B.S., Tam-kang College of Arts and Sciences (Formosa), 1963.
- EDWARD MARTIN CIFELLI, English, 1965.  
B.A., Rutgers University, 1964.
- THOMAS HENRY CLOVER, Sociology, 1965.  
B.A., Texas Technological College, 1965.
- GARY KEN COFFMAN, Biology, 1965.<sup>1</sup>  
B.A., McMurry College, 1965.
- LISTER STACY COLE, History, 1965.<sup>2</sup>  
B.A., Baylor University, 1954; M.A., Stephen F. Austin State College, 1960.
- LAWRENCE TURNER COLLINS, Biology, 1964.  
B.S., Stephen F. Austin State College, 1959.
- CAROLYN COOK, English, 1965.  
B.A., Texas Technological College, 1962.
- DONALD LEON COOK, Chemistry, 1965.  
B.A., McMurry College, 1959.
- RAY MARLIN COOK, English, 1965.  
B.A., Texas Technological College, 1965.
- NORMAN GERALD COPPEDGE, Health, Physical Education, and Recreation for Men, 1965.  
B.S., Western New Mexico University, 1960.
- JIMMY CARROLL COUCH, English, 1965.  
B.A., Texas Technological College, 1965.
- JIM MAGEE COWAN, English, 1964.  
B.A., Texas Technological College, 1964.
- THOMAS RUSSELL CRADDICK, Finance, 1965.  
B.B.A., Texas Technological College, 1965.
- VIRGINIA LEE CROUNSE, Government, 1966.<sup>3</sup>  
B.A., West Texas State University, 1966.
- ROBERT JON CRUMLEY, Marketing, 1965.  
B.B.A., Texas Technological College, 1965.
- MARY ELIZABETH DALTON, English, 1964.  
B.A., Radford College, 1964.
- DONALD DELMAR DANIEL, Physics, 1964.  
B.S., Texas Technological College, 1964.
- ROBERT LEO DAWES, Mathematics, 1966.<sup>3</sup>  
B.S., Texas Technological College, 1966.
- ORION LARRY DAWSON, History, 1965.  
B.A., Baylor University, 1957; M.A., Trinity University, 1962.
- PAULA DIANNE FIX DEAN, English, 1966.<sup>3</sup>  
B.A., Texas Technological College, 1951.
- RENE AUREL DeHON, Geosciences, 1965.  
B.S., Texas Western College, 1962; M.S., Texas Technological College, 1965.
- NELSON DeLAVAN, History, 1963.  
B.A., Texas Technological College, 1963.
- JEREMY ATWOOD DeWICK, Economics, 1965.  
B.A., Baker University, 1965.
- EDWIN LARRY DICKENS, Government, 1965.  
B.A., University of Texas, 1962; M.A., Texas College of Arts and Industries, 1963.
- DARRELL WAYNE DONALDSON, Biology, 1965.<sup>4</sup>  
B.S.E., Arkansas State College, 1965.
- ROBERT BENJAMIN DROTMAN, Biology, 1965.  
B.A., Texas Western College, 1965.
- ANTHONY ZENON DUBE, English, 1964.  
B.A., University of Southern California, 1958; M.A., Texas Western College, 1964.
- GEORGE EDWARD DYER, Government, 1963, 1964.  
B.S., Anderson College (Indiana), 1958; M.A., Texas Technological College, 1960.
- CHARLES KENNETH EDGLEY, Sociology, 1965.  
B.A., Wayland Baptist College, 1965.
- GERALD ERNEST EDMUNDSON, Music, 1964.  
B.M., Texas Technological College, 1964.
- WILLIAM ROBERT EDWARDS, Industrial Engineering and Engineering Drawing, 1964.<sup>1</sup>  
B.S., Texas Technological College, 1964.

<sup>1</sup> 1965 Fall Semester.

<sup>2</sup> Resigned October 7, 1965.

<sup>3</sup> 1966 Spring Semester.

<sup>4</sup> Resigned November 19, 1965.

- CLIFT MOORE EPPS, Mechanical Engineering, 1963.  
B.S. in M.E., Texas Technological College, 1963; M.S. in M.E., 1965.
- SELCUK OSMAN ERGIN, Chemical Engineering, 1965.  
B.S., University of Istanbul (Turkey), 1963.
- JAMES BRUCE ERICKSON, Accounting, 1965.  
B.A., Bemidji State College, 1965.
- JAMES ROBERT FERANDO, Accounting, 1964.  
B.A., Fort Lewis College, 1964.
- LARRY DANIEL FRANKLIN, Accounting, 1965.  
B.B.A., East Texas State University, 1964.
- JOHN PEDEN FRAZIER III, Chemistry, 1965.  
B.S., Bethany College (West Virginia), 1963.
- JOEL FRIEDMAN, Psychology, 1965.<sup>1</sup>  
B.S., Williams College, 1957; M.S., City College, City University of New York, 1959.
- JERRY DANE GANN, Physics, 1964.  
B.S., Texas Technological College, 1959.
- MARGARET DROEMER GESSLEY, Mathematics, 1964.<sup>2</sup>  
B.A., Texas Technological College, 1964.
- JERRY DON GILBERT, Government, 1965.  
B.S., Texas Technological College, 1965.
- PHYLLIS SUE GILL, English, 1965.  
B.A., North Texas State University, 1965.
- BRUCE ALDEN GLASRUDE, History, 1963.  
B.A., Luther College, 1962; M.A., Eastern New Mexico University, 1963.
- MARCUS PAUL GOBER, Mathematics, 1965.  
B.A., Baylor University, 1963.
- ELEANOR JUNE GOOSEBY, Speech, 1965.<sup>2</sup>  
B.A., Abilene Christian College, 1965.
- CARTER JULES GRANDJEAN, Chemistry, 1965.  
B.S., New Mexico Institute of Mining and Technology, 1965.
- LEONARD WESLEY GRAY, Chemistry, 1965.  
B.S., New Mexico Institute of Mining and Technology, 1964.
- NANCY SHERMER GRIMES, Business Education and Secretarial Administration, 1965.  
B.S., Southeastern State College, 1965.
- JOHN ANDREW HADDAD, Government, 1965.  
B.A., Texas Western College, 1965.
- WALTER SHARPE HAILES, Finance, 1965.  
B.B.A., Texas Technological College, 1965.
- MICHAEL CARLETON HAIRGROVE, English, 1965.<sup>2</sup>  
B.A., University of Texas, 1962.
- MARGARETTE LEGGITT HARDEN, Food and Nutrition, 1965.<sup>1</sup>  
B.S., Texas Technological College, 1964.
- RITA PAT HARRELL, Accounting, 1965.  
B.B.A., Texas Technological College, 1965.
- PETER GWIN HARRIS, English, 1965.  
B.A., State University of New York at Buffalo, 1963.
- STANLEY COOPER HARRISON, Geosciences, 1964.  
B.A., Montana State University, 1956.
- JOHN FRANK HAY, JR., Biology, 1964.  
B.S., Abilene Christian College, 1964.
- STEPHEN ROBERT HENDERSON, Biology, 1965.  
B.A., Texas Technological College, 1965.
- JAMES RENFRO HENLEY, JR., Sociology, 1965.  
B.A., Texas Technological College, 1965.
- JOHN EDGAR HICKS, Chemistry, 1965.  
B.A., McMurry College, 1965.
- DAVID LEE HILL, English, 1965.  
B.A., Texas Technological College, 1963.
- LEONARD HOCHMAN, Psychology, 1965.<sup>1</sup>  
B.S., Long Island University, 1957; M.S., City College, City University of New York, 1959.
- JAMES LOUIS HOLT, English, 1965.  
B.S., Texas Technological College, 1965.
- OSCAR DILE HOLTON, JR., English, 1965.  
B.A., Wayland Baptist College, 1963; M.A., Texas Technological College, 1965.
- JERRY MIKE HOOD, SR., Finance, 1965.  
B.S., Louisiana Polytechnic Institute, 1965.

<sup>1</sup> 1965 Fall Semester.<sup>2</sup> Resigned January 31, 1966.

## 452 *Teaching Assistants*

- BIRKETT CHATTON HOSCH, JR., Accounting, 1964.<sup>1</sup>  
B.B.A., Texas Technological College, 1964.
- COHEN PAT HOUSTON, Marketing, 1965.  
B.B.A., Texas Technological College, 1964.
- JOHN ROBERT HOWELL, English, 1965.  
A.B., Oklahoma State University of Agriculture and Applied Science, 1965.
- THEODORE HO HSU, Mathematics, 1965.  
B.S., Taiwan Provincial Cheng Kung University, 1962.
- DOROTHY DARLINE HUNTER, Speech, 1966.<sup>2</sup>  
B.A., Texas Technological College, 1966.
- JAMES VICTOR IVY, Accounting, 1966.<sup>2</sup>  
B.B.A., Texas Technological College, 1963.
- WILLIAM JAMES JACKSON, Psychology, 1965.  
B.A., Texas Western College, 1962.
- WILFRED WAYNE JACOB, JR., Accounting, 1965.  
B.B.A., Texas Lutheran College, 1965.
- HABIB OLLAH ESLAMI JAM, Economics, 1965.  
B.A., Texas Technological College, 1965.
- ROGER LEE JAY, Mathematics, 1964.  
B.A., Texas Technological College, 1962.
- BETTY JANE JOHNSON, Business Education and Secretarial Administration, 1966.<sup>2</sup>  
B.B.A., Texas Technological College, 1966.
- KENNETH WALTER JOHNSON, Biology, 1965.  
B.S., Lamar State College of Technology, 1960.
- MARY HELEN GRISTY JOHNSON, English, 1965.  
B.A., Texas Technological College, 1964.
- GLENN EARL JOHNSTON, Mathematics, 1965.  
B.S., North Texas State University, 1955; M.S., Texas Technological College, 1961.
- MARTHA NELLE BOUKNIGHT JOHNSTON, History, 1965.  
A.B., Coker College, 1959; M.A., Florida State University, 1961.
- MARY LYNNETTE TUCKER JOPLIN, Music, 1965.  
B.M., Southern Methodist University, 1960.
- EDGAR WINTERS JORDAN, Economics, 1964.  
B.B.A., Texas Technological College, 1965.
- FRANK MARVIN JUDAH, English, 1965.<sup>3</sup>  
B.A., Texas Technological College, 1965.
- FRANK WAYNE JUDD, Biology, 1965.  
B.S., Midwestern University, 1965.
- BOBBY NEWTON KAERWER, Health, Physical Education, and Recreation for Men, 1965.  
B.S., Texas Technological College, 1965.
- JACK HENRY KALLISON, Mathematics, 1963.<sup>4</sup>  
B.S., Texas Technological College, 1963.
- RAY FRANKLIN KAYSER, Economics, 1966.<sup>2</sup>  
B.B.A., Baylor University, 1966.
- SAMMY ROGENE KEELEY, Economics, 1965.  
B.A., Baker University, 1964.
- CHARLES WILLIAM KEELE, Psychology, 1965.  
B.S., Northwestern University, 1960; M.S., Trinity University, 1965.
- CAGLE KENNETH KENDRICK, Mathematics, 1965.<sup>1</sup>  
B.S., Texas Technological College, 1963; M.S., 1965.
- MICHAEL NEIL KENNEDY, Mechanical Engineering, 1965.  
B.S. in M.E., Texas Technological College, 1964.
- ANNA SUE KER, English, 1964.  
B.A., West Texas State University, 1934; M.A., Texas Technological College, 1956.
- JUDITH COWGER KEY, Clothing and Textiles, 1963.<sup>1</sup>  
B.S., Texas Technological College, 1963.
- NANCY ESTELLA KEYTON, Mathematics, 1965.<sup>1</sup>  
B.A., Texas Technological College, 1965.
- WILBUR NEWTON KILLEBREW, JR., Chemical Engineering, 1964.  
B.S. in Ch.E., Texas Technological College, 1961.
- GERALDINE THORUP KLINE, History, 1965.  
B.A., University of Utah, 1963; M.A., 1965.
- ERNEST RICHARD KNEZEK, JR., Mathematics, 1965.  
B.S., Texas Technological College, 1964.
- CLYDE COLLOM KOEHNE, History, 1965.  
B.S., North Texas State University, 1955; M.A., 1960.

<sup>1</sup> 1965 Fall Semester.

<sup>2</sup> 1966 Spring Semester.

<sup>3</sup> Resigned January 31, 1966.

<sup>4</sup> Resigned December 31, 1965.

- JEFFREY RAY KUNKEL, Physics, 1965.  
B.S., Arlington State College, 1965.
- HORACE GRADY LACKEY, JR., English, 1963.  
B.A., Hardin-Simmons University, 1948.
- DARRELL BOYD LANCASTER, JR., Electrical Engineering, 1965.  
B.S. in E.E., Texas Technological College, 1965.
- JIMMY NELSON LANE, Accounting, 1966.<sup>1</sup>  
B.B.A., Texas Technological College, 1965.
- FRANK CHARLES LASATER, Foreign Languages, 1965.  
A.B., Oklahoma Baptist University, 1961.
- MICHAEL ANGELO LATINO, Chemistry, 1966.<sup>1</sup>  
B.A., University of St. Thomas, 1965.
- LESLIE EDWIN LAWRENCE, Applied Arts, 1966.  
B.A., Southwestern State College, 1963.
- WILBURN LYNN LAWS, Biology, 1965.<sup>2</sup>  
B.A., Texas Technological College, 1964.
- NELSON JOSEPH LeTOURNEAU, Geosciences, 1966.<sup>1</sup>  
B.A., University of Vermont and State Agricultural College, 1959.
- JOHNNY LYNN LITTLE, Mathematics, 1965.<sup>2</sup>  
B.S., Texas Technological College, 1964.
- DONALD HUTSON LITTLEFIELD, Health, Physical Education, and Recreation for Men, 1966.<sup>1</sup>  
B.S., Texas Technological College, 1965.
- OLIVE YI LIU, Physics, 1963.  
B.S., Taiwan Christian College, 1959.
- LYONS HERFF LOCKHART, JR., Mathematics, 1964.  
B.S., Texas Technological College, 1961; M.S., 1965.
- MARVIN GLENN LOONEY, Government, 1965.  
B.A., Texas Technological College, 1965.
- MICHAEL MARTIN LUDEMAN, Mathematics, 1966.<sup>1</sup>  
B.S., Texas Technological College, 1965.
- MARTHA SUE HOLLAR LUSK, Mathematics, 1965.  
B.A., Texas Technological College, 1965.
- BARBARA FURBER LYNCH, English, 1965.  
B.A., University of Texas, 1963.
- HAMOUDA MOHAMED MAOUI, Foreign Languages, 1964.  
B.S., Texas Technological College, 1964.
- FREDERICK JOE MARCH, Speech, 1966.<sup>1</sup>  
B.A., Texas Technological College, 1966.
- GARY SCOTT MATHEWS, English, 1965.  
B.A., Parsons College, 1965.
- WALTER HERMAN MAYS, Government, 1965.  
B.A., Texas College of Arts and Industries, 1964; M.A., 1965.
- JIMMIE DARROLL McCARTY, Chemistry, 1964.<sup>3</sup>  
B.A., North Texas State University, 1963.
- KATHERINE HELEN McCARTY, Clothing and Textiles, 1965.  
B.S., Southwest Texas State College, 1964.
- DOROTHY ANN McCOY, Business Education and Secretarial Administration, 1966.<sup>1</sup>  
B.B.A., Texas Technological College, 1966.
- CHARLOTTE ELISE VITZ McCRAW, English, 1965.<sup>3</sup>  
B.A., Wichita State University, 1963.
- WILLIAM HENRY McCULLOCH, JR., Mechanical Engineering, 1965.  
B.S., Texas Technological College, 1963; M.S. in M.E., 1964.
- CHARLES DAVID McCULLOGH, Marketing, 1965.  
B.B.A., Texas Technological College, 1964.
- CARROLL VANCE McDONALD, Finance, 1965.  
B.S.B.A., University of Denver, 1964.
- GEORGE BOWDEN McELROY III, Mathematics, 1965.<sup>3</sup>  
B.S., Texas Technological College, 1960.
- MARY JUDE McEWEN, English, 1965.  
B.A., Blackburn College, 1965.
- CARROL RAY McGINNIS, Finance, 1965.  
B.B.A., Texas Technological College, 1965.
- CHARLES ORAN McKINNEY, Biology, 1964.  
B.A., University of Texas, 1964.
- WILLIAM COY McMAHAN, Electrical Engineering, 1964.<sup>2</sup>  
B.S. in E.E., Texas Technological College, 1964.
- CARL AARON McNEECE, Government, 1965.  
B.A., Texas Technological College, 1964.

<sup>1</sup> 1966 Spring Semester.<sup>2</sup> 1965 Fall Semester.<sup>3</sup> Resigned January 31, 1966.

## 454 *Teaching Assistants*

- ROBERT CLAY McREYNOLDS, Biology, 1964.  
B.S., Lamar State College of Technology, 1964.
- FRANK WITCHER MEDLEY, JR., Foreign Languages, 1965.  
B.A., Texas Technological College, 1965.
- JOE AMOS MELCHER, Speech, 1965.<sup>1</sup>  
B.A., Texas Technological College, 1965.
- ROBERT WAYNE MEYER, Accounting, 1965.  
B.B.A., Texas College of Arts and Industries, 1962.
- GLENDA MILLER, Music, 1964.  
B.M. in Ed., Texas Technological College, 1963.
- BRADLEY MILLS, JR., Health, Physical Education, and Recreation for Men, 1965.<sup>2</sup>  
B.S., University of Kentucky, 1956.
- FRONE LOUISE LEHMANN MINTZ, Applied Arts, 1966.<sup>3</sup>  
B.A., University of Oklahoma, 1966.
- JEAN LOUIS MIRON, Mechanical Engineering, 1964.<sup>3</sup>  
Baccalourat MT, Lycee Technique d'Etat (Paris, France), 1960.
- ROY LEE MOELLER, Chemistry, 1966.<sup>3</sup>  
B.S., Texas Technological College, 1966.
- KENNETH ROGER MOORE, Management, 1966.<sup>3</sup>  
B.B.A., Texas Technological College, 1966.
- NAOMI COX MOORE, Speech, 1964.<sup>1</sup>  
B.A., Texas Technological College, 1960.
- MICHAEL MOOREHEAD, English, 1965.  
B.A., Texas Technological College, 1965.
- BULA JEAN MOUDY, Home and Family Life, 1961, 1965.  
B.A., Harding College, 1949.
- GEORGE RAY MUSGRAVE, Education, 1965.  
B.S., Texas Christian University, 1950; M.Ed., Texas Technological College, 1962.
- MOHAMMED MUSHTAQ, Industrial Engineering and Engineering Drawing, 1964.  
B.Sc., Government College of Engineering and Technology (Lahore, West Pakistan), 1957; M.S. in M.E., Purdue University, 1964.
- KATHRYN RUANNE MUSSER, Applied Arts, 1966.<sup>3</sup>  
B.S., Texas Technological College, 1965.
- CALVIN PETER MYERS, Physics, 1965.  
B.S., Ottawa University, 1965.
- EDWIN MICHAEL MYRICK, English, 1965.  
B.A., Wayland Baptist College, 1963.
- HORACE SUMMERHILL MYRICK, Biology, 1965.  
B.A., Texas Technological College, 1965.
- BOBBY WAYNE NELMS, Speech, 1965.  
B.A., Texas Technological College, 1965.
- JOHN CHARLES NEWSOME, Government, 1965.  
B.A., Texas Technological College, 1965.
- RILLA ANN KOLLENBERG NEYLAND, Speech, 1965.<sup>1</sup>  
B.A., Texas Technological College, 1965.
- GARY MICHAEL NIEMCZYK, English, 1963.  
B.A., East Central State College, 1963.
- DAVID ERNEST NORMAN, Geosciences, 1966.<sup>3</sup>  
B.A., Texas Christian University, 1966.
- JOSEPH CLAYBORNE NUNNALLY, English, 1964.  
B.A., Texas Technological College, 1964; M.A., 1965.
- KENNETH LEE OWENS, Psychology, 1965.  
B.A., Texas Western College, 1964.
- HORACE NEAL PARKER, Mathematics, 1965.  
B.A., Rice University, 1964.
- ROBERT BITTS PALMER, Physics, 1965.  
B.S., Texas Technological College, 1962; M.S., 1965.
- MICHAEL EUGENE PARTEN, Electrical Engineering, 1964, 1965.  
B.S. in E.E., Texas Technological College, 1964.
- RAMONA McBRYDE PEEBLES, Speech, 1965.  
B.S., Southwest Texas State College, 1952.
- CLARENCE PERCY III, Marketing, 1966.<sup>3</sup>  
B.S., Texas Technological College, 1965.
- JERRY DONALD PERKINS, Government, 1965.  
B.A., Texas Technological College, 1964.
- ELIZABETH KAY PERRYMAN, Biology, 1965.  
B.S., Memphis State University, 1964.
- MICHAEL PETERS, English, 1965.  
B.A., Texas Technological College, 1965.

<sup>1</sup> 1965 Fall Semester.

<sup>2</sup> Resigned as Teaching Assistant December 31, 1965.

<sup>3</sup> 1966 Spring Semester.

- ROY EUGENE PETERSON, Government, 1965.  
B.A., Hardin-Simmons University, 1965.
- JACQUES EMILE PIRSON, Chemistry, 1965.  
B.S., University of Texas, 1963.
- DONALD ALLAN PITTARD, Biology, 1965.  
B.S. in Ed., Abilene Christian College, 1964.
- EDWARD ELLIS PLAXCO III, Civil Engineering, 1965.  
B.S., Texas Technological College, 1965.
- JAMES LOUIS POIROT, Mathematics, 1965.  
B.S., Texas Technological College, 1965.
- GARY EUGENE POPP, Management, 1965.  
B.B.A., Baylor University, 1963.
- MICHAEL DAVID PORE, Mathematics, 1965.  
B.A., University of Texas, 1965.
- KAREN SUE PROFLET, Biology, 1966.<sup>1</sup>  
B.A., Southern Illinois University, 1964.
- THEODORE JAMES PROSKE, Biology, 1966.<sup>1</sup>  
B.S., Pan American College, 1966.
- JOHN FRANKLIN PRUITT, Industrial Engineering and Engineering Drawing, 1965.  
B.A., Texas Technological College, 1965; B.S., 1965.
- JERRY LEE PURSWELL, Industrial Engineering and Engineering Drawing, 1965.  
B.S., Lamar State College of Technology, 1959; M.S., University of Alabama, 1961.
- MICHAEL ROSS RAGSDALE, Government, 1965.  
B.A., Texas Technological College, 1965.
- ELIZABETH ACOSTA RAMOS, Foreign Languages, 1965.  
B.A., Wayland Baptist College, 1965.
- JERRY DWAIN RAMSEY, Industrial Engineering and Engineering Drawing, 1965.  
B.S., Texas A & M University, 1955; M.S., 1960.
- JILL KAY READ, English, 1964.  
B.A., Texas Technological College, 1964.
- MARYANNE REID, Education, 1965.  
B.S., Northwestern University, 1952; M.A., University of California (Los Angeles), 1955.
- DOYLE DANIEL REXRODE, Mathematics, 1965.<sup>2</sup>  
B.A., Texas Technological College, 1962.
- VIRGINIA CASTERTON RIGGS, Biology, 1953, 1964.  
B.S., Mount Union College, 1950; M.S., Texas Technological College, 1956.
- VICKI REID RITER, Business Education and Secretarial Administration, 1965.<sup>3</sup>  
B.S.C., University of Mississippi, 1964.
- ETHRICH HOUSTON ROGERS, JR., English, 1966.<sup>1</sup>  
B.A., Texas Technological College, 1966.
- JERRY LEON ROGERS, History, 1965.  
B.A., Texas Technological College, 1962; M.A., 1965.
- VICTOR JULIO ROJAS, Foreign Languages, 1965.  
B.A., University of New Mexico, 1965.
- WALTER SCOTT RUTLEDGE, Mathematics, 1965.  
B.S., Texas Technological College, 1965.
- JACK COTTER SCANNELL, History, 1965.  
B.A., Sul Ross State College, 1950; M.A., 1961.
- LAWRENCE GEORGE SCHMIDT, Electrical Engineering, 1966.<sup>1</sup>  
B.S., Texas Technological College, 1963.
- STEVEN BERT SCHNEE, Psychology, 1965.  
B.A., Rutgers University, 1960.
- ALTA ADA CATES SCHONER, English, 1964.  
B.A., Texas Technological College, 1964.
- CARL GEORGE SCHRADER, JR., English, 1965.  
B.A., Baylor University, 1951; B.D., Southwestern Baptist Theological Seminary, 1955; M.A., Texas Christian University, 1961.
- ELOISE KADELL SCHREINER, English, 1965.  
B.A., Texas Technological College, 1965.
- GEORGE ALMANZO SCHULTZ, Industrial Engineering and Engineering Drawing, 1964.  
B.S., Texas Technological College, 1962.
- LOREN CHARLES SCOTT, Economics, 1965.  
B.S., Texas Technological College, 1965.
- SAIYID MASROOR SHAH, Physics, 1965.  
B.S., Dyal Singh College, Punjab University (Pakistan), 1956; M.S., University of Karachi (Pakistan), 1958.

<sup>1</sup> 1966 Spring Semester.<sup>2</sup> 1965 Fall Semester.<sup>3</sup> Resigned January 31, 1966.



## 456 *Teaching Assistants*

- NAT FORREST SHAIFER, Economics, 1966.<sup>1</sup>  
B.S., Texas Technological College, 1963.
- JOAN SHAVER, English, 1965.  
B.A., McMurry College, 1965.
- LINDA LOU SHELLY, Sociology, 1966.<sup>1</sup>  
B.A., Colorado State College, 1962.
- WALTER LUMLEY SHELLY, Government, 1965.  
B.A., Westminster College (Utah), 1961; M.A., University of Colorado, 1963.
- FRANK RANKIN SIMPSON, History, 1964.  
B.S. in Ed., Texas Technological College, 1961.
- STEPHEN MICHAEL SISK, Mathematics, 1962.  
B.S., Texas Technological College, 1962.
- JAMES MARION SKAGGS, History, 1965.  
B.S., Sul Ross State College, 1962; M.A., Texas Technological College, 1965.
- DOUGLAS S. SKEEN, History, 1966.  
B.A., Wayland Baptist College, 1954; M.A., Southwest Texas State College, 1963.
- CHRISTA ELIZABETH SMITH, English, 1965.  
B.A., Wayland Baptist College, 1963.
- DON L. SMITH, Government, 1965.  
B.A., Hardin-Simmons University, 1962; M.A., Mississippi State University, 1964.
- DOROTHY CLARE RUGGLES SMITH, English, 1963.  
B.A., University of Texas, 1947; M.A., Columbia University, 1951.
- DORRIS JEANNE SMITH, Speech, 1965.  
B.A., Southern Methodist University, 1955.
- GEORGE ERROL SMITH, English, 1963.  
B.A., North Texas State University, 1963.
- JERRY VERNIE SMITH, Accounting, 1965.  
B.B.A., Texas Technological College, 1965.
- SANDRA JEAN BRADSHAW SMITH, English, 1965.  
B.A., Texas Technological College, 1965.
- THOMAS MARTIN SOUTHERN, Chemistry, 1965.  
B.S., Lamar State College of Technology, 1964.
- JOHN BARNEY SPALDING, JR., Marketing, 1964.  
B.B.A., Fort Lewis College, 1965.
- GEORGE EDWARD STANLEY, English, 1965.  
B.A., Texas Technological College, 1965.
- RICHARD COSTON STAPLETON, Management, 1965.  
B.S., Texas Technological College, 1962.
- BOBBY JOE STARK, Management, 1965.  
B.B.A., Texas Technological College, 1965.
- CAROLYN JEAN GISH STARK, English, 1965.  
B.A., Texas Technological College, 1965.
- DAVID WAYNE STEPHENS, Civil Engineering, 1965.<sup>2</sup>  
B.S. in C.E., Texas Technological College, 1965.
- WILLIAM ALVA STEPHENSON, JR., English, 1965.  
B.A., Pan American College, 1963; M.A., Texas Technological College, 1965.
- ROBERT ELDON STOVENOUR, History, 1965.  
B.A., Austin College, 1963; M.A., Southern Methodist University, 1965.
- ROBERT JOHN STROMBERG, Mechanical Engineering, 1965.<sup>3</sup>  
B.S. in E.E., Texas Technological College, 1964.
- HORTON STRUVE, Physics, 1964.  
B.S., Texas Technological College, 1964.
- GEORGE DAVID STURTZ, Agronomy and Range Management, 1965.  
B.S., Texas Technological College, 1965.
- JAMES DeSHAE SUGGS, Geosciences, 1964.  
B.S., Texas Technological College, 1963.
- BETTY JANE FRENCH TAAFFEE, English, 1965.  
B.A., Texas Technological College, 1965.
- THOMAS JAMES TAAFFEE, Physics, 1964.  
B.S., Arlington State College, 1962; M.S., North Texas State University, 1965.
- KEN-ICHI TAKEMURA, Psychology, 1965.  
B.Ed., Tokyo University of Education (Japan), 1959; M.A., 1961.
- MILTON LUMPKIN TALBERT, JR., Finance, 1965.  
B.B.A., Texas Technological College, 1965.
- RONALD LEE TATHAM, Marketing, 1965.  
B.B.A., University of Texas, 1964.
- RONALD HUGH TATUM, Mathematics, 1965.<sup>3</sup>  
B.S., University of Chicago, 1964.

<sup>1</sup> 1966 Spring Semester.

<sup>2</sup> Resigned January 31, 1966.

<sup>3</sup> Fall Semester.

- DONALD RICHARD THEALL, English, 1965.  
B.A., University of Southwestern Louisiana, 1962; M.A., Texas Technological College, 1965.
- DANNY RAY THOMPSON, Chemistry, 1965.<sup>1</sup>  
B.S., Texas Technological College, 1964.
- FRANCIS HAMILTON THOMPSON, History, 1965.  
B.S., North Texas State University, 1952; M.Ed., 1956.
- JOHN MILES THOMPSON, Economics, 1965.  
B.B.A., McMurry College, 1965.
- RONALD JOE THOMSON, English, 1965.  
B.A., Texas Technological College, 1965.
- BARBARA WALKER COMER THORNHILL, English, 1965.  
B.A., University of Kentucky, 1956; M.A., 1965.
- JOE BARHAM THRASH, JR., Mathematics, 1965.  
B.S., Lamar State College of Technology, 1963; M.S., 1964.
- LOIS RUTH GLENN THRASH, English, 1965.  
B.A., Lamar State College of Technology, 1962.
- MYRA BOUNDS TIMMONS, Clothing and Textiles, 1962, 1965.  
B.S., Texas Technological College, 1950.
- MANUEL ATENDIDO TIPGOS, Accounting, 1964.<sup>1</sup>  
B.S.C., Far Eastern University (Philippines), 1961; C.P.A.
- BETTY JO WHITE TREADWAY, English, 1965.  
B.S., Texas Technological College, 1963.
- ZITA EILEEN TYER, Psychology, 1964.  
B.A., Texas Christian University, 1959.
- ALLENE GAY MORRIS VADEN, Food and Nutrition, 1964, 1966.<sup>2</sup>  
B.S., University of Texas, 1960.
- SIDNEY WILBERT VanLOH, Industrial Engineering and Engineering Drawing, 1965.  
B.S. in I.E., Texas Technological College, 1965.
- PATRICIA IRENE VARDAMAN, English, 1964.  
B.A., Harding College, 1962; M.A.T., 1963.
- NANCY TELFAIR VARNELL, English, 1965.  
B.A., Texas Technological College, 1965.
- JAMES DONALD VAUGHAN, Economics, 1965.  
B.S., West Texas State University, 1965.
- REESA MAE VAUGHTER, Psychology, 1964.<sup>3</sup>  
B.A., Texas Technological College, 1963; M.A., University of Texas, 1964.
- BOB LAWRENCE VICTOR, Chemistry, 1965.  
B.S., Roosevelt University, 1961.
- BENJAMIN THOMAS WAAK, Physics, 1963.  
B.S., Southern Methodist University, 1963.
- BETTY MALONE WAGNER, Home and Family Life, 1966.<sup>2</sup>  
B.S., Texas Technological College, 1950.
- GARY LEE WALKER, Physics, 1965.  
B.S., Northeast Louisiana State College, 1965.
- HOLLAND DEMPSEY WATKINS, History, 1964.  
B.S., Austin College, 1953; M.S., North Texas State University, 1954.
- THOMAS MICHAEL WEDDIG, Psychology, 1964.  
B.S., University of Wisconsin, 1962.
- HERBERT EUGENE WELCH, Physics, 1965.  
B.S., Texas Technological College, 1965.
- CARLTON TYRUS WENDEL, Chemistry, 1965.  
B.S., Texas Lutheran College, 1962; M.S., Texas Technological College, 1965.
- DONALD WAYNE WHISENHUNT, History, 1963.  
B.A., McMurry College, 1960; M.A., Texas Technological College, 1962.
- KENNETH RAY WHITE, Civil Engineering, 1966.<sup>2</sup>  
B.S., Texas Technological College, 1964.
- MARY CHARLES MILAM WHITESIDE, Mathematics, 1965.  
B.A., University of Texas, 1965.
- GAY NELLE HAUGHT WIGHT, Foreign Languages, 1965.  
B.A., Texas Technological College, 1965.
- CLIFFORD RALPH WILLIAMS, JR., Geosciences, 1965.  
B.S., Texas Technological College, 1965.
- HELEN JEAN WILLIAMS, Mathematics, 1965.  
B.A., University of Akron, 1961.
- JOHN GARLAND WILLIAMS, Management, 1965.  
B.B.A., Texas Technological College, 1965.
- JOHN RONALD WILLIAMS, Chemistry, 1964.<sup>1</sup>  
B.S., Texas Technological College, 1964.

<sup>1</sup> 1965 Fall Semester.<sup>2</sup> 1966 Spring Semester.<sup>3</sup> Resigned January 31, 1966.

- KARL WENDEL WILLIAMS, Geosciences, 1966.<sup>1</sup>  
B.S., Texas Christian University, 1965.
- NORMAN RAY WILLIAMS, Biology, 1966.<sup>1</sup>  
B.S., Texas Technological College, 1966.
- THOMAS VERNON WILLIAMS, Mechanical Engineering, 1964.<sup>2</sup>  
B.S. in M.E., Texas Technological College, 1964.
- WILLIAM GEORGE WILLIAMS, Speech, 1966.<sup>1</sup>  
B.A., Texas Technological College, 1966.
- FRANK AYERS WILLIAMSON, Civil Engineering, 1965.  
B.S., Texas Technological College, 1965.
- DANIEL ROBERT WOMOCHEL, Biology, 1964.  
B.S., Michigan State University, 1962.
- JOHN HUGH WOODLOCK, Chemistry, 1965.  
B.S., Trinity University, 1961.
- PAUL THOMAS WURSTER, Accounting, 1966.<sup>1</sup>  
B.B.A., Texas Technological College, 1965.
- DAVID REAGAN YARBROUGH, Biology, 1965.  
B.S., Abilene Christian College, 1965.
- JAMES TRAVIS YATES, Speech, 1965.<sup>3</sup>  
B.A., Texas Technological College, 1965; B.A., 1965.

## Intercollegiate Athletics

- POLK FANCHER ROBISON, Associate Professor of Health, Physical Education, and Recreation for Men, and Director and Business Manager of Athletics, 1942, 1961.  
B.A., Texas Technological College, 1934.
- J. T. KING, Head Football Coach, 1958, 1961.  
B.S., University of Texas, 1938.
- EUGENE F. GIBSON, Head Basketball Coach, 1954, 1961.  
B.S., Texas Technological College, 1950.
- BURL ALVA BARTLETT, Assistant Football Coach, 1965.  
B.S., East Central State College, 1949.
- JOSEPH SIMPSON BLAYLOCK, Assistant Football Coach, 1962.<sup>4</sup>  
B.S., University of Southern Mississippi, 1950.
- HARRY WEBSTER BUFFINGTON, Assistant Football Coach, 1963.<sup>5</sup>  
B.A., Oklahoma State University, 1942; M.A., 1948.
- JOHN FRANCIS CONLEY, JR., Assistant Football Coach, 1961.  
B.S., Kansas State University of Agriculture and Applied Science, 1949; M.S., 1953.
- JAMES VERNON HILLIARD, Head Track Coach, 1964.  
B.B.A., Baylor University, 1933; M.Ed., Hardin-Simmons University, 1962.
- WILLIAM WALKER HOLMES, JR., Sports News Director, 1951.  
B.A., Texas College of Arts and Industries, 1944; M.A., University of Colorado, 1949.
- GEORGE BERL HUFFMAN, Freshman Football Coach and Varsity Baseball Coach, 1935, 1961.  
B.A., Trinity University, 1928.
- MATT RICHARD LAIR, JR., Assistant Football Coach, 1961, 1964.  
B.S., University of Kentucky, 1948; M.S., 1953.
- CHARLES DEWAIN LYNCH, Assistant Basketball Coach, 1961.  
B.B.A., Texas Technological College, 1959.
- DANNY RAYMOND MASON, Instructor in Health, Physical Education, and Recreation for Men and Golf Coach, 1964.  
B.S., Lamar State College of Technology, 1961; M.Ed., Texas A & M University, 1962.
- JAMES FABER McNALLY, Assistant Professor of Health, Physical Education, and Recreation for Men and Swimming Coach, 1952, 1964.  
B.S., University of Oklahoma, 1952; M.Ed., Texas Technological College, 1957.
- BRADLEY MILLS, JR., Assistant Football Coach, 1965, 1966.<sup>6</sup>  
B.S., University of Kentucky, 1956.

<sup>1</sup> 1966 Spring Semester.

<sup>2</sup> 1965 Fall Semester.

<sup>3</sup> Resigned January 31, 1966.

<sup>4</sup> Resigned January 14, 1966.

<sup>5</sup> Appointed January 17, 1966.

<sup>6</sup> Teaching Assistant in Health, Physical Education, and Recreation for Men and Assistant in Football, 1965.

- GEORGE REX PHILBRICK, Professor of Health, Physical Education, and Recreation for Men and Tennis Coach, 1947, 1961.  
B.S., Texas Technological College, 1939; M.Ed., University of Texas, 1950.
- CLYDE LEE PRESTWOOD, Athletic Counselor, 1961.  
B.S., University of Texas, 1940; M.Ed., Texas A & M University, 1950.
- KAL HILL SEGRIST, JR., Instructor in Health, Physical Education, and Recreation for Men and Assistant Baseball Coach, 1964, 1965.  
B.S., North Texas State University, 1962; M.Ed., Texas Technological College, 1965.
- WILLIAM EARL SHAHA, Assistant in Football, 1965.  
B.B.A., Texas Technological College, 1965.
- DON LEWIS SPARKS, Part-time Instructor in Health, Physical Education, and Recreation for Men and Athletic Department Trainer, 1958.  
B.S., Texas Wesleyan College, 1950.
- WILLIAM ANSON WORLEY, Assistant in Football, 1965.
- JAMES WRIGHT, JR., Assistant Football Coach, 1961.  
B.B.A., Texas A & M University, 1958.
- MILDRED JEAN WRIGHT, Ticket Manager, 1954, 1961.

## Textile Research Laboratories

- JOHN ROSS BRADFORD, Director, 1943, 1955.  
B.S. in Ch.E., Texas Technological College, 1942; M.S. in Ch.E., 1948; Ph.D., Case Institute of Technology, 1953.
- BILLY BYRD CRUMLEY, Associate Director, 1959, 1960.  
B.B.A., University of Texas, 1952; M.B.A., 1955.
- HARRY EDWARD ARTHUR, Assistant Associate Director, 1946, 1965.  
B.S. in T.E., Texas Technological College, 1949.
- ROY CORTEZ WHITT, Textile Technologist, 1958.
- REVA E. WHITT, Fiber Technologist, 1960.

## Student Health Service

- FREDERICK PAUL KALLINA, Director of Student Health Service and Physician, 1948, 1959.  
B.S., Texas A & M University, 1942; M.D., Baylor University School of Medicine, 1945.
- ORRA ROBERT HAND, M.D., Physician, 1965.  
B.S., University of Wisconsin, 1928; M.D., Washington University, 1930.
- CURTIS HAROLD LYMAN, M.D., Physician, 1965.<sup>1</sup>  
B.A., Texas Western College, 1956; M.D., University of Texas, 1960.
- IRIS JANE NORMAN, R.N., Superintendent of Nurses, 1951.  
Lubbock School of Nursing, 1937.
- HATTIE M. CHILDRESS, R.N., Supervising Nurse, 1953, 1965.  
Schumpert Memorial Hospital, 1935.
- EDITH A. KUHNLEY, R.N., Supervising Nurse, 1959, 1965.  
Northwest Texas Hospital, 1947.
- BERTHA NELL ADAIR, R.N., Nurse, 1960.  
Seton Infirmary, 1921.
- EDITH MARGARET CRUCE, R.N., Nurse, 1964.  
West Texas Hospital School of Nursing, 1944.
- ELLA A. EWING, R.N., Nurse, 1964.  
Scott and White Nurses Training School, 1930.
- BARBARA RUTH GRAY, R.N., Nurse, 1962.  
Mercy Hospital School of Nursing, 1943.
- BARBARA G. McCALL, R.N., Nurse, 1964.  
St. Mary's School of Nursing, 1959.
- ELIZABETH ANN TERRELL, R.N., Nurse, 1965.  
Shannon School of Nursing, 1965.
- NELL HEFNER, Medical Technologist, 1952.  
Sealy Hospital, 1935.

<sup>1</sup> Appointed October 9, 1965.

## Museum

- FRANCIS EARL GREEN, Director, 1952, 1965.  
B.S., Texas Technological College, 1950; M.S., 1951; Ph.D., 1954.  
LOU CARTER KEAY, Museum Field Representative, 1965.  
DOROTHY JANE RYLANDER, Administrative Assistant, 1953, 1958.  
B.A., Texas Technological College, 1930; M.A., 1931.  
MARGARET SPOON SANDY, Museum Services Coordinator, 1960.  
B.A., University of Wisconsin, 1927; M.A., University of Illinois, 1934.

## Public Information

- RONALD LEE HAMM, Director, 1965.  
B.A., Florida State University, 1959.  
RALPH WELDON CARPENTER, Assistant Director, 1965.

## Southwest Collection

- ROY SYLVAN DUNN, Director, 1956, 1963.  
B.A., University of Texas, 1948; M.A., 1951.  
DAVID BERGEN GRACY II, Archivist, 1966.  
B.A., University of Texas, 1963.  
DORIS ARIANE BLAISDELL, Associate Archivist, 1960, 1963.  
B.A., American University, 1944; M.A., University of Wisconsin, 1948; Ph.D., 1953.

## Staff in Special Departments

- ANN HOLCOMB AINSWORTH, Secretary, Office of the President, 1962.  
DALLAS GUYRON BIGGERS, Assistant Director, Student Union, 1962.  
B.S., University of Southern Mississippi, 1956; M.S., 1959.  
RONALD EDWARD BURRUS, Night Manager, Student Union, 1962.  
B.B.A., Texas Technological College, 1958.  
WILLIAM CONNER COLE, General Manager of the Texas Tech College Bookstore, 1927.  
B.B.A., University of Texas, 1924.  
GEORGINA CONNER, Administrative Assistant to the Dean of Engineering, 1932.  
B.A., University of New Mexico, 1929.  
BOBBY GENE CUDE, Farm and Livestock Superintendent, 1963, 1965.  
B.S., Texas Technological College, 1963.  
BENGE ROBERT DANIEL, Manager of the Texas Tech Press, 1951.  
B.S., North Texas State University, 1936; M.S., 1940.  
BILLIE GENE DANIELS, Chief Security Officer, 1959.  
OLAN RAY DOWNING, Director of Building Maintenance and Utilities, 1936, 1961.  
KATHRYN STALLINGS DURHAM, Administrative Assistant to the Dean of Arts and Sciences, 1942, 1957.  
B.A., Texas Technological College, 1934.  
BILLY WELDON FELTY, Assistant Supervising Architect, 1958, 1959.  
B.Arch., Texas Technological College, 1952.  
ELLIS RAY FORMAN, Assistant Manager of the Texas Tech College Bookstore, 1934, 1939.  
B.A., Texas Technological College, 1932.  
ANNA BURT GIBSON, Administrative Assistant to the Vice President for Business Affairs, 1933, 1958.  
RUSSELL BRIGGS IRVIN, Consultant, 1951, 1953.  
B.A., Hardin-Simmons University, 1929; M.A., University of Texas, 1933; LL.B., 1938.  
PATRICIA ANN KINDRED, Administrative Assistant to the Dean of Business Administration, 1964.  
B.A., University of Oregon, 1948.  
LILLIAN JOSEPHINE KIRK KING, Secretary, Office of the President, 1963.  
JAMES WILLIAM KITCHEN, Superintendent, Care and Maintenance of Grounds, 1964.  
B.S., Texas Technological College, 1951; M.S., 1952; Ph.D., Texas A & M University, 1964.  
CHARLES FREDERICK LIBBY, Director of Building Operations, 1949, 1950.  
KATHERINE ARLETTA LOCKHART, Administrative Assistant to the Vice President for Development, 1955, 1965.

- NELSON HENRY LONGLEY, Director, Student Union, 1955, 1958.  
B.A., Southeastern Louisiana College, 1954.
- LUCY PAULA MCKAY, Secretary, Office of the President, 1965.  
B.B.A., North Texas State University, 1962.
- GERTRUDE MORSE, Food Service Manager, Student Union, 1953, 1962.  
B.S., Texas Technological College, 1935.
- CAROLYN EDWARDS MOSS, Secretary, Office of the Dean of Arts and Sciences, 1960, 1963.
- DOROTHY BRACE PIJAN, Program Director, Student Union, 1963, 1964.  
B.M., Texas Technological College, 1960; M.Ed., 1963.
- CARL LESTA DAVIS RAMSEL, Secretary, Office of the Dean of Agriculture, 1965.  
B.A., Texas Wesleyan College, 1942.
- MARY ELIZABETH RANDAL, Administrative Assistant to the Vice President for Academic Affairs, 1928, 1950.
- ALBERT WAYNE SECHRIST, Research Associate, Department of Agricultural Engineering, 1964.  
B.S., Texas Technological College, 1964.
- PETE SELLERS, Supervisor of Computer Operations, 1949, 1963.
- IRENE NEALE TEMPLE, Administrative Assistant to the Dean of the Graduate School, 1953, 1959.
- JAMES MORRIS THOMAS, Director, Data Processing Department, 1963, 1965.
- WANDA ATNIP TOLBERT, Secretary, Office of the Dean of Home Economics, 1962.

## Residence Hall Staff

- GUY JUNIOR MOORE, Director of Residence Halls, 1963.  
B.S., Southern Illinois University, 1957; M.S., 1963.

## Food Service

- SHIRLEY SCHULZ BATES, Director of Food Service, 1948, 1951.  
B.S., Southwest Texas State College, 1940.
- MARGARET RAGSDALE BIRKMAN, Assistant Director of Food Service, 1948, 1956.  
B.S., Texas Technological College, 1940.
- BESS ARNALL BANKS, Administrative Assistant to the Director of Food Service, 1950, 1951.
- BEVERLY GAY CRAWFORD, Dietitian, 1965.  
B.S., Texas Technological College, 1964.
- INA BREWTON DEERE, Experimental Kitchen-Training Supervisor, 1963, 1964.  
B.A., Northwestern State University, 1937.
- MARY ELIZABETH ELLIOTT, Food Service Supervisor, Men's Residence Halls, 1950, 1964.  
B.S., Texas Technological College, 1939; M.S., 1950.
- MYRTLE WARNER FORRESTER, Food Service Manager, 1960, 1965.
- PAULINE DUNCAN GALLOWAY, Assistant Food Service Manager, 1963, 1965.  
B.S., Texas Woman's University, 1938.
- KAY NORMA AREND GRAHAM, Assistant Dietitian, 1965.  
B.S., Texas Technological College, 1965.
- JOE BLANKS HOLMES, Manager, Residence Hall Central Food Facilities, 1964.  
B.S., University of Texas, 1933.
- MYRTLE C. HOUGH, Assistant Food Service Manager, 1964.
- MURTHA JEAN KAERCHER, Assistant Dietitian, 1965.<sup>1</sup>  
B.S., North Dakota State University, 1964.
- LILLIAN JO BLEDSOE LEWIS, Food Service Manager, 1960.  
B.S., Texas Woman's University, 1930.
- LOIS PEARL LEMOND, Assistant Food Service Manager, 1965.
- MARY CAROLYN LIMMER, In-training Dietitian, 1965.<sup>2</sup>  
B.S., Texas Technological College, 1965.
- SHIRLEY LARSEN McDONALD, Dietitian, 1960, 1961.  
B.S., Texas Technological College, 1957.
- LAVERNE CHRON MEACHAM, Food Service Manager, 1958.
- STELLA EDNA PEEKS, Food Service Supervisor, Women's Residence Halls, 1955, 1965.  
B.S., Texas College of Arts and Industries, 1944; M.S., Texas Technological College, 1949.
- CLARA FRANCES PETTIT, Assistant Dietitian, 1965.  
B.S., North Texas State University, 1960.
- FLORENCE STONE PIERCE, Food Service Manager, 1962, 1965.  
B.S., Texas Technological College, 1949.

<sup>1</sup> Resigned November 30, 1965.

<sup>2</sup> Employed December 1, 1965.

- ERIS MANNEY PORTER, Food Service Manager, 1961.  
MILDRED NOVELL RAY, Assistant Food Service Manager, 1965.  
VIRGINIA SIMPSON ROBERSON, Food Service Manager, 1961, 1963.  
HAZEL GLOSSON ROBERTS, Food Service Manager, 1960.  
JANICE RAYE ROBERTS, Assistant Food Service Manager, 1964, 1965.<sup>1</sup>  
B.S., Texas Technological College, 1964.  
MARY LUCILLE ROBERTS, Assistant Food Service Manager, 1963.  
EDNA F. ROBERTSON, Assistant Food Service Manager, 1964.  
DELMA BAINS SCOTT, Dietitian, 1962, 1963.  
B.S., Howard Payne College, 1940.  
BETTY PEARL TAYLOR, In-Training Dietitian, 1965.  
B.S., Baylor University, 1963.  
MYRTIS COLTHARP THOMPSON, Dietitian, 1962.  
B.S., Texas Technological College, 1962.  
CLAIR DEAN RAY WESTBROOK, Food Service Manager, 1959, 1964.

## Room Reservations

- HUBERT LEE BURGESS, Coordinator, Residence Hall Room Reservations, 1934, 1964.  
BILLY DONN HAYNES, Accounting Clerk, Office of Residence Hall Room Reservations, 1960, 1962.  
B.A., Wayland Baptist College, 1960.

## Supervisory Staff

### FOR MEN

- AUBREY ELDON LEWIS, Coordinator, Residence Hall Supervision for Men, 1964, 1965.  
B.S., New Mexico State University, 1960; M.A., 1964.  
JAMES OLIVER BARTHOLOMEW, Supervisor of Carpenter Hall, 1965.  
B.S., United States Air Force Academy, 1959.  
CHARLES LEONARD CUNNINGHAM, Supervisor of Sneed Hall, 1964.  
B.S., Texas Technological College, 1943.  
BILLY JOE DAVIS, Supervisor of Wells Hall, 1965.  
B.S., Texas Technological College, 1960; M.Ed., 1963.  
WILLIAM CRAWFORD LATHAM, Supervisor of Gaston Hall, 1963.  
B.S., University of South Carolina, 1960.  
BOB FARRAR NEEB, Supervisor of Gordon Hall, 1964.  
B.A., University of New Mexico, 1964.  
RICHARD ELLIS VADEN, Supervisor of Men's Hall No. 9, 1963.  
B.B.A., University of Texas, 1960; M.B.A., Texas Technological College, 1965.  
WILLIAM EARL WALKER, Supervisor of Thompson Hall, 1965.  
B.B.A., Texas Technological College, 1965.  
CHARLES HENRY WALLACE, Supervisor of Men's Hall No. 10, 1961.  
B.S., Texas Technological College, 1958.  
LESLIE LEON WEST, Supervisor of Bledsoe Hall, 1965.  
B.S., Texas Technological College, 1951.

### FOR WOMEN

- DOROTHY TAFT GARNER, Coordinator, Residence Hall Supervision for Women, 1956, 1964.  
B.A., University of Oklahoma, 1928; M.A., 1933; M.Ed., 1956.  
MARGARET PATTEN APPELEGATE, Relief Counselor, 1962, 1964.  
LUCILE GRIFFIN BERRY, Counselor, Hulien Hall, 1964, 1965.  
CAROLINE MASON BOSWORTH, Counselor, Doak Hall, 1958.  
B.A., University of Oklahoma, 1932; M.Ed., 1958.  
SARAH EMILY YATES BURDEN, Counselor, Gates Hall, 1958, 1964.  
RITA BURLISON, Counselor, Clement Hall, 1964.  
B.A., Trinity University, 1923; M.Ed., Texas Technological College, 1951.  
JOYCE HANDY HARPER, Relief Counselor, 1965.  
FANNIE CASH LAAS, Counselor, West Hall, 1962.  
B.A., West Texas State University, 1926; M.Ed., Trinity University, 1956.  
ALICE LAWRENCE MAY, Counselor, Weeks Hall, 1954, 1964.  
RUTH LIVERMORE NORTON, Counselor, Wall Hall, 1965.  
B.S., Northwestern University, 1928; M.Ed., Texas Technological College, 1951.  
MATTIE HAWKINS POOL, Relief Counselor, 1963.

<sup>1</sup> Resigned January 16, 1966.

- EMMA MUNCY RECE, Counselor, Drane Hall, 1961.  
Ph.B., University of Chicago, 1922; M.A., 1929.
- GENEVIEVE SIMPSON STINNETT, Counselor, Horn Hall, 1963.  
B.S., West Texas State University, 1952; M.Ed., 1954.
- EVELYN LOVE STOVALL, Counselor, Knapp Hall, 1957.  
B.S., George Peabody College for Teachers, 1926; M.A., 1927.
- RUBY-MAI JACKSON WISE, Relief Counselor, 1965.

## **Counseling Center**

- JAMES EDWARD KUNTZ, Director, 1951, 1959.  
B.S., Fort Hays Kansas State College, 1937; M.S., 1938; Ph.D., Purdue University, 1950.
- MARJORIE FLORY KUNTZ, Psychometrist, 1958.  
B.A., McPherson College, 1938.

## **Ex-Students Association**

- PHILIP WAYNE JAMES, Executive Director, 1957, 1960.  
B.S. in Ed., Texas Technological College, 1957; M.Ed., 1964.

## **Audio-Visual Services**

- GERALD BLANE ROGERS, Executive Director, West Texas Cooperative Audio-Visual Services, 1965.  
B.A., Texas Western College, 1952; M.A., 1955.



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